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# The Fiscal Sustainability of Retiree Health Care Benefits Among New York State School Districts

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## **The Fiscal Sustainability of Retiree Health Care Benefits Among New York State School Districts**

**Robert Bifulco, Minch Lewis, and Iuliia Shybalkina**

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**Abstract**

We examine spending on retiree health care as a percentage of revenues for a sample of New York State school districts. The fiscal burden of these benefits grew from 2010 to 2021, and big city school districts have faced the largest burdens. Assuming CBO forecasts regarding growth in health care costs and continuation of recent trends in revenue growth, we project that the burden of retiree health care benefits will exceed 10 percent of revenue by 2050. Projected burdens are greatest big city and high need rural districts. We discuss cutting benefits and pre-funding as possible policy responses.

**JEL No.:** H72, H75, I13, I22

**Keywords:** Retiree benefits; health care benefits; school district finance; public budgeting; fiscal sustainability

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## I. INTRODUCTION

In addition to pensions, most state and local governments, including school districts, offer other post-employment benefits (OPEB) to retirees. By far the most significant of these is retiree health care benefits. Given rising health care costs and changes in accounting standards regarding the reporting of liabilities, these benefits have received increased attention in recent years. Joffe (2021) estimates \$1.2 trillion, \$3,714 per capita, in unfunded OPEB liabilities across state and local governments in the U.S. at the end of fiscal year 2019. He also finds that liabilities are much greater in some states than others. For instance, he estimates \$16,137 per capita in state and local government OPEB liabilities for New York.

As Lutz and Sheiner (2014) point out, the existence and magnitude of unfunded liabilities tell us little about the sustainability of OPEB or the fiscal pressures associated with them. Unlike pension benefits, only a small portion of OPEB is pre-funded, and all benefit programs with a pay-as-you-go component have unfunded liability. OPEB are unsustainable only if their costs rise faster than the underlying revenue stream with which they are funded. In this case, all future government revenues available after other expenditures are used to fund OPEB benefits.

This paper focuses on the fiscal sustainability of OPEB among school districts in New York. By multiple estimates New York has the largest unfunded state and local government OPEB liabilities in the nation (Joffe, 2021; Lutz and Sheiner, 2014), and school districts undoubtedly account for a significant portion of these liabilities. Several of the government entities that Joffe (2021) identifies as having the largest liability to annual revenue ratios in the entire U.S. are New York state school districts.

We examine the growth in outlays for OPEB relative to growth in revenues between 2010 and 2021 in a sample of 288 New York State school districts. We find that annual OPEB outlays grew by 59 percent while total district revenue grew by only 26 percent. As a result, OPEB outlays grew from

3.38 to 4.28 percent of annual revenues over this period. OPEB outlays as a percentage of total revenues have been highest in big city districts and in districts in the highest quartile of student poverty, and lowest in districts with the fewest low-income students, which raises concerns about the effects of OPEB costs on educational equity.

Next, we consider the likely future trajectory of OPEB outlays, assuming that districts continue to fund these on a pay-as-you-go basis. Using district specific information obtained from a variety of sources together with assumptions about mortality rates and rising health care costs we project future outlays for retiree health care and revenues through the year 2050 for the districts in our sample. How much and how quickly outlays for retiree health care will increase depends on the employee and retiree demographics, the future growth in per capita health care spending, and future revenue growth. There is considerable uncertainty regarding the future growth in health care spending and revenue, and so we present a range of projections. Assuming CBO forecasts regarding growth in health care costs and continuation of recent trends in revenue growth, we project that the burden of retiree health care benefits will exceed 10 percent of revenue by 2050. Projected burdens are greatest in big city and high need rural districts, which serve disproportionate shares of low-income students, which reinforces equity concerns.

We consider two widely advocated responses to growing OPEB outlays — reducing benefits and pre-funding. We identify key considerations raised by these options and argue that addressing the fiscal sustainability of OPEB will require difficult tradeoffs across the interests of current employees and retirees, current taxpayers, and future taxpayers and students. We also identify a research agenda that can help policy makers more fully assess policy options.

## **II. BACKGROUND**

### **A. Retiree Health Care Benefits**

Retiree health insurance became prevalent in both the public and private sectors following the 1965 introduction of Medicare, which significantly lowered the cost of providing the benefit (Clark, Ghent, and Headen, 1994). Initially, both private firms and state and local governments accounted for the cost of the benefit on a cash basis — i.e., they accounted only for the annual expenditures made for current retirees. In 1989, the Financial Accounting Standards Board required private sector employers to record the full expected future cost of promised benefits as a long-term liability. The resulting accounting statements revealed large liabilities, and at least partially in response, firms began phasing out the benefit (Fronstin, 2005; Kaiser Family Foundation, 2006). In 2007, the Governmental Accounting Standards Board (GASB) required state and local governments to begin accounting for OPEB costs on an accrual basis and in 2015 issued policy statement 75, which increased standardization in the actuarial methods and assumptions used to calculate the liability and modified reporting requirements. As in the private sector earlier, the resulting accounting statements revealed large unfunded liabilities (Clark, 2009; Joffe, 2021; Munnell and Aubrey, 2016; Petrini, 2020; Pew, 2018).

There is considerable variety in the provision of retiree health care benefits across state and local governments. Most plans are defined benefit plans, although some governments offer defined contribution or health care savings plans (Neuman and Damico, 2016; Petrini, 2020). In most cases, full medical and drug coverage is provided until the retiree reaches Medicare eligibility at age 65 at which time the coverage either ends or converts to a supplemental plan. Plans vary in age and years-in-service required for benefit eligibility, whether dependents are eligible, what services are covered, and in the form and extent of the subsidy the employer provides for the cost of coverage. Often, the employer

pays a percentage of the costs or insurance premiums, but the percentage of total costs covered by the employer varies considerably. Also, in some cases the employer only provides an indirect subsidy by allowing retirees to participate in the same plan as active employees who form a younger and lower risk insurance pool, thereby lowering the premium that retirees would pay on the private insurance market.

Retiree health care plans can be fully-insured or self-insured. In fully-insured plans, the government agency contracts with an insurance company that collects premiums, pays claims, administers the plan, and assumes financial risk for claims beyond the premiums received (NYSSBA, 2009; Stulmaker, 2013). If a plan is self-insured, the employer collects premiums, pays claims, and directly assumes the risk of large claims, which eliminates risk charges paid to the insurance company in the case of fully-insured plans. There is an option of limited “stop-loss” insurance for claims that exceed premiums received. The employer can hire a third party to manage claims or perform other tasks. Because risk fees are avoided and administrative fees tend to be lower, self-insurance can achieve considerable savings for an agency particularly if the agency is large enough to spread risks and has relatively young employees. Budgeting for a self-funded program, however, is more challenging because of inherent uncertainty about the amount of claims that will be submitted and paid during the year (NYSSBA, 2009; Stulmaker, 2013).<sup>1</sup>

GASB 75 requires reporting the OPEB liability on the Statement of Net Assets and OPEB expense on the Statement of Activities. The OPEB liability is the present value of projected benefit payments attributed to past periods of employee services. OPEB expense represents changes in the total OPEB liability between two periods. OPEB expense includes service (normal) cost, which is the

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<sup>1</sup> Kaiser Family Foundation provides more information on plan funding types, <https://files.kff.org/attachment/Report-Employer-Health-Benefits-2022-Annual-Survey.pdf>



value of future OPEB benefits earned by current employees in the current period, and interest on liabilities accrued in past years. Governments also report benefit payments made during the current year, which include premiums and fees paid to insurers or claims and administrative fees paid in the case of a self-insured plan. Benefit payments may also include transfer of assets to a trust to provide for payment of claims, premiums or other fees in future periods. However, the overwhelming majority of state and local government retiree health benefits are funded on a pay-as-you-go basis with little to no funds set aside for claims in future periods. The Pew Charitable Trusts (2018) reports that only 19 of the 48 states that reported OPEB liabilities provided any pre-funding, and the National Council of State Legislatures reports that in fiscal year 2018 only 7 percent of state government OPEB liabilities were pre-funded (Petrini, 2020).

### **B. New York State School Districts**

There are approximately 690 school districts in New York state providing educational services to primary and/or secondary school students. Most of these districts are fiscally independent with their own taxing authority, although the five largest cities in the state (Buffalo, New York City, Rochester, Syracuse and Yonkers) are fiscally dependent on their municipal government. Even in the case of fiscally dependent districts, however, locally elected school boards have considerable fiscal and governing autonomy. Most school districts in the state subsidize retiree health care benefits. Eligibility requirements, services covered, and amount of subsidy provided by districts vary, although the extent of variation is difficult to assess. Very few, if any, districts provide any forward funding for OPEB.<sup>2</sup>

Unlike many local governments across the nation that provide retiree health benefits through

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<sup>2</sup> None of the 288 districts in our sample (discussed below) provide any pre-funding, and local governments in New York State are not authorized to create trust funds for pre-funding OPEB.

health care plans administered by the state (Clark, 2010), most school districts in New York provide single-employer, defined benefit plans administered by the district. School districts in the state can join the New York State Health Insurance Plan (NYSHIP), which is a health care plan established for State employees and made available to local governments. Although the State plan offers rates that are competitive for districts in the New York City metropolitan area, that premiums tend to be less competitive in other areas of the state, and participation in the plan is largely limited to districts in the New York City region.

A group of school districts can join a consortium to create a self-insured plan or purchase a fully-insured plan. One of the benefits of purchasing a plan through a consortium is that the consortium may have a sufficient number of participants to warrant experience-rating rather than community-rating. In an experience-rated plan, premiums are calculated based on individuals in a specific group rather than all individuals in a particular market, which can lower costs (NYSSBA, 2009). Consortia can also make self-insurance more feasible for small districts that do not have enough participants to spread the risks of large claims. New York State tightly regulates health care consortia, including requiring them to hold substantial reserves, which makes forming a new consortium difficult and joining a consortium less attractive for large districts that have sufficient numbers to self-insure on their own (Acquario and Samuelson, 2019; NYS Department of Financial Services, n.d.).

The legal status of retiree health benefits is an interesting question. In most states, including New York, constitutional and/or statutory provisions prohibit state and local employers from amending pension benefits that have already accrued for current employees and retirees. Thus, in most states, changes to pension benefits are limited to employees hired after the date of the changes, although the extent to which future accruals for current employees can be changed varies across states. Typically, retiree benefits other than pensions do not have the same protections. In New York State school

districts, retirees are typically offered continued participation in the health care plans available to employees. Any changes to those plans are negotiated as part of collective bargaining agreements, and the primary constraint on changes to retiree health care benefits is securing the agreement of the unions. This difference between pension and other retiree benefits has raised questions about whether projected costs of OPEB should be considered and reported on financial statements as liabilities (see Clark (2010) for a discussion).

