Other Post-Employment Benefit (OPEB) Liabilities: What, Why, and How

Thad Calabrese   Travis St. Clair*

October 22, 2020

Abstract

Although state and local governments remain under fiscal pressure from unfunded pension liabilities, other post-employment benefit (OPEB) liabilities also pose a considerable challenge and have received significantly less attention from researchers and policymakers. Other post-employment benefits consist of various health care benefits, such as health insurance, dental insurance, prescription drug insurance, and Medicare Part B reimbursement, offered to retired public employees and their families. In this paper, we begin by describing the healthcare benefits that different state governments offer to retired employees and summarizing the liabilities that states have incurred as a result of failing to pre-fund these benefits. Next, we explain the extent to which differences in unfunded OPEB liabilities across states can be explained by differences in the generosity of benefits as opposed to funding differences or differences in actuarial assumptions. Finally, we examine the consequences for state budgets, which face pressure from various sources, including Medicaid expenditure growth. We conclude by discussing the implications that unfunded OPEB liabilities have for the debate around national health care policy.

Keywords: government finance, health policy, post-employment benefits

---

*Calabrese: New York University, Robert F. Wagner Graduate School of Public Service, thad.calabrese@nyu.edu. St.Clair: New York University, Robert F. Wagner Graduate School of Public Service, travis.stclair@nyu.edu

1 Introduction

Even prior to the emergence of COVID-19, researchers and policymakers were expressing alarm about the long-term fiscal health of U.S. state and local governments. According to a 2018 study by the Government Accountability Office, state and local governments will face increasing difficulty balancing their budgets over the next 50 years and must enact significant policy changes in order to maintain long-term fiscal balance (US Government Accountability Office, 2018). While the sources of fiscal stress are numerous, one particular component of government finances continues to stand out: the benefits offered to retired public sector employees.

The largest post-employment benefit received by retired government workers is typically their pension. In fact, much of the concern about state and local finance has centered around the condition of U.S. public sector pension funds, which represent a rising share of government expenditures (Munnell et al., 2010). Recent estimates put the full extent of unfunded pension liabilities at approximately $4 trillion (Moody's, 2018). Nevertheless, the considerable news coverage that pensions have garned as well as increased transparency in financial reporting have spurred an increasing number of governments to engage in reform (St. Clair and Guzman, 2018; Aubry, Crawford et al., 2017), and while a number of localities remain especially vulnerable, recent research suggests the majority of governments will be able to stabilize their pension debt with relatively moderate fiscal adjustments (Lenney, Lutz and Sheiner, 2019). Pension liabilities remain a significant challenge, but one that is widely recognized and understood.

Less widely recognized and understood are other post-employment benefit (OPEB) liabilities. Other post-employment benefits consist of various health care benefits, such as health insurance, dental insurance, vision, prescription drug insurance, and Medicare Part B reimbursement, offered to retired public employees and their families. While OPEB liabilities are typically lower than pension liabilities, they are also more difficult to measure and carry greater risk. Estimating pension liabilities requires discounting a stream of cash

flow payments that are well-known in advance, whereas estimating OPEB liabilities requires estimating the future cost of healthcare benefits, which are subject to considerable policy uncertainty. Moreover, as with pension liabilities, there is considerable heterogeneity in the generosity of OPEB plans, with some localities, such as New York City, reporting OPEB liabilities that are in excess of pension liabilities, while others not offering any healthcare benefits to retired government workers at all.

In this paper, we describe the nature of other post-employment benefits, quantify their financial impact, highlight variation in OPEB across states and localities, and discuss the policy implications. Our goal is not to refine existing estimates of the full extent of OPEB liabilities, but rather to describe the measurement and relative burden of the benefits at the state level in order to shed light on the budgetary ramifications of recent healthcare reform proposals. We begin by describing the healthcare benefits that different state governments offer to retired employees and summarizing the liabilities that states have incurred as a result of failing to pre-fund these benefits. Although we focus primarily on state governments, we provide information about OPEB liabilities for the 25 largest municipalities in a series of appendices. Our data come from governments' 2018 Comprehensive Annual Financial Reports (CAFRs)[1] and retirement system websites.

Much of the academic research on pensions has highlighted the extent to which the liabilities reported on government balance sheets are sensitive to the choice of discount rate (Novy-Marx and Rauh, 2011, 2009). Moreover, there are vast differences in the extent to which states have decided to pre-fund OPEB benefits, with some states not having taken any steps to set aside assets, while other states have set aside enough assets to completely fund any liabilities they have accrued. These differences make it difficult to compare OPEB liabilites across governments. Thus, after summarizing OPEB liabilities, we next explore the extent to which differences in OPEB liabilities across states can be explained by 1) differences in the generosity of benefits as opposed to 2) differences in actuarial assumptions

---

[1]The lone exception is New York. Because New York did not implement GASB 75 until fiscal year 2019, we use data from New York's 2019 CAFR instead.

or 3) funding differences. In doing so, we capitalize on a recent accounting change, GASB 75, that has reduced the amount of discretion states have in their actuarial practices and increased the transparency of OPEB reporting in states with cost-sharing plans.

Finally, we examine what OPEB means for state budgets that are already under pressure from various sources, including Medicaid expenditure growth and unfunded pensions. We describe the percentage of spending that states would need to devote to OPEB if they were to contribute the actuarially recommended amounts, and we compare these values to other significant line items, such as interest costs.

We conclude by discussing the implications that unfunded OPEB liabilities have for the debate around national health care policy. Ongoing debates around the future of the U.S. healthcare system have spurred discussion about the proper age of Medicare eligibility as well as the possibility of universal healthcare, one version of which is "Medicare for all." While raising the age of Medicare eligibity would mean substantial cost savings for the federal government, it would greatly increase OPEB liabilities, as a substantial proportion of OPEB costs are for retirees who are not yet Medicare eligible. On the flip side, a "Medicare for all" plan would be enormously costly for the federal government, but would eliminate substantial liabilities from state and local government balance sheets. In both cases, there will be "winners and losers" between states and local governments from any national healthcare reform. Understanding the distribution of these effects depends on the size and nature of the benefits that have been promised.

