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6-1-2008

## The Future of Public Employee Retirement Systems

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# The Future of Public Employee Retirement Systems

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# **The Future of Public Employee Retirement Systems**

EDITED BY

Olivia S. Mitchell and Gary Anderson

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UNIVERSITY PRESS

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Great Clarendon Street, Oxford ox2 6DP

Oxford University Press is a department of the University of Oxford.  
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Oxford New York

Auckland Cape Town Dar es Salaam Hong Kong Karachi  
Kuala Lumpur Madrid Melbourne Mexico City Nairobi  
New Delhi Shanghai Taipei Toronto

With offices in

Argentina Austria Brazil Chile Czech Republic France Greece  
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Published in the United States  
by Oxford University Press Inc., New York

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First published 2009

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British Library Cataloguing in Publication Data  
Data available

Library of Congress Cataloging in Publication Data  
Data available

Typeset by SPI Publisher Services, Pondicherry, India  
Printed in Great Britain  
on acid-free paper by  
MPG Books Group, Bodmin and King's Lynn

ISBN 978-0-19-957334-9

1 3 5 7 9 10 8 6 4 2

## Chapter 1

# **The Future of Public Employee Retirement Systems**

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*Olivia S. Mitchell*

Pension systems are a central component of the compensation package for workers in virtually every developed nation, and nowhere is this more important than for public sector employees. In the United States, for instance, state and local pension systems cover over 27 million active and retired workers (GAO 2008) and federal pensions cover 10 million active and retired workers. In other countries, as we detail in the following text, public sector pensions are also taking center stage, wielding impressive financial and political clout, while at the same time portending huge costs.

The growth of these public pension systems has spurred hot debate of late, for several reasons. First, some private-sector employees envy their public sector counterparts due to the relatively generous benefits negotiated by strong unions that traditionally represent civil servants. Second, some politicians argue that pension and healthcare benefits paid to police and firefighters, schoolteachers, and other civil servants, have become too expensive for the public purse. In the private sector benefits costs have been cut by replacing defined benefit (DB) pensions by defined contribution (DC) plans; this has not yet occurred to any large extent in the public arena. And finally, the costs of maintaining public sector pension plans have come under the microscope of late, as municipalities, states, and other governmental units facing difficult financial times and volatile capital markets realize they must cut corners. These stresses are challenging many aspects of the public employee labor contract and raise questions about how such employees are attracted to the public sector, retained and motivated on the job, and retired, via the entire compensation package of wages and benefits.

This volume takes up these and other themes pertinent to the future of public employee retirement systems. In the first section, we build on our prior work (Mitchell and Husted 2000) to focus on financial aspects of these schemes, addressing the cost and valuation debate in the public arena. Next, we offer an examination of public retirement system reform, exploring actual and proposed efforts to bring public pensions into better financial status in countries from the United States to Japan, and Canada to

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Germany. Several chapters provide case studies illustrating specific aspects of risk management and the process of reform. Last, we take up the political economy of how these asset pools are perceived and managed, an increasingly important topic in times of global financial turmoil.

This volume will be of substantial importance to a wide range of readers. Public sector employees and their representatives will find the comparisons and arguments over pension asset and liability valuation of keen interest. Public administrators and policymakers seeking an explanation of what makes these plans so costly will gain a new understanding of how the arguments stack up. In addition, private sector employers and plan sponsors can learn much from efforts to reform these retirement systems in states and countries around the world. Finally, investors and the taxpaying public more generally may be at risk to cover these long-term promises, so it behooves them to pay close attention to the financing and investment practices of these plans, along with their valuation. In what follows we offer an overview and summary of key findings.

