

State and Local Government Finance: The New Fiscal Ice Age

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Abstract

The Great Recession that began in late 2007 had devastating consequences for the fiscal health of state and local governments, and many remain in a precarious financial position. Several cities have declared bankruptcy, and more will do so in coming years. The future, however, promises no long-term relief. Due primarily to the aging population of the United States, state and local governments are allocating large and increasing shares of their budgets to expenditures on Medicaid and on retirement benefits that they have promised to their past and current employees. As these expenditures consume more of their budgets, there is less to spend on transportation, parks and recreation, education, public safety, and all the other services that these governments provide. We are thus experiencing the onset of a New Fiscal Ice Age, a period in which a given level of tax revenue purchases a considerably lower level of current services.

INTRODUCTION

The Great Recession that began in late 2007 marks the most prolonged contraction of the US economy since the Great Depression of the 1930s. Other recessions, such as those of 1946, 1958, and 1982, registered comparable declines in gross national product and increases in unemployment but were all short-lived. They were followed by rapid economic growth and sustained recoveries. The hallmark of the Great Recession is its persistence. This recession lasted longer than the previous recessions, and recovery has been slow, erratic, and faltering.

As a consequence of the decline in economic activity, most state and local governments suffered substantial losses of revenue, as well as increased demand for unemployment insurance, health care, and disability payments. Most responded by raising tax rates, cutting their labor force, and engaging in unprecedented levels of deficit financing. Many remain in a precarious financial position. Several cities have declared bankruptcy, and more will do so in coming years.

To describe what is happening in state and local government finance as a crisis is, however, something of a misnomer. A crisis is an acute episode, a period of travail that must somehow be endured until normal financial conditions are restored. Crises come and go. It is more accurate and more meaningful to see the negative developments we are witnessing as the consequence of an enduring change in fiscal climate. The United States is in the throes of a long-term shift from the favorable demographic and economic conditions of the past to the far less favorable conditions of the future. What we are experiencing is the onset of the New Fiscal Ice Age, a period in which a given level of state and local tax revenue purchases a considerably lower level of current services. The fiscal climate confronting state and local governments will not improve during the lifetime of anyone reading this article. Indeed, in most places, fiscal conditions will become increasingly harsh (GAO 2013).

This shift in fiscal climate is due, in large measure, to the aging population of the United States. Postretirement life expectancy continues to increase, and the large age cohort known as the Baby Boom generation has reached retirement age. As a consequence, larger shares of government revenues are directed to programs that support aged citizens and retired public employees—for services rendered in the past rather than for badly needed current services. The federal Social Security and Medicare programs are the largest sources of government assistance to the aged, but demands for Medicaid, a joint federal-state program, are also increasing significantly. State and local governments are experiencing a more pronounced demographic shift because the number of retired public employees is increasing even more rapidly than the number of retirees in general. The packages of pensions, health care, and other benefits that state and local governments have promised their retirees are more generous than those that typically obtain in the private sector. Public employees also tend to retire at a younger age than private-sector workers and consequently collect retirement benefits for longer periods of time.

In recent years, several cities—most notably Detroit—have recognized that their fiscal position is no longer tenable and have filed for bankruptcy. Bankruptcy is a painful measure of last resort and one that they understandably seek to avoid. Unfortunately, the radical cuts in services that troubled cities have made to avoid bankruptcy are counterproductive. Such measures may or may not stave off a formal declaration of bankruptcy, but they cause more damage to the financial health of the city, and bring about more hardship for its residents, than bankruptcy itself.

The next section details how much damage the Great Recession and the anemic recovery from it have done to the fiscal position of state and local governments. We then turn our attention to the long-run fiscal impact of the Medicaid program and public employee retirement plans. We also discuss the policies state and local governments have pursued—and have not pursued—in response to the ever-growing pressure that these programs exert on their budgets.

THE GREAT RECESSION

A recession is conventionally defined as a period in which real gross domestic product (GDP) falls for two or more consecutive quarters, and by this metric there was nothing unusual about the last recession. Real GDP fell for four consecutive quarters beginning with the third quarter of 2008 and began to grow again in the fourth quarter of 2009. Although the 8.9% GDP decline experienced in the first quarter of 2009 was sharp, declines in the 1958 and 1981–82 recessions were similar in magnitude. Those who chronicle the course of the Great Recession, however, point to the fall of 2007 as the time when things began to fall apart. The Northern Rock bank run was soon followed by the collapse of Countrywide Financial, and it was clear that the housing market bubble had burst. The value of mortgage-backed securities and collateralized debt obligations, derived from subprime mortgages and massively leveraged through the mechanism of credit default swaps, fell dramatically. US stock market indices began a two-year descent that left them at less than 50% of their prerecession levels. The unraveling of debt and insurance positions led to the collapse of major financial institutions in the United States—Lehman Brothers, Fannie Mae, Freddie Mac, AIG—as well as several in Europe.

In our view, it is not only more accurate to see the 2007 financial crisis as the start of the Great Recession, but also more informative. It accounts for what is unusual about the Great Recession, namely its staying power. As Reinhart & Rogoff (2009) show, recessions triggered by widespread financial crises and institutional failures last much longer than run-of-the-mill dips in the business cycle. The downturns they generate persist until the institutional reforms needed to restore investor, employer, and consumer trust have been formulated and implemented, and this can take a long time (Hoffman et al. 2007). The prognosis for meaningful reform of financial markets and institutions remains uncertain, and thus recovery from the Great Recession has been anemic. Residential real estate and stock market prices have recouped some of their recessionary losses, but, in contrast to the robust growth that has characterized previous recoveries, annual change in GNP since 2010 has averaged 2% or so. The National Income and Product Accounts indicate that there has been no growth in real per capita personal income since the middle of 2008, and the labor market would have to improve a great deal to be characterized as stagnant. The labor force participation rate, which was 63.5% at the end of 2007, fell to 58.5% by the end of 2010 and has shown no improvement since then.

The decline in real GDP experienced between 2008 and 2009 resulted in a much larger drop in state and local tax receipts. If state and local governments were a class of assets, like shares of stock in a publicly traded company, they would be described as having a high “beta” with respect to the overall economy. As in previous recessions, sales tax revenues were the first to decline, but income tax revenues soon followed and fell more sharply. In the second quarter of 2009, personal income tax revenue had fallen by 27% from the previous year, contributing to an overall 17% decline in total state tax collections (Gordon 2012). Sales and income tax revenues began to recover by 2010, but property tax revenue did not. Another symptom of the persistence of the Great Recession is that three years after the economy had bottomed out, property tax revenues were 1% *lower* than at the trough of the recession. This far into the recovery from previous recessions, property tax receipts were on average 10% higher (Harris & Shadunsky 2013). In real terms, state tax revenues, as well as state and local government consumption and investment, were 5% lower in 2012 than in 2008. In all previous postwar recessions, characterized as they were by strong and sustained economic growth, real revenues and expenditures were significantly higher this far into the postrecession period (Chernick et al. 2013, Harris 2013, Harris & Shadunsky 2013).