2   An overview of OPEB and OPEB liabilities

Nonpension benefits offered to retired government workers consist of various healthcare benefits, including medical, vision, dental, life insurance, and disability. The largest of these is the medical coverage that states and localities provide when public sectors workers retire

4

prior to being Medicare-eligible. However, even when retired workers pass the age of 65, many remain eligible for supplemental coverage and subsidies to their Medicare premiums. We collected information on the retirement benefits offered to public employees from state governments' 2018 CAFRs, and from OPEB plan documents where necessary. Table 1 lists the benefits offered by the largest plan (by membership) in each state.[2] Every state except for Kansas offers some form of medical coverage. The majority of states reimburse retirees for the full or partial cost of Medicare Part B medical insurance premiums (40/50) and provide some form of dental coverage (31/50), which is not covered by regular Medicare. Less common are life insurance coverage (24/50), vision benefits (20/50), and disability benefits (9/50). Appendix Table 1 outlines the benefits offered by the largest plan in the 25 largest municipalities. In general, the municipalities offer a greater range of benefits than states do, with 23 out of 25 offering life insurance and 17 out of 25 offering disability benefits.

As public employees accrue retirement benefits, governments are required to recognize a liability equal to the present value of the future stream of benefit payments. As Equation 1 shows, the present value of future health benefits for an employee age x is a function of mortality rates (p)[3], a retirement age schedule (q), a discount factor (d), and the economic liability for the employee in retirement (a), which itself is a function of the expected health benefits cost (C), mortality schedule, and a discount rate (Winklevoss, 1993).

$$(PVFB)_x = f(p, q, d_1, a(C, p, d_2)) \tag{1}$$

For pensions, the key actuarial inputs to determine liabilities are the mortality rate and salary progression, i.e. how much employees' salaries increase over time, as pension benefits are often tied to an employee's final salary. For the calculation of OPEB liabilities, since

---

[2]As with pensions, states often administer separate OPEB plans for different classes of employees, such as for teachers, state employees, and university employees. In a few states, OPEB plans are categorized instead by benefit category. For those states, such as North Carolina, that categorize plans by benefit category, we chose the largest healthcare plan by membership.

[3]In this case, the mortality rate more properly represents an employee's probability of survival in employment, as employees may be ineligible for normal or early retirement if they do not stay in the job long enough for their retirement benefits to vest.

much of the liability is based on the period of time during which a retired employee is ineligible for Medicare, and because benefits are not tied to final salary, the key actuarial inputs are different. The most important assumptions include the healthcare cost trend rate, healthcare utilization by age, and the average retirement age.

Because of the number of actuarial assumptions required for the estimation of OPEB liabilities, some percentage of the variation in OPEB liabilities across governments may be attributable to differences in assumptions rather than true differences in the cost. Fortunately, we are able to capitalize on a recent accounting change, GASB 75, that imposes some uniformity on the assumptions that governments use in their OPEB calculations, much as earlier standards imposed greater uniformity on pension calculations. GASB 75 requires that governments use a blended discount rate consisting of 1) the long-term rate of return on OPEB plan investments, and 2) a tax-exempt, high-quality municipal bond rate, with the proportion depending on the extent to which the sponsoring government has set aside assets to cover the liability. GASB 75 also requires the use of the entry age actuarial cost method rather than giving employers the choice of cost method. Finally, the standard requires that the liability of "cost-sharing plans" be apportioned to participating employers.[4] While governments still have some discretion in certain aspects of their liability calculations, these three changes represent a significant improvement on past standards.[5]

Adding to the uncertainty involved in the estimation of OPEB liabilities is the uncertainty arising from the fact that healthcare benefits are not given the same degree of legal protection as pensions. In New York State, for example, pensions are given explicit protection in the state constitution from being "diminished or impaired"[6], while no such protections exist for healthcare benefits. However, GASB accounting standards state that governments "have an

---

[4]Cost-sharing plans are multiple-employer plans in which the benefit obligations – along with any accompanying assets – are pooled, and the assets are then used to pay the benefits of any participating employer. Previously, employers participating in cost-sharing plans did not report their share of the liabilities.

[5]Unlike some recent papers that recalculate benefit liabilities using a uniform discount rate, the liabilities we report come directly from government balance sheets, as our goal is not to provide a "correct" estimate of liabilities but rather to shed light on the measurement issues involved and the accompanying policy considerations.

[6]Article V, Section 7. Lippman v. Board of Education of the Sewanhaka Central High District 1985.

obligation to pay OPEB based on the level of retirement benefits promised to employees in exchange for their service," and that "the possibility that a government could change or end the OPEB it has promised in the future does not change the fact that, as of the date of the financial statements, it had a present obligation to fulfill its promise to provide OPEB" (Government Accounting Standards Board, 2014). In some municipalities, such as New York City, OPEB benefits fall within the scope of collective bargaining, and thus may have further protection under state law (Calabrese, 2017).

Table 2 outlines the total liabilities that each state has incurred (across all OPEB plans) divided by the number of members. We examine separately "gross" liabilities and "unfunded" liabilities. Gross liabilities reflect the total cost of future benefits, while unfunded liabilities reflect the liabilities that states face after accounting for any assets that have been set aside to pre-fund the liabilities. The number of members reflects the number of employees who are eligible to receive benefits – both those who are currently working and eligible to receive benefits in the future as well as retired employees who are currently receiving benefits. We include only liabilities from the "primary government" and do not include liabilities from "discretely presented component units."[7] Appendix Table 2 details the liabilities per member for the largest municipalities.