### **Costs and benefits of public retirement systems**

Policymakers and scholars have recently become embroiled in a debate over what valuation and accounting methodology should be used for pension plan assets and liabilities. In the case of *corporate* pensions, there is relatively widespread agreement regarding how to do this valuation. In the United States, for instance, the Financial Accounting Standards Board (FASB) requires mark-to-market reporting of corporate pension assets and liabilities, and the UK Financial Reporting Council and the European International Accounting Standards Board (IASB) have similar views. Though the implementation of the approach regarding timing and details may differ slightly across countries, the general movement over the last decade has been to adopt a market-based approach to valuing private sector pension assets and liabilities.<sup>1</sup>

In the case of public employee pensions, however, there is far more controversy about whether an *actuarial* or *market-based* approach should be preferred and by whom (the latter is often termed the Market Valuation for Liabilities or MVL for short). As an example, Andrew Wozniak and Peter Austin (2008: 3) argue that '[g]iven the long-term nature and security of public pensions, plan management is generally focused on long-term cost, not short-term market related solvency. Many practitioners take the view that long-term cost is minimized if investment earnings are maximized thus reducing contributions while covering future benefit payments and plan expense.' A similar view is offered by a former member of the Government Accounting Standards Board (GASB), Girard Miller

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who states (2008: 2): ‘By retaining the traditional practice of using reasonably probable investment returns as the basis for discounting future obligations . . . actuaries and accountants faithfully support the primary purpose of a public pension plan—which is to establish a funding plan that has the best possible chance of equitably balancing the interests of today’s taxpayers and tomorrow’s retirees. Many . . . would agree with me that using risk-free rates of return to value public plans (which enjoy a long-term horizon and capacity to prudently assume equity risks) will almost assuredly overburden today’s taxpayers.

Such an MVL regime would perversely shift the entire normal market risk premium to the benefit of future generations at the expense of their forebears.’ But other experts disagree, including David Wilcox (2008: 1) who notes:

Some have argued that because state and local governments do not exist to generate a profit, or because public plan sponsors cannot go out of business or be acquired by a competitor, market-based estimates are irrelevant for them. Others have argued that policymakers need other information aside from market-based estimates in order to make sound decisions on behalf of their constituents . . . in order to be useful, an estimate of plan liabilities must provide an analytically sound answer to a coherent, well-specified question. Market-based estimates of plan liabilities meet that test.

The first section of this volume provides several perspectives and insights into this vexed question. In his chapter, Stephen McElhaney notes that US public sector entities are permitted wide choice over cost methods and assumptions. This, in effect, allows them not to mark to market either their pension promises or their retiree health benefit obligations. One result is that it is not possible to compare public pension scheme liabilities, assets, and therefore funding rates across the broad array of states, cities, and municipalities with each other, nor with their private sector counterparts. For instance, on average, public pension plans use an 8 percent discount rate, while private sector firms must use lower long-term bond rates to determine the market value of liabilities. Given current practice, the author calculates that promised state and local government pension and health-care liabilities total about \$2.4 trillion, versus dedicated pension assets of less than \$2 trillion. Underfunding would be far greater in public sector plans if discount rates comparable to those used in the private pension arena were adopted.<sup>2</sup>

These and other differences between public and private pension accounting practice are permitted by the Governmental Accounting Standards Board on the argument that private businesses can go bankrupt, whereas governments financed via the involuntary payment of taxes are much less likely to default. Nevertheless, the governmental accounting

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group has announced its intention to review its public pension financing rules in the next several years, to determine whether changes in practice are required. McElhaney does not believe that GASB will, however, move to a fully mark-to-market framework. Instead he suggests that public plans should at a minimum be asked to certify that the assumptions they use in valuating these plans reflect their actuary's best judgment. Currently, the plan actuary must certify that his assumptions are reasonable and in compliance with accepted standards, but he need not confirm that the results are congruent with his best estimate.

Another contrarian view to traditional public sector pension valuation practice is offered by Jeremy Gold and Gordon Latter. In their chapter, these authors contend that actuaries are skilled at developing long-term projections and budgets, but they worry that the projections tend not to be tightly linked to economic realities and market conditions. Their gravest concern arises when pension asset and liability figures differ which produces a misallocation of resources. To illustrate their case, the authors select four defined benefit plans from different regions of the United States and report both actuarial and market value measures of plan liabilities and funding ratios. The chapter shows that the four plans have funding ratios ranging from 66 to 106 percent using the conventional actuarial accrued liability approach. By contrast, using the authors' preferred measure of market value of liabilities, the plans are only 50–80 percent funded. What this means is that the costs of offering a pension promise when interest rates are 4 percent is massively more expensive than when rates are 12 percent.

