

The Looming Tipping Point of New Jersey's Pension System: the impact of more retirees than employees



A REPORT FOR THE GARDEN STATE INITIATIVE
BY ANDREW BIGGS

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Executive Summary

While the data relied upon for this study confirm prior analyses of New Jersey's Pension system underfunding, this study also reveals important comparative points and makes timely recommendations for policymakers who must deal with the future sustainability of both our state and local budgets. New Jersey lawmakers face difficult choices in order to bring the state's public employee pensions back to financial sustainability since our state plans have suffered more significant financial deterioration than those of most other states.

Problem Statements

- » **The reality of the demographics of plan participants has not been adequately reflected:**
The participants of New Jersey's main public plans have aged considerably since the turn of the 21st century. In 2001, the PERS plan had 2.7 active employees for each beneficiary; by 2019, the worker-to-beneficiary ratio had fallen to just 1.4 workers to 1 beneficiary. The Teachers plan fell from a worker-to-beneficiary ratio of 2.4 workers per beneficiary in 2001 to 1.3 per beneficiary in 2019, while the Police and Fire plan declined from 1.8 workers per beneficiary in 2001 to just 0.9 in 2019, meaning that the Police and Fire plan had more beneficiaries than active participants. A pension with older demographics is less able to handle investment risk and other risks.
- » **New Jersey's public plans cannot invest their way out of their unfunded liabilities**
The three main New Jersey public employee retirement plans assumed 8.75 percent annual returns for coming years. However, in the 19 years since then, New Jersey's pensions received annualized returns of just 5.40 percent. Roughly speaking, a 1 percentage point drop in the investment return/discount rate reduces the funded ratio for a public plan by about 20 percentage points. Given the sensitivity of pension funding health to investment returns, a nearly two-decade period of returns over three percentage points below the assumed rate will have disastrous effects on any defined benefit pension system. Even the record 27% return of the most recent fiscal year does not materially cover 19 years of prior deficits.
- » **As a result, New Jersey's problem has grown faster than other states:**
Nationally, unfunded state and local government pension liabilities remained roughly stable at about \$1 billion from 1975 through 1999, but accelerated rapidly in the following two decades, reaching \$4.0 trillion in 2020. The combined unfunded liabilities of New Jersey public plans have increased significantly as well, from \$58 billion in 2000 to \$186 billion in 2019.

Over the 2001 to 2018 period, New Jersey PERS experienced an even more precipitous decline in its funding health than public plans in other states: PERS began the period with assets equal to 117 percent of plan liabilities; by 2018 it had fallen to only 55 percent funded. The New Jersey Teachers plan declined from 105 percent to only 72 percent funded, and the Police and Fire plan fell from 101 percent to 69 percent funded in the same period.

» **New Jersey’s pension system costs more than most other states and is more generous than what New Jersey’s private sector employees receive:**

Most pension cost increases have been borne by New Jersey’s taxpayers. Specifically, the actuarially determined employer contribution rate for New Jersey PERS has increased from less than 1 percent of employee payroll in 2001 to over 25 percent of wages in 2019. Over that same period, the average employee contribution rose from 5.4 percent to 7.7 percent of wages, a significantly smaller increase than in contributions paid by the government/taxpayers.

Another way to contrast state to state costs, comparing a state’s unfunded pension liabilities to its gross domestic product (GDP) equalizes the financial burden of public pension plans to a state i.e. compare the pensions’ funding shortfall to the state’s broader economic capacity to fill the financial gap. New Jersey remains an affluent state with high average incomes but even in that context, New Jersey’s pension funding requirement is concerning. The median U.S. state has unfunded pension liabilities equal to 4.4 percent of its state GDP. The best-funded state by this measure, Wisconsin, has unfunded pension liabilities equal to only 2 percent of GDP, while the worst-funded state, Illinois, has unfunded pension liabilities equal to 11 percent of GDP. New Jersey’s unfunded pension liabilities are equal to 7.3 percent of GDP, giving New Jersey the fifth highest ratio of unfunded liabilities to GDP among the 50 states.

Lastly, compared to the residents who fund these pension payments, New Jersey public employee retirement plans are many times more generous than the 401(k) plans offered to most private sector employees. This generosity is hidden in state financial disclosures which understate the costs of public sector pensions, but is revealed using the federal government’s methods for estimating pension costs.

According to the Bureau of Labor Statistics National Compensation Survey, in 2019 the median maximum potential employer contribution to the 401(k)-type accounts of employees classified as “Management, professional, and related” was 3.3 percent of employee wages.

For the New Jersey Teachers plan, the employer’s cost of funding newly-accruing benefits is 22.7 percent of employee wages. This is approximately 6.5 times greater than the typical private sector employer match toward employee 401(k) accounts. Public safety personnel receive even more generous pensions, with cost of Police and Fire pensions reaching 81.8 percent of payroll, far higher than the plans’ own reported value of 22.7 percent of pay.

Policy Recommendations

Governor Phil Murphy signed legislation that would make a \$6.9 billion contribution to the state’s public pension funds in 2021, which was made possible via higher-than-expected tax revenues and federal financial assistance to the state. This is a welcome improvement to the state’s history of in-

adequate pension contributions, but many more years of substantial contributions will be needed to bring the state's public sector retirement plans back to adequate funding. These future contributions will be difficult to sustain after 2021's unprecedented federal financial aid expires without significantly more funding burden from taxpayers.

Policy Recommendation A: Initiate increased risk-sharing between the government and public employees.

Currently, the government bears nearly all of the investment risk with New Jersey public pensions. When investment returns fall short of assumed levels, the government must increase contributions while employee contributions remain unchanged. However, in states such as Nevada and Utah, both the government and employees adjust their contributions to if investment returns fall short.

Policy Recommendation B: Balance more modest pension benefits with higher contributions or reductions to other forms of compensation, such as health benefits.

Pension benefits for New Jersey public employees are substantially more generous than those provided in the private sector and cost more than other public plans outside our state. While all employees would prefer more generous retirement benefits, well-run defined contribution plan in conjunction with Social Security can establish retirement security in a flexible and financially sustainable way.

A defined contribution plan, similar to a 401(k), shares investment risk and ensures full funding. Some state governments as well as the federal government have already established defined contribution plans.¹ In a "defined contribution plan," the employer's obligation is to make a stated contribution to employees' accounts each year, not to guarantee a given benefit at retirement age.

An alternate to a defined contribution plan is a "cash balance" pension, which combines attributes of both defined benefit and defined contribution plans. The 2015 report of the New Jersey Pension and Health Benefit Study Commission recommended that New Jersey's traditional "final earnings" defined benefit plans be frozen, and that, going forward, employees would accrue benefits under a cash balance plan. Under that cash balance plan, employees and the government would each contribute 4 percent of wages to the program.

This recommendation would have advantages. Freezing the current plans would afford an opportunity to reconsider the level of benefits that New Jersey plans should promise and how the cost of funding those benefits should be divided between the government and employees.

Thus, while a cash balance plan is likely superior to New Jersey's current pensions, lawmakers should carefully consider the risks posed to state and local budgets before adopting such a reform approach.

Governor Murphy received credit for his strong commitment to the public employee pensions in 2021 with the first-in-decades full pension payment. Looking forward, however, the sustainability of taxpayers to consistently direct over \$7 billion of annual payments to the systems has been raised by rating agencies, independent budget analysts and financial reporters. This report assists in clarifying these challenges and how required pension payments will continue to escalate versus prior years, further reduce our competitiveness versus other states, and exacerbate the difference

¹ See Munnell et al. (2014).

between the cost of these public versus private employer retirement plans.

Leaders from both political parties in other states have already done the hard work to modernize their public employee benefits systems. Further avoidance of responsible reforms by culpable New Jersey leaders only increases the cost for New Jersey taxpayers who already bear the largest tax burden in our nation.

Retirement systems for state and local government employees in New Jersey have posed a growing fiscal c

New Jersey lawmakers face difficult choices in bringing the state's public employee pensions back to financial sustainability.

Abbreviations

BEA	U.S. Bureau of Economic Analysis
COLA	cost-of-living adjustments
CPI	Consumer Price Index
GASB	Governmental Accounting Standards Board
GDP	gross domestic product
IGM	Initiative on Global Markets
PCE	the Personal Consumption Expenditures deflator, the measure of inflation most commonly used by the Federal Reserve Board and the Congressional Budget Office
PERS	New Jersey Public Employees Retirement System
Police and Fire	New Jersey Police and Firemen's Retirement System
PPD Boston College	Public Plans Database, maintained by the Center for Retirement Research at Boston College
Teachers	New Jersey Teachers Pension and Annuity Fund



Introduction

New Jersey residents need no introduction to the escalating woes that have plagued the state’s public employee pension systems for the past two decades, undermining the fiscal health and credit rating of the entire state.