Gross liabilities per member range from \$0 in South Dakota to \$428,649 in Connecticut, with a mean value of \$51,599. Unfunded liabilities range from \$0 in South Dakota to \$415,661 in Connecticut, with a mean value of \$45,661. On average, the liabilities per member are larger among municipalities, who report an average of \$59,734 in gross liabilities per member and \$49,738 in unfunded liabilities. This is consistent with other work showing that, unlike pensions, the majority of OPEB liabilities are at the local level, as state-administered

---

[7]Component units are legally separate organizations for which a government is either financially accountable or whose relationship with the government is such that exclusion would cause the government's financial statements to be misleading. In most cases, if a state is financially accountable for an organization, then the finances of the organization are blended with those of the primary government. In other cases, if the component units' debts are not expected to be repaid with the resources of the parent government, then their finances are presented separately. Examples of discreted presented component units including affordable housing corporations, scholarship foundations, and finance authorities.

pension plans will frequently cover teachers and local governments workers, while state-administered OPEB plans will not (Munnell and Aubry, 2016). For example, police and fire public employees typically have much lower retirement ages than other public employees, and these public workers are typically local government employees (not state employees). Munnell, Aubry and Crawford (2016) estimate that aggregate unfunded OPEB liabilities for state and local governments are about one-fifth to one-third the size of aggregate unfunded pension liabilities.

3   What explains variation in unfunded OPEB liabilities

In this section, we explore why it is that some governments have greater unfunded liabilities than others, and more generally, what explains the variation across governments. In particular, we are interested in the following question: to what extent can differences in unfunded OPEB liabilities be explained by 1) differences in funding, and 2) differences in actuarial assumptions, or 3) differences in the generosity of benefits

Even if governments offer the exact same health benefits to their employees and utilize the same set of assumptions in calculating the future cost of these benefits, there may be differences in the *unfunded* liability if some governments pre-fund the benefits while others do not. Pre-funding refers to setting aside money in a trust fund to cover the benefits that have been earned.[8] A government's funding ratio reflects the extent to which they have set aside sufficient funds and is calculated by dividing the trust fund assets by the actuarially accrued liability (AAL). The difference between the assets that have been set aside and the AAL is the unfunded actuarial accured liability (UAAL).

$$FundingRatio = \frac{Assets}{AAL} \tag{2}$$

---

[8]Various prefunding mechanisms are used by states. See Coggburn and McCall (2009) and Ruggini (2008) for details.

In order for a government to reach full funding, it must pay an amount each year that consists of two parts: 1) the normal cost, equal to the amount of benefits earned by employees in the current year, and 2) an amortized portion of the unfunded liability. Even if governments do make payments to an OPEB trust fund for the annual amount of the normal cost, their funding ratio will remain below 100% so long as they fail to pay off unfunded liabilities that have accrued.

Our calculations based on 2018 data show that the median funding ratio is 4%, meaning that the average government has set aside enough assets to cover only 4% of its total liability. Moreover, the distribution of funding ratios is heavily skewed, with the majority of states reporting funding ratios of 0-10%. These findings are consistent with previous work showing that states continue to finance OPEB on a pay-as-you-go basis instead of pre-funding benefits (Pew Charitable Trusts, 2018). They also makes clear why the differences between gross and unfunded liabilities in Table 2 are as small as they are; with few states setting aside any assets, all or most liabilities are unfunded. Hence, the differences in OPEB liabilities across states cannot be explained by funding differences, as few states have begun significantly pre-funding their benefits.

Next, we turn to actuarial assumptions. As noted above, the actuarial assumptions that are important for discounting healthcare benefits differ from those that are important for discounting pension liabilities. The future cost of healthcare benefits cannot be estimated as easily as a stream of pension payments; while mortality risk and discount rate assumptions play a role in both sets of calculations, healthcare benefits are obviously more sensitive to assumptions about the future cost and utilization of healthcare. On the other hand, healthcare benefits are less sensitive to salary progression, and the investment rate of return; the benefits are much less frequently tied to one's final salary than pension benefits are, and as we show above, there are few (if any) assets that have been set aside to invest.

From government CAFRs and benefit plan documents, we were able to collect information on governments' assumptions around discount rates, investment rate of return, and the

healthcare cost trend rate. However, we focus our discussion specifically on the healthcare cost trend rate (HCTR). We do this for two reasons. While GASB 75 still permits some discretion in the rate used to discount future benefits, the focus that was placed on discount rates in the calculation of pension liabilities (see, for example, Eaton and Nofsinger (2004) and Chaney, Copley and Stone (2002)) has incentivized many governments that were previously using unrealistically high rates to bring them more in line with the average (Pew Charitable Trusts, 2019). Meanwhile, arguably the most important assumption that states make in their calculation of OPEB liabilities is the HCTR, the annual percentage increase in the cost of treating patients. In their CAFRs, governments provide a table showing the sensitivity of their total OPEB liability to one percentage point differences in the HCTR. This provides us with a useful way of assessing the importance of HCTR assumptions to liability calculations and - given the importance of the HCTR assumption – the importance of actuarial assumptions more generally.

Table 3 shows the HCTR assumption used by the largest plan in each state in 2018, as well as the swing in total OPEB liability that results from a one percentage point swing in the HCTR. The average assumed increase in healthcare costs is 7%, with a standard deviation of 1.34%, and values ranging from a low of 2.33% (Wisconsin Retiree Health Insurance Plan) to a high of 9.9% (Idaho Retiree Health Plan). For the average state, an increase of 1 percentage point in the HCTR would result in a 26% increase in OPEB liabilities. Based on this table, we can make several observations. First, the standard deviation is low relative to the average, indicating that there is fairly strong uniformity in the HCTR assumption. 31 out of the 43 states for which data is available have assumed a rate of cost increase between 6 and 8%. Second, small differences in this assumption have large implications for the liability calculation.

We investigate the HCTR further by examining which states are more likely to assume low rates, thereby lowering their OPEB liability.[9] We observe a correlation of 0.08 between

_____

[9]To the extent that there is geographic dispersion in healthcare costs, it may be reasonable for some states to assume a higher/lower HCTR than others.

a state's unfunded liabilities/member and its HCTR[10], indicating that there is little relationship between a state's assumed HCTR and its funding level. Thus, while the HCTR is a crucial assumption that can significantly impact a state's estimate of its total OPEB liabilities, it does not appear to be the case that differences across states can systematically be explained by actuarial assumptions.