A defense of the traditional public employee DB plan is central to M. Barton Waring's chapter where he alludes to the mythical Greek sea monsters Scylla and Charybdis, who inspired the expression 'between a rock and a hard place.' He argues that DB plans are important to retain despite the perception that they may be risky and expensive, since in his view, the DC model does not work particularly well either. The author finds that the average balance in a DC plan today is only about \$150,000, so that DC participants cannot expect to live well in retirement with such a small accrual. While DC plans could, in theory, provide as much income security as DB plans, they would need to have much higher mandatory contributions than usually found and annuitization features that are not often automatic. In terms of the mark-to-market debate, he contends that the MVL approach must prevail inasmuch as public and private plans borrow in the same capital markets and face the same interest rates.

In his view, a 'tough love' plan of action is needed to control risk in underfunded plans and change reporting, contribution, and benefit policy. Most crucially, in his view, public plans would do well to simply agree to adopt a regular reduction in the discount rate used until they reach the long-term government bond rate. When it comes to benefits, he suggests

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that labor and management must review existing levels using current market data to fend off possible legislation that might be tougher on the overall package. Waring further argues that the real reason public pension systems adopt a traditional actuarial viewpoint is not that they do not understand the economic discount rate. Rather, he suspects that plan sponsors are 'worried about what the legislature is going to do if they walk in and say the pension liability is 40 percent more than what they said it was.' Since the majority of state pensions make explicit in the state constitutions a commitment to pay public sector employee benefits (GAO 2008), marking the liabilities to market would impose a rude shock to managers seeking to smooth contribution flows.

Pension funding volatility is the subject of Parry Young's chapter, which notes that state and local governments have experienced substantially higher volatility in pension funding ratios, and hence contributions, of late than ever before. In many jurisdictions, he finds that this volatility has been a substantial burden for the planning and budgeting process. Young points out that annual required contributions to public plans can vary due to many factors such as benefit and demographic changes, larger than anticipated investment gains or losses, and changes in the actuarial assumptions. He cites data showing that state and local government employers' plan contributions rose from 10.5 percent of payroll in fiscal 1997, to 6.8 percent in 2002, to 14.7 percent in 2003, and 29.5 percent in 2004. Yet, state revenue patterns are such that money has not always been available to boost government contributions over the last decade. Young also notes that recent declines in capital market values have created serious funding shortfalls for many public pension funds. He argues that rate volatility is the natural result of holding riskier assets, implying that by addressing market values and volatility with wise choice of assets, plan sponsors can immunize themselves substantially against such shocks.

In a chapter devoted to a comparison of the relative costs of hiring public versus private sector employees, Ken McDonnell shows that the average state and local worker costs employers substantially more in wages and benefits than in the private sector. For instance, total compensation costs were 51 percent higher for state and local employers compared to private firms, which results from 43 percent higher wages and salaries, and 73 percent higher employee benefits including pensions. The author outlines possible explanations for these differences and concludes that they are in part due to higher unionization rates raising wages and benefits in the public sector. In addition, there are differences with regard to both occupation and industry mix: for example, public sector workers in the 'service sector' category include skilled and risky jobs such as police and firefighter, whereas private sector service workers tend to be less skilled waiters/waitresses, and work in cleaning and building services functions

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with traditionally lower wages. The compensation differences are even larger for health insurance benefits, where state and local government employer costs are 235 percent higher per hour than for private employees, and 330 percent higher for state and local government employers.

