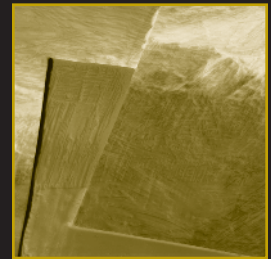


# Are Pension Reforms Helping States Attract and Retain the Best Workers?

Richard W. Johnson, C. Eugene Steuerle,  
and Caleb Quakenbush



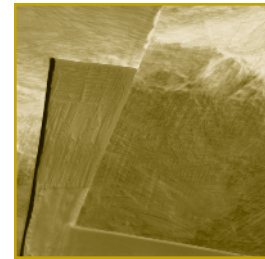
P R O G R A M   O N   R E T I R E M E N T   P O L I C Y

Occasional Paper Number 10



# Are Pension Reforms Helping States Attract and Retain the Best Workers?

Richard W. Johnson, C. Eugene Steuerle,  
and Caleb Quakenbush



P R O G R A M   O N   R E T I R E M E N T   P O L I C Y

Occasional Paper Number 10

July 2012

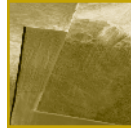
Copyright © July 2012. The Urban Institute. All rights reserved. Permission is granted for reproduction of this document, with attribution to the Urban Institute.

The Urban Institute is a nonprofit, nonpartisan policy research and educational organization that examines the social, economic, and governance problems facing the nation. The views expressed are those of the authors and should not be attributed to the Urban Institute, its trustees, or its funders.

PROGRAM ON RETIREMENT POLICY

<http://www.retirementpolicy.org>

The Program on Retirement Policy addresses how current and proposed retirement policies, demographic trends, and private-sector practices affect the well-being of older individuals, the economy, and government budgets.

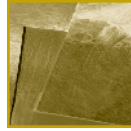


# Contents

Background . . . . .	1
New Jersey: A Case Study . . . . .	2
How Traditional Pension Plan Design Discriminates among Workers . . . . .	5
Recent Reforms Don't Solve Recruitment and Retention Problems . . . . .	7
How Younger Workers Pay for the State's Past Sins . . . . .	8
Pension Designs to Reward Work and Provide More Equal Pay for Equal Work . . . . .	10
Notes . . . . .	12
References . . . . .	14
Technical Appendix . . . . .	16

## Table and Figures

FIGURE 1	Annual Pension Benefits as Percentage of Final Average Salary for Employees Hired at Age 25, New Jersey PERS Tier 1 and Tier 5, by Retirement Age	3
FIGURE 2	Employer Pension Wealth as a Multiple of Annual Salary for Employees Hired at Age 25, New Jersey PERS Tier 1 and Tier 5, by Age	4
FIGURE 3	Average Annual Addition to Employer Pension Wealth from Working an Additional Five Years as Percentage of Salary, New Jersey PERS Tier 1, Employees Hired at Age 25, by Age	5
FIGURE 4	Average Annual Addition to Employer Pension Wealth from Working from Ages 60 to 65, New Jersey PERS Tier 1, by Age of Hire	6
FIGURE 5	Average Annual Addition to Employer Pension Wealth from Working an Additional Five Years as Percentage of Salary, New Jersey PERS Tier 5, Employee Hired at Age 25, by Age	7
FIGURE 6	Addition to Employer Pension Wealth from Working Another Year as Percentage of Salary, New Jersey PERS Tier 1 and Tier 5, Employees Hired at Age 25, by Age	8
FIGURE 7	Average Annual Addition to Employer Pension Wealth from Working an Additional Five Years as Percentage of Salary, New Jersey PERS Tier 5, Employee Hired at Age 25, Using the Plan's Assumed Interest Rate of 8.25%, by Age	9
TABLE A1	Details of New Jersey Public Employees Retirement Plan	16



## Are Pension Reforms Helping States Attract and Retain the Best Workers?

**RECENT BUDGET PRESSURES HAVE LED** many states to reexamine their long-term commitments to pension plans for teachers, first responders, and other state workers. Many of these reforms increase required employee contributions, raise the age at which benefits become available—at least to new employees—or otherwise reduce the plans’ generosity.<sup>1</sup> However, policymakers seem mainly focused on net costs to the state and not on how retirement benefits might best be allocated among state employees—the young, middle-aged, and old—to attract and retain the best workers.