This leads us to conclude that the *primary* factor explaining differences across states is the generosity of benefits. In theory, we could corroborate this finding by applying uniform actuarial assumptions across all states and then comparing the resulting gross liabilities per member. In practice, however, the number and complexity of actuarial assumptions make this prohibitively difficult. Nevertheless, a superficial analysis of our data appears to bear this finding out. When we compare the gross liabilities per member of states that subsidize Medicare premiums vs states that do not, we see that states subsidizing Medicare premiums report liabilities that are 70% higher.

4 OPEB and government budgets

One final way of assessing the potential fiscal effects of OPEB is to calculate the annual cost these retiree benefits represent as a proportion of government budgets. Unlike the liability calculations we have presented so far, which capture the present value of the total amount of benefits earned by employees, a measure of annual cost has the advantage of being easier for legislators and the public to interpret. To perform the calculation, we must first identify the correct measure of annual "cost"; as most states have not been consistently pre-funding benefits, we cannot look at the amounts that states have contributed in the past. Instead, we use the annual OPEB "expense" as reported in government financial statements. This measure represents the amount a state would be required to contribute in a given year

---

[10]The funding ratio and the estimate of gross liabilities per member are based on all of a state's OPEB funds, whereas the HCTR is based on its largest fund by membership, and consequently these correlations should be viewed with caution.

if it paid for the full extent of current costs with current revenues. As with the measure of liabilities, the expense calculation is dependent on the actuarial assumptions used by states, which we take as given. To determine the proportion of the budget that would be consumed by OPEB costs, we follow Munnell and Aubry (2017) and use "own-source revenues" as the denominator.

The results are reported in Table 4. The average state would spend about 1.6 percent of its own-source revenues on OPEB. While some states would spend little to nothing (Maine, Michigan, and Pennsylvania), for others OPEB would consume a significant portion of their budgets. New Jersey, for example, would spend nearly 13 percent of its own-source revenues on OPEB. Connecticut, Delaware, Hawaii, and Illinois would all have to spend in excess of 6 percent. Spending on OPEB would be comparable to the amounts states spent on interest on their debt (2.4 percent of own-source revenues) and corrections (2.7 percent).[11] Although 1.6 percent may not seem like a large number, these costs come on top of an already challenging fiscal environment for states, in which an increasing share of their spending is on autopilot (Gordon et al., 2019), including significant fiscal pressure from Medicaid expenditure growth (Boyd, 2003; Sisko et al., 2019). Moreover, so long as states persist in funding OPEB on a pay-as-you-go basis, these costs will only continue to rise over time.

5 Discussion and policy implications

We have shown that other post-employment benefits represent a significant long-term challenge for state and local governments, most of whom continue to fund OPEB on a pay-as-you-go basis rather than pre-funding benefits. While the future costs of OPEB are unlikely to reach that of public pensions, there is considerable uncertainty in the estimation of liabilities, in part because healthcare benefits do not receive the same protection in state constitutions as public pensions and also because of policy uncertainty in the U.S. healthcare

---

[11] These estimates are based on the authors' analysis of the 2017 Census of Governments.

sector. In this section, we discuss how OPEB liabilities are relevent for the consideration of two different policy proposals – 1) raising the age of Medicare eligibility, and 2) shifting to a universal healthcare system.

Proponents of Medicare reform point out that, as life expectancy has increased, so to has the average length of time that beneficiaries remain on Medicare. According to the Congressional Budget Office, "In 1965, when Medicare was established, a 65-year-old man could expect to live another 12.9 years, on average, and a 65-year-old woman another 16.3 years. Since then, life expectancy for 65-year-olds has risen by more than four years—to 18.1 years for men and 20.6 years for women"(Congressional Budget Office, 2016). These increases in life expectancy have come with significant financial ramifications for the federal government, as Medicare remains the most significant source of long-term fiscal stress for the federal budget (Congressional Budget Office, 2019). Increasing the age of Medicare eligibility from 65 to 67 would reduce federal budget deficits between 2020 and 2026 by $18 billion (Congressional Budget Office, 2016).[12]

While this option is clearly attractive for the federal government, what is less appreciated is that this reform would result in significant increases in healthcare costs for state and local governments. As we note above, the measurement of OPEB liabilities is especially sensitive to the retirement age because the majority of the liability comes from healthcare benefits to retirees, particularly retired public safety workers, who are not yet Medicare-eligible. An increase in the age of Medicare eligibility would extend the amount state and local governments are on the hook for the healthcare costs of retired workers, unless there was a corresponding increase in the age at which state and local workers are eligible to retire.

Another policy proposal that has received considerable media attention is "universal healthcare" or "single-payer", in which the federal government finances healthcare for all citizens. One version of this proposal is "Medicare for All," in which the Medicare system is expanded to cover all ages (Frakt and Oberlander, 2020). Although the costs of such a

---

[12]Social Security's full retirement age has already increased from 65 to 66 and is scheduled to increase further.

program are highly dependent on the details, most proposals suggest that federal spending on healthcare would increase by at least 10 percent of G.D.P. (New York Times, October 16, 2019), as healthcare costs would shift from individuals and their employers to the federal government. Moreover, even before taking OPEB costs into account, state and local governments would benefit as Medicaid spending would also shift onto the new system.

While many of the analyses of universal healthcare proposals have taken into account the reallocation of Medicaid costs, they do not incorporate the OPEB savings that would accrue to state and local governments. As in the case of changes to the age of Medicare eligibility, these cost "savings" represent merely a transfer from states to the federal government. Only insofar as there are cost efficiencies to be realized through, for example, a reduction in administrative expenses, would the transfer represent true savings. States with generous retiree health benefits are likely to benefit the most from a shift towards a single-payer system, but are also likely to experience the most resistance from workers and retirees who fear losing current or future benefits for less generous federal programs.

There are of course many other arguments for and against the healthcare reforms we have discussed, and our intention is not to suggest that OPEB funding sways these arguments in any one direction. We simply note that discussion of these reforms has so far neglected to consider the budgetary consequences for state and local government employers. These budgetary consequences are substantial, as other post-employment benefit already represent a sizeable liability on government balance sheets. Any serious proposals to reform the U.S. healthcare system must take into account not only the health benefits that retired government workers have been promised, but also the budgetary consequences that any sizeable shift in responsibility for these benefits would entail.