As this study will show, new data and insights reveal that the picture is even gloomier than originally thought. To provide a framework, we begin by reviewing the recent history of public employee pension funding in New Jersey. Next, we comment on the impact of several seldom-discussed issues, such as far-reaching demographic change among plan participants and sub-par investment returns that have put the retirement plans on the shakiest of ground. This is followed by the new trove of independent data on pension funding from the Federal Reserve and the federal government’s Bureau of Economic Analysis (BEA), underscoring the deterioration that has taken place in New Jersey. Finally, we lay out the pension realities and difficult choices facing the state’s policymakers, coupled with some practical options for reform they might strongly consider for making the state’s public employee retirement plans financially sustainable.

Much of the data in the opening sections of this report come from the Public Plans Database (PPD), compiled and maintained by the Center for Retirement Research at Boston College. The PPD contains variables on over 100 public sector pensions beginning in fiscal year 2001 through fiscal year 2020. The three principal retirement plans analyzed in this study are the New Jersey Public Employees Retirement System (PERS), the New Jersey Teachers Pension and Annuity Fund (referred to as “Teachers”) and the New Jersey Police and Firemen’s Retirement System (“Police and Fire”). The state also administers several additional plans, including the State Police Retirement System, the Judicial Retirement System, the Consolidated Police and Fire Retirement System, and the Prison Officers Pension Fund. Unfortunately, these latter plans are not included in the PPD and are not specifically considered here. However, a brief survey of current documents available from the New Jersey Department of the Treasury indicates that these plans exhibit some of the same funding issues as the three main plans analyzed here.²

The three retirement plans analyzed in this study are traditional “final salary” defined benefit pensions. This means that the retirement benefit offered to participants is determined (or defined) via a benefit formula rather than based upon the contributions made to or the investment earnings received by the plans. In a final salary “defined benefit” pension, benefits are generally calculated by granting a benefit equal to some percentage of the employee’s final salary multiplied by the employee’s number of years of service.³

² Resources available at <https://www.state.nj.us/treasury/pensions/financial-reports.shtml>

³ Other varieties of defined benefit pensions include cash balance plans, which will be discussed in following sections.

Contributions to a defined benefit plan are calculated based on an assumed rate of return on the plan's investments. The most distinctive aspect of a defined benefit plan is that it is the plan sponsor — in these cases the state or local governments of New Jersey — that must address any underfunding of the plan that occurs if the plan's actual investment returns turn out to be lower than was forecast at the time the contributions were made.

In general, a defined benefit program such as New Jersey's seeks to fully fund new benefits as they are accrued by employees under the pension's benefit formula. That is to say, if the sponsor makes its full required contribution and all the plan assumptions under which contributions were calculated are accurate, the pension plan will always be 100 percent funded, from the very beginning of its existence.

The cost of funding these newly accruing benefits is generally referred to as the "normal cost" or "service cost" of the plan. In most states, including New Jersey, the normal cost is shared between employees and the government that sponsors the pension. The employees' own contribution, which is generally calculated as a percentage of their wages, is dedicated to funding only the new benefits that they earn in the current year.

In addition to the normal cost contribution there is an additional contribution, made only by the government, which is dedicated to paying down (or amortizing) any unfunded liability that had been built up over previous years. This additional contribution from the government occurs whether the underfunding is a result of investment returns being lower than forecast or is a result of the government failing to making to make its full actuarially determined contribution. The amortization payment calculation is based upon a designated period over which the system chooses to pay off its unfunded liabilities, generally between 20 and 30 years. The major New Jersey plans amortize unfunded liabilities over 30 years. In most states, including New Jersey, these amortization costs, incurred to address unfunded liabilities, are a major cost factor, and in some cases they exceed the costs of funding newly accruing benefits.

The Health of Funding as Reported by New Jersey Pensions

State and local government pension funds report their funded status via accounting disclosures generated under rules promulgated by the Governmental Accounting Standards Board (GASB). The most important variable in the GASB accounting rules is the discount rate applied to future dollar amounts to convert those dollar figures into a present value. It is the present discounted value of a pension's future benefit liabilities that determines its current funding status as well as the contributions necessary both to fund new benefits as they accrue and to maintain the plan's full funding over time. Under GASB rules, a public sector pension is required to discount future benefit payments at the rate of return that the plans assume they will earn on their investments. New Jersey's PERS, Teachers, and Police and Fire plans currently assume a 7.3 percent annual investment return. For instance, assuming a 7.3 percent discount rate, the present value of \$1 in benefits promised to be paid 15 years in the future would be 35 cents. The higher the assumed investment return, the higher the discount rate, the lower the present value of pension liabilities, and the lower the contributions required to fund those liabilities. Thus, maintaining a high assumed return on pension investments reduces the government's required assumptions immediately, even before those higher returns are (or are not) received.

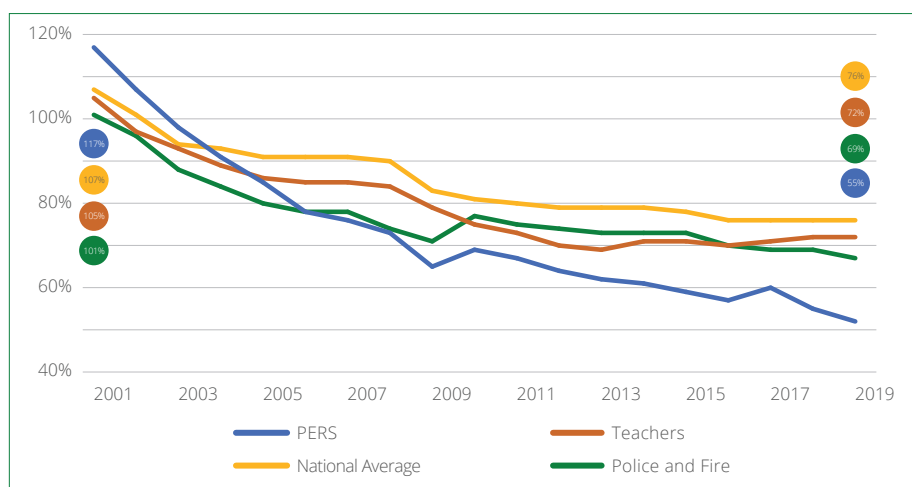
An exception to this GASB rule occurs when a pension is projected to run out of money at some future date. In those cases, GASB rules require that future benefit payments be discounted at the assumed rate of investment return through the date on which the pension fund is projected to be exhausted; however, benefit payments owed after the exhaustion date must be discounted at the lower yield paid on municipal bonds. Figures calculated using this adjusted discount rate generally are published in reports mandated by the GASB, but actuarial valuations of plan funding may use the full unadjusted discount rate that does not reflect GASB rules. This provision of GASB rules applies to the three New Jersey plans analyzed here. PERS is projected to remain solvent until 2057; the Teachers system to 2054; and the Police and Fire program to 2076. Therefore, in certain accounting disclosures New Jersey public pensions must use a somewhat lower discount rate than the assumed rate of return on the plans' investments.

I now turn to the funding health of New Jersey plans, as reported by the plans themselves. In particular, in these figures, the benefit liabilities — along with the contributions needed to meet future liabilities — are calculated by discounting future benefit payments at the investment returns that are assumed for each plan.

It is worth noting at the outset that public employee pension funding has declined nationwide since the highs reached during the dot-com bubble of the late 1990s (Figure 1). Since 2001, the first year for which PPD figures are available, the average public plan funding ratio fell from 107 percent to 76 percent (in 2018). New Jersey is not unique in suffering from declining pension funding health.

However, New Jersey public employee plans have suffered more significant financial deterioration than those of most other states. Over the 2001 to 2018 period, New Jersey PERS experienced an even more precipitous decline in its funding health than public plans in other states: PERS began the period with assets equal to 117 percent of plan liabilities; by 2018 it had fallen to only 55 percent funded. The New Jersey Teachers plan declined from 105 percent to only 72 percent funded, and the Police and Fire plan fell from 101 percent to 69 percent funded in the same period.

FIGURE 1.