Traditional pension plan design, which these reforms often retain, deters this focus because it nearly always violates the principle of equal justice by providing unequal pay for equal work. It discriminates, albeit legally, against many younger and senior workers, discouraging them from either entering or continuing with public service. Meanwhile, many middle-aged workers, regardless of skill level, become locked into government employment because they would forfeit temporarily high pension benefits and, hence, total compensation by leaving before retirement age. Unless states address this problem, their pension reforms—regardless of revenue saved—will make it harder for them to modernize their work force to meet the needs of 21st century government.<sup>2</sup>

In addition, the actuarial assumptions underlying some state pension reforms rely on contributions from new and younger employees to pay off unfunded liabilities owed to workers hired before the reform. Thus, rather than benefiting from any state contribution to their pensions, many new

workers are scheduled to be net contributors over their careers. That is, they will get back only their own contributions plus interest, but compounded at a lower rate of return than the state assumes it will earn on plan assets.<sup>3</sup>

### Background

Traditional (so-called defined benefit) state pension plans use a common type of formula for determining benefits. The final annuity—paid out until the pensioner (and spouse) dies—is a percentage of some measure of the employee’s final or highest salary times years of service. Some plans also cap monthly retirement benefits at a share of the final salary, such as 80 percent. Benefits typically become available at a particular age, say 55 or 60, if the worker has accumulated enough years of service *and* has left the job. Most states also require the worker to contribute to his or her own retirement plan.

There are variations on this formula, such as whether retirees receive cost-of-living adjustments (COLAs). However, all traditional pension plans have three common features that can generate very different pension benefits for workers performing the same job at the same salary:

1. The formula for determining the final benefit is not adjusted for inflation or interest from the time an employee quits until benefits are first paid. This is akin to leaving money in a savings account earning no interest.
2. Since wages tend to grow with inflation and real economic growth, the formula rewards additional

work in two ways—by raising the percentage of salary to be paid out and increasing that measure of final or highest salary. This effect compounds, so that pension benefits grow more and more rapidly as years of service rise. Consequently, these pension formulas reward work near the end of a career much more than at the beginning.

3. Once workers are eligible to retire, further work is discouraged. Those who remain on the job forfeit an entire year's worth of benefits for every year they continue working. Often they accrue negative pension benefits, because the benefits lost while working exceed the gain in future benefits earned from the additional year of service.

Defined benefit pension plans are widespread in the public sector, with 92 percent of full-time state and local government workers having access in 2011.<sup>4</sup> These plans are disappearing, however, in the private sector. Only 23 percent of full-time private-sector workers had access to a defined benefit plan in 2011, and a quarter of these participants were in frozen plans that did not accrue additional benefits or did not accept new participants.<sup>5</sup>

### **New Jersey: A Case Study**

New Jersey's Public Employees Retirement System (PERS) illustrates how unevenly pension benefits grow over an employee's career and tend to distort recruitment and retention.<sup>6</sup> Like nearly all states, New Jersey has separate plans for teachers, police officers and firefighters, and members of the judiciary. PERS covers nearly all other state employees. The state legislature has trimmed pension benefits for its general employees five times since 2007. Each reform grandfathered existing employees, affecting only new hires. The most recent cuts, enacted in 2011, attracted widespread attention. As Governor Chris Christie signed the pension reform bill into law, he applauded New Jersey's willingness to address the "big issues," and the editorial board of the *Star Ledger*, the state's largest newspaper, called the reforms a "huge accomplishment."<sup>7</sup>

When fully implemented, these changes will reduce net pension costs to New Jersey—a major reform objective. But the changes offer little or

nothing to young, mobile employees until they have worked for the state for years. In fact, the reforms depend upon younger and more mobile workers' own contributions to reduce the pension plan's liabilities. Put another way, the actuarial assumptions underlying the plan imply that many newer and younger workers will walk away with fewer benefits than their own contributions compounded at the rate of return assumed by the state. The state—or other employees in the plan—will reap the benefits. These reforms also discourage work at older ages, although they have delayed these disincentives to later ages than before.