Table 1: Other Post-Employment Benefits by State

State	Name of Plan	Medical	Medicare	Vision	Dental	Life Insur	Disability
AL	Alabama Education Trust	YES	YES	YES	YES	NO	NO
AK	Alaska Public Employee Retirement System DB	YES	YES	NO	NO	NO	NO
AZ	Arizona DB Healthcare Plan	YES	YES	YES	YES	YES	YES
AR	Arkansas State Employee Health Plan	YES	YES	NO	NO	NO	NO
CA	California Unfunded OPEB Plan	YES	NO	YES	YES	YES	NO
CO	Colorado PERA Healthcare Trust Fund	YES	NO	YES	YES	NO	NO
CT	Connecticut State Employee OPEB Plan	YES	YES	NO	YES	YES	NO
DE	Delaware OPEB Trust	YES	YES	NO	NO	NO	NO
FL	Florida State Employees' Group Health Insurance Plan	YES	YES	YES	YES	YES	NO
GA	Georgia School OPEB Fund	YES	NO	NO	NO	NO	NO
HI	Hawaii State OPEB Plan	YES	YES	YES	YES	YES	NO
ID	Idaho Retiree Health Plan	YES	NO	NO	NO	NO	NO
IL	Illinois Teachers' Retirement Insurance Program	YES	YES	NO	NO	YES	YES
IN	Indiana State Personnel Plan	YES	YES	YES	YES	NO	NO
IA	Iowa State OPEB Plan	YES	NO	NO	YES	YES	YES
KS	Kansas State OPEB Plan	NO	NO	NO	NO	YES	YES
KY	Kentucky Teachers' Retirement Plan	YES	YES	YES	YES	YES	NO
LA	Louisiana State OPEB Plan	YES	YES	NO	NO	YES	NO
ME	Maine Teachers OPEB Plan	YES	YES	NO	NO	NO	NO
MD	Maryland State OPEB Plan	YES	YES	NO	YES	NO	NO
MA	Massachusetts State OPEB Plan	YES	YES	YES	YES	YES	NO
MI	Michigan State Employees' Retirement System	YES	YES	YES	YES	NO	NO
MN	Minnesota Primary Government Plan	YES	NO	NO	YES	NO	NO
MS	Mississippi State Life and Health Plan	YES	YES	NO	NO	YES	NO
MO	Missouri Consolidated Healthcare Plan	YES	YES	YES	YES	NO	NO
MT	Montana State OPEB Plan	YES	NO	YES	YES	NO	NO
NE	Nebraska Retiree Health Insurance Program	YES	NO	YES	YES	NO	NO
NV	Nevada State OPEB Plan	YES	YES	NO	YES	YES	NO
NH	New Hampshire Non-Trusted OPEB Plan	YES	YES	NO	NO	NO	NO
NJ	New Jersey Local Education Plan	YES	YES	NO	YES	NO	NO
NM	New Mexico Retiree Healthcare Authority Plan	YES	YES	NO	NO	YES	NO
NY	New York State Health Insurance Program	YES	YES	YES	YES	NO	NO
NC	North Carolina State Health Plan	YES	YES	NO	NO	NO	NO
ND	North Dakota Retiree Health Insurance Credit	YES	YES	NO	NO	YES	NO
OH	Ohio State Teachers Retirement OPEB Plan	YES	YES	YES	YES	YES	YES
OK	Oklahoma Teachers OPEB Plan	YES	YES	YES	YES	YES	YES
OR	Oregon Retirement Health Insurance Account	YES	YES	YES	YES	NO	NO
PA	Pennsylvania Retired Employees Health Program	YES	YES	YES	YES	NO	NO
RI	Rhode Island State Employees OPEB Plan	YES	YES	YES	YES	YES	YES
SC	South Carolina Retiree Health Insurance Trust Fund	YES	YES	NO	YES	NO	NO
SD	South Dakota OPEB Plan	YES	YES	YES	YES	YES	NO
TN	Tennessee OPEB Plan (closed)	YES	YES	NO	NO	NO	NO
TX	Texas Teachers Retirement OPEB Plan	YES	YES	NO	NO	NO	NO
UT	Utah State Employee OPEB Plan	YES	YES	NO	YES	YES	NO
VT	Vermont Retired Teachers' Health and Medical Benefit Fund	YES	YES	NO	YES	YES	YES
VA	Virginia Retiree Health Insurance Credit Program	YES	YES	NO	NO	NO	NO
WA	Washington Public Employees' Benefits Board OPEB Plan	YES	NO	NO	YES	YES	YES
WV	West Virginia Retiree Health Benefit Trust	YES	YES	NO	NO	YES	NO
WI	Wisconsin Retiree Health Insurance Plan	YES	YES	NO	YES	NO	NO
WY	Wyoming Retiree Health Plan	YES	YES	NO	NO	YES	NO

Note: This table describes the benefits offered by the largest plan (by membership) in each state in 2018.

Table 2: Liabilities Per Member by State

State	Unfunded Liability/Member	Gross Liabililty / Member
Alabama	$11,564	$11,564
Alaska	$8,966	$160,210
Arizona	$13,339	$13,339
Arkansas	$37,827	$37,827
California	$196,154	$203,886
Colorado	$10,453	$12,675
Connecticut	$415,661	$428,649
Delaware	$118,246	$123,625
Florida	$41,955	$41,955
Georgia	$34,743	$38,543
Hawaii	$73,689	$81,370
Idaho	$2,668	$2,668
Illinois	$110,777	$110,679
Indiana	$16,531	$23,121
Iowa	$20,577	$21,629
Kansas	$1,818	$1,818
Kentucky	$17,539	$26,183
Louisiana	$70,089	$70,089
Maine	$22,158	$23,983
Maryland	$48,684	$50,090
Massachusetts	$106,363	$114,863
Michigan	$203	$267
Minnesota	$12,666	$12,666
Mississippi	$1,278	$1,280
Missouri	$27,009	$28,129
Montana	$3,006	$3,006
Nebraska	$1,067	$1,067
Nevada	$4,183	$4,188
New Hampshire	$59,378	$59,580
New Jersey	$181,289	$181,289
New Mexico	$27,870	$32,086
New York	$191,470	$191,470
North Carolina	$4,000	$19,343
North Dakota	$1,185	$2,884
Ohio	$5,281	$10,684
Oklahoma	$717	$1,685
Oregon	$773	$823
Pennsylvania	$135,675	$138,292
Rhode Island	$24,079	$32,286
South Carolina	$10,425	$11,312
South Dakota	$0	$0
Tennessee	$17,595	$17,595
Texas	$43,020	$43,678
Utah	$10,816	$39,024
Vermont	$68,691	$68,575
Virginia	$2,409	$5,136
Washington	$33,164	$33,164
West Virginia	$16,002	$21,365
Wisconsin	$2,780	$3,618
Wyoming	$16,692	$16,692
Average	$45,651	$51,599