Turning to administrative costs of public sector plans, Edwin Husted reviews a set of DB and DC plans offered in different states in America to explore the range and diversity of pure, hybrid, and individual account schemes. He notes that in the public sector, most US pensions were originally established as DB programs. Hence the systems that today have DC elements have usually added these features alongside a traditional DB plan. In his analysis, he finds that DB annual plan expenses are rather low, totaling only about 0.1 percent of assets. One reason they are so low is that these plans are large and have been in place for decades. By contrast, the public DC plans are typically much newer and hence smaller. Here he finds that annual administrative costs amount to about 0.2 to 0.3 percent of assets. Husted's research also captures costs in the federal government retirement systems, which differ from the states in having a separate administrative organizational structure for DC and DB plans. Here administrative costs are small and similar across plan types. For the Federal DB case, he reports annual costs of 0.3 percent of contributions or 0.02 percent of assets, while DC expenses are 0.4 percent of contributions or 0.04 percent of assets. His overview suggests that large public sector retirement systems which are either exclusively defined benefit or exclusively defined contribution would have similar administrative costs, holding constant plan size.

In the final chapter in this section, Toni Husted takes up the question of how policymakers, participants, and taxpayers might think more clearly about how to report and finance Federal employee pensions. In the United States, there are more than 30 Federal pension plans that cover over 10 million active and retired participants; the two largest of these are for Federal civilian employees, namely the Federal Civil Service Retirement System (CSRS) which covers civilian employees who entered service before 1984, and the Federal Employees Retirement System (FERS) which covers all new hires after 1983 (plus employees who elected to transfer from CSRS to FERS). A third large plan covers military participants and their families, the Department of Defense (DoD) Military Retirement System. The author notes that recent changes in federal government pension accounting now require each employing US Federal agency to budget for the accruing liability of retirement for its current personnel. And the US Congress has set up Federal trust funds which are supposed to receive annual payments sufficient to cover benefits earned that year and amortization amounts to pay off past unfunded liabilities. Nevertheless, as these trust funds are invested in Federal securities, the Treasury is permitted to spend the receipts similar to

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Social Security Trust Fund bonds. Ultimately then, these Federal schemes can be described as at least partially funded, though in fact they still depend on policymakers' willingness to raise money to pay the bills when retirees need to be paid.

### **Implementing public retirement system reform**

Public pension reforms are also underway in other developed nations. Raimond Maurer, Olivia Mitchell, and Ralph Rogalla review civil servant pension systems in Germany, where most state schemes are tax-sponsored, non-contributory unfunded DB plans. State governments finance the programs by raising taxes and sometimes by investing in government bonds that they typically issue themselves. Their chapter goes on to explore an alternative approach using a model that lays out some of the risks and rewards of moving from a pay-as-you-go (PAYGO) system to a partially funded pension plan. The analysis begins with an actuarial valuation of pension promises due to current and retired workers. Next the authors project 50 years out, to estimate the payroll-related contribution rate necessary to fund the pension obligation. Then, using a Monte Carlo framework and a stochastic present value approach, combined with a conditional value at risk measure, the authors can determine what asset allocation minimizes the worst-case pension costs. The authors report that pre-funding the plan at 20 percent of payroll and investing 30 percent of the assets in equities and 70 percent in bonds sharply curtails the worst-case pension costs. Finally, they outline contribution rates and asset allocation when a plan sponsor is required to stick to a set level of risk. They point out that debate on whether to pre-fund public pension obligations will require being explicit about the level of risk that the plan fiduciary is willing to take on. This, in turn, requires a hard look at risk bearing for future and present generations.

In her study on Canadian public plans, Silvana Pozzebon notes that Canadian public employees are relatively free of pension envy. That is, there has been no backlash against public sector employees due to their generous pensions; instead, these plans continue to be seen as a way to attract workers to the fields of education and health care. These plans do, however, face challenges, as provincial governments seek to protect budgets against sharp increases in unfunded pension liabilities and demographic pressure due to workforce aging. The Canadian public sector exploded between the 1960s and 1970s, and now a large group of workers is nearing retirement age. As one example, the Ontario Teachers' Pension Plan began investing in equities in 1990 and has been seen as one of the best-performing retirement programs in Canada. Yet it now faces deficits and they cannot expect the government to pick up the tab.