General state employees hired before July 1, 2007, belong to the plan's first tier, which promises a pension equal to 1.82 percent of final average salary (based on the top three years of earnings) for each year of service. For these first-tier employees, benefits may begin at age 60 after at least 10 years on the job. Employees with 25 years of service may opt to retire early, but their benefits will be reduced by 3 percent for each year the worker retires before age 55. Until contribution rates rose in 2011, employees also had to contribute 5.5 percent of their salaries to the plan. (The appendix provides more details on how benefits are computed.)

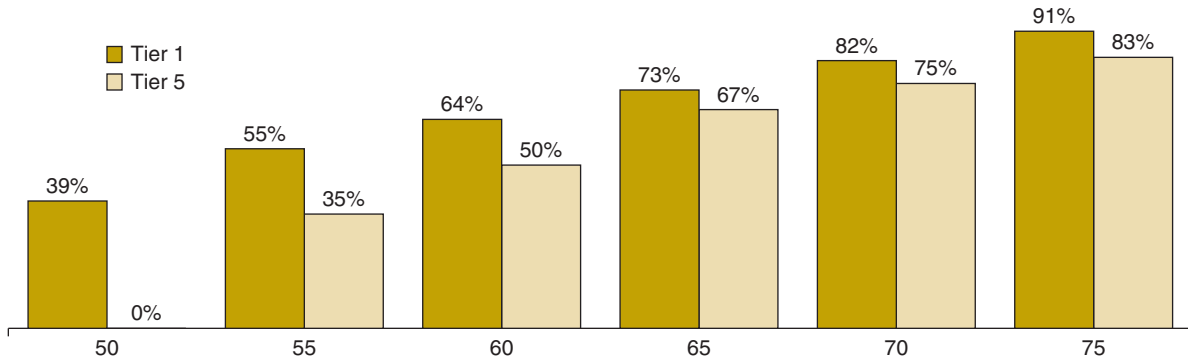
Figure 1 shows pension benefits as a share of final average salary for plan members hired at age 25. If tier-1 employees begin collecting benefits at age 50 after working for 25 years, their pensions would replace 39 percent of their final average salaries [1.82 percent (or 0.0182) times 25 years of service, discounted by 15 percent, because payments would begin 5 years before age 55]. Annual benefits increase sharply if workers delay retirement. Those who wait until age 55 would collect 55 percent (0.0182 times 30) of their final average salary until they die. Those who wait until 65 would collect 73 percent of their final average salaries, but they receive fewer years of benefits than those who retired earlier.<sup>8</sup>

The latest round of reforms added a fifth tier to PERS that covers employees hired on or after June 28, 2011. The fifth tier pushes back the normal retirement age to 65, limits early retirement to employees with at least 30 years of service, reduces benefits by 3 percent for each year that workers retire before age 65, and eliminates the COLA. The benefit formula is also less generous than in tier 1,



**FIGURE 1**

Annual Pension Benefits as Percentage of Final Average Salary for Employees Hired at Age 25, New Jersey PERS Tier 1 and Tier 5, by Retirement Age



Source: Authors' calculations from Division of Pensions and Benefits (2011).

Notes: The figure shows benefits payable for employees who begin collecting at the indicated age. Benefits are funded by both employer and employee contributions. PERS tier 1 covers general employees of the State of New Jersey hired before July 1, 2007, and tier 5 covers those hired on or after June 28, 2011. Final average salary is based on the top three years of earnings in tier 1 and the top five years in tier 5.

setting payments at 1.67 percent of final average salary and basing benefits on the top five years of earnings instead of the top three. Additionally, the 2011 legislation gradually increases the employee contribution rate to 7.5 percent of salary (for all tiers, not just tier 5).<sup>9</sup> Tier-5 workers hired at age 25 could not begin receiving benefits until age 55, when they could collect 35 percent of their final average salaries (0.0167 times 30, discounted by 30 percent for early retirement). The replacement rate increases to 50 percent if they wait until age 60 to retire, and to 67 percent if they wait until age 65.

Although annual pension benefits (financed by both employer and employee contributions) increase in both tiers the longer employees wait to retire, *lifetime* benefits do not rise indefinitely because delaying retirement reduces the number of payments workers will eventually receive. The lifetime value of the annual benefit stream available at each age can be expressed by summing the payments a worker would receive each year at a particular retirement age. It can be regarded as the amount workers would have to pay an insurance company for an actuarially fair bond that provided annual payments (equal to the pension benefit) for the rest of their lives. It depends, among other factors, on life expectancy (living longer raises pension wealth by increasing the number of expected payments)

and the interest rate (higher interest rates reduce pension wealth by raising the discount on future pension payments). The appendix describes the various assumptions, such as average life expectancy, that go into the computations.