As **Table 1** indicates, the pattern of budgetary havoc wreaked by the Great Recession was uneven. The worst casualties of the collapse in real estate prices were Arizona, Florida, Nevada,

Table 1 Budget shortfall as percent of general revenue from own sources (Oliff et al. 2012)

State	2009	2010	2011	2012
Alabama	12.7	23.7	12.3	15.9
Alaska	6.8	28.9	—	—
Arizona	36.8	65.0	39.0	18.2
Arkansas	2.4	9.1	—	—
California	36.7	52.8	20.7	27.8
Colorado	14.2	23.8	25.1	6.3
Connecticut	15.5	27.0	28.8	17.1
Delaware	12.2	18.2	11.4	NA
Florida	22.2	28.5	19.5	15.8
Georgia	11.5	28.8	25.4	7.6
Hawaii	7.3	25.2	16.2	9.6
Idaho	15.3	22.4	3.5	3.6
Illinois	15.1	43.7	40.2	18.5
Indiana	9.1	10.6	9.4	NA
Iowa	7.6	22.6	20.3	2.5
Kansas	2.9	33.9	10.1	8.1
Kentucky	7.8	14.5	9.1	10.5
Louisiana	3.7	27.8	14.3	25.1
Maine	8.6	28.0	34.7	16.6
Maryland	10.0	20.3	15.3	9.5
Massachusetts	18.5	20.4	8.6	5.5
Michigan	8.5	15.8	9.3	3.5
Minnesota	9.2	22.7	25.0	—
Mississippi	8.9	19.3	15.9	13.7
Missouri	6.0	22.7	9.4	8.8
Montana	—	—	—	—
Nebraska	—	9.2	9.7	4.8
Nevada	19.9	48.6	54.5	37.0
New Hampshire	8.0	28.6	27.2	20.0
New Jersey	18.8	40.0	38.2	37.5
New Mexico	7.5	18.2	9.1	8.3
New York	13.2	38.8	15.9	18.2
North Carolina	14.9	26.2	30.6	12.2
North Dakota	—	—	—	—
Ohio	9.4	13.9	11.0	10.8
Oklahoma	1.7	28.4	13.7	9.0
Oregon	6.6	32.4	NA	24.0
Pennsylvania	11.3	23.6	16.2	13.5
Rhode Island	26.6	34.8	13.4	6.9
South Carolina	16.3	21.5	26.1	11.1
South Dakota	2.2	4.3	8.8	11.0
Tennessee	13.4	12.1	9.4	NA

(Continued)

Table 1 (Continued)

State	2009	2010	2011	2012
Texas	—	10.7	20.9	20.4
Utah	10.4	22.1	14.7	8.2
Vermont	11.6	28.3	31.3	14.2
Virginia	13.8	24.1	8.5	12.2
Washington	8.5	23.2	29.6	16.9
West Virginia	—	8.2	3.6	—
Wisconsin	11.7	23.7	24.9	11.3
Wyoming	6.8	1.8	10.3	—
TOTAL	15.2	29.0	19.9	15.5

and California, and all but Florida were hit hard. In contrast, Alaska, Montana, North Dakota, West Virginia, and Wyoming, riding the shale oil boom and general rise in mineral prices, either experienced smaller shortfalls or actual increases in revenue and budget surpluses. The structure of a state's system of taxation was also a factor: states that rely heavily upon income taxes, e.g., New York and California, experienced disproportionately large budgetary shortfalls. Analyses by Boyd (2011) and Chernick et al. (2013) reveal that it is not the income tax per se, nor even the overall progressivity of state income tax systems, that accounts for the extent of recessionary revenue declines. Higher tax rates, in the 80th–95th income percentiles, actually dampen the impact of economic downturns on state tax revenues. What matters instead is dependence of tax collections on realized capital gains, which constitute a large share of the income earned by very high-income individuals. In 2007, Americans took \$917 billion in capital gains, and 40% of this total went to the top 0.1% of all taxpayers. Capital gains realized in 2009, in contrast, fell to \$48 billion, and state income tax collections fell accordingly.

In the early years of the Great Recession, state and local governments obtained considerable budgetary relief from the federal government. The American Recovery and Reinvestment Act of 2009 increased federal contributions to Medicaid and to unemployment insurance, which, as in previous recessions, had experienced surges in enrollment. Combined with other provisions of the legislation, these measures channeled more than \$140 billion to the states between FY2009 and FY2011 (Gordon 2011). As federal assistance ended and revenues remain depressed, however, 33 states increased tax rates, and most state and local governments began making large and unprecedented cuts in expenditures and in the size of their work force.¹ In previous recessions, state and local government employment had continued to increase, albeit at a slower rate. At the end of 2012, in contrast, state and local government employment was 3.5% lower than it had been in mid-2008. When the education sector is excluded, the decline in the number of state employees is 6% (Dadayan & Boyd 2013).

Table 1 also indicates that the immediate budgetary problems facing states today are less daunting than they were four years ago. Expenditure cuts and increases in revenue have reduced the overall size of budgetary shortfalls from \$191 billion in FY2009 to \$55 billion in FY2013 (Oliff et al. 2012). It would be comforting to conclude that the budgetary storm brought on by the

¹State and local governments initially responded to the Great Recession, as they had in previous downturns, with a range of temporizing budgetary maneuvers, e.g., interfund transfers, rolling over debt, anticipating revenue, deferring expenses, and selling assets. In previous recessions, such measures had enabled them to bridge their budgets over until the start of the recovery, thus obviating the need for cuts in expenditures and employment. The persistence of the Great Recession and the weakness of the subsequent recovery rendered such short-term fixes inadequate.

FY: fiscal year

Great Recession is dissipating and that there are pleasant skies ahead. But this conclusion would not be warranted. The financial position of many local governments—cities, counties, school districts, and other local government entities—remains bleak. These governments continue to experience revenue shortfalls, due primarily to falling property tax collections, and declining levels of state government assistance (American Cities Project 2012). Although arrangements vary somewhat from state to state, on average state governments provide about one-third of local government revenue. Some state governments have also alleviated their budgetary distress by assigning functions to local governments that were previously carried out at the state level. In California, for example, a “realignment” of the corrections system now requires city and county jails to incarcerate several thousand inmates who would previously have been assigned to state prison.