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How Japan copes with the demographic shift is the subject of much interest due to that nation's status as the most rapidly aging country on earth. Junichi Sakamoto describes the foundation and development of Japan's civil service pension systems, which from 1985 have been gradually merged with systems covering private sector workers. The author traces the development of Japan's pension system back to the new government after Meiji Restoration in the nineteenth century, which initiated Japan's transformation to an industrial economy. The government established a superannuation system for civil servants and members of the armed forces on the theory that they had given their lives to the nation. In the early twentieth century, other public employees began to form mutual aid associations around their workplaces. After World War II, the two types of public pension plans merged, and local government workers gained coverage in 1962. Meanwhile, private sector employees had no pension coverage until 1942 when Japan created the Employees' Pension Insurance (EPI) scheme, modeled after the German pension insurance system. As the nation went through industrial change in the 1960s, the system was stressed. As employees were made redundant by changing technology in some schemes, fewer workers remained to support older beneficiaries. The mutual aid association for Japan Railway employees nearly collapsed and eventually was absorbed by the EPI scheme. Responding to growing imbalances, the government called for consolidation of private and government sector plans in 1985; only in 2007 was a bill introduced calling for all four remaining schemes to merge. One continued sticking point is whether to require the self-employed and farmers to join the scheme.

Just as public pension schemes around the world have experienced change, so too have US public pension plans continued to evolve. Keith Brainard's chapter contends that the prevailing retirement plan model in public sector jobs is still a DB pension, but his further examination shows that many public systems also offer a DC plan alongside the DB plan. His work provides examples from states introducing hybrid plans and other innovations, including Nebraska which in 2003 introduced a cash balance plan for state and county workers. Existing DC participants received a one-time opportunity to switch, and 30 percent chose to take advantage of the offer. In 2007, the plan offered a second chance to participate and an additional 4 percent opted in. The Minnesota Teachers' Retirement Association offers so-called 'Earnings Limitation Savings Accounts' that comply with Internal Revenue Service rules and encourage teachers to return to work after retiring. These plans are designed to provide added income security for the teachers and improve the pool of educators for the state. Brainard notes that permitting employees to return to work is sometimes criticized as encouraging 'double dipping,' but the Minnesota plan overcomes this argument by depositing pension benefits into an individual account that

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becomes accessible as a lump sum at age 65. The Arizona State Retirement System has an investment earnings-based Cost of Living Allowance (COLA) paid for through earnings that are greater than actuarial assumptions. About two-thirds of state and local plans have automatic COLAs and others rely on ad hoc COLAs granted by legislation, but the author argues that dropping a new COLA into a defined benefit plan where it has not been pre-funded over the years proves quite expensive. Another innovative approach is seen in Oregon, where the legislature established a new hybrid plan that mandates individual contributions. The DC contributions are professionally managed by the DB fund managers, giving participants the chance to hold a portfolio that they otherwise would not have access to, and it avoids having participants navigate the investment market on their own.

A discussion of best practices in the public DC pension arena is taken up in the chapter by Roderick Crane, Michael Heller, and Paul Yakoboski. The authors review key features of state plans for general employees as well as several public higher education plans, and they highlight several practices they deem innovative. These include defaulting participants into target date life cycle funds and providing a limited (15–20) set of participant-directed investment choices. They argue that this menu, linked with investment advice and investment education, is likely to enhance retiree well-being. They also contend that it is useful to ensure that pension contributions total at least 12 percent of pay if the workers are covered by Social Security, or 18–20 percent of pay if not. In terms of the payout process, they laud the fact that all but three of the state plans and all of the higher education plans offer an annuity option at retirement, and most offered some exposure to equities after retirement.<sup>3</sup>

### **The political economy of public pension reform**

An understanding of the political economy of public pension reform is facilitated with an historic overview of how these systems have evolved over time. The chapter by Robert Clark, Lee Craig, and Neveen Ahmed describes how US public pensions date back to the Colonial Era, when Britain's North American colonies established disability pensions for members of the militia. The chapter traces how municipalities began to offer pensions to teachers, firefighters, and police officers during the mid-nineteenth century, and these plans grew with civil service reforms that curbed patronage. States then offered pensions to employees beginning in the early twentieth century and were spurred by the 1935 Social Security Act, which specifically excluded public employees. In the 1950s, the Social Security Act was amended to include public sector employees, allowing government units to enter or withdraw from the system voluntarily.