We define pension wealth as the value of lifetime benefits less those paid out of employee contributions.<sup>10</sup> We also assume for the moment that a reasonable rate of return on contributions (or discount rate) is 2 percent per year plus inflation (or a 5 percent nominal return if we assume 3 percent inflation). Figure 2 shows how pension wealth varies by age under each tier for workers hired at age 25. Tier-1 workers who work less than 10 years, when benefits are said to vest, get back only their own contributions plus interest. Because our calculations assume that the state pays a market interest rate on contributions, their employer-provided pension wealth is zero.<sup>11</sup> At age 35, the employee's 10th anniversary, pension wealth jumps up but amounts to only about a quarter of the previous year's salary. Employees who quit at age 35 would have to wait 25 years (until age 60) to begin collecting a pension and each year would receive only about 18 percent of the salary earned from age 32 to 34. After age 35, pension wealth rises at an increasing rate each year the employee remains on the job through age 50, as the earnings base grows and years of service increase. Even at age 49, though, total employer-provided

pension wealth amounts to only 2.5 times the current year's salary, mostly because workers still have to wait 11 years to begin collecting. Pension wealth more than doubles at age 50, to about six times annual salary, as workers qualify for early retirement and become eligible to collect benefits immediately.

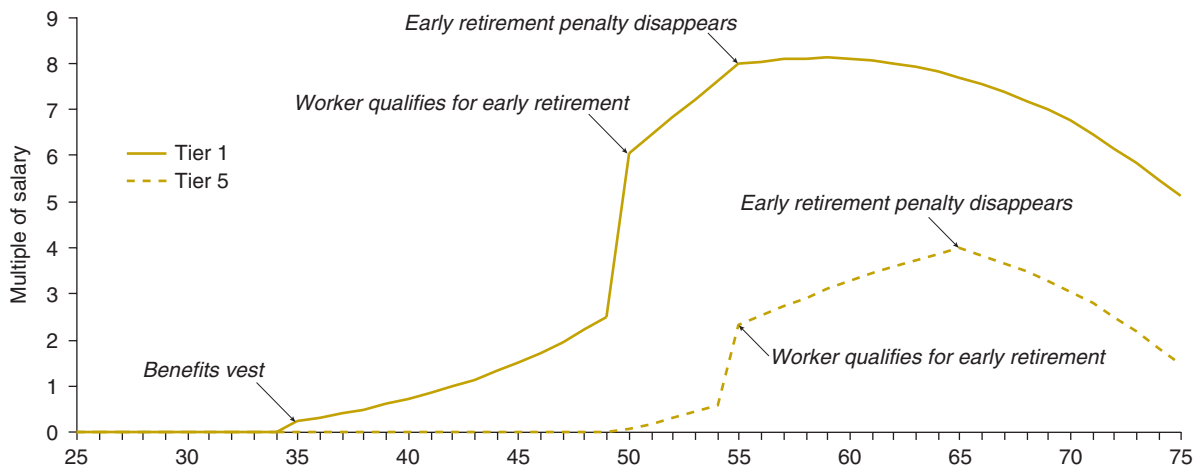
Once employees are eligible to collect benefits (at age 50 for tier-1 employees hired at age 25), they forgo a month of benefits every month they remain on the job. However, as we saw in figure 1, annual pension payments increase as long as workers defer retirement, especially through age 55 as the penalty for early retirement shrinks. The gain in annual pension levels initially exceeds the cost of forfeited payments, so pension wealth continues to grow with additional tenure. However, the gains diminish after age 55, as the wage base grows more slowly and the retirement period shortens. Eventually the loss of forfeited payments from delaying retirement exceeds the later gains in annual benefit levels, and pension wealth actually begins to decline. For age-25 hires in tier 1, pension wealth peaks at age 59, when it slightly exceeds eight times the salary earned the previous year. By age 69, it falls back to seven times the previous year's salary.