### **III. LITERATURE REVIEW**

The research literature on OPEB is limited, particularly when compared with the literature on public pensions. Much of the literature has focused on estimating the magnitude and variation in the magnitude of OPEB liabilities (Joffe, 2021; Lutz and Sheiner, 2014; Munnell and Aubrey, 2016).

Determining the magnitude and particularly variation in the magnitude of OPEB liabilities across governments has been complicated by the fact that different governments make different actuarial assumptions in calculating their OPEB liabilities. Particularly significant are assumptions about discount rates and future growth in health care costs (Clark, 2009, 2010). Beginning in 2017, GASB's adoption of policy statement 75 has narrowed the range of actuarial assumptions, but variation still exists. Joffe (2021) provides the most recent and comprehensive estimates based on reviews of over 30,000 Annual Comprehensive Financial Reports (ACFRs) and using liabilities as-reported without taking steps to ensure consistent actuarial assumptions. He estimates state and local government OPEB liabilities of \$1.2 trillion dollars, or \$3,714 per capita, at the end of fiscal year 2019.<sup>3</sup> These liabilities are heavily

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<sup>3</sup> For comparison, estimates of unfunded pension liabilities range from \$1.5 trillion to \$4.2 trillion depending on the discount rate applied for future benefits. Based on 2011 data, but taking much greater pains to ensure consistency in actuarial assumptions, Lutz and Sheiner (2014) estimate that OPEB liabilities are approximately half of unfunded pension liabilities.

concentrated in a small number of states. Five states report liabilities greater than \$7,500 per capita, and 20 states report liabilities less than \$1,000 per capita.

Lutz and Sheiner (2014) most directly take on the question of the fiscal sustainability of continuing to pay OPEB benefits on a pay-as-you-go basis. They use information contained in actuarial reports for public retiree health care plans to reverse engineer the cash flows underlying the liabilities reported in ACFRs. They find that pay-as-you-go cash outlays are projected to take up a growing share of state and local government revenues, but that, on average, growth is manageable. Specifically, they estimate that state and local governments could put their retiree health obligations into long-run fiscal balance by contributing an additional 0.75 percent of total revenue toward the benefit each year. However, they find wide variation across states, with some states requiring little additional financing, but New York requiring an additional 3 percent of total revenue each year.

A small number of studies have examined the impact of the retiree health care benefits on retirement decisions, and have all found that the benefits reduce the likelihood that 55 to 64 year olds will remain in the active workforce (Fitzpatrick, 2014; Leiserson, 2013; Shoven and Slavov, 2014). Using data from Illinois in the 1980s, Fitzpatrick (2014) examines the effect of retiree health care benefits on retirement decisions of public school employees specifically. She finds that relative to a counterfactual where retiree health care benefits are not offered, a program that provides a 50 percent subsidy to health care coverage significantly increases retirement rates among 55 and 56 year olds by about 5 percentage points. Her estimates imply that the median retiree leaves service two years earlier because of the availability of retiree health care benefits. Interestingly, she estimates that in the case of Illinois the savings in salary costs due to hiring younger employees to replace retirees sooner combined with reductions in pension benefits resulting from earlier retirements more than offset the cost of providing the 50 percent subsidy on retiree health care benefits. In other words, if school districts

revoked retiree health care benefits, the net fiscal impacts would be negative.

Several important questions about retiree health care benefits have not been addressed in the research literature. With respect to the fiscal sustainability, little work has been done to determine what aspects of health care plans, eligibility requirements, employee and retiree age distribution and other factors explain variation in OPEB costs across states and localities (see Clark, Sandler, and Vanderweide (2014) for an exception). Regarding the effects of OPEB on teacher supply, little work has been done to examine the effects of the availability of these benefits on decisions to enter the teacher labor market, the extent to which reductions in OPEB benefits make it harder for districts to compete for high quality teachers, and how teachers value retiree health care benefits relative to salary increases.<sup>4</sup> As we will discuss further below, these are questions that need to be addressed in order to identify options for decreasing the fiscal pressures associated with OPEB benefits and to assess their likely impacts.

#### **IV. SAMPLE AND DATA**

We used a stratified random sampling design to select districts for our study sample. The 30 strata used are defined by five need categories and six geographical regions developed by the New York State Education Department. The need categories are based on a combination of the percent of children in poverty, per student property values and median income in the district. We selected 50 percent of districts from each of these strata resulting in 347 initially selected districts. After eliminating districts that did not have annual comprehensive financial reports posted by the US census (see footnote 5 below), we have 303 districts.

For the period 2010 to 2017, financial data related to OPEB were obtained from annual fiscal

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<sup>4</sup> For one exception see Bruno, 2021.

reports commonly referred to as ST-3 files. Financial variables in these reports include actuarially required contributions, interest, actuarially accrued liability, expenses and contributions. In the vast majority of cases where OPEB is funded entirely on a pay-as-you-go basis, contributions are payments for benefits provided to current retirees in the current year, and we refer to them here as outlays.

With the implementation of GASB 75, which for most districts began in 2018, the actuarial concepts, methods and assumptions used to compute OPEB liabilities changed as well as the type of information districts were required to report about those liabilities. As a result, the only figure reported in ST-3 files beginning in 2018 is net OPEB liabilities — which is not directly comparable to any OPEB related variable reported in the ST-3 files prior to 2018.<sup>5</sup> Thus, we have collected financial data on OPEB for 2018 through 2021 by hand from PDF copies of district annual comprehensive financial reports (ACFRs).<sup>6</sup> The variables we have collected include the type of health care plan, number of active and retired plan participants, the discount rate used in calculating OPEB liabilities, the net OPEB liability, service cost, interest, benefit payments, and district payroll. Due to the changes in reporting associated with implementation of GASB 75, the only one of these variables that is directly comparable to a variable reported in the ST-3 files prior to 2018 are benefit payments, which is the same variable as “contributions” in the earlier ST-3 reports. We mainly focus on this variable, which we refer to as OPEB outlays and which is a key variable for assessing the fiscal sustainability of OPEB benefits. Some of the analysis also makes use of other variables we collected.

For a portion of the districts in our sample, 42 percent, the OPEB outlay variable is missing for

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<sup>5</sup> This concept is very similar to the concept of actuarially accrued liability reported earlier, but in many districts the methods and assumptions used to calculate the liability changed substantially as a result of GASB 75.

<sup>6</sup> These files are available for all district receiving at least \$750,000 in federal funding through the US Census at <https://facdissem.census.gov/>

one or more years from 2010 to 2021. Fifteen districts were dropped because more than six values of this key variable are missing, leaving us with a sample of 288 districts. In cases with more than zero but six or fewer missing values, we imputed missing variables using linear interpolation and extrapolation.<sup>7</sup>

## **V. RECENT GROWTH IN OPEB OUTLAYS RELATIVE TO REVENUES**

Figure 1A shows the growth in OPEB outlays relative to growth in total revenue between 2010 and 2021 for our sample of school districts. OPEB outlays grew by 58.9 percent between 2010 and 2021, while district revenues grew by only 25.8 percent. As a result, and as shown in Figure 1B, OPEB outlays grew from 3.38 percent of total revenues in 2010 to 4.28 percent in 2021. These figures suggest that OPEB, and particularly retiree health care benefits, are placing growing fiscal pressure on school districts as a group.

[Figure 1 here]

The ratio of OPEB outlays to total revenue for our entire sample hides a considerable amount of variation across districts. Among our sample districts in 2021, OPEB outlays as a percent of total revenue range from less than 0.01 to 13.56. The standard deviation for this variable in 2021 is 2.72 percentage points, which implies that a district one standard deviation below the mean had OPEB outlays equal to 1.58 percent of total revenues and the corresponding figure for the district one standard deviation above the mean is 7.01 percent. There has also been considerable variation in the growth in OPEB burdens. In 59.7 percent of the districts in our sample the percentage growth in OPEB outlays from 2010 to 2021 was at least twice as high as the percentage growth in total revenues. In 20.1 percent of districts, however, percentage growth in OPEB outlays was less than the percentage

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<sup>7</sup> Among districts with imputed values: 69 have one value imputed, 26 have two values imputed, eight have three values imputed, seven have four values imputed, six have five values, and six have six values imputed.

growth in total revenues.

To explore this variation, we examine OPEB burdens for different groups of districts. The New York State Education Department categorizes districts into groups based on a needs index, which is a function of the property wealth, median income, and childhood poverty in the district. These groups include the big city districts (Buffalo, Rochester, Syracuse, and Yonkers),<sup>8</sup> high need urban/suburban districts, high need rural districts, average need districts, and low need districts. Figure 2 displays the growth in OPEB outlays as a percentage of total revenues in our sample for each of these groups. The figure reveals that OPEB outlays have been a higher percentage of total revenues in the big city districts than in other districts and that low need districts have the lowest ratios of OPEB outlays to revenues. Between 2015 and 2020, however, OPEB outlays as a percentage of revenue have decreased in the big city districts such that the gap in this measure of OPEB burden between the big city districts and other districts has narrowed significantly. Each of the other types of districts have seen similar rates of growth in OPEB burdens, and low need districts continue to have the lowest burdens.

[Figure 2 here]

We also divided the districts in our sample into groups based on quartiles of the percent of students in the district who are classified as economically disadvantaged by New York State. The growth in OPEB burdens across these quartiles groups are shown in Figure 3A. From 2010 through 2017, OPEB outlays as a percentage of total revenues were highest in districts in the quartile with the highest percentage of economically disadvantaged students and lowest in districts with the lowest percentage of economically disadvantaged students. Like the findings in the previous figure (Figure 2),

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<sup>8</sup> Only Buffalo, Rochester and Syracuse are included in our sample. Yonkers had missing data. The New York City School district is its own category and is not included in our sample.



this finding suggests that OPEB benefits have created more fiscal pressure for districts with the greatest needs than for districts with low levels of need, which raises potentially important equity concerns. However, OPEB outlays as a percentage of revenues did not grow between 2016 and 2021 in the high poverty districts. Since 2018, this measure of OPEB burden has been highest in the middle quartiles of economic disadvantage and the gap between highest-poverty and the lowest-poverty districts has narrowed.

[Figure 3 here]

In 2021, the big city school districts accounted for 25 percent of total revenues and 30 percent of OPEB outlays among the sample districts in the highest quartile of free-lunch eligibility. Figure 3B separates measures of OPEB burdens for the big city school districts from the rest of the districts in the highest poverty quartile. This figure demonstrates that both the high level of OPEB outlays as a percentage of revenues and the decline in this measure of fiscal burden since 2015 are due entirely to the big city districts. The other high poverty districts are similar to other districts in the sample both in terms of the level of OPEB burden and growth in OPEB burden overtime. Further investigation reveals that the drop in OPEB outlays as a percentage of total revenue in the big city districts in our sample is driven by a relatively low rate of growth in OPEB outlays after 2014 rather than above normal rates of revenue growth. Total revenue in the big city districts grew by 17.4 percent between 2015 and 2021 compared to 15.4 percent in all other districts in the sample. In contrast, OPEB outlays grew by only 0.9 percent in the big districts over that period compared to 32.8 percent across all other districts in our sample.