Note: Gross liabilities reflect the total amounts owed by a state across all plans. Unfunded liabilities represent the net amounts owed after accounting for plan assets. In a few instances, the unfunded liabilities exceed the gross liabilities as a result of a benefit payable. South Dakota eliminated its liabilities by converting to a defined-contribution plan. Data from 2018.

Table 3: Assumptions Regarding Health Care Cost Trend Rate (HCTR) and the Implications for Unfunded Liabilities, by State

Plan	HCTR	-1% HCTR	Unfunded Liability	+1% HCTR
Alabama Education Trust	4.63%	$15,269,000	$18,911,000	$23,611,000
Alaska Public Employee Retirement System DB	8.00%	$19,922,000	$1,026,288,000	$2,238,554,000
Arizona DB Healthcare Plan	6.50%	$713,010,000	$846,763,000	$1,020,331,000
Arkansas State Employee Health Plan	5.00%	$1,710,385,000	$2,015,733,000	$2,405,561,000
CA Unfunded OPEB Plan	8.00%	$51,703,522,000	$60,993,486,000	$72,899,768,000
Colorado PERA Healthcare Trust Fund	5.00%	$426,058,000	$438,113,000	$452,631,000
Connecticut State Employee OPEB Plan	8.00%	$19,866,141,000	$17,115,654,000	$14,887,173,000
Delaware OPEB Trust	7.00%	$6,318,488	$7,643,708,000	$8,865,275,000
Florida State Employees' Group Health Insurance Plan	7.80%	$6,497,464,000	$7,999,457,000	$10,012,415,000
Georgia School OPEB Fund	7.50%	$10,685,141,000	$12,709,693,000	$15,296,996,000
Hawaii State OPEB Plan	6.60%	$5,872,005,000	$6,897,197,000	$8,191,082,000
Idaho Retiree Health Plan	9.90%	$29,391,000	$32,325,000	$35,714,000
Illinois Teachers' Retirement Insurance Program	8.00%	$11,890,043,000	$14,731,764,000	$18,810,575,000
Indiana State Personnel Plan	8.50%	($2,700,000)	$2,036,000	$7,589,000
Iowa State OPEB Plan	6.40%	$162,947,000	$182,221,000	$204,905,000
Kansas State OPEB Plan	n/a	n/a	n/a	n/a
Kentucky Teachers Retirement Plan	8.00%	$1,349,545,000	$1,611,449,000	$1,806,363,000
Louisiana State OPEB Plan	7.00%	$5,470,744,302	$6,347,318,862	$7,470,411,478
Maine Teachers OPEB Plan	6.60%	$1,029,272,000	$1,248,326,000	$1,537,004,000
Maryland State OPEB Plan	8.50%	$8,907,399,000	$10,571,279,000	$12,684,025,000
Massachusetts State OPEB Plan	8.00%	$12,386,900,000	$14,909,204,000	$18,201,800,000
Michigan State Employees' Retirement System	9.00%	$9,295,510	$10,613,347	$12,124,736
Minnesota Primary Government Plan	6.40%	$556,546,000	$621,237,000	$697,230,000
Mississippi State Life and Health Plan	7.75%	$174,450,000	$181,024,000	$205,369,000
Missouri Consolidated Healthcare Plan	6.50%	$1,497,398,000	$1,756,787,000	$2,085,312,000
Montana State OPEB Plan	7.50%	$40,684,000	$46,470,000	$61,332,000
Nebraska Retiree Health Insurance Program	6.25%	$13,170,000	$14,486,000	$16,013,000
Nevada State OPEB Plan	7.50%	$748,234,000	$799,477,000	$859,904,000
New Hampshire Non-Trusted OPEB Plan	7.40%	$1,769,703,000	$2,110,546,000	$2,556,234,000
New Jersey Local Education Plan	5.90%	$44,113,584,560	$53,639,841,858	$66,290,599,457
New Mexico Retiree Healthcare Authority Plan	8.00%	$3,675,884,000	$4,348,355,000	$4,875,587,000
New York State Health Insurance Program	6.25%	$42,542,000,000	$50,886,000,000	$61,841,000,000
North Carolina State Health Plan	6.50%	$23,502,011,000	$28,488,185,000	$35,034,055,000
North Dakota Retiree Health Insurance Credit	n/a	n/a	$40,876,801	n/a
Ohio State Teachers Retirement OPEB Plan	6.00%	$10,317,000	$14,850,000	$20,816,000
Oklahoma Teachers OPEB Plan	n/a	n/a	($11,627,000)	n/a
Oregon Retirement Health Insurance Account	n/a	n/a	($9,749,000)	n/a
Pennsylvania Retired Employees Health Program	6.20%	$12,603,440,000	$14,682,127,000	$17,265,928,000
Rhode Island State Employees OPEB Plan	9.00%	$390,149,000	$463,597,000	$554,874,000
South Carolina Retiree Health Insurance Trust Fund	7.00%	$2,326,682,000	$2,837,273,000	$3,498,367,000
South Dakota OPEB Plan	n/a	n/a	n/a	n/a
Tennessee OPEB Plan (closed)	n/a	n/a	$110,377,000	n/a
Texas Teachers Retirement OPEB Plan	7.00%	$21,159,603,000	$25,413,891,000	$30,996,052,000
Utah State Employee OPEB Plan	5.90%	$73,280,000	$98,452,000	$114,710,000
Vermont Retired Teachers' Health and Medical Benefit Fund	7.15%	$800,022,000	$932,290,000	$1,099,519,000
Virginia Retiree Health Insurance Credit Program	n/a	n/a	$382,992,000	n/a
Washington Public Employees' Benefits Board OPEB Plan	7.00%	$4,703,526,000	$5,822,187,000	$7,323,530,000
West Virginia Retiree Health Benefit Trust	8.50%	$1,353,249,000	$1,610,982,000	$1,926,207,000
Wisconsin Retiree Health Insurance Plan	2.33%	$288,400,000	$326,000,000	$370,800,000
Wyoming Retiree Health Plan	7.60%	$247,839,528	$294,516,700	$357,640,097
Average	7.06%			