New Jersey's 2011 pension reform substantially reduced employer-provided pension wealth for the state's general employees, but it did not fundamentally change how wealth accumulates over the career. Employer-provided pension wealth falls more than annual benefits because the reforms, in addition to cutting payments, raised employee contributions, eliminated the COLA, and moved up the age at which benefits are available without penalty. As a result, tier-5 employees hired at age 25 do not accumulate *any* pension wealth net of their contributions until age 50.<sup>12</sup> (Because New Jersey allows separating employees to take their contributions back with interest instead of collecting a pension and our calculations assume that the state pays market interest rates, pension wealth under these assumptions never falls below zero. However, as we discuss below, pension wealth is often negative under the actuarial assumptions underlying the plan.<sup>13</sup>)

For the first 25 years on the job, then, a tier-5 employee's compensation consists solely of salary and nonpension benefits, such as health insurance. As in tier 1, pension wealth spikes when workers can first collect benefits, but the increase occurs

**FIGURE 2**

Employer Pension Wealth as a Multiple of Annual Salary for Employees Hired at Age 25, New Jersey PERS Tier 1 and Tier 5, by Age



Source: Authors' calculations based on Division of Pensions and Benefits (2011).

Notes: Estimates are net of employee contributions. PERS tier 1 covers general employees of the State of New Jersey hired before July 1, 2007, and tier 5 covers those hired on or after June 28, 2011. The analysis assumes a nominal interest rate of 5%. The employee contribution rate is set at 5.5%, the rate from 2007 to 2011, for tier 1 and 7.5%, the rate now phasing in by 2018, for tier 5. See the appendix for details.

later, at age 55 instead of 50, and is less dramatic. Wealth grows steadily through age 65 as the early retirement penalty declines, but then falls. Compared with tier 1, tier-5 wealth peaks later (age 65 versus 59) and amounts to only about half as much (four times the employee's previous year's salary versus eight times).

### How Traditional Pension Plan Design Discriminates among Workers

To better appreciate how pension wealth changes from additional working years, figure 3 shows annual pension wealth increments averaged over five years for typical tier-1 (pre-reform) employees hired at age 25. The growth in the value of future pension benefits is a trivial piece of compensation early in the career, adding nothing at ages 25 to 30 (before vesting) and just 4 percent of compensation on average between ages 30 and 35 (at vesting). Pension accruals grow over the next 10 years as workers approach the early retirement age but remain a minor element of compensation throughout most of their forties. Once they can begin collecting early benefits at age 50, however, pension

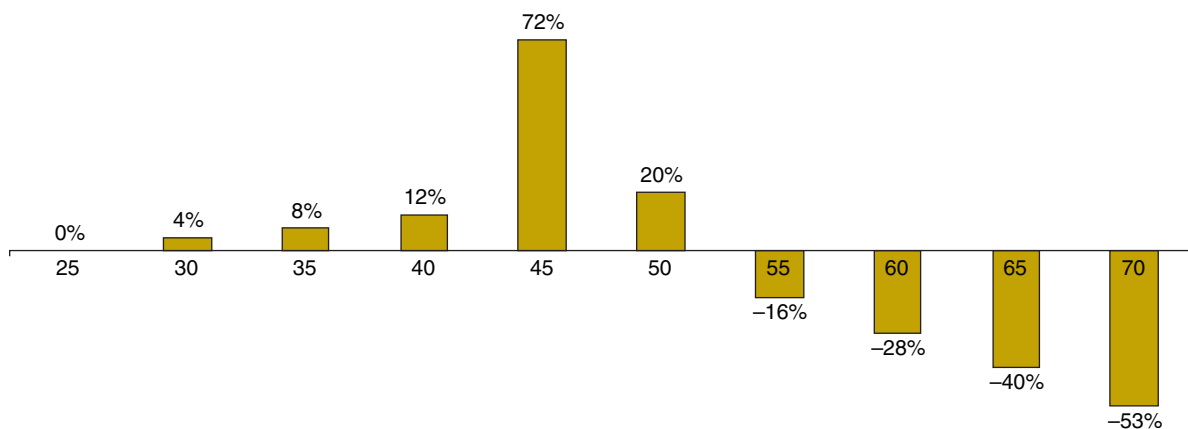
wealth soars. Pension accruals average 72 percent of salary between ages 45 and 50, nearly doubling cash compensation over those five years. Through workers' mid-fifties, pension accrual continues boosting compensation much more than in their thirties and early forties. Beginning in the late fifties, however, pension accruals turn negative as forgone retirement payments exceed the value of additional benefits earned in later years, causing pension wealth to fall. The loss in pension wealth reduces effective compensation by about a quarter in a worker's early sixties, two-fifths in her late sixties, and a half in her early seventies.