Finally, Figure 4 shows growth in OPEB outlays for each of the big city districts in our sample and demonstrates that the most marked development has been large reductions in OPEB outlays in the Syracuse City School district beginning in 2016 and particularly in 2020. The experience in Syracuse

will be discussed further below. A below average growth rate between 2014 and 2020 for the Buffalo City School district is also noteworthy. Rochester saw above average growth in OPEB outlays during this period.

[Figure 4]

In sum, OPEB benefits are creating increasing fiscal pressure for school districts in New York as outlays for OPEB benefits funded on a pay-as-you-go basis are growing faster than total revenues in these districts. These burdens have been particularly high in the big city districts, which serve disproportionate shares of low-income students. However, the Syracuse city school district, and to a lesser extent Buffalo, has been able to reduce OPEB outlays in recent years, suggesting that the experience in those districts is worth further investigation.

## **VI. FUTURE GROWTH IN OPEB BURDENS**

Three factors determine the future growth in OPEB burdens. First is the age and gender breakdown of school district employees and retirees, which together with turnover, retirement and mortality rates will determine how the population of retirees requiring coverage is likely to change in future years. The second factor is the growth in per capita health care costs. The third factor is growth in school district revenues. In this section, we consider the impact of each of these factors on OPEB fiscal burdens.

### **A. Projected Changes in the Retiree Population**

To assess the likely impact of employee and retiree demographics, we use data on the current age, experience, and gender distributions of active employees and current retirees, along with estimates of withdrawal, retirement and mortality rates to project the population of retirees for each year from 2022 to 2050. The method used for this projection proceeds year-by-year and involves aging the population of current retirees, projecting the age distribution of new retirees, and adding the counts of

new retirees to the aged population of current retirees.

For current retirees, we start with district specific counts of the total number of retirees in 2021, obtained from the ACFRs. Although we do not have the age distribution of current retirees for most of the districts in our sample, we were able to obtain this distribution from the actuarial reports of six districts who were willing to share those reports with us. We use the district specific counts of the total number of retirees for the full sample and the age distribution obtained for this limited set of districts to estimate the age distribution of current retirees for each district in our sample.<sup>9</sup> We, then, use age and gender specific mortality rates obtained from the New York State Teacher Retirement System 2021 Actuarial Valuation report<sup>10</sup> to age the population year-by-year for each district.

Projecting new retirees is more complicated but conceptually similar. We begin by aging the population of active employees, which is done in several steps. First, we obtained age-by-experience-by-gender distributions of staff in each district for the year 2020 from the New York State Education Department. Next, we project the total number of employees exiting the workforce each year using age, experience, and district specific probabilities of withdrawal, death or retirement.<sup>11</sup> We assume that new employees will be hired to replace those who exit and to achieve a projected amount of growth in the number of teachers, and that the age distribution of new hires will match the current distribution of first year employees.<sup>12</sup> Subtracting exits and adding new hires to each age cohort of active employees provides a projection of the age and experience distribution of active employees for the following year.

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<sup>9</sup> For details on how we estimated the age distribution for current retirees see the Appendix.

<sup>10</sup> [https://www.nystrs.org/NYSTRS/media/PDF/Library/Publications/Actuarial\\_Valuation\\_Rpt\\_6-30-21.pdf](https://www.nystrs.org/NYSTRS/media/PDF/Library/Publications/Actuarial_Valuation_Rpt_6-30-21.pdf)

<sup>11</sup> For details of how these exit rates were estimated for each district see the Appendix.

<sup>12</sup> To estimate growth in the number of teachers we used data on enrollments from 2013 through 2020 to project future enrollment growth for each district and assumed growth in school staff would be proportional to projected enrollment growth. Details are provided in the appendix.

Once we have a projection of the population of active employees, we apply age, experience, and gender specific retirement rates to this population to project the age distribution of new retirees.

Figure 5 shows the projections of the number of retirees in our sample of districts. Our projections indicate that the number of retirees will grow in future years, peak in 2039 and shrink modestly from 2040 to 2050. The cost of covering health care for retirees younger than 65 and not yet eligible for Medicare tends to be significantly higher than the cost of providing supplemental coverage for those 65 and older. Consequently, the distribution of retirees by age as well the total number influences OPEB costs. Figure 5 also shows that while the total number of retirees will increase from 2021 to 2025, the number of retirees under age 65 will be falling over this period, and as a result, the percentage of the retiree population that is less than age 65 will decrease 14.2 to 12.4 percent. From 2025 to 2038 the percentage less than 65 will begin to increase to 17.3 percent until it starts to fall again to a low of 11.4 percent in 2050. Decreases in this percentage will attenuate increases in OPEB outlays due to increases in the total number of retirees, and increases in this percentage will accentuate increases in OPEB outlays.

[Figure 5 here]

Due to lack of information, our projections assume that, except for the total number of retirees, the current age distribution of retirees is the same across all big city districts and across all other districts.<sup>13</sup> This assumption limits our ability to examine variation in the growth in the number of retirees. Several factors that affect growth in the retiree population, however, are allowed to vary across districts in our projections including the age distribution, the withdrawal and retirement rates of

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<sup>13</sup> Although our estimates do assume different age distributions for big city and other districts. See Appendix for details.

active employees, and thus the age distribution of new retirees. Figure 6 shows the variation in future growth in the retiree population across different types of districts due to these factors. Districts in all five need categories see increases in the retiree population until about 2040 followed by decreases from 2040 to 2050 (see Panel A) and similar rises and falls in the percentage of retirees under aged 65 (see Panel B). There are, however, some differences across need categories in the magnitudes of changes. Big city districts see the largest increase in the retiree population between 2021 and 2040. Urban/suburban high need districts, in contrast, see the smallest increase in the number of retirees by 2040. In contrast to the other categories, rural high need districts see an increase in the total number of retirees between 2040 and 2050. They also see the smallest decrease in the percent of retirees under age 65 after 2040. As a result, we expect them to see relatively large increases in OPEB outlays by 2050.<sup>14</sup>

[Figure 6 here]

### **B. Projected Growth in OPEB Outlays**

To assess the impact of growth in health care costs, as well as the projected population of retirees, on OPEB outlays we proceed as follows. First, we obtained actuarial reports regarding OPEB liabilities from six districts in the state who were willing to provide them. These reports provide information on the per beneficiary cost of retiree health care coverage by age and gender in those districts. We begin our analysis by assuming per retiree health care costs equal to the average across these six districts and multiply the number of eligible retirees in each age-and-gender group in 2021 by these per retiree costs to obtain a reasonable estimate of the outlays that would be required to provide OPEB benefits for

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<sup>14</sup> We also examined differences in projected retiree populations by economic disadvantage quartiles and see no systematic differences in expected growth in OPEB outlays by level of economic disadvantage.

eligible retirees in each district in our sample. Because these per-retiree health care cost amounts are based on only six districts, they cannot be interpreted as averages across New York State districts. Here they are used merely to provide a reasonable starting value for estimated OPEB outlays, which we can use to project growth.

Projecting growth in OPEB outlays from this starting point requires assumptions about growth in per capita health care spending. In computing OPEB liability, districts almost universally assume that growth in health care spending will exceed inflation and real GDP growth. The amount by which health care spending growth exceeds inflation and GDP growth is often referred to as excess cost. Most districts assume that rates of excess cost growth will decline over time. Thus, as a baseline we use Congressional Budget Office (CBO) estimates of inflation, GDP growth, and excess health-care costs for the years 2022 to 2050 to produce one projection of growth in OPEB outlays.<sup>15</sup> These estimates assume that the rate of excess cost growth starts to decline beginning in 2033. There is, however, considerable uncertainty about future health care costs. Thus, in addition to using CBO excess cost assumptions, we produce two alternative projections of growth in OPEB outlays — one that assumes no excess costs, so that per capita growth in health care cost equals nominal growth in GDP, and another that assumes that the rate of excess cost growth remains as large as CBO projects for the next ten years for the entire projection period.

To project growth in OPEB outlays as a percentage of revenues, which is our measure of fiscal burden, we assume revenues for New York State school districts will grow at a rate equal to CBO projections of nominal GDP for the U.S. Obviously, this assumption is a very rough estimate and there will be considerable variation across districts in expected revenue growth. We will revisit the

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<sup>15</sup> See Long-Term Budget Projections July 2022 at <https://www.cbo.gov/data/budget-economic-data#3>

assumption about revenue growth after presenting our baseline projections.

Figure 7 presents our projections of growth in OPEB outlays as a percentage of district revenues. The figure assumes that OPEB outlays as a percentage of district revenues equal 4.28 in 2021, which is the percentage we observed for the 288 districts in the sample examined in the preceding section. Under the assumption of no excess cost growth (dotted, gray line), this percentage is expected to grow gradually to 5.1 percent by 2039, at which time it will begin to fall back to 4.5 percent by 2050. Note, since we have assumed revenue growth equals per capita health care cost growth in this scenario, the growth in OPEB outlays is due entirely to growth in the retiree population. Under this assumption increases in OPEB outlays would be modest in aggregate and may not place undue fiscal pressure on school districts. Even under this assumption, however, retiree health care benefits may create unsustainable burden for some districts that start with high burdens in 2021 or that have a different age distribution for current employees and retirees, an issue we return to below.

[Figure 7 here]

Under the assumptions CBO uses for long-term, federal budget projections (solid, blue line), OPEB burdens increase more sharply and over a longer period. Under this assumption OPEB outlays as a percent of revenues increases to 6.7 percent by 2042, and from that peak declines only slightly to 6.5 percent by 2050. Under the more pessimistic assumption that excess cost remains high over the entire projection period (dashed, orange line), OPEB outlays as a percent of revenue increase to 6.8 percent by 2042 and 7.0 percent by 2050. The dashed yellow line in Figure 7 represents the growth in OPEB burdens if OPEB outlays as a percentage of revenue continue to grow at the rate observed from 2010 to 2021 and is provided for comparison purposes. Under CBO assumptions regarding excess costs, OPEB outlays grow faster than this baseline through the late 2030s, because during most of the 2010 to 2021 period excess cost was less than both longer-term historical trends and CBO projections

(Hefler et al., 2022). From 2040 to 2050, however, CBO projections of excess cost decline and our projection of the total number of retirees also declines. So, by 2050, projected OPEB burdens under the CBO assumptions are similar to what they are assuming the continuation of recent trends in OPEB burdens over the entire projection period.