Much of the drop in New Jersey’s pension funding health came from actual investment returns for the plans that did not come close to matching the plans’ assumed returns. In 2001, the three main New Jersey public employee retirement plans assumed 8.75 percent annual returns for coming years. However, in the 19 years since then, New Jersey’s pensions received annualized returns of just 5.40 percent, according to figures from the PPD. Public pension funding health is extremely sensitive to changes in the investment return (or, in forward-looking projections, to the discount rate applied to future benefits). Roughly speaking, a 1 percentage point drop in the investment return/discount rate reduces the funded ratio for a public plan by about 20 percentage points. Given the sensitivity of pension funding health to investment returns, a nearly two-decade period of returns over 3 percentage points below the assumed rate will have disastrous effects on any defined benefit pension system.

A second and widely noted factor is New Jersey governments’ failure to make the full actuarially determined pension contributions. The PPD figures show that, from 2001 to 2018, the New Jersey Teachers plan received only 18 percent of its actuarially determined contributions, with the net effect on plan funding compounded because the largest contribution shortfalls — which were often as serious as no contributions at all in a given year — occurred early in the period and thus deprived the plan of future investment earnings. The PERS plan received an average of 48 percent of its actuarially determined government contributions, while the Police and Fire plan received 56

percent.⁴ The defining characteristic of a defined benefit pension system is that the employer — in these cases, the New Jersey government — bears the risk of the plan’s investments and must increase contributions to make up for any investment returns coming in below the plan’s prior assumptions. New Jersey, neglecting this requirement, did very little to ensure that its public pensions remained well funded during a period of subpar investment returns. A responsible pension sponsor will know that pension investments are volatile, and that this volatility will carry through to employer contributions that could rise and fall significantly over time. Thus, a government should not sponsor a defined benefit pension unless it possesses the fiscal capacity to make all required contributions at all times, no matter how high those contributions should rise.

At the same time, despite failing to make full contributions as required, New Jersey governments have substantially increased the amounts they actually have contributed to the state’s main pension plans. At the turn of the 21st century, the state’s three main pensions were fully funded, and the PERS and Teachers plans, at least, had only very small required contributions. (The Police and Fire plan had a required contribution in 2001 of 14 percent of employee payroll, none of which was actually paid.) Over time, however, actual contributions did increase significantly relative to the *de minimus* levels of 2001. In 2018, the Teachers plan received a contribution equal to 10 percent of employee payroll; PERS received 14 percent of payroll; and the Police and Fire plan received a contribution of approximately 25 percent of employee payroll.

Thanks to federal financial assistance related to the COVID-19 pandemic, New Jersey will be able to make a substantial pension contribution in 2021. On June 29, Governor Phil Murphy signed legislation that would make a \$6.9 billion contribution to the state’s public pension funds, which was made possible via higher-than-expected tax revenues and federal financial assistance to the state (Steyer, 2021.) This is a welcome improvement to the state’s history of inadequate pension contributions, but many more years of substantial contributions will be needed to bring the state’s public sector retirement plans back to adequate funding. These future contributions may be difficult to sustain after 2021’s unprecedented federal financial aid expires.

⁴ It appears that employee contributions were made throughout the period for which data are available. Employee contributions are mandatory and could be withheld only if the sponsoring employer enabled provisions to reduce the amounts that employees must pay.

Plan Demographics and Investment Practices

In general, defined benefit pensions adjust their investment practices in response to changes in the demographics of plan participants. Most pension decision-makers believe it is safer to take investment risk over long periods than over short periods, and thus a pension with a large share of active employees relative to retirees will believe it can more safely take investment risk than a more mature pension that is heavily loaded with retirees who are currently receiving benefits.⁵ Thus, as pension demographics mature, it is expected that they will tend to take less risk with their investments.

The participants of New Jersey's main public plans have aged considerably since the turn of the 21st century (Figure 2). In 2001, the PERS plan had 2.7 active employees for each beneficiary; by 2019, the worker-to-beneficiary ratio had fallen to just 1.4 workers to 1 beneficiary. The Teachers plan fell from a worker-to-beneficiary ratio of 2.4 workers per beneficiary in 2001 to 1.3 per beneficiary in 2019, while the Police and Fire plan declined from 1.8 workers per beneficiary in 2001 to just 0.9 in 2019, meaning that the Police and Fire plan had more beneficiaries than active participants.

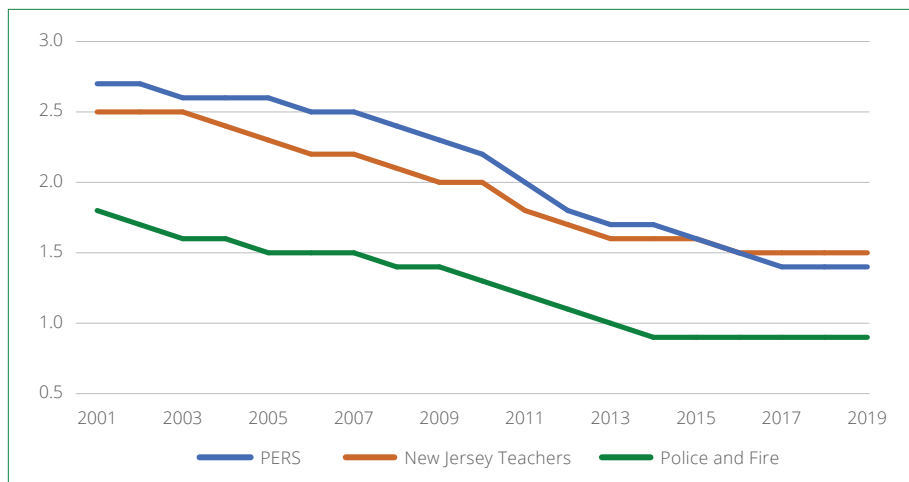
Under best practices for pension management, these demographic changes should have pointed toward more conservative investment practices by New Jersey plans. Instead, New Jersey's main pensions have maintained or increased the amount of investment risk they take. In 2001, New Jersey pensions held about 62 percent of their assets in domestic or international equities, with the remaining investments in domestic and international bond, mortgages, and cash.⁶ By 2018, the most recent year for which the state's Comprehensive Annual Financial Reports have been published, New Jersey held 68 percent of its pension assets in equities and other risky investments such as hedge funds, private equity, venture capital, and real estate.⁷

⁵ For instance, see Sundaresan and Zapatero (1997) and Lucas and Zeldes (2009).

⁶ New Jersey Department of the Treasury (2002).

⁷ New Jersey Department of the Treasury (2019).

FIGURE 2.



This pattern is the reverse of what pension experts generally recommend. U.S. private pensions and public pensions overseas tend to de-risk as their participants age, but increasing risk-taking is widespread among U.S. public sector pensions — so much so that the Society of Actuaries, in a 2014 letter to the Actuarial Standards Boards, chided public plans for their increasing risk-taking:

We are concerned that we see many public sector plans using practices that have not been used by private sector plans or that have been abandoned by private sector plans around the world. We see public sector plans making choices about risk taking that go against basic risk management principles. For example, public sector plans in the U.S. are unique in that they have taken additional risk as the plans have become more mature, compared to private sector plans in the U.S. and private and public sector plans in Canada, UK and the Netherlands, which have taken less risk as plans have matured.⁸

New Jersey’s pensions have not been exempted from these broader national trends.

New Jersey’s pensions have reduced their assumed investment returns over time. In 2001, all three main New Jersey plans assumed a future investment return of 8.75 percent, which even at the time was at the high end for U.S. public plans. By 2020, PERS and the Teachers plan had lowered their assumed return to 7.5 percent, and the Police and Fire system had reduced its assumed return to 7.3 percent. However, while these reductions are welcome in terms of pursuing a less aggressive funding strategy, one should not overestimate their importance.

Over the 2001 to 2020 period in which PERS and the Teachers plan reduced their assumed returns by 1.25 percentage points, the yield on long-term U.S. Treasury securities fell by 3 percentage points. By January 2020, the 30-year Treasury yield had fallen to 2.33 percent, a decline of 3 percentage points. In January 2001, the yield on Treasury securities with a duration of 30 years was 5.35 percent. By reducing their assumed returns by less than half of the decline in U.S. Treasury yields, New Jersey’s pensions currently assume they will receive a substantially higher premium over safe investments than the plans assumed in the past. In other words, New Jersey’s pensions implicitly assume that the rewards paid to future investors in exchange for taking investment risk will be significantly higher than they were in the past, without providing any justification for this assumption.