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By 1961, all but five states had public pension plans; as of 1991, Social Security became mandatory for public employees with no pension plan.

Turning to an analysis of today's public employee pensions, the authors report that public sector employee DB pensions offer benefit replacement rates of around 56 percent of the worker's income at the time of retirement. The majority of public sector workers are also covered by Social Security. Meanwhile, and by sharp contrast, private sector DB plans have been on the wane, and many corporate employers have now terminated or frozen them, with a switch to DC plans. Clark and colleagues examine trends in replacement rates over time, where they find that state plans tend to be more generous relative to private-sector plans. The key question is whether states can continue to afford the relatively generous benefits in view of rapid population aging and fiscal stress.

A different view of the political nature of public pensions is offered by Brad Barber (2009), who explains that management adds one level of costs for shareholders seeking the maximum value for their investment in a corporation. Good governance typically limits those costs as shareholders in scandal-ridden companies, such as Tyco and Enron, learned firsthand in recent years. For pension funds, an extra layer of costs is associated with the portfolio manager that accumulates investments and then acts as a shareholder for the beneficiaries. Another cost can occur if fund managers have a political, moral, or personal agenda that does not align directly with shareholder value. In public funds, he adds, the portfolio manager is actually a triumvirate of the investment manager, the pension board, and the legislative body overseeing public-sector retirement plans. When it comes to activism, fund managers can have varying effects. Some may be self-serving autocrats forcing their own political agendas, while others can be a benevolent enforcer reducing agency costs, which benefits not only for investors but the market as a whole.

Barber offers as an example the California Public Employees' Retirement System (CalPERS) with its history of activism since 1984, when the system gained authority to invest 25 percent of its assets in equities. Three years later, CalPERS launched its governance program aimed at improving corporate performance by using its weight as a shareholder to block corporate poison pills. In 1992, it became more aggressive, publishing an annual focus list of companies it would attempt to influence. In addition to public crusades, CalPERS does extensive behind-the-scenes negotiations at companies to influence governance. Barber has tracked the performance of the CalPERS focus list over the past 15 years and finds a slight advantage, but not enough to be scientifically determinative. Nonetheless, he says, interventions in corporate governance such as fighting a poison pill or eliminating classes of stock have sound theoretical underpinnings to suggest they do create shareholder value. Beyond corporate governance

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issues, pension fund managers have become involved in other forms of activism. Barber notes that CalPERS has been ordered by legislation to use its influence to demand corporations divest from businesses in South Africa, Sudan, and Iran. In addition to legislative demands, the CalPERS board has also taken stands against corporations on social grounds. In 2000, overriding the recommendation of its staff, the board ordered the fund to divest from tobacco companies, stating that tobacco stocks were risky because of litigation. The CalPERS board has become involved in labor strife with a grocery chain, which in his view, imposed reputational consequences on the pension fund.

Barber does believe that activism originating from a fund's investment committee aimed at governance, which he calls *shareholder activism*, can be rational. And when funds take on broader social causes, what he terms *social activism*, beneficiaries and taxpayers may pay a price. Divestment policies, he notes, automatically put funds at a disadvantage in terms of investment performance. In his view, there is no question that constraints on investment opportunity hurt the fund; rather the only question is how much and whether it is material. He believes that public pension funds can endanger their returns with such action, meaning that they may lose their original objective of protecting retirees.