The difference in OPEB outlays under CBO excess cost assumptions and the no excess cost assumption is the growth in OPEB outlays that results from projected growth in per capita health care costs. Comparison of the growth rates under these two sets of assumptions suggests that future growth in OPEB burdens and the fiscal sustainability of OPEB will depend primarily on growth in per capita health care cost, and that projected increases in the number of retirees create relatively small increases in OPEB burdens.

### **C. Future Revenue Growth**

Finally, we consider the role of revenue growth. The projections in Figure 7 assume that school district revenues growth will keep pace with projected inflation and GDP growth for the U.S. as whole. The rate of growth in revenues under this assumption is higher than the growth observed during the period 2010 and 2021. Figure 8 shows projected growth in OPEB outlays as a percentage of revenues under the assumption that revenues grow at the annual rate of 2.1 percent observed from 2010 to 2021. Under this assumption OPEB burdens will increase considerably even with no excess cost growth in per capita health care costs (dotted, gray line). If we assume this lower rate of revenue growth and CBO projections for excess cost (solid, blue line), OPEB outlays as a percent of revenues will increase by 146 percent to 10.53 percent by 2050.

[Figure 8 here]

Growth in revenues from local sources is likely to vary considerably across districts. While



growing districts will not have a problem maintaining revenue growth, many districts in New York are losing population and experiencing shrinking tax bases. Across all districts in New York, 86 percent saw enrollment fall between 2013 and 2019, and 45 percent saw nominal growth in property taxes grow at annual rates of less than 2.1 percent. These districts are unlikely to be able to sustain revenue growth from local sources greater than that assumed in Figure 8. State aid policies can offset slow rates of growth in local revenue. The correlation between growth in local source revenue and total revenue during the 2010 to 2021 period, however, is + 0.30, which suggests that currently state aid policies are not completely targeted to offset slow growth in local source revenue. As a result, we can expect many districts to see OPEB burdens become difficult to sustain because of slow revenue growth.

Developing reliable revenue projections for individual school districts is beyond the scope of this study. Nonetheless, to assess how much variation there is in revenue growth, whether revenue growth is correlated with economic disadvantage and district needs, and how much variation in revenue growth might affect projections of OPEB burdens, we divide our sample districts into quartiles based on percent revenue growth from 2010 to 2021. The annual rate of growth in total revenues was 1.26 percent for the lowest growth quartile, 1.97 percent for districts between the 25<sup>th</sup> and 50<sup>th</sup> percentile, 2.40 percent for districts between the 50<sup>th</sup> and 75<sup>th</sup> percentile, and 3.12 percent for districts in the highest percentile. Next, we assign each district a projected annual growth rate equal to the annual growth rate for the revenue growth quartile the district is in. Figure 9 shows the projected growth in OPEB outlays as a percentage of revenue by revenue growth quartile, assuming the per capita health care costs grow at the rate projected by the CBO. Increases in burdens in districts in the lowest revenue growth quartile are projected to be considerably higher than those in districts in the highest revenue growth quartile. OPEB outlays as a percent of revenue in the lowest revenue growth quartile will increase to 7.48 percent by 2030, 11.62 percent by 2040 and 13.64 percent by 2050, compared to

5.22 percent by 2030, 7.10 percent by 2040 and 7.34 percent by 2050 for districts in the highest revenue growth quartile. Clearly OPEB benefits will be less fiscally sustainable in some districts than others.

[Figure 9 here]

Projected revenue growth is not strongly correlated with economic disadvantage. The correlation coefficient between revenue growth over the 2010 to 2021 period and the percent of students economically disadvantaged in 2021 is only +0.08. Nonetheless, Table 1 shows some interesting patterns by the New York State Education Department need categories. The big city districts and the high need urban/suburban districts are overrepresented in the highest two quartiles of revenue growth, perhaps due to state aid policies that target increases towards these districts. In contrast, the rural high need districts are overrepresented among districts in the lowest quartile of revenue growth. Combined with the fact that projected growth in the retiree population is least favorable among high need rural districts, these districts will see relatively large growth in OPEB burdens.

[Table 1 here]

This expectation is confirmed in Figure 10, which shows projected OPEB outlays as a percent of total revenue by need category. For these projections, we assume that the growth rate for aggregate revenue across all districts in the need category observed from 2010 to 2021 will continue throughout our projection period and CBO assumptions concerning excess health care cost growth. The figure shows that the big city and high need rural districts will be most strained by future OPEB outlays. The big city districts will be the most strained for the entire projection period and face projected outlays that are nearly 12 percent of total revenue by 2050. Rural districts will see above average OPEB burdens beginning in 2040 and by 2050 will face OPEB outlays that are over 11 percent of total

revenues. Low need districts (as well as high need urban/suburban districts) are projected to face below average burdens for the entire projection period and below 9 percent as late as 2050.

[Figure 10]

## **VII. POLICY OPTIONS**

Although there is likely to be considerable variation across districts, the preceding two sections suggest that many school districts in New York are likely to face growing and difficult to sustain fiscal burdens due to OPEB. There is a range of options districts might pursue in response to growing fiscal pressure. These options include eliminating or reducing benefits, converting from defined benefit to defined contribution plans, increasing retiree contributions and decreasing district subsidies, and reducing premium payments by consolidating and/or rebidding plans and expanding health care risk pools. In this section, we briefly consider two options that school districts might consider — cutting retiree health care benefits and/or costs and pre-funding.

### **A. Cutting Benefits and/or Cost of Providing Benefits**

As discussed above, when the switch to accrual-based accounting in the late 1980s revealed large liabilities for retiree health care, many private firms discontinued provision of the benefit. Some have argued that public sector agencies should consider the same.<sup>16</sup> As pointed out by Fitzpatrick (2014), however, cutting benefits can be expected to delay retirement, which depending on the details of pension plans and policies regarding replacing retired employees, can have negative fiscal impacts. Also, because retiree health care benefits are part of a broader compensation package, if they are cut, districts might need to increase other aspects of the compensation package, such as salary, to attract

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<sup>16</sup> See for instance <https://www.hgexperts.com/expert-witness-articles/other-post-employment-benefits-opeb-19347>

the same quality teachers. Thus, the fiscal benefits of cutting retiree health care benefits are uncertain.

Fitzpatrick's (2014) finding that cutting retiree health care benefits would have net negative fiscal impacts depends on the particulars of pension plan policies in her example from Illinois and her specific comparison of a 50 percent subsidy for the cost of retiree health care with a counterfactual of no retiree health care benefits. In New York, changes in the health care benefits for future retirees must be negotiated in collective bargaining agreements, which may make it challenging to eliminate retiree health benefits entirely. More likely options are to reduce benefits by reducing the district subsidy for the cost of coverage, restricting the ranges of services covered, and/or adopting health care plans with higher deductibles and co-pays, or reducing costs by consolidating and/or rebidding plans and expanding health care risk pools.

The Syracuse City School District provides an illustration. Syracuse achieved substantial savings in per capita health care costs by taking advantage of a competitive health insurance market. In the Syracuse City School District, retirees who are less than 65 participate in the same health care plans as active employees. These plans are self-insured by the district, which hires a plan administrator. Prior to fiscal year 2020, the district rebid the contract to administer its self-insured health care plans. The firm awarded the new contract is the largest insurer and plan administrator in the central New York market and as a result is able to negotiate lower provider reimbursement rates than its competitors. The resulting reduction in claim amounts created immediate savings for the city's self-insured plans.

Even more significantly, the district joined with the City of Syracuse and Onondaga County to jointly issue a request for proposals to provide all three entities a Medicare Advantage plan for post-65 retirees. The Medicare Advantage program, established in 2003-04, provides subsidies to private insurers to offer coverage plans for Medicare recipients. Several conditions created a favorable bidding environment for the district, city, and county. First, the three entities combined have a large number of

Medicare eligible retirees, which makes the contract desirable for insurers, who can use the increased market share provided by the contract to help negotiate favorable reimbursement rates with providers. Second, the Medicare Advantage subsidies make this market attractive for insurers and lower cost than traditional Medicare part B and part D supplemental plans that the district previously provided. Also, the firm that was awarded the contract has learned how to design plans that maximize Medicare Advantage subsidies. As a result of these factors, the district was able to reduce per retiree premiums for its post-65 retirees by more than half without substantially changing the value of the benefits provided.

As a result of these savings, OPEB outlays in 2021 were 40 percent lower than in the district's 2018 actuarial report, and the outlays for 2028 projected in the 2020 actuarial report are 55 percent lower than was projected in the previous actuarial report. This case suggests that substantial reductions in retiree health care costs can be successfully negotiated under favorable market conditions. In particular, more districts might create savings by consolidating their plans with other districts to increase their purchasing power in the market and by taking greater advantage of the Medicare Advantage program and the federal subsidies it brings.

### **B. Pre-Funding**

Many have argued that OPEB benefits should be pre-funded.<sup>17</sup> Pre-funding could help to stabilize outlays for OPEB. Also, because future retirement benefits are compensation for current employees, paying for OPEB liabilities as they are incurred would align current year payments with the cost of current employees, which could both promote intergenerational equity and force district officials to

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<sup>17</sup>For instance, the Government Financial Officers Association, see <https://www.gfoa.org/materials/ensuring-other-postemployment-benefits-opeb-sustainability>

take into account the full cost of employees in making resource allocation decisions. However, given that OPEB payments are expected to be greater in future years and the need to pay down accumulated liabilities, fully pre-funding OPEB liabilities would increase OPEB expenditures in the short-run and perhaps even the medium-term as well. Here we use data on the districts in our study sample to assess these aspects of the pre-funding decision.<sup>18</sup>

The payments required to fully pre-fund OPEB benefits can be divided into two components. The first is an amount intended to represent how much current employees earn toward their post-employment benefits during the year, and is referred to as service cost in GASB 75.<sup>19</sup> Service cost is related to the OPEB liability, which is the present value of the projected OPEB outlays that are attributable to the past service of district employees. Service cost is the increase in that present value that results from current employees completing an additional year of service. GASB 75 requires districts to report this cost in the annual financial reports and requires that it be calculated using the Entry Age Normal method.<sup>20</sup> The second component is the amount required to amortize the OPEB liability accumulated from past years. The financial reports do not report this amortization cost, but if we make assumptions about the discount rate and the payment period, we can compute it based on the reported net OPEB liability. We assume a discount rate of 3 percent, an amortization period of 30 years beginning in 2018, that amortization payments will be a constant percentage of payroll over the course of the amortization period, and that payroll will increase by 3 percent per year.

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<sup>18</sup> For this analysis, we only include those districts with OPEB outlays, normal costs and net liabilities, and total payroll reported for each year from 2018 through 2021, which leaves us with 281 districts. This sample is slightly different than the one used in Figures 1 through 6.