This pattern of benefit growth substantially limits the state's ability to attract and retain the best workers. Young workers have little incentive to join the state's workforce unless they plan to remain on the payroll for at least 25 years. Those who leave their jobs earlier forgo nearly all retirement benefits from the employer. The more mobile the workforce and the stronger the desire to maintain the option of changing careers or moving to another state, the more this benefit structure discourages workers from entering state employment.

The traditional plan doesn't help state human resource managers deal with many middle-aged employees either, because it locks these employees

**FIGURE 3**

Average Annual Addition to Employer Pension Wealth from Working an Additional Five Years as Percentage of Salary, New Jersey PERS Tier 1, Employees Hired at Age 25, by Age



Source: Authors' calculations based on Division of Pensions and Benefits (2011).

Notes: Estimates are net of employee contributions. The analysis assumes a nominal interest rate of 5% and employee contribution rate of 5.5%, the rate in effect from 2007 to 2011. PERS tier 1 covers general employees of the State of New Jersey hired before July 1, 2007. See the appendix for details.

into their jobs. Workers in their forties stand to reap enormous pension windfalls by remaining on the payroll at least until they qualify for early retirement, so very few quit even if the job is not a particularly good fit. This inefficiency makes workers and taxpayers worse off. The state may have temporarily locked in some above-average workers, but it's done the same for below-average workers as well.

This pension plan design also makes it difficult for the state to retain experienced older workers, many of whom have specialized skills and deep institutional knowledge that are difficult to replace. Workers hired at age 25 essentially forfeit a quarter of their pay each year if they remain on the job in their early sixties. These pay cuts induce many state employees to retire. A benefit system that encouraged early retirement might have made sense a generation ago as many highly educated women and young baby boomers entered the labor force. But inducing still-productive older workers to retire early makes little sense today as the workforce ages. With the supply of younger adults likely to stagnate over the next decade, employers will increasingly need older workers.

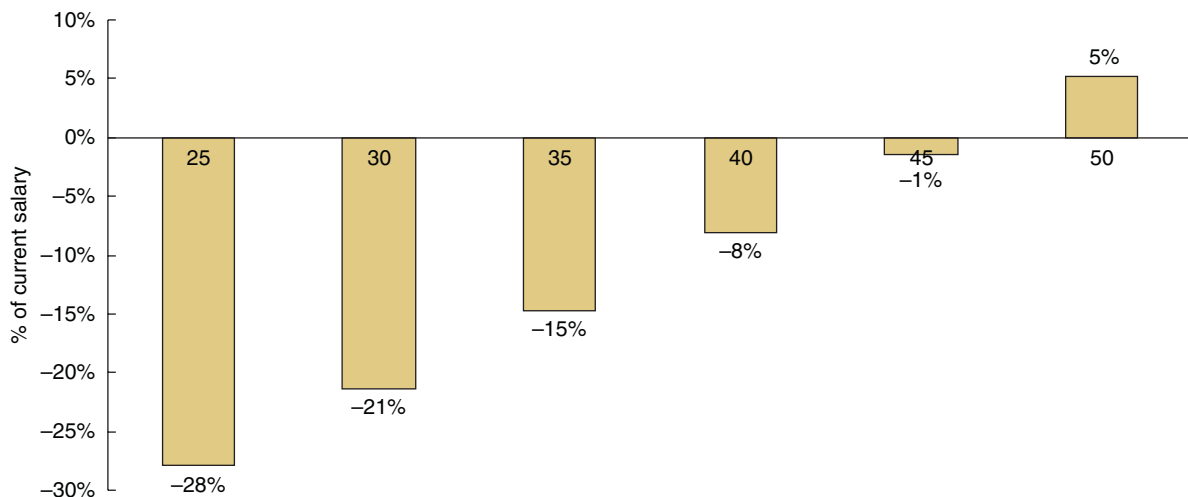
Finally, like nearly all state retirement plans, the first tier of New Jersey's PERS violates the principle of equal justice by providing unequal pay to workers of different ages performing equal work. Employees in their early fifties generally receive much higher total compensation each year than those in their early sixties or older, because the pension plan effectively boosts total pay for the younger group while cutting total pay for the older group.