Note: The health care cost trend rate (HCTR) represents the growth in health care costs that is assumed by the largest plan in each state in its calculation of liabilities. N/a indicates that the data was unavailable. Data from 2018.

Table 4: OPEB Expense as a Percentage of Own-Source Revenues, by State

State	Annual OPEB Expense	OPEB % of OSR
Alabama	$130,118,000	0.8%
Alaska	$67,469,000	1.3%
Arizona	$5,700,000	0.0%
Arkansas	$133,380,000	1.0%
California	$5,658,249,000	2.9%
Colorado	$34,200,000	0.2%
Connecticut	$1,367,354,000	6.7%
Delaware	$362,700,000	6.1%
Florida	$513,360,000	0.9%
Georgia	$135,393,000	0.5%
Hawaii	$656,020,000	6.2%
Idaho	$7,111,000	0.1%
Illinois	$3,197,401,000	6.6%
Indiana	$1,386,000	0.0%
Iowa	$19,746,000	0.1%
Kansas	$6,576,000	0.0%
Kentucky	$199,239,000	1.2%
Louisiana	$268,264,260	1.8%
Maine	$151,534	0.0%
Maryland	$741,096,000	2.7%
Massachusetts	$1,009,000,000	2.6%
Michigan	$955,784	0.0%
Minnesota	$65,812,000	0.2%
Mississippi	$8,693,000	0.1%
Missouri	$190,479,000	1.0%
Montana	$3,900,000	0.1%
Nebraska	$1,381	0.0%
Nevada	$2,194,734	0.0%
New Hampshire	$67,780,000	1.6%
New Jersey	$5,598,212,841	12.7%
New Mexico	$43,500,000	0.4%
New York	$2,900,000,000	2.8%
North Carolina	$373,697,000	1.0%
North Dakota	$5,635,651	0.1%
Ohio	$227,400,000	0.5%
Oklahoma	$15,510,000	0.1%
Oregon	$15,000,000	0.1%
Pennsylvania	$1,142,342	0.0%
Rhode Island	$41,535,000	0.8%
South Carolina	$174,444,000	1.0%
South Dakota	n/a	n/a
Tennessee	$106,400,000	0.6%
Texas	$3,100,000,000	3.7%
Utah	$10,699,000	0.1%
Vermont	$138,417,000	3.4%
Virginia	$121,263,000	0.3%
Washington	$479,700,000	1.5%
West Virginia	$185,598,000	2.3%
Wisconsin	$21,087,125	0.1%
Wyoming	$27,100,000	0.9%
Average	*$580,409,605*	*1.6%*

Note: Data from 2018.

Appendix Table 1: Other Post-Employment Benefits Offered by the 25 Largest Municipalities

Plan Name	Medical	Medicare	Vision	Dental	Life Insur	Disability
Austin City Plan	YES	YES	YES	YES	YES	NO
Boston City Plan	YES	YES	YES	NO	YES	YES
Charlotte Employee Benefit Trust Plan	YES	YES	NO	NO	YES	NO
Chicago Non-CBA Plan	YES	YES	YES	YES	NO	YES
Columbus Public Employee Retirement Plan	YES	YES	YES	YES	YES	YES
Dallas City Plan	YES	YES	YES	YES	YES	YES
Denver Employee Retirement Plan	YES	NO	YES	YES	YES	YES
Detroit Death Benefit	NO	NO	NO	NO	YES	NO
El Paso City Plan	YES	YES	YES	YES	YES	YES
Fort Worth City Plan	YES	YES	YES	YES	YES	YES
Houston City Plan	YES	YES	YES	YES	YES	YES
Indianapolis City Plan	YES	NO	YES	YES	YES	YES
Jacksonville City Plan	YES	YES	YES	YES	YES	YES
Los Angeles City Employee Plan	YES	YES	YES	YES	YES	YES
Memphis City Plan	YES	YES	YES	YES	YES	NO
Nashville Metropolitan Government Plan	YES	YES	YES	YES	YES	NO
New York City OPEB Plan	YES	YES	YES	YES	YES	YES
Philadelphia City Plan	YES	YES	YES	YES	YES	YES
Phoenix Medical Expense Reimbursement Plan	YES	YES	NO	NO	NO	NO
San Antonio Retiree Health Care Fund	YES	YES	YES	YES	YES	NO
San Diego City Employee Retirement Plan	YES	YES	YES	YES	YES	NO
San Francisco Retiree Health Care Trust Fund	YES	YES	YES	YES	YES	YES
San Jose Federated City Employee Plan	YES	YES	YES	YES	YES	YES
Seattle Health Care Blended Premium Subsidy	YES	YES	YES	YES	YES	YES
Washington DC City Plan	YES	YES	NO	NO	YES	YES

Note: This table describes the benefits offered by the each municipal plan in 2018. "Medicare" refers to whether or not the plan covers a portion of Medicare premiums

Appendix Table 2: Liabilities Per Member for the 25 Largest Municipalities

Cities	Unfunded Liability/Member	Gross Liability/Member
Austin	$112,228	$112,228
Boston	$76,704	$93,667
Charlotte	$80,303	$94,197
Chicago	$7,914	$7,914
Columbus	$4,496	$6,275
Dallas	$48,920	$48,920
Denver	$21,479	$29,336
Detroit	$0	$0
El Paso	$30,223	$30,223
Fort Worth	$51,950	$55,999
Houston	$72,467	$72,467
Indianapolis	$45,968	$48,388
Jacksonville	$19,561	$19,561
Los Angeles	$27,005	$85,009
Memphis	$28,610	$28,957
Nashville	$61,230	$61,230
New York City	$174,669	$183,092
Philadelphia	$20,562	$20,562
Phoenix	$4,155	$12,015
San Antonio	$51,822	$51,822
San Diego	$76,792	$92,957
San Francisco	$67,447	$70,625
San Jose	$115,202	$173,541
Seattle	$46,206	$46,206
Washington, DC	-$2,461	$48,167
Average	*$51,913*	*$59,734*

Note: Gross liabilities (assets) reflect the total amounts owed by a state across all plans. Unfunded liabilities represent the net amounts owed after accounting for plan assets. Negative net liabilities indicate that a city has assets in excess of liabilities. Data from 2018.