More importantly, population aging is producing a long-run shift to a fiscal climate far less favorable to state and local governments than what they enjoyed in previous decades. As Goldsmith (2010, p. 1) describes the predicament these governments face:

State and local governments have faced big budget gaps before. Typically, things get tight for a while, then the economy perks up, tax revenues recover, and deficits are eliminated. Life goes back to normal. For a variety of reasons, however, today’s budget deficits are different. Government at all levels now faces an inescapable reality—the promises of public services exceed our ability to pay for them—and will do so regardless of when the recession ends. The steady increase in the quantity and cost of public services, coupled with the needs of an aging population and public pension costs, have produced a long-term, structural deficit.

AN AGING POPULATION AND MEDICAID

Governments in Western democracies support large-scale welfare programs, and benefits directed toward the aged, i.e., pensions and health care, are responsible for the bulk of these expenditures. The welfare state originated, and flourished, in a period marked by a favorable configuration of demographics—large working-age cohorts and small cohorts of aged dependents—and unprecedented rates of economic growth (Gómez & Hernández de Cos 2008). The half-century after the end of World War II is the fiscal equivalent of the Medieval Warm Period. This period has ended. It is difficult to predict the future of the economy; some analyses indicate that older population structures generate lower rates of growth (think Japan), while others do not (Aksoy et al. 2012, Fougère & Mérette 1999). We know, however, that the demographic foundations of government pension programs have deteriorated and, as the twenty-first century progresses, will continue to erode. Some countries are farther into this transition than others, but all will see a continuing decline in the ratio of workers paying taxes to those collecting pensions, health care, and other postretirement benefits.

In the United States, the number of people over 65 years of age is increasing by about 3% per year, which is four times faster than the growth of the population in general. This means that between 2000 and 2030 this number will more than double, from 35 million to 72 million, and the old-age dependency ratio, i.e., the percentage of those over 65 relative to the working-age (20–64) population paying for their benefits, will increase from 22% to 35%. Between 2010 and 2030, the number of Americans who are 85 years of age or older will increase from 5.7 million to 8.7 million, and by 2050 there will be more than 19 million people in what the Census Bureau calls the “oldest old-age” group (Vincent & Velkoff 2010).

The problems that these demographic trends present for the Social Security and Medicare Trust Funds are well known and, given the \$100 trillion gap between what future retirees have been promised and the funds that are projected to be available to pay for them, are greater in magnitude

than the long-run fiscal problems confronting state and local governments. These, however, are federal programs. The major source of ongoing fiscal pressure that state governments are experiencing because of population aging is attributable instead to Medicaid. Created along with Medicare in 1965, Medicaid pays for the health care of low-income citizens and their children, of the disabled, and of the aged. It is a joint federal/state program; the state share of Medicaid spending averages 43%, and ranges from 17% to a statutory maximum of 50%. Unlike Social Security and Medicare Part A, Medicaid expenditures at both the federal and state levels are not financed by trust funds supported by specific payroll taxes but are drawn instead from general revenues.

For Americans who are over 65 and possess limited financial resources, Medicaid pays for long-term nursing home care as well as for several in-home services.² More than 20% of the nation's 50 million Medicare beneficiaries are "dual eligibles," which means that Medicaid pays for their Medicare Part B premiums, dental care, vision care, and acute care not covered by Medicare (Kaiser Commission 2011). Even though a majority of Medicaid recipients are poor adults and children, it costs much more to care for the elderly. Annual expenditures for individuals over 65, averaging close to \$16,000 in 2011, are four times higher than for other adults and six times higher than for children. Caring for those over 65 accounts for about 20% of all Medicaid costs, and this percentage will increase as the aged become a larger share of the total population.

Another way that population aging generates increases in Medicaid enrollments and expenditures is by increasing the number of recipients who are eligible because of their disabilities. Average expenditures for the disabled are even higher than for the elderly; they account for only 17% of Medicaid recipients but for 44% of expenditures. As people enter middle age they are more likely to become disabled and much more likely to have a severe disability; the latter percentage increases from 5% of those between 18 and 44 to 15% of those between 45 and 64. The increase in the number of Medicaid recipients due to the first wave of the Baby Boom reaching retirement age in 2011 was thus presaged by the growing number of disabled enrollees in the previous decade. Between 2000 and 2010, enrollment in the disabled category grew by about 3% per year and expenditures by about 9% per year. Medicaid recipients who initially receive benefits because of a disability remain classified as such, so population aging will continue to produce increases in the number of disabled as well as in the number of elderly recipients.

Total state spending on Medicaid started at low levels—\$2.3 billion in 1970—but grew rapidly. State Medicaid expenditures reached \$11.2 billion in 1980, \$31.3 billion in 1990, \$89.2 billion in 2000, and \$131.7 billion in 2010 (Office of the Actuary 2013). Medicaid now accounts for about 17% of state general budget expenditures and is the second largest category of spending after elementary and secondary education. Projections of future Medicaid costs are subject to considerable uncertainty. *Ceteris paribus*, the increase in the number of beneficiaries due to population aging will lead to substantial expenditure increases. More than 60% of those Americans residing in nursing homes are provided for by Medicaid, and members of the Baby Boom generation are now reaching retirement age. Medicaid cost pressures will further intensify around 2030 as Baby Boomers become the oldest old-age group (over 85). At this age, people are much more likely to have multiple functional and cognitive limitations that necessitate skilled nursing care and to have

²Medicaid eligibility requirements vary from state to state, but in general recipients may have no more than a few thousand dollars in financial assets and small amounts of cash value in the form of a car, whole life insurance policy, and burial plot. The value of their primary residence is not counted if their spouse or children are living in it but, like virtually all other assets, is subject to estate recovery upon death of the Medicaid recipient (Day 2012). Medicaid is administered by the states, but the states are subject to federal maintenance-of-effort requirements. States may see significant increases in the number of individuals covered by Medicaid if they decide to expand eligibility in accordance with provisions of the 2009 Patient Protection and Affordable Care Act.

spent down their financial assets. The need for long-term care in the United States is projected to double by 2050 (Kaye et al. 2010).

Future Medicaid cost increases could be mitigated by continuing advances in medicine that have reduced the rates of dementia, mobility loss, and other age-related limitations. In other words, old people today are healthier than they used to be, thus reducing the need for nursing home care (Manton 2003). Although such advances are likely to lead to higher expenditures on prescription drugs, they still portend cost relief to the states, as it is the federal Medicare program that provides drug coverage. More prevention and better treatment may also facilitate greater reliance on community-based care, which is less expensive than nursing homes. For the same reasons, spouses, children, friends, and relatives—by far the majority of providers of care to the elderly—may be able to continue to provide for them longer and so delay the onset of expensive, Medicaid-funded nursing home care (Houser et al. 2009).