8 Society of Actuaries (2014).

The Health of Pension Funding as Reported in Federal Data

For a number of years there has been a debate over how public sector pension liabilities should be valued. The crucial figure being debated is the discount rate used to convert a pension's future benefit promises into a present value that can be expressed as the pension's liabilities. In most of the pension world, including most U.S. private sector pensions and most public and private pensions in other countries, pensions discount their future benefit promises using a low interest rate derived from bond yields. The logic is that promised pension benefits from a sponsoring firm or government are very similar to promised bond payments from those entities: in both cases, the firm or government promises to pay some fixed dollar amount and pledges to make that payment with near certainty, such that failure to pay that amount in full would be regarded as a significant negative event. By and large, those pension and debt promises tend to be kept: defaults of either type are very unusual. In March 2021, a U.S. private sector pension with a duration of benefit liabilities similar to a U.S. public sector plan would have been required by federal regulations to discount those liabilities using an interest rate of 2.9 percent. Using this discount rate, a pledged benefit payment of \$1 dollar paid 15 years in the future would have a present value of 65 cents. A pension that held 65 cents in current assets would be deemed to have fully funded that future benefit liability.

Public sector pension in the United States currently value their liabilities using a very different method. These plans discount their future benefit liabilities using the interest rate the plan assumes it will earn on its portfolio of investments. If the pension holds investments of a risk similar to that of the pension's benefits — as pensions used to, by holding a portfolio composed principally of safe, fixed-income investments — public plans' discounting methodology becomes a distinction without a difference. However, when a public pension begins holding investments that are far riskier than the benefits offered by the pension, using the assumed return on risky assets to calculate the present value of non-risky benefit payments can significantly understate the true value of those benefit liabilities. For instance, using the 7.5 percent investment return assumed by New Jersey's PERS and Teacher plans, a \$1 benefit payment pledged 15 years in the future would have a present value of just 34 cents, barely half the value of a private sector pension promising the same benefit. Put another way, New Jersey's pensions would consider themselves "fully funded" even if holding just half the current assets held by a private pension that promises exactly the same benefits.

For many years, economics, actuaries, and other analysts argued over these matters. Public pensions and their actuarial consultants argued that, in the context in which their methods are used, a

high discount rate is appropriate. Economists countered that the use of high discount rates understates pension liabilities and puts future taxpayers at risk of being forced to pay benefits that should have been funded by prior generations.⁹ In October 2012, the Initiative on Global Markets (IGM) Forum at the University of Chicago's Booth School of Business surveyed 39 highly respected economists with regard to public pension discount rates. They were asked to express their agreement or disagreement with the following statement:

By discounting pension liabilities at high interest rates under government accounting standards, many U.S. state and local governments understate their pension liabilities and the costs of providing pensions to public-sector workers.

Ninety-eight percent of the economists surveyed agreed with this proposition, with 49 percent agreeing strongly. None of the economists surveyed disagreed (a small percentage were unsure).¹⁰

Nevertheless, state and local retirement systems have continued with a public funding figure calculated by using higher discount rates based upon risky investments, making this debate largely academic.

However, in recent years the U.S. Federal Reserve Board and the federal government's BEA have begun publishing figures for public pension liabilities based on economists' logic that, as then-vice chairman of the Federal Reserve Board Donald Kohn said in 2008:

While economists are famous for disagreeing with each other on virtually every other conceivable issue, when it comes to this one there is no professional disagreement: The only appropriate way to calculate the present value of a very-low-risk liability is to use a very-low-risk discount rate.¹¹

At the time Kohn's statements were made, institutions such as the Federal Reserve did not publish any pension funding figure that reflected their views regarding the appropriate discount rate. Today, however, is different.

The Fed's Financial Accounts of the United States and the BEA's National Income and Product Accounts — the latter of which are considered the official ledger books for the U.S. government and economy — now publish figures on pension funding where public pension liabilities are discounted using a corporate bond yield, the same discount rate the Fed and the BEA apply to private pension liabilities.

The current discount rate used by the Fed and the BEA is 4 percent; this lags the corporate bond yields currently in the market but it nevertheless generates large differences relative to the 7 to 8 percent discount rates still used in public pension actuarial valuations. This federal action renders the discount rate debate a more live issue, because respected federal government institutions have put their imprimatur on pension funding figures that present a very dire picture of state and local pension funding health, including in New Jersey.

Figure 3 is based upon data published in the Federal Reserve's Financial Accounts of the United States. The figure shows the funded ratio of state and local government pensions taken as a whole — which represents assets as a percentage of liabilities — along with the total unfunded liabilities for state and local plans, which is calculated as liabilities net of assets. The unfunded liability is adjusted for inflation using the Personal Consumption Expenditures (PCE) deflator, which is the preferred measure of infla-

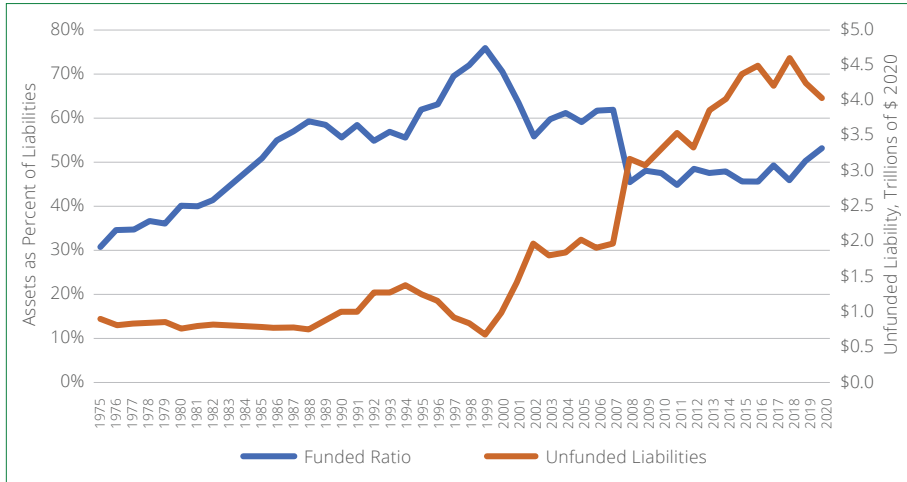
⁹ See, for instance, Novy-Marx and Rauh (2009).

¹⁰ For details on the survey results, see http://www.igmchicago.org/igm-economic-experts-panel/poll-results?Survey_ID=SV_87dlrlXQvZkFB1r.

¹¹ Kohn (2008).

tion used by the Federal Reserve and the Congressional Budget Office. The Fed figures show that the funding health of public employee pensions increased from 1975 through 1999, with the weighted average funding level growing from 31 percent to 76 percent. But beginning in 2000, funded levels declined because of low investment returns, declining interest rates that led to lower discount rates applied to liabilities, and failures by governments to make full actuarially determined contributions. Unfunded state and local government pension liabilities remained roughly stable at about \$1 billion from 1975 through 1999, but accelerated rapidly in the following two decades, reaching \$4.0 trillion in 2020.

FIGURE 3.



We now turn to pension funding for New Jersey state and local plans. Figure 4 is based on data published by the BEA spanning the fiscal years 2000 to 2019. The BEA figures combine all New Jersey state and local government retirement systems. Figure 4 shows both the funded ratio, representing pension assets as a share of liabilities, and the combined unfunded liabilities, which are calculated as liabilities minus assets. The funded ratio of New Jersey public plans has declined significantly since 2000, falling from 51 percent in fiscal year 2000 to only 31 percent in fiscal year 2019. The combined unfunded liabilities of New Jersey public plans have increased significantly, from \$58 billion in 2000 to \$186 billion in 2019.

FIGURE 4.

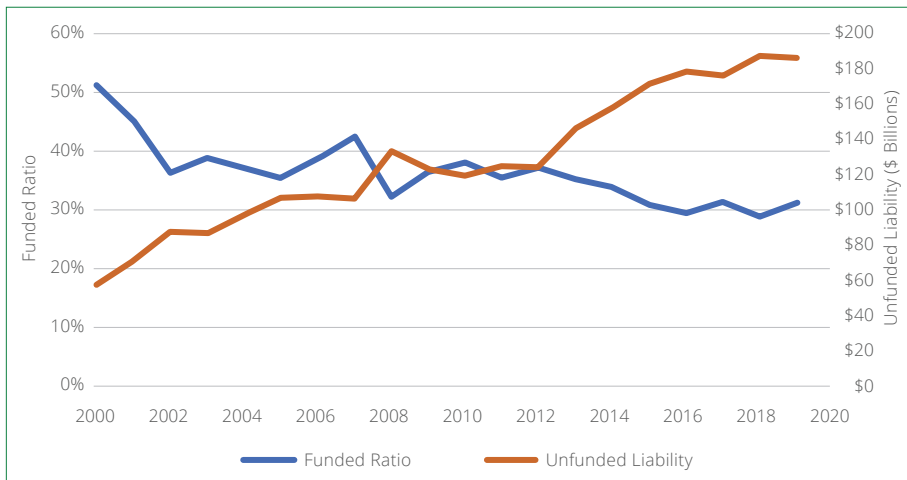


Table 1 compares New Jersey’s pension funding health to that of other states, using two metrics. The table first looks at funded ratios by state as measured in the BEA’s data. The BEA methodology, which applies the same corporate bond discount rate to all pension plans regardless of what investment return they assume, is helpful in providing an apples-to-apples comparison between states. The best-funded state in 2019 was Wisconsin, with total assets in state and local pensions equal to 86 percent of benefits owed. The median funded ratio for 2019 was 54 percent. New Jersey’s funded ratio of 31 percent, indicating that combined New Jersey public plans held assets equal to just 31 percent of the benefits currently owed by those plans, was the lowest in the country in 2019.