References

Aubry, Jean-Pierre, Caroline V Crawford, et al. 2017. "State and local pension reform since the financial crisis." *Center for Retirement Research*, SLP #54.

Boyd, Donald J. 2003. "The bursting state fiscal bubble and state Medicaid budgets." *Health Affairs*, 22(1): 46–61.

Calabrese, Thad. 2017. "The price of promises made: What New York City should do about its $95 billion OPEB debt." *https://cbcny.org/research/price-promises-made*, Accessed Februaru 3, 2020.

Chaney, Barbara A, Paul A Copley, and Mary S Stone. 2002. "The effect of fiscal stress and balanced budget requirements on the funding and measurement of state pension obligations." *Journal of Accounting and Public Policy*, 21(4-5): 287–313.

Coggburn, Jerrell D, and Jamie McCall. 2009. "Prefunding other post employment benefits (OPEB) in state and local governments: options and early evidence." *https://slge.org/assets/uploads/2011/12/Prefunding_OPEB.pdf*.

Congressional Budget Office. 2016. "Options for Reducing the Deficit: 2017 to 2026." *https://www.cbo.gov/budget-options/2016/52237*, Accessed February 21, 2020.

Congressional Budget Office. 2019. "The 2019 Long-Term Budget Outlook." *https://www.cbo.gov/publication/55331*, Accessed February 24, 2020.

Eaton, Tim V, and John R Nofsinger. 2004. "The effect of financial constraints and political pressure on the management of public pension plans." *Journal of Accounting and Public Policy*, 23(3): 161–189.

Frakt, Austin B, and Jonathan Oberlander. 2020. "Challenges To Medicare For All Remain Daunting." *Health Affairs*, 39(1): 142–145.

Gordon, Tracy, Megan Randall, Eugene Steuerle, and Aravind Boddupalli. 2019. "Fiscal Democracy in the States: How much spending is on autopilot." *https://www.taxpolicycenter.org/publications/fiscal-democracy-states-how-much-spending-autopilot*.

Government Accounting Standards Board. 2014. "Q&A: The GASB's OPEB proposals." *https://www.gasb.org/jsp/GASB/Document_C/DocumentPage&cid=1176164085261*, Accessed Feb 3, 2020.

Lenney, Jamie, Byron Lutz, and Louise Sheiner. 2019. "The Sustainability of State and Local Government Pensions: A Public Finance Approach."

Moody's. 2018. "Federal Reserve Revision Pushes Unfunded Pension Liabilities to More Than $4 Trillion."

Munnell, Alicia H, and Jean-Pierre Aubry. 2016. "An overview of the pension/OPEB landscape." *Center for Retirement Research Working Paper*, , (2016-11).

Munnell, Alicia H, and Jean-Pierre Aubry. 2017. "An Overview of the State and Local Government Pension/OPEB Landscape." *The Journal of Retirement*, 5(1): 117–137.

Munnell, Alicia H, Jean-Pierre Aubry, and Caroline V Crawford. 2016. "How big a burden are state and local OPEB benefits?" *Center for Retirement Research at Boston College.*

Munnell, Alicia H, Jean-Pierre Aubry, Laura Quinby, et al. 2010. "The impact of public pensions on state and local budgets." *Center for Retirement Research, Boston College, Boston, MA.*

New York Times. October 16, 2019. "Would 'Medicare for All' Save Billions or Cost Billions?" *https://www.nytimes.com/interactive/2019/04/10/upshot/medicare-for-all-bernie-sanders-cost-estimates.html.*

Novy-Marx, Robert, and Joshua D Rauh. 2009. "The liabilities and risks of state-sponsored pension plans." *Journal of Economic Perspectives*, 23(4): 191–210.

Novy-Marx, Robert, and Joshua Rauh. 2011. "Public pension promises: how big are they and what are they worth?" *The Journal of Finance*, 66(4): 1211–1249.

Pew Charitable Trusts. 2018. "Update: 50-State Survey of Retiree Health Care Liabilities." *https://www.pewtrusts.org/en/research-and-analysis/fact-sheets/2018/12/update-50-state-survey-of-retiree-health-care-liabilities*, Accessed February 5, 2020.

Pew Charitable Trusts. 2019. "State pension funds reduce assumed rates of return." *https://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2019/12/state-pension-funds-reduce-assumed-rates-of-return.*

Ruggini, John. 2008. "In an OPEB we trust?" *Government Finance Review*, 24(1): 34–40.

Sisko, Andrea M, Sean P Keehan, John A Poisal, Gigi A Cuckler, Sheila D Smith, Andrew J Madison, Kathryn E Rennie, and James C Hardesty. 2019. "National health expenditure projections, 2018–27: economic and demographic trends drive spending and enrollment growth." *Health Affairs*, 38(3): 491–501.

St. Clair, Travis, and Juan Pablo Martinez Guzman. 2018. "Contribution volatility and public pension reform." *Journal of Pension Economics & Finance*, 17(4): 513–533.

US Government Accountability Office. 2018. "State and local goverments' fiscal outlook: 2018 update." *https://www.gao.gov/assets/700/696016.pdf*, Accessed January 20, 2020.

Winklevoss, Howard E. 1993. *Pension mathematics with numerical illustrations.* University of Pennsylvania Press.