Other trends will exacerbate cost increases. Fertility rates in the United States have declined, and the percentage of childless women has doubled. The now-aged parents of the Baby Boom generation have had on average three or more children, and at least one of them is usually willing and available to look after them. Members of the Baby Boom, in contrast, have fewer children on average and are more likely to have no children. The number of potential family caregivers for the elderly is thus declining rapidly and will be about half the current ratio by 2030 (Redfoot et al. 2013). Living longer, the elderly will also be more likely to spend down their assets and so become eligible for Medicaid. Putting everything together, official estimates that Medicaid will cost the states about \$300 billion in 2020 are reasonable, with much of the increase in expenditures due to the costs of long-term care and other medical services for the aged and disabled (Office of the Actuary 2013).

States have sought to rein in Medicaid cost increases. Because of federal maintenance-of-effort requirements, states can do little to reduce the number of recipients, but they can reduce payments. As of FY2013, 41 states had lowered payment rates to doctors, hospitals, nursing homes, and other Medicaid providers (Kaiser Family Foundation 2013). A predictable consequence of cutting payments to providers is fewer providers. Because the payments they receive from Medicaid can be less than the cost of care, doctors often choose not to accept new Medicaid patients. About one-third of all physicians do not accept Medicaid patients, and this percentage is much higher in some states (Decker 2012). Many nursing homes also do not accept Medicaid recipients because of inadequate cost recovery.

Inevitably, however, states will devote larger shares of their budgets to Medicaid, with population aging being a major cost driver. With Medicaid already consuming over one-fifth of their total budget, states must necessarily allocate less to other areas. As indicated above, state governments provide one-third of local government revenue and so will reduce these transfers accordingly. Cost pressures generated by Medicaid thus adversely affect local governments as well. When we describe the fiscal climate facing state and local governments as growing increasingly harsh, this is what we mean: as Medicaid expenditures consume a growing share of their budgets, a given level of taxation yields less and less in law and order, transportation, parks, education, public safety, and all other services that governments provide.

As Kane et al. (2003) observed more than a decade ago, increased spending on Medicaid has taken a disproportionately large toll on support for higher education. This is presumably because policy makers believe that they can shift the costs of education to students and their parents, and so far this belief has been confirmed. Since 1980, the cost of attending public universities has run well ahead of the rate of inflation, and the past decade has seen this trend accelerate. In 2010, the cost of tuition and room and board was more than 50% higher in real dollars than in 2000 (National Center for Education Statistics 2011).

PUBLIC EMPLOYEE RETIREMENT BENEFITS

In addition to the increasing costs of Medicaid, which affect state governments directly and local governments indirectly, another aspect of population aging that both state and local governments confront is the growing share of budgetary resources they must allocate to pay for retirement benefits that they have promised their own workers. According to the Census Bureau, for the past two decades the number of retired state and local government employees has been growing by 3.75% annually, and this rate of increase will continue for decades to come. This is far more rapid than the overall rate of population growth, which has averaged less than 1% a year during this period, and also more rapid than the increase in the number of retirees in general. There are now close to nine million people receiving retirement benefits from state and local government employers—about half the number of current employees—and this number will double by 2030.

Eighty percent of all state and local government employees are enrolled in defined benefit pension plans. Although there are more than 2,000 local government pension plans, 90% of all state and local employees are enrolled in plans that are administered at the state level. In these plans, contributions are made to a retirement system trust fund, and pension benefits are a function of number of years employed, level of compensation received, and benefit percentage. Assuming a benefit percentage of 2.5%, an employee who has worked for 30 years and whose terminal salary was \$100,000 a year would receive a pension of \$75,000 per annum. Defined benefits generally also provide for cost-of-living adjustments. Retired public employees are legally (in some states constitutionally) guaranteed to receive the level of pension benefits they have been promised.

Defined benefit plans derive the revenue required to pay pensions from two sources: contributions from employers and employees, and returns from the assets they have invested. In 2012, contributions to state-administered pension funds totaled \$202 billion, with employers, i.e., state and local governments, picking up more than two-thirds of the tab. These funds posted earnings of \$92 billion (Becker-Medina & Brigham 2013). When pension funds are actuarially sound, projected future contributions and investment returns are sufficient to pay for the benefits that have been promised. Fund managers can make reasonably precise estimates of the number of future beneficiaries, of how long they and their survivors will live, and of how much money they have been promised, but assumptions about investment returns are more problematic. As every mutual fund prospectus warns, past performance is no guarantee of future success. In any case, the ongoing increase in the number of retired public employees and the pension payments that have been promised them comes as a surprise to no one. Properly managed pension funds should have had no difficulty anticipating and planning for increasing payouts, and the general budgets of state and local governments need not have been impacted.

Over the past several years, however, public employee pension plans have taken in too little by way of contributions, been too optimistic in their assumptions about investment returns, or both. According to Passantino & Summers (2005), most state and local governments made inadequate contributions to employee pension plans even during prosperous times, and by 2008 they were already 25% short of being fully funded (Pew Center 2010). State and local governments responded to the great fiscal duress brought on by the Great Recession by further reducing their contributions (Splinter 2011).

Contributions would not have been inadequate, of course, if returns on investment had been high enough. Indeed, everything seemed fine during the 1980s and 1990s, when the S&P 500 registered real annual returns of 11.6% and 14.7%, respectively. Caught up in the hubris that marked the period prior to the collapse of the dot-com bubble, state and local governments responded to these spectacular returns by increasing pension benefits without increasing contributions. In California, for example, SB400, enacted in 1999, expanded pension benefits by an estimated 50%

and applied the increases retroactively to all retired state employees. These increases were projected to require no additional contributions from the government or from employees.

Unfortunately, during the 2000–2010 decade, the S&P 500 generated real annual losses of 3.4%. Underfunding worsened markedly owing to the massive losses these plans experienced during the 2008–2009 downturn.³ State Budget Solutions estimates that in FY2013 the unfunded pension liabilities of state and local governments had ballooned to \$2.8 trillion. Many analysts see that figure as overly optimistic because they doubt that investment returns will be as high as fund managers assume. In recent years, public employee pension funds have scaled back their assumptions concerning future investment returns; California's CALPERS fund, for example, now assumes 7.5% going forward. But this is still much higher than the 5.5% figure that Moody's Investment Services deems appropriate. Novy-Marx & Rauh (2009), moreover, argue that it is improvident for pension funds, which promise to deliver risk-free pensions, to invest as heavily as they do in the stock market and other assets that promise high rates of return but are also quite volatile. The more conservative portfolio they recommend to achieve an 80% probability of always being 80% funded would require pension funds to increase their funding levels by another third or so. Kogan & McCubbins (2010) make a similar point, arguing that over the past several years the major public employee retirement plans in California have come to rely far too heavily on investment earnings and have accepted too much risk in the pursuit of higher earnings.