<sup>19</sup> This amount is also often referred to as “normal costs.”

<sup>20</sup> Because it is related to the present value of future outlays, the calculation of service cost is sensitive to assumptions about the discount rate as well as future growth in health care costs, assumptions which are not necessarily consistent across districts.

Figure 11 compares OPEB outlays, service costs, and service costs plus amortization payments for the four years for which we can calculate these items. Two things stand out in this figure. First, to achieve actuarial balance through full pre-funding would require annual OPEB payments in the near term that are more than twice as large as annual outlays required to pay benefits for current retirees. Few districts could manage such large increases in OPEB payments. Also, it is not clear that requiring the next generation of taxpayers to pay for the cost of employee compensation postponed by prior generations improves intergenerational equity.<sup>21</sup>

[Figure 11 here]

Second, service costs can be quite volatile from year-to-year. This volatility is illustrated by the significant increase in service costs in 2021. Because service costs are tied to the present value of future outlays, they are sensitive to the choice of discount rate. Although there is some variation across districts in discount rates used, GASB 75 requires that these be tied to returns on “risk-free” bond indices. Rates on these indices were at historic lows when actuarial analyses for 2021 were completed and significantly lower than rates used in the prior years. As a result of the drop-in discount rates, the present value of future payments increased substantially in 2021, and thus, so did calculations of service costs. Although formulas could be applied to smooth year-to-year fluctuations in service costs,

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<sup>21</sup> Intergenerational equity is a complex and contested concept making decisive judgments difficult. Pay-as-you-go implies that current taxpayers do not pay for the OPEB benefits earned by employees in the current year (i.e., service cost), but do pay for benefits earned in the past. Figure 11 indicates that amount paid for current retirees is less than the amount earned by active employees, which implies that current taxpayers are paying less than the cost of the service they receive. This fact appears to violate the benefits principle of taxation, and presumably disadvantages future taxpayers. However, if current taxpayers pay service costs plus the cost of amortizing accumulated liabilities, they are paying more than the cost of the services they receive, which also appears to violate the benefits principle. The key question, from this point of view, is how the cost of accumulated liabilities should be spread between current and future taxpayers, a question for which the benefit principle does not provide much guidance.

this volatility is undesirable for budgeting purposes.

Intergenerational equity issues raised by asking current taxpayers to pay for OPEB liabilities incurred in the past might suggest requiring current taxpayers to pay only for service cost in the current year as a step toward pre-funding. Not only does this raise concerns about volatility in OPEB payments, but if prior obligations are not amortized, then the outlays required to cover benefits payments will eventually exceed service costs, and thus, paying service costs will not necessarily forestall the increases in OPEB outlays projected in Figures 7 through 10.

Addressing the fiscal sustainability of funding OPEB on a pay-as-you-go basis poses issues of fairness. Cutting the cost of retiree health care, if achieved through reductions in the value of the benefits provided, raises question about fairness to older active employees and current retirees. These employees and retirees provided service in the past in exchange for a compensation package that included a promise of health care benefits during retirement. In the absence of that promise, they might have made other choices or demanded increases in other forms of compensation. On the other hand, trying to address fiscal sustainability by pre-funding OPEB liability incurred in the past raises issues of fairness to current taxpayers. Under such a policy, these taxpayers would be paying the retiree benefits that helped compensate service in the past as well as those that compensate current services. Finally, failure to address the fiscal sustainability of OPEB risks imposing unfair burdens on either future students and/or future taxpayers. This dilemma makes opportunities to reduce costs without sacrificing benefits to retirees, as in the Syracuse case, attractive. Absent such efficiency gains, options that avoid all fairness concerns are limited.

## **VIII. CONCLUSION**

Recent changes in how the cost of OPEB is reported in public sector financial statements have raised



concerns about the fiscal sustainability of funding OPEB on a pay-as-you-go basis. We have assessed the fiscal sustainability of OPEB for New York State school districts, which recent studies suggest have particular large OPEB liabilities. Based on a stratified random sample of New York State school districts, we find that OPEB outlays increased from 3.38 to 4.28 percent of district revenues between 2010 and 2021. These burdens have been particularly large in the big city school districts, and have hit districts with high levels of poverty and low levels of local revenue raising capacity harder than those with low levels of poverty and high fiscal capacity.

We also estimate that outlays required to fund OPEB are likely to grow as a percentage of revenues over the coming decades. Growth in OPEB outlays will be driven by both increases in the number of retirees and growth in per capita health care cost, although the latter likely will play a larger role. Because there is much uncertainty about the future trajectory of per capita health care costs, there is much uncertainty about how fast or how much OPEB fiscal burdens will grow. Also, future OPEB burdens will depend on future growth in school district revenues. Because of variation across districts in employee demographics, turnover and retirement rates, and particularly revenue growth, the fiscal sustainability of OPEB benefits varies considerably across districts. Districts with either growing retiree populations or shrinking tax bases that are unable to maintain healthy revenue growth are likely to be particularly hard hit by future OPEB outlays. Our analyses show that big city districts and high need rural districts are likely to face the largest OPEB burdens by 2050, which raises equity concerns.

Finally, we have considered two broad responses to the fiscal sustainability issues raised by continued funding of OPEB on a pay-as-you-go basis — cutting benefits or costs and pre-funding. Once retirement decisions and other labor market supply responses are considered it is unclear that eliminating retiree health care benefits, even if it were feasible, would have positive fiscal effects. Well-planned efforts to reduce benefits and/or cut cost of current benefits, however, might well have

positive effects. The Syracuse City School District has recently achieved large reductions in OPEB outlays and could provide an informative case study. Moving to full pre-funding, in contrast, would impose large costs on current taxpayers. The consideration of these two policy options makes clear that addressing the fiscal sustainability of OPEB requires difficult tradeoffs across the interests of current employees and retirees, current taxpayers, and future taxpayers and students.

Choosing the best balance among these interests could be informed by additional research. Particularly, the policy discussion would benefit from understanding the effects of various health care plan provisions on OPEB costs; examination of the legal, political, and administrative conditions that shape responses to fiscal pressures created by OPEB; estimation of the value district employees place on retiree health care benefits; and investigation of labor supply responses, particularly changes in retirement decisions in response to changes in OPEB policies.

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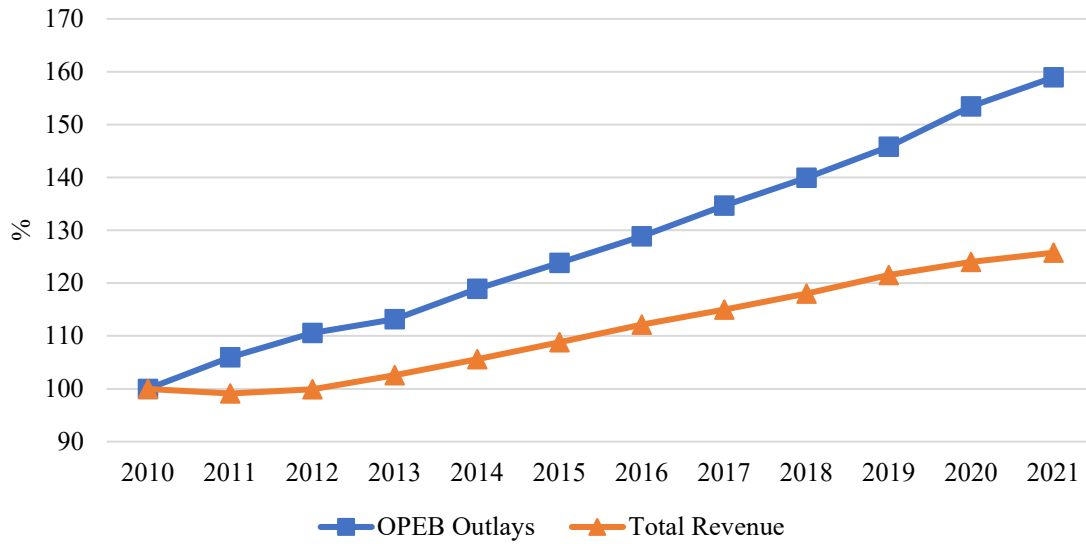
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Stulmaker, Mark L., 2013. "Self-Insurance and the Affordable Care Act." *Municipal Lawyer*, 27 (3).

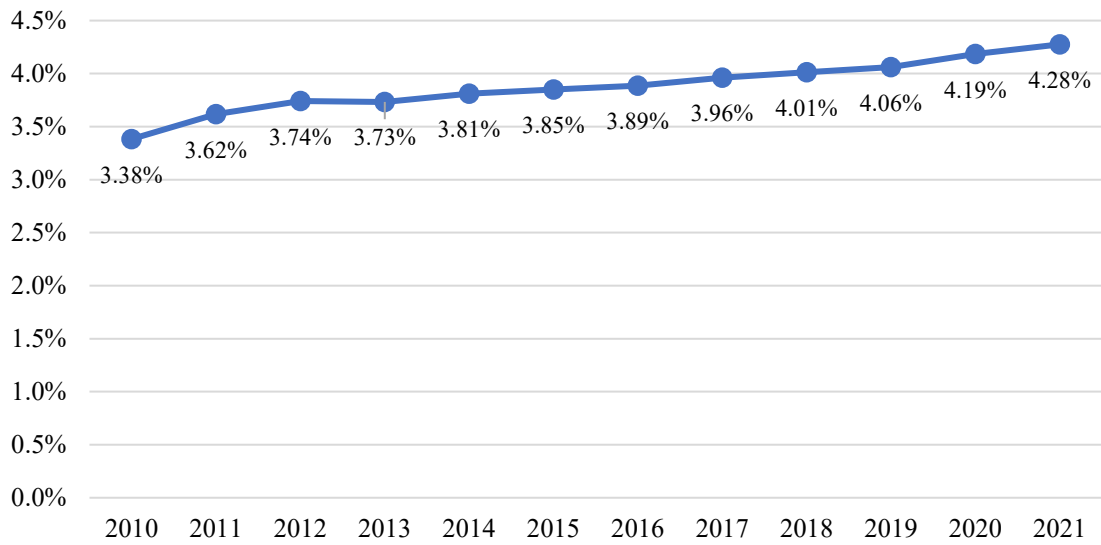
The Pew Charitable Trusts, 2018. *Update: 50-State Survey of Retiree Health Care Liabilities. Fact Sheet*. The Pew Charitable Trusts, Philadelphia, PA.