TABLE 1. PENSION FUNDED RATIOS AND UNFUNDED LIABILITIES AS PERCENT OF GDP, 2019

State	Funded Ratio	Rank	Unfunded Liability/GDP	Rank
Alabama	51%	30	5%	21
Alaska	49%	32	8%	4
Arizona	49%	33	4%	27
Arkansas	56%	21	5%	17
California	54%	27	7%	8
Colorado	47%	38	4%	26
Connecticut	39%	47	7%	9
Delaware	63%	10	2%	47
Florida	61%	13	3%	38
Georgia	54%	25	4%	28
Hawaii	40%	46	7%	6
Idaho	69%	4	3%	43
Illinois	33%	49	11%	1
Indiana	56%	19	2%	49
Iowa	63%	11	3%	37
Kansas	49%	34	4%	30
Kentucky	37%	48	7%	7
Louisiana	54%	26	5%	20
Maine	69%	3	3%	41
Maryland	53%	28	4%	25
Massachusetts	44%	43	5%	19
Michigan	44%	41	6%	14
Minnesota	59%	16	3%	32
Mississippi	45%	40	9%	2
Missouri	56%	20	5%	16
Montana	50%	31	6%	13

State	Funded Ratio	Rank	Unfunded Liability/GDP	Rank
Nebraska	58%	17	3%	39
Nevada	52%	29	6%	10
New Hampshire	48%	36	3%	36
New Jersey	31%	50	7%	5
New Mexico	49%	34	8%	3
New York	68%	5	4%	29
North Carolina	66%	7	2%	45
North Dakota	48%	37	3%	35
Ohio	55%	22	6%	12
Oklahoma	62%	12	3%	40
Oregon	58%	18	6%	15
Pennsylvania	44%	42	5%	23
Rhode Island	42%	44	6%	11
South Carolina	41%	45	5%	18
South Dakota	73%	2	2%	46
Tennessee	67%	6	2%	48
Texas	55%	23	3%	33
Utah	64%	9	3%	42
Vermont	45%	39	5%	24
Virginia	60%	15	3%	34
Washington	65%	8	2%	44
West Virginia	61%	13	4%	31
Wisconsin	86%	1	2%	50
Wyoming	54%	24	5%	22

Source: Bureau of Economic Analysis, 2020.

Table 1 also looks at another way to provide context: it compares a state's unfunded pension liabilities to its gross domestic product (GDP). This compares the pensions' funding shortfall to the state's broader economic capacity to fill the financial gap. In New Jersey's case, unfunded liabilities measured relative to state GDP reflect that, while the state's pensions are poorly funded, New Jersey remains an affluent state with high average incomes. Nevertheless, even in that context, New Jersey's pension funding is concerning. The median U.S. state has unfunded pension liabilities equal to 4.4 percent of its state GDP. The best-funded state by this measure, Wisconsin, has unfunded pension liabilities equal to only 2 percent of GDP, while the worst-funded state, Illinois, has unfunded pension liabilities equal to 11 percent of GDP. New Jersey's unfunded pension liabilities are equal to 7.3 percent of GDP, giving New Jersey the fifth highest ratio of unfunded liabilities to GDP among the 50 states.

The BEA and Federal Reserve methodology provides a more accurate of public pension liabilities

than data published by the plans themselves because it accounts not only for the assumed investment return on pension investments but also for the pension sponsor's obligation to come forward with additional contributions should that assumed return not be met.¹² Moreover, the imprimatur of these two federal government institutions shows that the critique of public pensions' use of high discount rates is not a rogue movement made up of a small number of enemies of public pensions. Rather, the BEA and the Federal Reserve Board apply the economic logic that is used to value all manner of liabilities and that is used by pensions worldwide. These figures show that New Jersey's pension funding situation, as bad as it may appear in official government reports, is in fact even worse than previously thought.

¹² Biggs (2011) shows that when the price of a guarantee to make good on pension obligations is combined with the expected cost of the plan calculated using the GASB approach — in which pension liabilities are discounted using the assumed return on risky assets — the total cost of the plan is equal to that which is derived by discounting pension liabilities using a risk-adjusted rate of return, as the Fed and the BEA do.

Calculating the Generosity of New Jersey Public Employee Pensions

A government's contribution to a public employee pension plan covers both a payment for newly accruing benefits — the “normal cost” or “service cost” of the pension — and a payment to pay off unfunded benefit liabilities accrued in prior years. Only the first part, the normal cost, is part of current employees' compensation. The normal cost represents the value of new benefits accruing to employees in the current year by virtue of their employment. Part of the normal cost is generally paid through member contributions, while another part is paid via the employer.

As discussed above, the Federal Reserve and the federal government's BEA determined that it is appropriate to discount all pension liabilities using an interest rate commensurate with the risk of the benefits being offered. This is particularly true for the cost of newly accruing pension benefits: the benefits earned by employees in the current year have literally nothing to do with the return earned by the plan's investments, but instead are based solely on a benefit formula instituted by the retirement system. That formula generally pays benefits as a function of years of service and final salary preceding retirement without regard to past or future earnings on the plan's portfolio of investments. Moreover, those benefits are guaranteed, usually by state law or legal precedent, regardless of how the plan's investments may fare. The value of future pension benefits to employees today is a function of the nominal dollar value of those future benefits and the discount rate that should be applied to those future dollar amounts. Since the future pension benefits are considered to be safe and “bondlike,” discounting future benefit accruals using a low interest rate derived from bonds makes sense.

As discussed in the prior section, this is the approach taken by the BEA and the Federal Reserve in valuing public employee pension liabilities, both for total benefit liabilities and for the normal cost of newly accruing benefits. However, the BEA methodology contains a technical error that causes it to understate the normal cost of new public employee pensions, including those in New Jersey.

The BEA adjustment to the normal cost of public employee pensions is based upon the interest rate sensitivity for currently accrued liabilities published in accounting disclosures required under GASB Statement 67. Statement 67 requires pensions to show the value of plan liabilities under the assumed investment return as well as under returns 1 percentage point above and below the assumed rate. By analyzing this sensitivity, the BEA is able to estimate the value of pension liabilities under any chosen discount rate. This allows the BEA to calculate the pension's unfunded liabilities and funded ratio when liabilities are discounted using a corporate bond yield, as is used for all pensions in the National Income and Product Accounts.

The BEA uses this same methodology to estimate the employer’s normal costs of public pensions when liabilities are discounted at a corporate bond yield. For combined New Jersey public employee pensions, the BEA finds an average normal cost equal to 15.3 percent of employee wages. New Jersey public employees’ own contributions are worth an average of 6.4 percent of their wages, leaving an employer normal cost of 8.9 percent of employee wages.

In valuing the generosity of public employee pensions, the employer’s normal cost can be roughly compared with a private sector employer’s matching contribution to their employees’ 401(k) plans. According to the Bureau of Labor Statistics National Compensation Survey, in 2019 the median maximum potential employer contribution to the 401(k)-type accounts of employees classified as “Management, professional, and related” was 3.3 percent of employee wages. Thus, in the BEA data, New Jersey public employee retirement plans are slightly less than three times more generous than the 401(k) plans offered to most private sector employees. One should note, however, that pensions are only one component of total employee compensation.