What is sometimes lost in the controversy over rate-of-return assumptions is the fact that public employee pension funds are true investment funds and have tended to yield returns in line with historical averages. Social Security, Medicare, and other major federal trust funds, in contrast, are required by law to hold their assets in the form of non-negotiable Treasury debt, which are likened by many analysts to IOU's, and which in any case generate very meager rates of return. So this is the good news.

In addition to pensions, however, public employees receive other postemployment benefits (OPEBs), of which healthcare coverage is the largest component. As with pensions per se, on average retired public employees receive higher levels of healthcare coverage than their counterparts in the private sector (Barro 2011). The bad news is that most state and local governments pay for these benefits out of the general budget and not from the proceeds of an investment fund. In such cases they are by definition 100% underfunded. As a consequence, the costs of such benefits necessarily increase as a function of the number of retirees and healthcare costs, and these growing costs are being incurred now rather than many years in the future. The underfunding of pension funds entails greater cost liabilities in the long run, but in the next several years, paying for retiree health care will be the more pressing problem.

Why have public employee retirement benefits been chronically underfunded? As mentioned, population aging should not have caught anyone by surprise. Declining fertility rates, increasing life expectancies, and the demographic bulge that is the Baby Boom are phenomena that have been clear to see for decades (Easterlin 1980, Jones 1980), and their implications for public policy could readily have been anticipated. Perhaps underfunding is simply an expression of human nature. The belief that human beings pay inadequate heed to the challenges they know await them in the future is at least as old as Aesop's "Ant and the Grasshopper," and animal fables of this type were circulating in Sumeria 3,000 years ago. Another possible explanation begins with the observation that retirement benefits are deferred compensation, which implies, correctly, that underfunding

³Public employee pension plans typically use three-year moving averages to calculate rates of return, which are in turn used to calculate required contribution levels. This smoothing technique significantly reduced the losses reported during 2008–2009. Because losses were necessarily carried forward, most plans reported losses or meager returns well after the major stock indices had recovered.

retirement benefit obligations is a form of government borrowing. The late James Buchanan is most closely associated with the idea that democracies are structurally biased in favor of borrowing (Buchanan & Wagner 1977), but Ricardo (1951 [1888]) said much the same thing a long time ago—politicians, as well as the voters who elect them, strongly prefer debt financing over current taxation: “It would be difficult to convince a man possessed of £20,000, or any other sum, that a perpetual payment of £50 per annum was equally burdensome with a single tax of £1000. He would have some vague notion that the £50 per annum would be paid by posterity, and would not be paid by him” (1951 [1888], p. 187).

A more sophisticated explanation for underfunding is offered by Anzia & Moe (2013). Analyzing hundreds of pension bills considered by state legislatures between 1999 and 2011, they find that during the early, more prosperous years of this period, many legislatures voted to increase public employee pension benefits. During such times, they reason, few voters devoted any attention whatsoever to pension politics, but one group that did were the highly unionized public employees themselves. The logic of concentrated benefits versus diffuse costs took its normal course, and the majorities that approved these measures were both large and bipartisan. Those who might have had reservations, furthermore, were soothed by the experts who assured them, as in the case of California SB400, that investment returns would cover all new benefits and that neither employees nor taxpayers need pay in any additional money.

Whatever the merits of these explanations for underfunding, they do not account for the large amount of variance that exists in the extent of underfunding across states and across cities. **Table 2** provides a state-by-state breakdown of the extent to which public employee pension liabilities and retiree healthcare benefits were fully funded as of FY2010. Delaware, New York, North Carolina, South Dakota, Tennessee, Washington, and Wisconsin report funding levels in excess of 90%. In contrast, Connecticut, Illinois, Kentucky, Louisiana, New Hampshire, Oklahoma, and West Virginia report funding levels of under 60%. In seeking to account for this variance, Kiewiet (2010) was singularly unsuccessful. When he regressed funding levels on a battery of explanatory variables that included the ideological complexion of the state, the strength of its public-sector unions, and overall level of bonded indebtedness, no coefficient approached statistical significance and the R^2 was 0.02. When it comes to retiree healthcare benefits, it is similarly hard to imagine just what differentiates those states that have funded a large share of these costs, i.e., Alaska, Arizona, North Dakota, Ohio, Oregon, Utah, Virginia, and Wisconsin, from those that have low levels of funding (Colorado, Idaho, Kentucky) or from the vast majority of states that have no dedicated funding source other than the general budget. In short, states differ greatly in their location on the ant–grasshopper dimension. Perhaps those states with term limits produce more short-sighted legislators, and it is this that has led to underfunding. Another possibility is that underfunding is yet another way for policy makers to escape the strictures of tax and expenditure limitations. In any case, accounting for cross-state variation in underfunding surely warrants further research.

State and local governments currently devote 5.7% of their own revenues to employee pension plan contributions. According to Novy-Marx & Rauh (2012), barring changes in policy, this share must increase to 14.1% if these plans are to become and to remain fully funded. Nation (2011) calculates that in California pension contributions will soon consume 17.3% of general fund expenditures. Barring changes in policy, the budgetary impact of retiree health care will be nearly as great and will be felt sooner. As in the case of Medicaid, however, changes in policy have been occurring, as these governments have instituted reforms designed to rein in cost increases. “Reform,” of course, is a polite way to describe cuts in benefits. The measures taken include reducing benefit percentages, suspending cost-of-living adjustments, raising the minimum retirement age, requiring longer vesting periods, increasing the employee share of retirement fund contributions,

Table 2 Funding for public employee pension plans and retiree healthcare benefits (Pew Center on the States 2012)

State	Pensions: percent funded	Retiree health care: percent funded	State	Pensions: percent funded	Retiree health care: percent funded
Alabama	70	5	Montana	70	0
Alaska	60	50	Nebraska	84	NA
Arizona	75	69	Nevada	70	2
Arkansas	75	0	New Hampshire	59	2
California	78	0.1	New Jersey	71	0
Colorado	66	14	New Mexico	72	5
Connecticut	53	0	New York	94	0
Delaware	92	2	North Carolina	96	3
Florida	82	0	North Dakota	72	30
Georgia	85	3	Ohio	67	32
Hawaii	61	0	Oklahoma	56	0
Idaho	79	12	Oregon	87	31
Illinois	45	0.1	Pennsylvania	75	1
Indiana	65	5	Rhode Island	49	0
Iowa	81	0	South Carolina	66	5
Kansas	62	2	South Dakota	96	0
Kentucky	54	15	Tennessee	90	0
Louisiana	56	0	Texas	83	1
Maine	70	6	Utah	82	22
Maryland	64	1	Vermont	75	0.5
Massachusetts	71	2	Virginia	72	26
Michigan	72	2	Washington	95	0
Minnesota	80	0	West Virginia	58	6
Mississippi	64	0	Wisconsin	100	38
Missouri	77	3	Wyoming	86	0

and limiting “spiking.”⁴ In 2010 and 2011, 41 states adopted one or more of these cost-cutting policies (Snell 2012). In a growing number of cases, they have also been transitioning from defined-benefit plans to defined-contribution plans as in the private sector, or to hybrid plans with both defined-benefit and defined-contribution components (Pew Center 2013).⁵