**Figure 1.** Growth in OPEB outlays and total revenues.

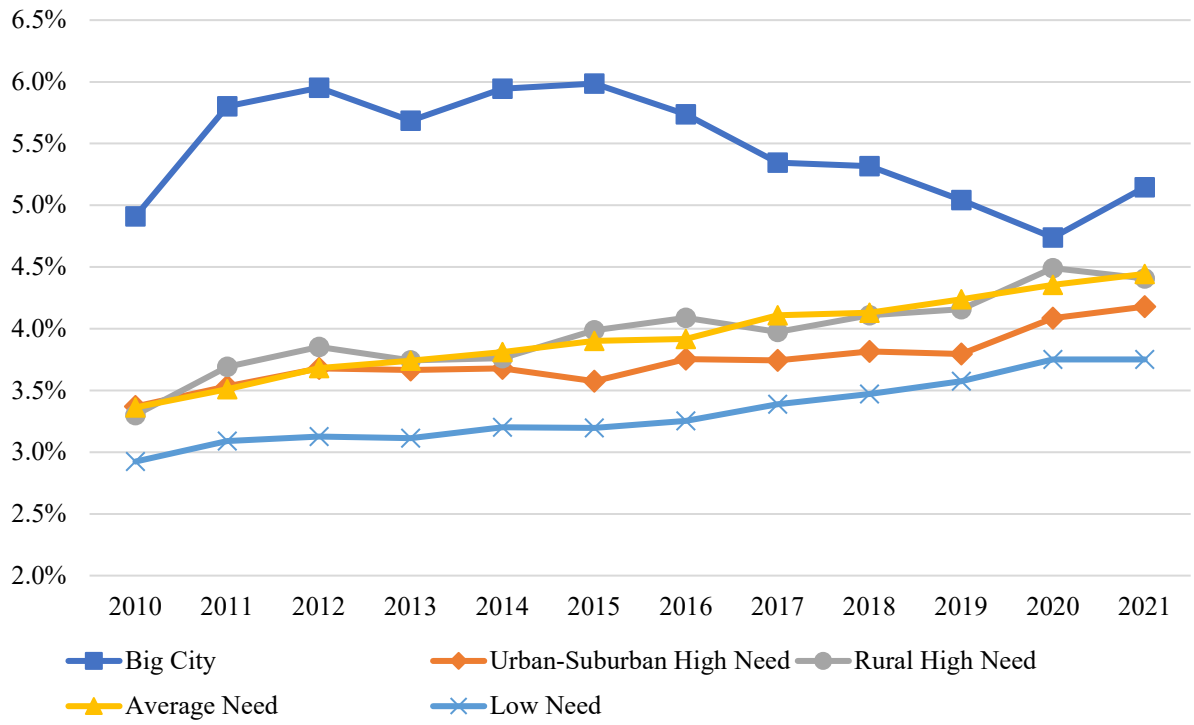
(a) OPEB outlays and total revenue.



(b) OPEB outlays as a percent of total revenue.

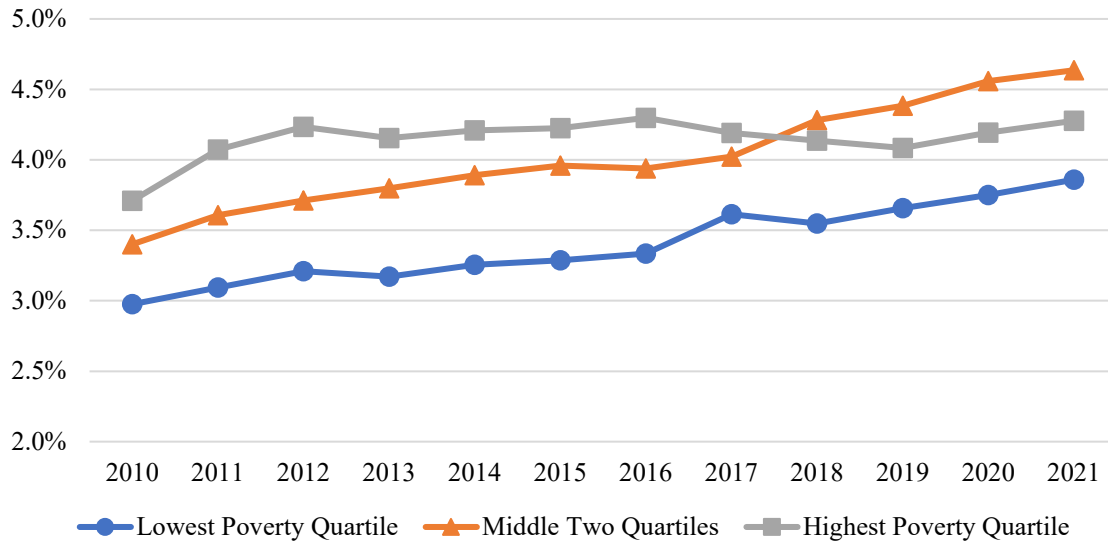


**Figure 2.** OPEB outlays as percent of total revenue, by district need category.

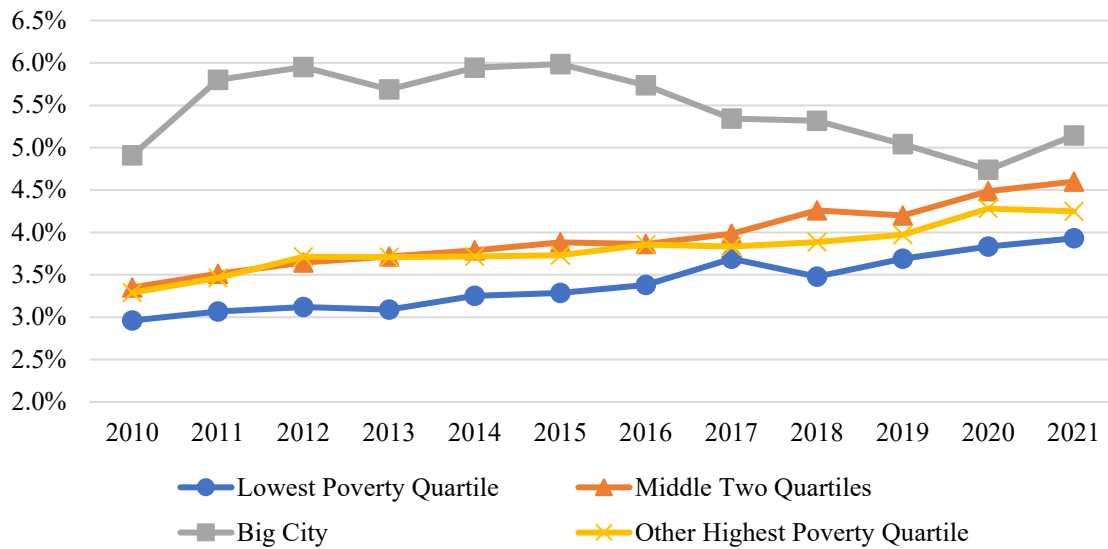


**Figure 3.** OPEB outlays as a percent of total revenue, by economically disadvantaged quartile.

(a) Big city school districts included in the highest poverty quartile.

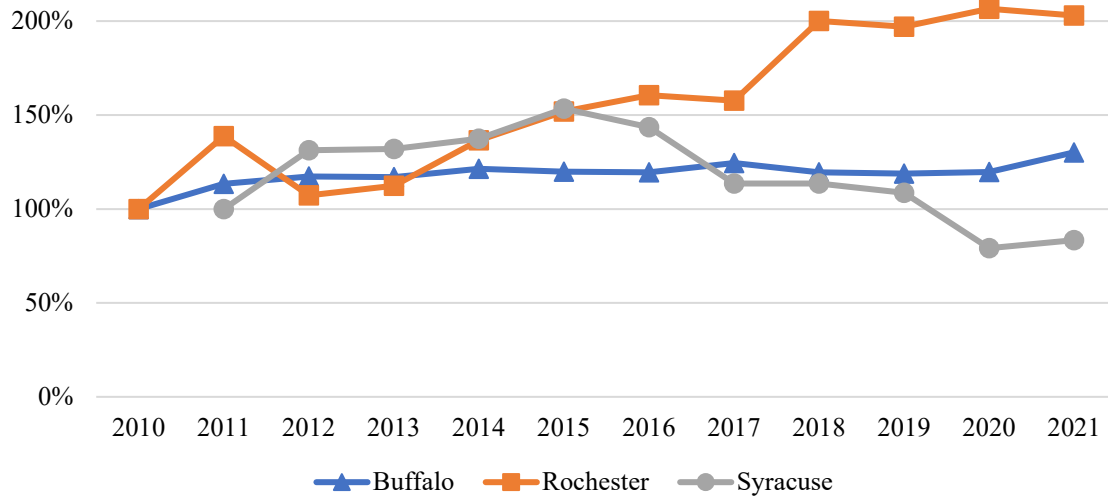


(b) Big city school districts considered separately from the rest of the highest poverty quartile.