However, applying these same sensitivity analyses to the normal costs of public pensions is misguided. The effect of a change in discount rate depends on the time between the present and when the payment occurs. A higher or lower discount rate has little effect on a payment occurring next year, but that same change in discount rates has dramatically greater effects on a payment occurring much further into the future. The average duration of benefits — that is, the number of years from the present to the time when the average benefit payment is made — is substantially higher for newly accruing benefits than it is for already-accrued benefit liabilities because active employees are younger and may wait decades before even beginning to receive benefits. In many public plans, including New Jersey’s, half or more of current benefit liabilities may be owed to current retirees, who may be two decades older than the average age of current workers. A rule of thumb among one pension actuary consulted by the author is that the duration of the normal cost is roughly twice that of already-accrued liabilities.¹³ As a result, the effect of a changing discount rate will be larger for the normal cost of newly accruing benefits than for liabilities already accrued for prior service.

Fortunately, the three main New Jersey pensions analyzed here provide additional detail on how the normal cost of benefits changes with a higher or lower discount rate, as part of disclosures required under GASB rule 67. This added detail, which many public pensions do not disclose, is useful in judging the generosity of New Jersey public employee retirement systems. To illustrate, I examine PERS in some detail, but the same principles apply for the Teachers and the Police and Fire plans. It should be noted that the baseline discount rates used in GASB Statement 67 disclosures are lower than the rates used in plan actuarial reports to calculate plan liabilities. This is because GASB Statement 67 disclosure uses a blended discount rate based upon the year in which the plan is projected to run out of assets. GASB 67 disclosures apply the plan’s chosen discount rate through the date of asset exhaustion, then use the yield paid on municipal bonds thereafter. For that reason, the baseline discount rates in New Jersey’s GASB 67 disclosures are lower than in the same plan’s actuarial valuations. For the purposes of the discussion below, however, this difference in baseline discount rates does not matter, since what is being explored is how the normal cost of a pension changes when the discount rate is increased or decreased.

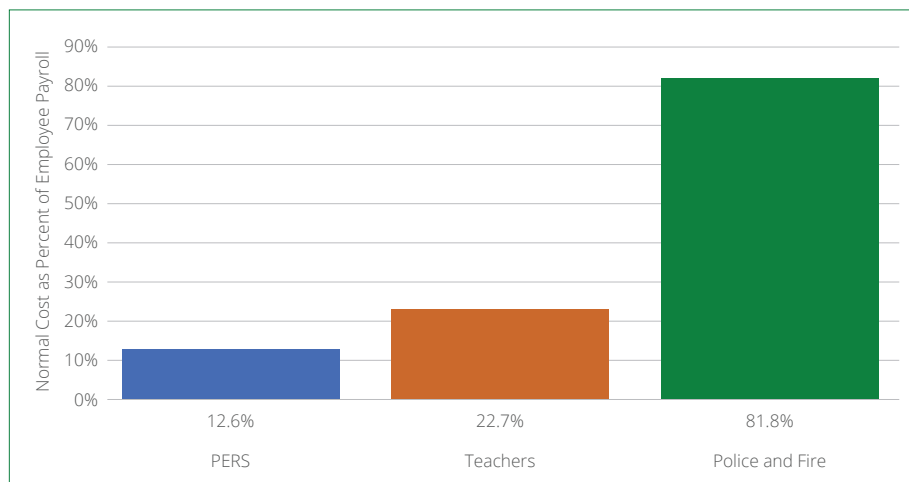
The PERS GASB 67 disclosure shows that a 1 percentage point reduction in the discount rate increases the present value of accrued liabilities for past service by 11 percent. Working backward, it

¹³ Personal conversation with Brian Septon of the Terry Group. March 8, 2021.

is possible to calculate that the average duration of accrued benefit liabilities is 11.2 years. However, the same GASB 67 disclosure shows that a similar 1 percentage point reduction in the discount rate increases the total normal cost of newly accruing benefits by 23 percent, with an implied average duration of liabilities of 22.1 years. However, the PERS employee contribution, equal to 7.7 percent of wages, is fixed as a percentage of the employees' pay. As a result, the employer's share of the normal costs rises by substantially more in percentage terms than does the total normal cost. A 1 percentage point decrease in the discount rate would increase the PERS employer normal cost by 82 percent because the employee share of the normal cost is fixed as a percentage of employees' wages. Reducing the discount rate to the BEA's 4 percent corporate bond yield would increase the employer normal cost from a baseline of 3 percent of wages at PERS's own assumed discount rate.

For the New Jersey Teachers plan, the employer's normal cost at the BEA discount rate is 22.7 percent of employee wages (Figure 5). This is approximately 6.5 times greater than the typical private sector employer match toward employee 401(k) accounts. Public safety personnel typically receive much more generous pensions than other public employees, with lower retirement eligibility ages and higher replacement rates of final salary. At the BEA's 4 percent corporate bond yield, the employer normal cost of Police and Fire pensions rises to 81.8 percent of payroll, from a reported value of 22.7 percent at the blended discount rate used in the GASB 67 disclosure of 6.85 percent. The reason that the Police and Fire normal cost increases so dramatically is that the baseline normal cost, even under the plan's chosen discount rate, is already quite high, and this is coupled with the employee contribution being fixed as a percentage of salary.

FIGURE 5.



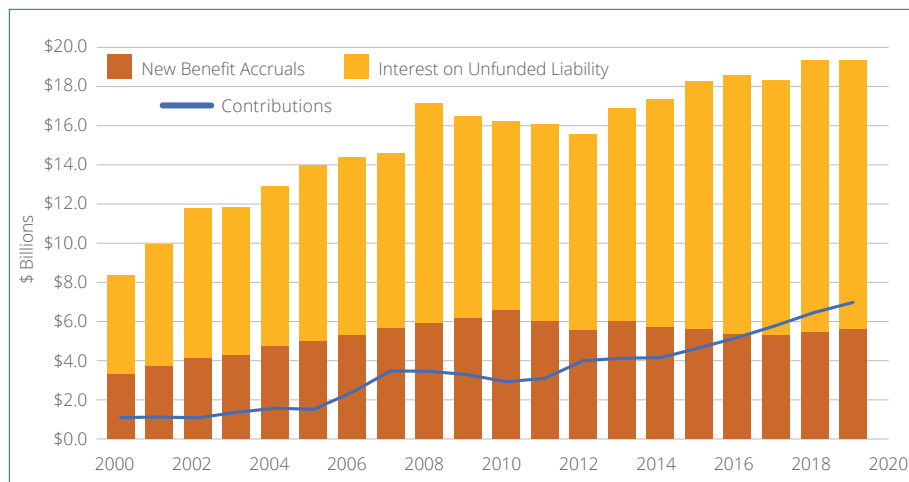
What these normal cost figures show in a broader context is that the adequacy of public employee compensation relative to competing private sector positions cannot be judged solely based upon salaries. Benefits for New Jersey's public sector employees, pensions in particular, are substantially more generous than those paid by their private sector counterparts. This fact may influence how lawmakers and employees themselves prefer to resolve public employee pension underfunding.

The Adequacy of New Jersey Pension Contributions as Reflected in Federal Data

The BEA data allow us to analyze not merely how well-funded New Jersey pensions are today, but also how well annual contributions fund new benefits as they accrue and to pay down unfunded benefit liabilities accrued over prior years. Figure 6 shows the combined value of newly accruing pension benefits and an amortization payment of unfunded liabilities, with the amortization payment for each year based upon the BEA’s corporate bond yield for that year and the assumption that unfunded liabilities are paid down over a period of 20 years — a period that the Society of Actuaries Blue Ribbon Panel on Public Pension Funding recommended as a reasonable period.

Figure 6 shows that, through most of the 21st century to date, New Jersey’s combined pension systems have not received contributions from employers and employees sufficient to cover even the normal cost of newly accruing benefits. It was only in 2016 that total contributions began to exceed the value of newly accruing benefits, and in no year have contributions been sufficient to both fund new benefits and pay off unfunded liabilities over a 20-year period of time. Note that the normal cost figures in Figure 6 are based on the BEA methodology. As shown in prior sections, this understates the value of newly accruing benefits by failing to adequately control the way in which the longer duration of such benefits — compared with currently accrued liabilities — interacts with a change in the discount rate.

FIGURE 6.



These BEA figures indicate that, to restore full funding, New Jersey’s pensions will require either substantially greater contributions from the government and public employees or significantly lower benefits. The lower benefits could come in the form of either reductions in the rate at which current employees accrue new benefits or reductions in benefits already accrued.