Because of the strong statutory and constitutional guarantees afforded those to whom pension benefits have been promised, these measures generally apply only to new hires, and so it will be many years before they yield significant savings to state and local governments. Cuts in health-care benefits, on the other hand, present fewer legal difficulties with respect to their application

⁴In defined benefit plans, pension benefits are a function of salary earned during the last year (or last few years) of employment. Employees participating in some plans can thus “spike” their pensions by using extensive overtime, unused vacation and sick leave, or promotion to a higher pay grade to boost compensation just prior to retirement.

⁵In the private sector, the vast majority of retirement plans are defined-contribution plans, such as the 401(k). Employees typically have a range of investment choices, e.g., mutual stock funds, bond funds, or annuities, but in any case the retirement benefits they receive depend on how well their investments perform, and so by definition such plans can be neither underfunded nor overfunded.

to current employees and retirees, and so promise more immediate reductions in expenditures. Measures taken by state and local governments to retrench retiree healthcare expenses include requiring current employees and retirees to pay a larger share of the premiums; dropped coverage for spouses, children, and retirees under the age of 65; transitioning those over 65 to Medicare; and simply choosing to no longer offer healthcare benefits to employees or retirees (Mincer 2012).

Some state and local governments have sought to meet unfunded pension obligations by issuing long-term bonds. About \$64 billion of pension-obligation bonds are currently outstanding. This policy is problematic in three ways. First, substituting long-term debt for unfunded pension liabilities is equivalent to taking out a new credit card to make payments on debts one has already incurred. Because the US Treasury understands this to be risk arbitrage, the interest paid on such bonds is taxable. Such bonds, furthermore, are issued by governments that are already strapped financially and are seeking to postpone the day of reckoning. Investors thus also demand a risk premium, and consequently the interest rates that must be paid are higher than for conventional, tax-free municipal bonds. Second, this practice runs contrary to the traditional normative justification for long-term debt financing. Bridges, highways, and other types of infrastructure generate a flow of benefits that extends into the future, and so it makes sense for future beneficiaries to help pay for these projects by servicing the bonds issued to pay for them. Borrowing to meet underfunded pension obligations turns this principle on its head. As Kiewiet (2010) puts it, “. . . benefits rendered by the service of retired employees have already been realized, but future generations are being saddled with the bill” (p. 14).

Third and most important, in most cases this ploy has backfired, as the governments that issued pension-obligation bonds have experienced poor investment results but must still pay off the bonds (Munnell et al. 2010). The states of Connecticut and Illinois, as well as Oakland, Pittsburgh, New Orleans, and many other cities, have suffered large losses. In the end, the inability to service pension-obligation bonds issued by Stockton, California was a major factor in that city’s financial collapse and subsequent declaration of bankruptcy (Walsh 2012).

As in the case of Medicaid, then, state and local governments have sought to mitigate the growing costs of retiree pensions and health care by reducing benefits. The sooner such adjustments are made, the more effect they will have in the long term. Inevitably, though, the budgetary burdens brought on by population aging will crowd out the other services that we counted on these governments to provide (Nation 2011). One budget analyst, quoted in Mincer (2012, p. 1), sees local governments as facing “a stark choice between providing core services for citizens and benefits for employees,” and characterizes the tradeoff as “pills or potholes.” Pension and retiree healthcare obligations can be met, but at the expense of almost everything else that government normally does, leaving less money for streets, lights, sidewalks, sewers, parks, schools, libraries, policemen, and firemen. Perhaps the best description of the New Fiscal Ice Age is that of DiSalvo (2013, p. 1):

As more and more of a government budget is devoted to employee pensions and health care, lawmakers must (a) raise taxes, or (b) engage in fiscal gimmickry, or (c) take on more debt, or (d) spend less on schools, roads, public transport, libraries, assistance to the poor, and other functions. Troublingly, many governments are choosing option (d), creating the paradox of government that spends more and more to do less and less.

PROGNOSIS

In *The Greenlanders*, Jane Smiley (1988) imagines what the Norse settlers experienced as the Medieval Warm Period, when agriculture was possible on that far northern outpost, gave way to

the Little Ice Age. Summers grew shorter, winters longer and colder. Spreading sea ice made trade increasingly perilous. The Greenlanders, though, were reluctant to acknowledge that the climate was worsening. When a growing season was slightly better than the previous year, they hailed it as the harbinger of better times ahead. When ships from Iceland occasionally arrived, they were sure that more would soon follow. Measures that might have made their way of life sustainable were rejected. Those who urged their countrymen to learn survival skills from the native skraelings were ridiculed and ostracized. Denial, however, is a poor substitute for adaptation, and after 1408, the Vikings of Greenland disappeared from recorded history.

The Greenlanders can be excused for not seeing what lay ahead. The same cannot be said of state and local government officials or of the voters who elect them. That the US population is aging has been a locked-in certainty for many decades. The fiscal problems many cities are experiencing took decades to unfold. Voters, however, have repeatedly chosen to put into power those who favor denial, delay, and expediency over adaptation (Erie et al. 2010). Every day that fiscal adjustments are delayed makes the adjustments all the more wrenching when they do occur, which they inevitably must.

Beginning with Vallejo, California in 2009, several other cities, including Detroit in July 2013, have recently declared bankruptcy. Although these bankruptcies have been blamed on the deterioration of the cities' financial position during the Great Recession of 2008–2009, their problems all began well before 2008. In most cases, their path to bankruptcy closely tracks that charted by New York City four decades ago. New York fell into insolvency in 1975, but it had actually been running large budget deficits since the early 1960s. According to Dunstan (1995, p. 1), New York had chronically relied on “overly optimistic forecasts of revenues; heavy use of revenue anticipation notes, including notes for revenues that did not materialize; underfunding of pensions; use of funds raised for capital expenditures for operating costs; appropriation of illusory fund balances, meaning that special fund revenues were overestimated and used to balance the budget; [and] writing checks late.” From time to time the city announced layoffs and hiring freezes, but it actually hired tens of thousands of new employees during such periods. New York also sought to move its debts off its own balance sheet and to stretch out maturities. By April 1975, New York was financing its operations with three-day loans from banks and pension funds. Ultimately, of course, the state and federal government came in to rescue the city when even these sources of borrowing were no longer available.