An alternative different perspective is offered by Beth Almeida, Kelly Kenneally, and David Madland (2009) who note that public plan retirement assets per participant are twice those in the private sector. They also indicate that existing public employee pension obligations could be met with an increase in contributions of less than 1 percent of payroll. At the same time, they acknowledge that opposition to traditional DB pensions is moving into the public arena. Public sector plans are influenced by public opinion because voters and taxpayers have a say in the design of the plans, either through ballot issues or the representatives they elect. Almeida adds, however, that most voters know very little about the issue. For instance, many workers cannot say whether their own retirement scheme is a DB or a DC plan. The authors analyze survey data and find that among the voting public, public sector employees, women, and those who have DB plans themselves tend to be most supportive of public sector pensions, while those with an individualistic ideology are less supportive. Republican-party affiliation has no effect, after controlling for other factors including ideological perspective. Other research indicates that states with Republican-controlled legislatures have been more aggressive than other states in attempting to change public plans from defined benefit to defined contribution. The authors find the results interesting because it would appear that individual voters are not clamoring for change, so they attribute the debate at least in part to partisan politics.

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The authors then provide four case studies, for Alaska, Colorado, California, and Utah, where there have been recent debates about switching from DB to DC plans. In those states, they argue that anti-tax, libertarian groups have taken an ideological stand against public defined benefit plans. Yet these efforts had only mixed success in drawing the public and elected representatives to their cause. The authors conclude that the challenges to public defined benefit plans do not appear to stem from well-articulated critiques or well-established economic consideration, nor from widespread public dissatisfaction. Rather, interest groups seek to dismantle defined benefit plans as part of their agenda.

### Conclusion

At present, most US public employee plans appear to have sufficient assets to continue paying retirement benefits for some time. In fact, as the GAO (2008: 19) notes, some analysts suggest that a public plan funding level of 80 percent could be a sensible target, since ‘... it is unlikely that public entities will go out of business or cease operations as can happen with private sector employers, and state and local governments can spread the costs of unfunded liabilities over a period of up to 30 years under current GASB standards. In addition . . . it can be politically unwise for a plan to be overfunded; that is, to have a funded ratio over 100 percent. The contributions made to funds with “excess” assets can become a target for lawmakers with other priorities or for those wishing to increase retiree benefits.’

Nevertheless, the doomsayers also have a point. The current economic environment has produced a ‘perfect storm’ for public pensions, where low interest rates are spiking liabilities, depressed equity markets are whittling away assets, and economic recession is drying up state and local tax revenue. In fact, the GAO (2008) has noted that almost two-thirds of the plans it reviewed contributed less than necessary to meet annual required levels, with the shortfalls being most pronounced among the worst-funded plans. Such behavior implies that taxpayers and public employees will have to pay more in the future, and it may also lead to curtailed retiree benefits (Barrett and Green 2008). Inasmuch as public employee pensions are not guaranteed by the federal government, it is even possible that public sector plans might default. Whereas this has not happened to date in the United States, it is true that a few cities and towns (including Cleveland, OH, and Bridgeport, CT, as well as Vallejo, CA) have declared bankruptcy.

Accordingly, the task ahead is to ensure that public sector retirement systems do have a future, one that is both affordable and resilient to economic and demographic pressures. It is incumbent not only on plan fiduciaries and the politicians to whom they report, but also the taxpaying

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public and those in the investment arena, to ensure that these commitments are transparently valued and financed in the most cost-effective and generationally fair manner.

### Notes

- <sup>1</sup> Nevertheless, recent research (Coronado et al. 2008) on US corporate pensions suggests that corporate pension liabilities and assets are not yet fully reflected in company share prices.
- <sup>2</sup> For instance, a recent study by Novy-Marx and Rauh (2008) contends that accrued benefits under the 50 US state retirement systems are underfunded by \$2 trillion, on the assumption that the benefit promises can be valued at a risk-free discount rate. They suggest that this is reasonable if the pension payouts cannot be abrogated, consistent with the fact that many public pension payments are backed by the full faith and credit of the sponsoring state governments.
- <sup>3</sup> An alternative model called the Collective Defined Contribution (CDC) scheme advanced by the Dutch is also of some relevance, though not taken up in this volume in detail. See Bovenberg (2008).

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