These additional costs, which are needed to return to full funding, would be in addition to the rising pension costs New Jersey already has experienced, even as pension funding has declined and unfunded liabilities have reached record levels. Using two data sets compiled by the U.S. Census Bureau — the Annual Survey of State and Local Government Finances and the Annual Survey of Public Pensions — I analyzed the total contributions made by New Jersey state and local governments to all pension systems that they administer. In 1993, total government contributions equaled \$900 billion in nominal dollars, or about \$1.661 billion when adjusted for inflation (Table 2). By the year 2000, statewide government pension contributions had fallen to only \$23 million, or about \$36 million in today’s inflation-adjusted dollars. By 2010, total pension contributions had risen to \$2.09 billion (\$2.54 billion in 2021 dollars). And by 2018, pension contributions by state and local government entities in New Jersey reached \$4.44 billion (\$4.71 billion in 2021 dollars).

TABLE 2. NEW JERSEY STATE AND LOCAL GOVERNMENT PENSION CONTRIBUTIONS AS PERCENT OF TOTAL REVENUES AND EXPENDITURES

Year	Total Government contributions (billions)	Percent of Expenditures	Percent of Revenues
2018	\$4.44	4.0%	3.7%
2010	\$2.09	2.0%	2.1%
2000	\$0.23	0.4%	0.4%
1993	\$0.90	2.1%	2.0%

Sources: U.S. Census Bureau: Annual Survey of State and Local Government Finances; Annual Survey of Public Pensions.

Pension costs also have risen considerably when expressed as a percentage of both state and local government expenditures and as a percentage of revenues. State and local government revenues are measured on a total basis; they include both taxes and revenues transferred from the federal government. Pension contributions in 1990 were equal to about 2 percent of both revenues and expenditures, falling to less than half a percent in 2000. By 2010, pension contributions rose to once again be equal to 2 percent of revenues or expenditures. By 2018, pension costs equaled 3.7 percent of total New Jersey state and local government revenues, including revenue transfers from the federal government for health, education, and other purposes; pension contributions reached 4 percent of total state and local government expenditures in that year.

It should be noted that the New Jersey state government has stated its intention to make the full actuarially determined pension contribution in 2021, the first year in which it has done so in over two decades.¹⁴ This payment, estimated at \$6.4 billion, is possible because of higher-than-expected tax revenues and, perhaps more importantly, because of billions in federal health and education assistance that freed up state resources for pension contributions. But federal financial assistance to

¹⁴ See DeAvila (2021).

the states will not last forever, and even this massive \$6.4 billion payment is insufficient to fully fund New Jersey's pension when pension liabilities are measured using the Federal Reserve and BEA methodology. The following section will discuss policy options open to New Jersey lawmakers that could make the state's government employee pensions financially sustainable over the long term.

Options for Pension Reform in New Jersey

The BEA and Federal Reserve Board data accessed in this study reveal several important points for New Jersey policymakers to consider. First, as dire as New Jersey's public pension funding may have previously been considered to be, even those low reported funding levels appear higher than they actually are because of those plans' use of inappropriately high discount rates. When New Jersey pension liabilities are measured in a manner consistent with the international norms of pension accounting, pension funding ratios are lower and unfunded liabilities are higher.

Second, contributions to New Jersey public employee retirement systems have, in most years, been insufficient to cover the costs of new benefits accruing to employees in that year and well short of the amounts needed to restore the plans to full funding. New Jersey governmental entities contribute far less per dollar of promised future benefits than would a private sector pension or a public employee pension in most other countries.

That said, there is no threat of imminent insolvency to New Jersey public plans, at least under the assumptions chosen by those plans. Assuming that New Jersey pensions receive their assumed investment returns, PERS is projected to remain solvent until 2057; the Teachers system until 2054; and the Police and Fire program until 2076. New Jersey's pensions are not projected to run out of cash in the near future. Nevertheless, the Teachers plan actuaries warn of the "the potential risk of running out of assets to pay benefits unless the State consistently contributes the full amount of the Statutory required contributions."¹⁵ Likewise, were investment returns to fall short of assumptions, insolvency could occur sooner. Although New Jersey's three main pensions assume 7.3 percent annual returns in future years, substantially lower returns are possible. For instance, Wilshire Consulting projects that, over the next 30 years, a portfolio consisting of 70 percent U.S. equities and 30 percent fixed income assets would generate an average annual return of just 5.9 percent.¹⁶ Returns at this level would increase the funding costs of New Jersey pensions by nearly one-third, making insolvency a danger unless contributions are significantly and sustainably increased.

Were insolvency to occur, the New Jersey government would be forced to fund benefits on a pay-as-you-go basis similar to the federal government's Social Security plan, where current benefits are funded directly from current tax collections. Only, however, the financial burden would be substantially higher.

To illustrate, Table 3 shows three figures for each New Jersey plan for fiscal year 2018. The first set of figures is the actuarially determined contribution, which is the amount the plan sponsor should

¹⁵ Cheiron (2020).

¹⁶ Wilshire Associates (2020).

have contributed under the plan’s actuarial assumptions. The actuarially determined contributions range from 20 percent to 37 percent of employee wages, depending upon the plan. (Note that these required contributions are calculated using a much higher discount rate than the BEA applies to benefit liabilities.) The second set of figures represents the actual contribution that was made to each plan in 2018, again as a percentage of payroll. These figures are lower, ranging from 14 to 30 percent of payroll, because the New Jersey government was unable to make the full pension contributions calculated by its actuaries. The third set of figures is the pay-as-you-go cost of each pension, which simply represents benefit payments and other deductions for 2018 as a percentage of employee payroll in that year. These pay-as-you-go costs are between 2.2 and 2.9 times greater than the actual contributions New Jersey governments made in 2019. The figures in Table 3 highlight the extreme fiscal risk to New Jersey were one or more of its public employee retirement systems to become insolvent. Pension contributions necessary to avoid an immediate benefit cut to retired public employees would be two to three times higher than the contributions currently made by New Jersey state and local governments.

TABLE 3. ACTUARILY DETERMINED CONTRIBUTIONS, ACTUAL CONTRIBUTIONS, AND PAY-AS-YOU-GO FUNDING COSTS FOR NEW JERSEY PLANS, 2018

Plan	Actuarially Determined Contribution	Actual Contribution Made	Pay-as-You-Go Cost of Plan
New Jersey PERS	20%	14%	35%
New Jersey Police and Fire	37%	30%	65%
New Jersey Teachers	28%	14%	41%

Source: Author’s calculations from Public Plans Database figures.
 Note: All figures are represented as a percentage of employee payroll.

The first step for reforming New Jersey’s public sector pensions is to get a handle on how large the various plans’ liabilities are and what steps would and would not address them. The federal government’s approach to valuing total New Jersey pension liabilities can easily be applied on a plan-by-plan basis. Using the federal methodology, which is also used by most countries around the world to value their own public employee pension liabilities, New Jersey’s pensions are very poorly funded indeed.

But the federal approach to pension accounting also provides insights on reforms that would and would not help restore New Jersey public pensions to sustainable solvency. The key insight to the federal pension accounting methodology is that taking more investment risk within a public pension plan does not make the plan better funded. The pension’s liabilities are what they are, and those future benefit amounts should be discounted to a present value using an interest rate that matches the guaranteed nature of those benefits, not the assumed interest rate on a portfolio of investments that is far riskier than the benefits being provided. Whether a pension assumes a high investment return based on risky assets or a low return based on safer assets affects the level and volatility of required contributions over time, but does not affect the value of benefits being promised, so long as the taxpayer commitment to pay full benefits come-what-may is maintained. Choices regarding investment risk-taking offer trade-offs between risk and reward similar to those made by investors

every day, but those choices no more alter the value of pension liabilities than does the choice of a parent on how to invest their child's 529 college savings plan affect the tuition that colleges will charge in the future.

Simply put, the pension accounting methodology adopted by the Federal Reserve and the federal BEA — and enshrined in the Fed's Financial Accounts of the United States and the BEA's National Income and Product Accounts — shows that New Jersey's public pension shortfalls are even larger than previously perceived and that New Jersey's public plans cannot invest their way out of their unfunded liabilities. Instead, more fundamental changes to employer and employee contributions and/or benefit promises must be enacted.

In addressing New Jersey's public pensions funding problems, the first fact that policymakers should accept is that there is no magic solution. In fact, it was adopting seemingly magic solutions — specifically, adopting the assumption that public pensions could pay high benefits at affordable costs to the public by earning high investment returns while effectively ignoring risk — that helped create the problems in the first place.

As discussed above, more aggressive investments will not fix New Jersey's pensions issues. Freezing the plans — either freezing all new accruals, including those for current employees (a “hard freeze”), or closing the plans to new participants (a “soft freeze”) — may be good policy if it would reduce or eliminate the buildup of future unfunded liabilities, but freezing an underfunded pension plan does not address the unfunded liabilities that already exist.