Instead of facing up to fiscal reality, many cities today continue to follow policies taken from the New York City playbook. Unfortunately, local governments today are not likely to be bailed out in the same way that New York was. With the coming of the New Fiscal Ice Age, state governments themselves face great difficulty funding Medicaid and public employee retirement benefits. Local governments should expect to receive less and less funding from state government, and New York–like bailouts are out of the question. Consequently, a sort of dead pool has emerged, with municipal bond analysts prognosticating which cities will be next to declare bankruptcy. Declining bond ratings are an obvious signal of trouble ahead, but bond ratings tend to be lagging indicators that reflect damage already done. A more dependable indicator of fiscal distress is the loss of jobs and population, as the resultant erosion of the tax base greatly exacerbates the problems of maintaining services while also paying the pension and healthcare benefits promised to retiring public employees.

Bankruptcy is an unappetizing choice, and even the threat that a city might go bankrupt injures its credit rating and casts a pall on investment. Still, municipal bankruptcy was designed to serve a useful purpose, and that is to allow cities and other local governments to discharge debt burdens that they cannot pay. Lacking bankruptcy protection, cities would otherwise be

forced on a ruinous course of service cuts and tax increases that would destroy their ability to continue functioning as a city. Dozens of cities that are in dire financial shape, however, are taking precisely these measures to avoid bankruptcy. Streets go unpaved; parks and schools are closed. Street lights are extinguished or removed entirely. Taxes are increased whenever and wherever possible, along with new fees and higher fines. Some cities have cut police forces so drastically that they can no longer offer meaningful service in terms of either crime prevention or response to reported crimes. Private security patrols can be hired by the affluent, but the poor have no recourse. As the record of those cities that have recently declared bankruptcy attests, draconian cuts to basic municipal services produce precisely the death spiral that Chapter 9 bankruptcy was designed to prevent. When bankruptcy occurs anyway it is far worse, and any benefits that might have been gained through bankruptcy protection have been forfeited. Those residents who can flee, and the consequences for those lacking the means to get out are appalling (LeDuff 2013).

Is there another way out? In principle there is, and that is to do more with less by providing services more efficiently. As Niskanen (1971) recognized long ago, those running government agencies, like those managing firms in the private sector, respond to incentives. It's just that the incentives are very different. Seeking to maximize budgets instead of profits, they gain nothing from operating efficiently or from eliminating slack resources. This is actually good news; the more inefficient government service providers are now, the greater the potential for gains in efficiency. Achieving greater efficiency in service provision is thus the great challenge—and opportunity—that state and local governments will face in coming decades.

The obstacles to efficiency gains are formidable. As Bridgeland & Orszag (2013) observe, governments have spent little time and effort to determine whether the money they spend is spent effectively. Budgetary decisions are instead “largely based on good intentions, inertia, hunches, partisan politics, and personal relationships” (p. 1). When potential efficiency gains are identified, they will be opposed by both the public-sector unions and the private firms that benefit from the status quo. It is no secret that efficiency gains in government service provision are commonly achieved through privatization, but privatization means replacing highly paid public employees with private-sector employees earning lower wages and benefits.

Aron's (2013) recent examination of the Los Angeles Fire Department is illustrative. Even though the vast majority of the LAFD's calls are to transport sick people—or at least those who claim to be sick—to the emergency room and to stay with them until they are treated, its labor force, organization, firehouses, and vehicle fleet are structured to fight major structural fires. Fire calls, however, make up 2% of its responses, and most are confined to garbage cans, cars, and dumpsters. The Los Angeles County Fire Department has experienced the same shift in mission, but, like fire departments in several other major cities, operates more efficiently because it has privatized ambulance services. The United Firefighters of Los Angeles City have so far been successful in persuading members of the City Council to block any movement toward “the county model.” Still, it is apparent that some state and local governments some of the time are seeking and achieving more efficiency in service delivery. The harsh climate of the New Fiscal Ice Age may encourage more to do so.

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LITERATURE CITED

- Aksoy Y, Grasl T, Smith R. 2012. *The impact of demographic structure in OECD countries*. Work. Pap. No. 3960, CESifo Group Munich
- Aron H. 2013. Mission creep at the L.A. Fire Department. *LA Wkly*. Aug. 8. <http://www.laweekly.com/2013-08-08/news/lafd-ambulance-service/>
- American Cities Project. 2012. *The Local Squeeze: Falling Revenues and Growing Demand for Services Challenge Cities, Counties, and School Districts*. Washington, DC: Pew Charitable Trusts
- Anzia S, Moe T. 2013. *The politics of pensions*. Presented at Annu. Meet. Midw. Polit. Sci. Assoc., Apr. 11–14, Chicago
- Barro J. 2011. Cadillac coverage: the high cost of public employee health benefits. New York: Manhattan Institute Center for State and Local Leadership.
- Becker-Medina E, Brigham K. 2013. *Public Pensions: State-Administered Defined Benefit Data Summary Report 2012*. Washington, DC: US Census Bur.
- Boyd D. 2011. *Recession, Recovery, and State and Local Finances*. Cambridge, MA: Lincoln Inst. Land Policy
- Bridgeland J, Orszag P. 2013. Can government play moneyball? *Atlantic* Jul./Aug. <http://www.theatlantic.com/magazine/archive/2013/07/can-government-play-moneyball/309389/>
- Buchanan J, Wagner R. 1977. *Democracy in Deficit: The Political Legacy of Lord Keynes*. New York: Academic
- Chernick H, Reimers C, Tennant J. 2013. *Tax structure and revenue instability: the Great Recession and the states*. Presented at Annu. Conf. Natl. Tax Assoc., Providence, RI
- Dadayan L, Boyd D. 2013. The depth and length of cuts in state-local government is unprecedented. Albany, NY: Rockefeller Inst. Gov., Univ. Albany
- Day T. 2012. *About Medicaid Long Term Care*. Centerville, UT: Natl. Care Planning Council.
- Decker S. 2012. In 2011 nearly one-third of physicians said they would not accept new Medicaid patients, but rising fees may help. *Health Aff.* 31:1673–79
- DiSalvo D. 2013. *Government Crowded Out: How Employee Compensation Costs are Reshaping State and Local Government*. New York: Manhattan Inst.
- Dunstan R. 1995. *Overview of New York's fiscal crisis*. Calif. Res. Bur. Note 3-1. Sacramento, CA: Calif. State Library
- Easterlin R. 1980. *Birth and Fortune: The Impact of Numbers on Personal Welfare*. Chicago: Univ. Chicago Press
- Erie S, Kogan V, MacKenzie S. 2010. *Paradise insolvent? From pension scandal to fiscal crisis in San Diego*. Presented at Annu. Meet. West. Polit. Sci. Assoc., San Francisco
- Fougère M, Mérette M. 1999. Population ageing and economic growth in seven OECD countries. *Econ. Model.* 16:411–27
- Goldsmith S. 2010. Red-ink tsunami: why old ideas can't fix the new government perma-crisis. <http://www.economics21.org/commentary/red-ink-tsunami-why-old-ideas-cant-fix-new-government-perma-crisis>
- Gómez R, Hernández de Cos P. 2008. The importance of being mature: the effect of demographic maturation on global per capita GNP. *J. Popul. Econ.* 21:589–608
- Gordon T. 2011. *Medicaid and the Uninsured*. Washington, DC: Kaiser Family Found. Comm.
- Gordon T. 2012. *State and Local Budgets and the Great Recession*. Stanford, CA: Stanford Cent. Poverty and Inequality
- Government Accountability Office. 2013. *State and Local Governments' Fiscal Outlook*. GAO 13-546SP. Washington, DC: Gov. Account. Off.
- Harris B. 2013. *Why State and Local Governments are Hurting the Recovery*. Washington, DC: Urban Inst.—Brookings Tax Policy Cent.
- Harris B, Shadunsky Y. 2013. *State and Local Governments in Economic Recoveries: This Recovery is Different*. Washington, DC: Urban Inst.—Brookings Tax Policy Cent.