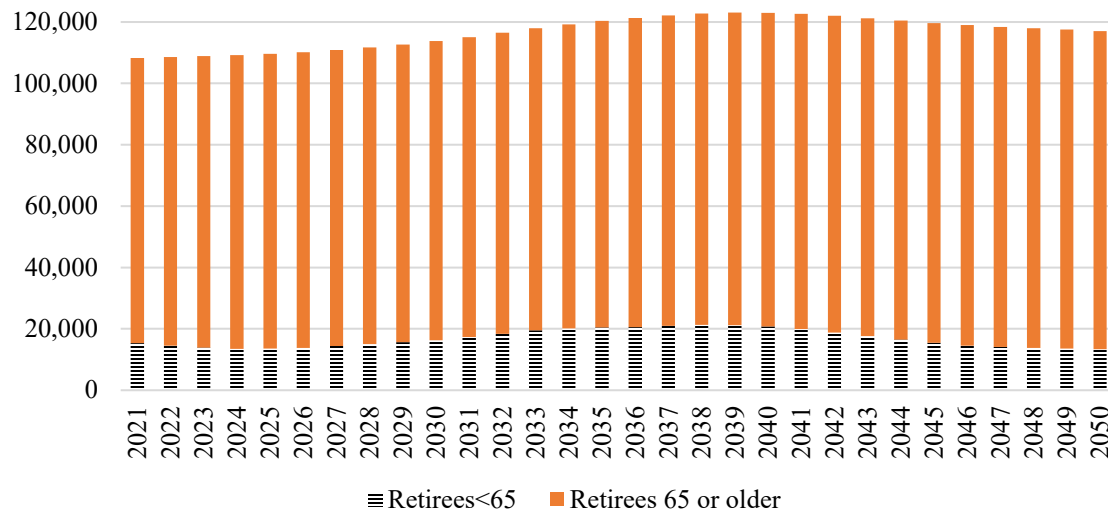


**Figure 4.** Growth in OPEB outlays in big city districts.



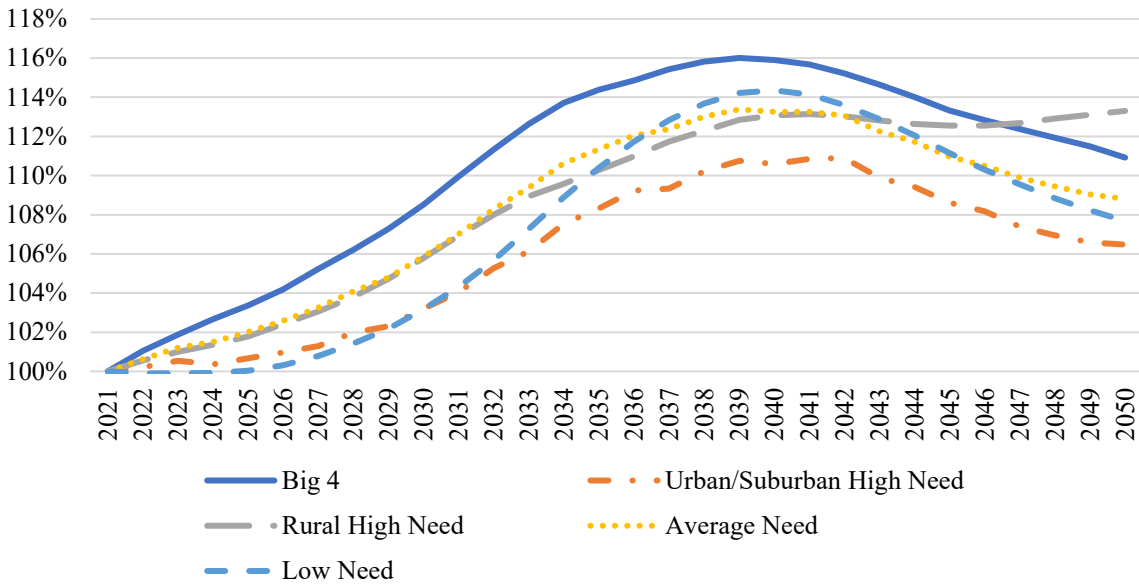
Note: The 2010 value for Syracuse is not reported in the ST-3 files.

**Figure 5.** Projected number of retirees, by age.

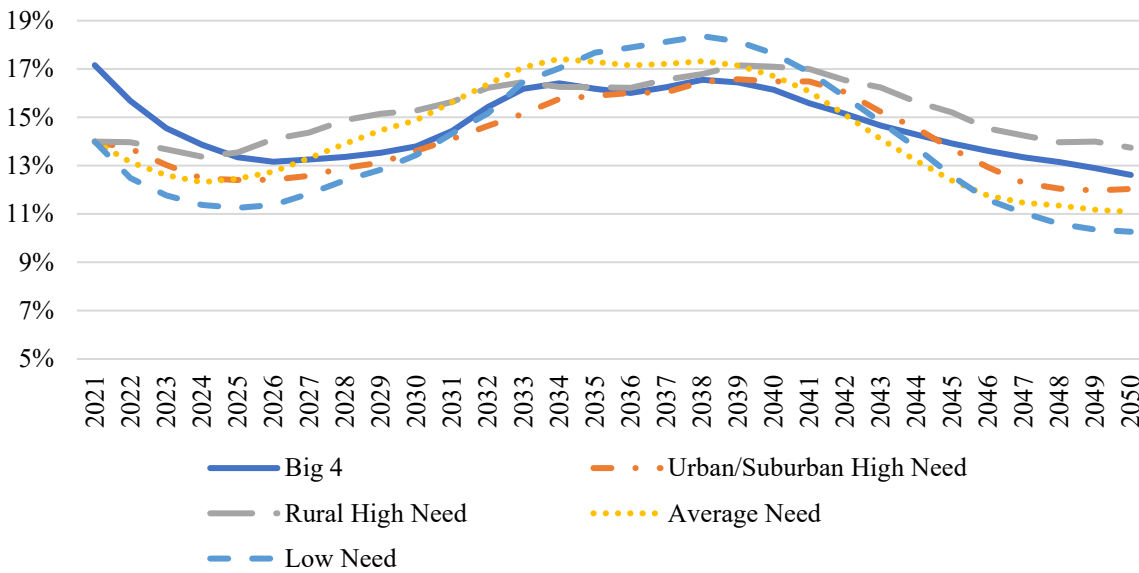


**Figure 6.** Projected number and age distribution of retirees, by district need category.

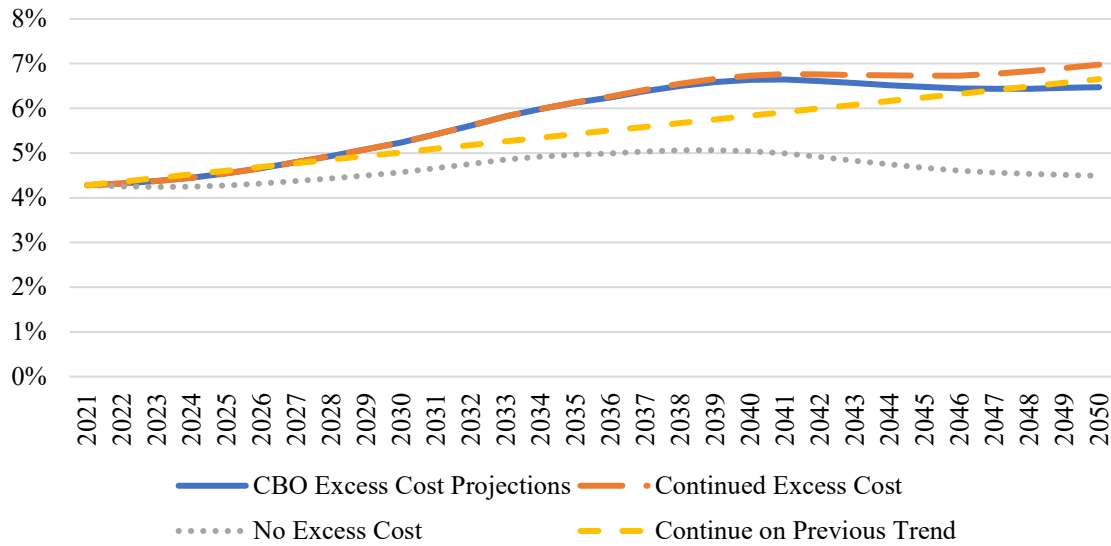
(a) Projected number of retirees.



(b) Percent of retirees under age 65.

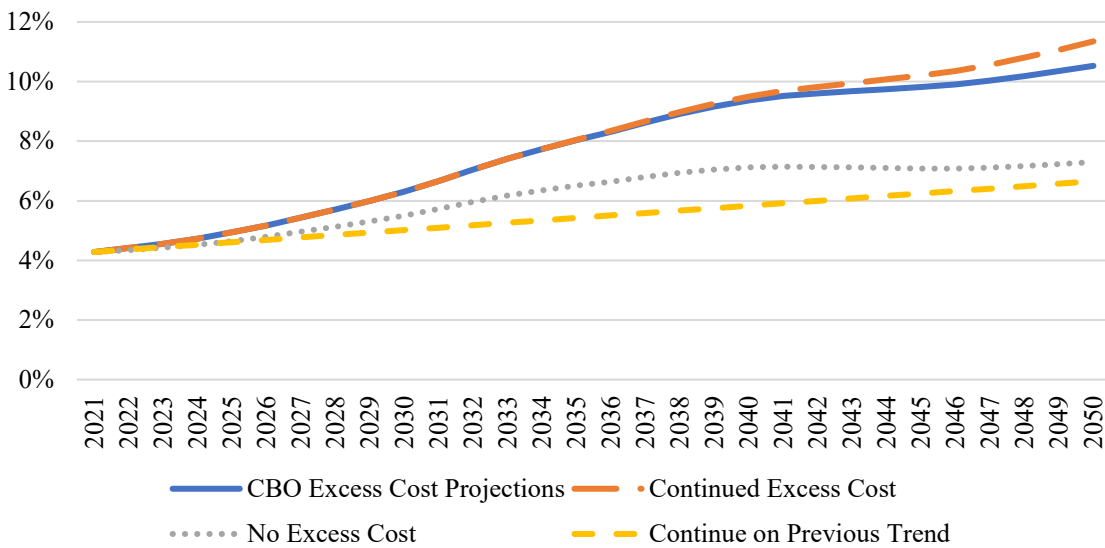


**Figure 7.** Projected OPEB outlays as a percent of revenues, under various assumptions about excess health care costs.

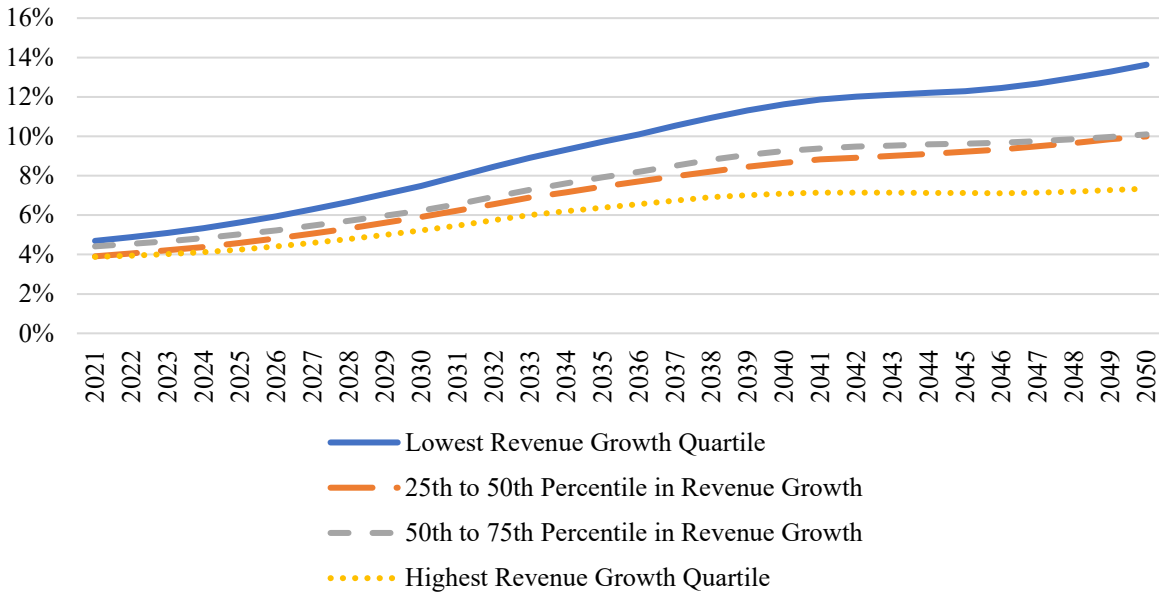


Note. Assumes revenues grow as rate of growth in US nominal GDP projected by CBO.