Instead, New Jersey policymakers must decide either to pay more into the state's public plans or to reduce the benefits those plans pay out. And having made those choices, policymakers then must decide who pays higher contributions — the government, employees, or both — and who receives reduced benefits. These are precisely the kinds of choices that elected officials are reluctant to make, which helps explain how pensions in New Jersey and around the country came to be so underfunded.

Given the legal protections afforded to accrued public pension benefits, as well as to the political power of public sector employees, it appears likely that most of unfunded liabilities of New Jersey pensions will be resolved with additional government funds. It is only in bankruptcy, a legal right to which does not currently exist for states, that it is even reasonably easy for a debtor to renege on an obligation to a creditor. And, in effect, that is what New Jersey employees are: they have participated in a retirement plan throughout their working careers, and in return for doing so — including making contributions of their own — they are owed funds by the state or local governments of New Jersey.

However, even if the possibility of the state reducing benefits to current employees is taken off the table, there remains the issue of how New Jersey public pensions are structured going forward: how large the benefits will be, how the costs of providing those benefits will be divided between workers and retirees, and how the risk of pension investments will be borne.

One promising approach may be to initiate increased risk-sharing between the government and public employees. New Jersey has already integrated risk sharing to annual cost-of-living adjustments (COLAs). In 2011, COLA payments were suspended until pension funding improved, which it has not. COLA freezes are a powerful way to reduce pension costs because they have a nearly immediate and compounding effect on benefit outlays. Roughly speaking, a 1 percentage point reduction in COLAs reduces the present value of pension liabilities by around 10 percent. Prior to the freeze,

New Jersey pensions were paying COLAs equal to 60 percent of the increase in the Consumer Price Index (CPI). Since 2011, the CPI has increased by about 1.7 percent per year, implying that New Jersey COLA increases would have been around 1 percentage point annually. Were this pattern to continue, the overall impact of the COLA freeze would be to reduce long-term pension costs by about 10 percent. Since the entire cost of the COLA freeze has been borne by retired employees, it cannot be argued that they have not borne some of the burden of New Jersey's pension underfunding.

That said, pension costs have continued to increase despite the COLA freeze, and most of these cost increases have been borne by New Jersey's taxpayers. For instance, the actuarially determined employer contribution rate for New Jersey PERS has increased from less than 1 percent of employee payroll in 2001, when the plan was more than fully funded (at least according to GASB accounting standards) to over 25 percent of wages in 2019. Over that same period, the average employee contribution rose from 5.4 percent to 7.7 percent of wages, a significantly smaller increase than in contributions paid by employers. Similar patterns can be seen for the Teachers and the Police and Fire plans. Given the difficulties New Jersey has faced in funding its employee retirement plans, state and local government employees may ultimately be faced with the prospect of paying more for their retirement benefits or seeing rising governmental costs offset against potential increases in employee wages or other benefits or via reductions to other parts of the government budget.

It also is possible to share investment risk on the contribution side of the pension funding equation. Keep in mind that employers and employees both contribute a fixed amount toward the normal cost of newly accruing benefits; those contributions are calculated based upon an assumed investment return that will be received by the plan. However, if the plan fails to receive that assumed return, as was the case in New Jersey, only the employer (not the employee) is responsible for making additional contributions to make up the lost investment earnings. By contrast, in Nevada the full pension contribution — including both the normal cost and payments for unfunded liabilities — is divided between employers and employees. This shields the government budget from a portion of the investment risk generated by the pension. It also indirectly makes employees more cognizant of rising pension costs and of how increasingly risky pension investments do not come without downsides.

But another possibility is that New Jersey employees would prefer more modest pension benefits over higher contributions or reductions to other forms of compensation. This preference could stem from the fact, as discussed earlier, that pension benefits for New Jersey public employees are substantially more generous than those provided in the private sector. While all employees would prefer more generous retirement benefits, all else being equal, when trade-offs are involved, they may prefer a more modest retirement plan that couples lower benefits with an increased retirement age. The vast majority of retirees, whether they worked in the public or private sectors during their careers, indicate that they are satisfied with their standard of living. For instance, 8-in-10 Americans aged 65 and over in 2021 tell Gallup they have sufficient income to "live comfortably." Working-age households are generally less likely to say they have sufficient money to live comfortably. For at least some public employees, trading some future retirement income to better maintain their standard of living during their working years might be an attractive trade-off.

One reform that both shares risk and ensures full funding is shifting employees to defined contribution plans, which some state governments as well as the federal government already have estab-

lished.¹⁷ In a “defined contribution plan,” the employer’s obligation is to make a stated contribution to employees’ accounts each year, not to guarantee a given benefit at retirement age. In a defined contribution plan it is easy to recognize that the employer’s contribution has been made and to enforce that obligation: employees will protest fiercely if the government fails to match their contributions each year in a way that they tend not to if the government fails to make its full contribution to a defined benefit pension. One objection to defined contribution plans is that, in the private sector, most 401(k) or 403(b) plans are voluntary. While most employees who are offered a retirement account do participate, many fail to sign up even when it is in their interest to do so. Private sector employers are addressing this issue by using automatic enrollment with the option to withdraw. In the public sector, however, employers may make participating in a defined contribution a condition of employment, just as participation in a traditional defined benefit pension is mandatory in most cases. Moreover, a state could follow the lead of the federal government’s Thrift Savings Plan (TSP) by offering only a small selection of very low-cost index fund investments, rather than the much larger choice of higher-cost funds generally offered in private sector 401(k) plans. Combined with Social Security benefits, a modern, well-run defined contribution plan can enhance retirement security in a flexible and financially sustainable way.

An alternate to a defined contribution plan is a “cash balance” pension, which combines attributes of both defined benefit and defined contribution plans. Under a cash balance plan, employees have notional accounts that are credited with a contribution each year and that earn interest according to a formula set by the retirement plan itself. The notional accounts in cash balance plans look like defined contribution accounts in that they carry a dollar value balance and earn interest. However, a cash balance plan is actually a form of defined benefit pension because the actual investments are held by the plan itself and because the amount credited to each account and the interest attributed to the account each year are based on a formula, and those contribution and interest credits must be made regardless of how the plan’s actual investments fare.

The 2015 report of the New Jersey Pension and Health Benefit Study Commission recommended that New Jersey’s traditional “final earnings” defined benefit plans be frozen, such that no new benefits would be accrued, and that, going forward, employees would accrue benefits under a cash balance plan. Under that cash balance plan, at least as a default, employees and the government would each contribute 4 percent of wages to the program. Employees’ notional accounts would be credited with the dollar amount of those contributions, after which the contributions would be credited with a modest (though unspecified) rate of interest, along with additional credits in years in which the plan’s investment returns were strong.

This recommendation would have advantages. Freezing the current plans would afford an opportunity to reconsider the level of benefits that New Jersey plans should promise and how the cost of funding those benefits should be divided between the government and employees. Moreover, public employees might be more open to a cash balance plan than to shifting all the way to a fully defined contribution system.

At the same time, a cash balance plan faces many of the same financing challenges as a traditional defined benefit pension. In particular, the rate of return promised to cash balance accounts may differ from the actual return on the plan’s investments, leading the plan to become over- or under-

¹⁷ See Munnell et al. (2014).

funded. Furthermore, the New Jersey Commission did not specify how interest credits should be granted. For illustration, however, Nebraska offers a cash balance plan to most of its public employees. The interest rate credited to account balances is the maximum of the yield on medium-term U.S. Treasury securities plus 1.5 percent or 5 percent. In recent years, Nebraska has granted interest credits of 5 percent, because yields on Treasury securities have been very low. And this is precisely the risk: promising guaranteed interest credits that may be well above the returns that the plan can earn on investments of similar risk. While a cash balance plan looks like a defined contribution program, it follows a traditional public pension in promising low-risk benefits financed by higher-risk investments, with taxpayers responsible if investment returns fall short. Thus, while a cash balance plan is likely superior to New Jersey's current pensions, lawmakers should carefully consider the risks posed to state and local budgets before adopting such a reform approach.

In summary, federal government figures demonstrate that New Jersey lawmakers promised benefits to employees that were larger than lawmakers were willing or able to fully fund. The New Jersey pension systems instead relied upon returns on risky investments to make up the gap. But, as New Jersey's investment experience shows, risky investments pay higher expected returns than safe investments precisely because they are risky, even over long periods of time. This leaves only more conventional solutions available, which are both financially and political difficult. All New Jersey pension stakeholders — including lawmakers, public employees and retirees, and taxpayers — must carefully consider how the costs and benefits of pension reforms will be borne.

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