- Hoffman P, Postel-Vilnay G, Rosenthal J-L. 2007. *Surviving Large Losses: Financial Crises, the Middle Class, and the Development of Capital Markets*. Cambridge, MA: Harvard Univ. Press
- Houser A, Fox-Grange W, Gibson MJ. 2009. *Across the States: Profiles of Long-term Care and Independent Living*. Washington, DC: AARP Public Policy Inst.
- Jones L. 1980. *Great Expectations: America and the Baby Boom Generation*. New York: Coward, McCann & Geoghegan
- Kaiser Commission on Medicaid and the Uninsured. 2011. *Dual Eligibles: Medicaid's Role for Low-Income Medicare Beneficiaries*. Washington, DC: Henry J. Kaiser Found.
- Kaiser Family Foundation. 2013. Medicaid policy initiatives taken by the states and the District of Columbia FY2013. <http://kff.org/medicaid/state-indicator/medicaid-cost-containment-fy2012/>
- Kane T, Orszag P, Gunter D. 2003. *State Fiscal Constraints and Higher Education Spending: The Role of Medicaid and the Business Cycle*. Washington, DC: Tax Policy Cent., Urban Inst. and Brookings Inst.
- Kaye HS, Harrington C, LaPlante M. 2010. Long-term care: Who gets it, who provides it, who pays, and how much? *Health Aff.* 29:11–21
- Kiewiet DR. 2010. The day after tomorrow: the politics of public employee retirement benefits. *Calif. J. Polit. Policy* 2:1–30
- Kogan V, McCubbins M. 2010. Changing tracks? The prospect for California pension reform. *Calif. J. Polit. Policy* 2:1–17
- LeDuff C. 2013. *Detroit: An American Autopsy*. New York: Penguin
- Manton K. 2003. Forecasting the nursing home population. *Med. Care* 41:21–4
- Mincer J. 2012. US local governments take budget knife to retiree health plans. *Reuters* Oct. 15. <http://www.reuters.com/article/2012/10/15/us-usa-municipalities-health-idUSBRE89E16720121015>
- Munnell A, Calabrese T, Monk A, Aubry J-P. 2010. *Pension obligation bonds: financial crisis exposes risks*. Boston College Cent. Retirement Res. brief. http://crr.bc.edu/wp-content/uploads/2010/01/SLP_9-508.pdf
- Nation J. 2011. *Pension Math: How California's Retirement Spending is Squeezing the State Budget*. Stanford, CA: Stanford Inst. Econ. Policy Res.
- National Center for Education Statistics. 2011. *Digest of Education Statistics*. Washington, DC: US Dep. Education
- Niskanen W. 1971. *Bureaucracy and Representative Government*. New Brunswick, NJ: Transactions
- Novy-Marx R, Rauh J. 2009. The liabilities and risks of state-sponsored pension plans. *J. Econ. Perspect.* 23:191–210
- Novy-Marx R, Rauh J. 2012. *The revenue demands of public employee pension promises*. Work. Pap. 18489, Nat. Bur. Econ. Res., Cambridge, MA
- Office of the Actuary. 2013. *2012 Actuarial Report on the Financial Outlook for Medicaid*. Washington, DC: Cent. Medicare and Medicaid Serv.
- Oliff P, Mai C, Palacios V. 2012. *States Continue to Feel Recession's Impact*. Washington, DC: Cent. Budget and Policy Priorities
- Passantino G, Summers A. 2005. *The Gathering Pension Storm: How Government Pension Plans Are Breaking the Bank and Strategies for Reform*. Los Angeles: Reason Found.
- Pew Center on the States. 2010. *The Trillion Dollar Gap: Underfunded State Retirement Systems and the Road to Reform*. Washington, DC: Pew Charitable Trusts
- Pew Center on the States. 2012. *The Widening Gap Update*. Washington, DC: Pew Charitable Trusts
- Pew Center on the States. 2013. *A Widening Gap in Cities: Shortfalls in Funding for Pensions and Retiree Health Care*. Washington, DC: Pew Charitable Trusts
- Redfoot D, Feinberg L, Houser A. 2013. *The Aging of the Baby Boom and the Growing Care Gap: A Look at Future Declines in the Availability of Family Caregivers*. Washington, DC: AARP Public Policy Inst.
- Reinhart C, Rogoff K. 2009. *This Time is Different: Eight Centuries of Financial Folly*. Princeton, NJ: Princeton Univ. Press
- Ricardo D. 1951 (1888). Essay on the funding system. In *The Works of David Ricardo: With a Notice of the Life and Writings of the Author*, ed. JR McCulloch, pp. 513–48. London: John Murray
- Smiley J. 1988. *The Greenlanders*. New York: Alfred A. Knopf

- Snell R. 2012. *State Pension Reform, 2009–2011*. Denver: Natl. Conf. State Legis.
- Splinter D. 2011. *State pension contributions and fiscal stress*. Manuscript, Houston: Rice Univ. Press
- Vincent G, Velkoff V. 2010. *The next four decades: the older population in the United States 2010 to 2050*. Current Population Rep. P25-1138. Washington, DC: US Census Bur.
- Walsh MW. 2012. How plan to help city pay pensions backfired. *NY Times*, Sep. 3, Business Day. http://www.nytimes.com/2012/09/04/business/how-a-plan-to-help-stockton-calif-pay-pensions-backfired.html?_r=0