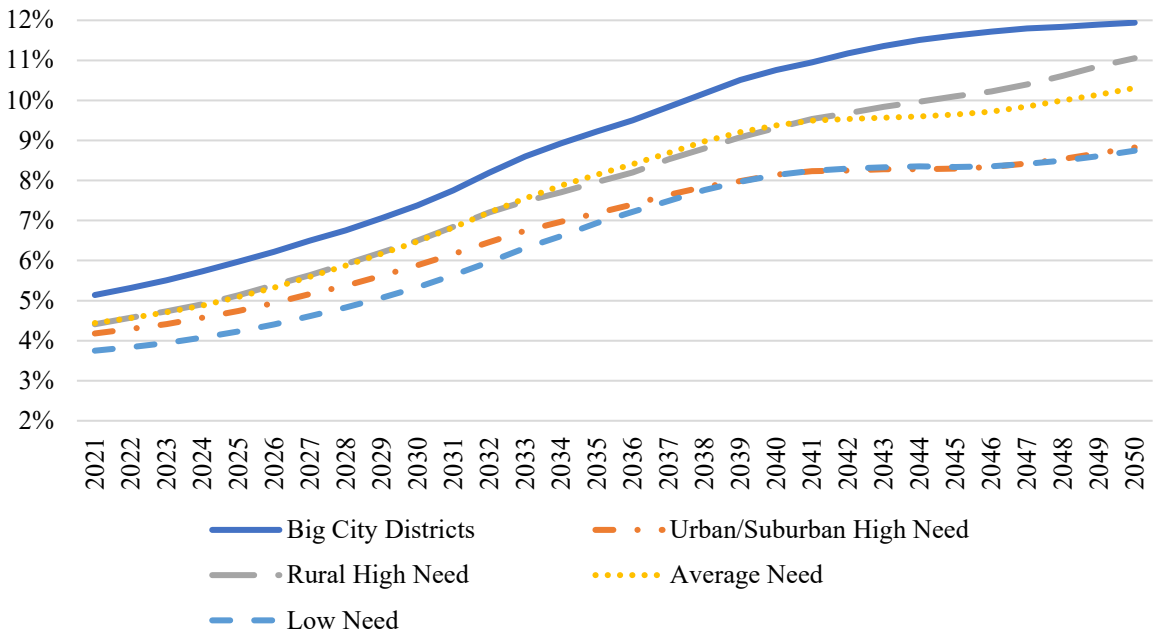
**Figure 8.** Projected OPEB outlays as a percent of revenues, assuming continuation of recent rate of revenue growth



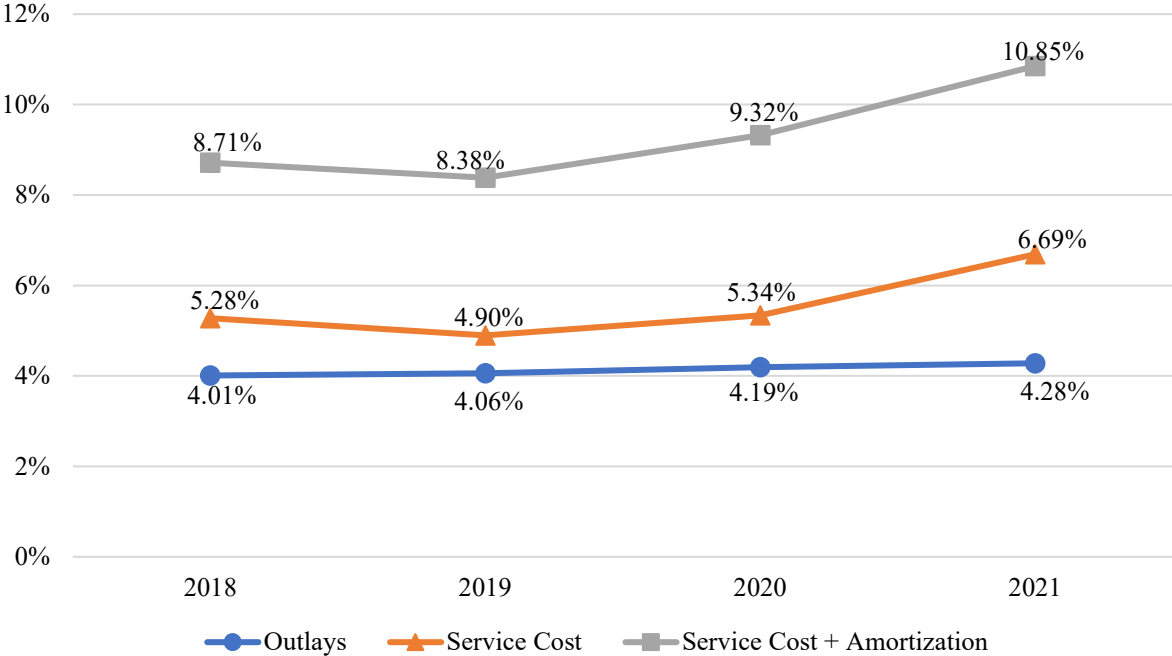
**Figure 9.** Projected OPEB outlays as a percent of revenues, by revenue growth quartile.



**Figure 10.** Projected outlays as a percent of revenues, by district need category.



**Figure 11.** Outlays, service costs, and service cost+amortization as a percent of revenues.



**Table 1.** Percent of districts in each revenue growth quartile, by district need category.

	Lowest	25 <sup>th</sup> to 50 <sup>th</sup>	50 <sup>th</sup> to 75 <sup>th</sup>	Highest
Need Category	Growth	Growth	Growth	Growth
	Quartile	Percentile	Percentile	Quartile
Big city districts	0.0	0.0	66.7	33.3
Urban/suburban high need	7.4	22.2	29.6	40.7
Rural high need	35.3	20.6	20.6	23.5
Average need	27.2	28.5	22.5	21.9
Low need	18.3	23.3	31.7	26.7

## IX. APPENDIX

The projection of the number and age distribution of retirees in future years and of OPEB outlays rely on estimates of several key parameters for individual districts. In this appendix we discuss how we estimated the age distribution of current retirees, withdrawal and retirement rates, and future changes in the total number of teachers for each district. We also discuss the limitations of each set of estimates and the implications these limitations have for interpretation of our projections.

### A. Estimates of the age distribution of current retirees

The only information on the age distribution of current retirees that we were able to obtain are drawn from actuarial reports provided to us by six districts in the state. We computed the average proportion of retirees in each age-by-gender category across the six districts. One of these cities is a big city district, and we assume that the proportion of retirees in each age-by-gender category is the same for each big city district as is reported for this district. For the remaining districts we take the average proportion of retirees in each age-by-gender bracket across the remaining districts for which we have actuarial reports and assume that the total number of retirees in each non-big city district in our sample is distributed across age-by-gender by the average proportions for these five districts. Because the age distribution in these reports is provided for 5-year age intervals, we use cubic spline interpolation to estimate the average proportion of retirees at each specific age.

Other than the total number of retirees, we assume the age distribution of retirees to be the same across all of the big city districts and across all of the other districts in our sample. Provided the age distribution for the six districts is representative, this assumption should not bias our projections of aggregated OPEB outlays. This assumption is, however, a significant limitation on our ability to examine variation in projected growth in the number of retirees across districts. The sources of variation across

districts in our projections are limited to differences in total counts of retirees, the age distribution of current retirees across big city school districts and other districts, and factors that influence the projection of new retirees including the age and experience distribution, withdrawal rates, and retirement rates of current retirees.

## **B. Estimates of district specific withdrawal and retirement rates**

The New York State Teacher Retirement System (NYS-TRS) 2021 Actuarial Valuation report<sup>22</sup> provides withdrawal and retirement rates by age and experience for all members of the state's teacher retirement system. These rates are likely to vary across districts in systematic ways, and thus, we adjust the statewide withdrawal and retirement rates to reflect differences across individual districts.

The New York State Education Department provided deidentified, individual level teacher data files that contain the age, experience and district of each teacher for the years 2019 and 2020, and that allowed us to observe which teachers left each district between 2019 and 2020. We classified teachers appearing in 2019, but not in 2020, and who were younger than 55 or older than 55 with less than five years of experience as withdrawals. We classified those exiting after 2019 who were older than 54 and had five or more years of experience as retirements. We merged this data with district level demographic data obtained from the New York State School Report Cards. Using this data we estimated probit models for both withdrawals and retirements. Predictor variables used in both models include individual experience and age indicators, a set of region indicators, and district-level measures of enrollment and percentages black, Hispanic, Asian, economically disadvantaged, English language learners, and homeless.

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<sup>22</sup> [https://www.nystrs.org/NYSTRS/media/PDF/Library/Publications/Actuarial\\_Valuation\\_Rpt\\_6-30-21.pdf](https://www.nystrs.org/NYSTRS/media/PDF/Library/Publications/Actuarial_Valuation_Rpt_6-30-21.pdf)



We used the results of these models to predict district specific withdrawal and retirement rates for each age and experience combination. Because many of these district specific withdrawal rates are based on small numbers of teachers in the age and experience category, they contain a considerable amount of sampling error. To reduce the noise in these district specific estimates, we computed the percentage deviation of each district specific rate from the average rate for that age and experience category across all the districts. Call this variable  $%D_{dae}$ , where the subscripts reference district, age, and experience, respectively. Next, for each district, we computed a single adjustment factor equal to one plus the average  $%D_{dae}$  across all age and experience categories in the district. Finally, we multiplied these district adjustment factors by withdrawal and retirement rates provided in NYS-TRS 2021 Actuarial Valuation report to obtain the district specific rates used in our projections.

The projections for the aggregate number of new retirees and total number of retirees across all districts in our sample obtained using these district specific withdrawal and retirement rates are similar to those obtained assuming withdrawal and retirement rates published in the NYS-TRS Actuarial report for all districts. However, using the district specific rates has important consequences for the projected number and age distribution of new retirees for specific districts.

### **C. Estimates of future changes in the total number of teachers**

Using enrollment data for the years 2013 through 2020 from the New York State School Reports Cards, we computed annual enrollment growth rates for each district. These annual growth rates ranged from -5 to +3 percent and averaged -1.03 percent. We assumed that each district would experience this rate of change in enrollment and would maintain a constant student-to-staff ratio for the entire projection period.

These projected growth rates directly influence projections of new teacher hires, which have no

immediate influence on the number of retirees or amount of OPEB outlays, although can affect these projections in later years as new hires reach retirement. We also conducted our projections assuming each district maintains a constant number of teachers. The differences in the projected number of new hires who reach retirement age by 2050 are small under the alternative assumptions indicating that our projections are not sensitive to reasonable assumptions about changes in the number of teachers.