As another piece of evidence on unequal pay for equal work, pension accruals vary widely at each age depending on when the employee was hired. As noted, tier-1 employees hired at age 25 effectively forfeit 28 percent of their salary on average each year on the job from age 60 to 65, because they lose pension wealth by delaying retirement. However, employees hired at age 35 only forfeit 15 percent of their salaries on average by working in their early sixties, while employees hired at age 50 actually increase their total compensation (figure 4).

Because pension accruals swing widely over the career and vary with age at hire, it's difficult for the state to tie total compensation to productivity. A fair compensation scheme tied to productivity would

**FIGURE 4**

Average Annual Addition to Employer Pension Wealth from Working From Ages 60 to 65, New Jersey PERS Tier 1, by Age of Hire



Source: Authors' calculations based on Division of Pensions and Benefits (2011).

Notes: Estimates are net of employee contributions. The analysis assumes a nominal interest rate of 5% and employee contribution rate of 5.5%, the rate in effect from 2007 to 2011. PERS tier 1 covers general employees of the State of New Jersey hired before July 1, 2007. See the appendix for details.

treat workers of equal productivity equally, but it is difficult to offset swings in pension compensation by swings in cash compensation. A state might try to raise new hires' cash wages to offset their lack of pension benefit accruals and then lower cash raises for more senior employees as pension accruals rise, but it would have to determine the effect of this type of policy on employee morale and union negotiation. In any case, it wouldn't solve the problem of benefits varying widely simply by the age at first hire.<sup>14</sup>

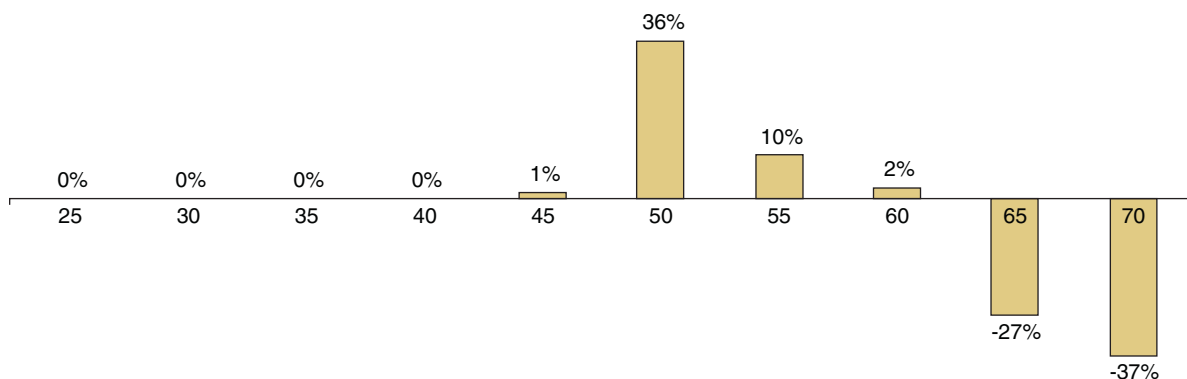
### Recent Reforms Don't Solve Recruitment and Retention Problems

New Jersey's 2011 pension reforms sharply cut costs but did not eliminate the recruitment and retention problems created by the state's pension plan. Figure 5 shows annual pension wealth increments for a typical tier-5 employee hired at age 25, averaged over five years. The new plan makes it more difficult to recruit workers who do not plan to stay with the state over their entire careers, because it adds nothing to total compensation for the first 20 years of employment and then augments annual cash compensation by just 1 percent between ages 45 and 50. Typical 25-year-old hires get virtually nothing out

of the pension plan if they leave before age 50 (and even lose money under state actuarial assumptions, as we discuss below). Between ages 50 and 55, average annual employer-provided pension accruals soar to 36 percent of salary. Accruals are lower at ages 55 to 60 but still substantial. As under tier 1, strong pension wealth growth in the fifties locks middle-aged workers into their jobs. Finally, pension accruals turn strongly negative at older ages, effectively lowering annual cash compensation each year by 27 percent on average between ages 65 and 70, providing workers with strong incentives to retire.

Despite these shortcomings, the recent pension reforms signify some improvement in incentives over the plan still in place for general state employees hired before mid-2007. As shown in figure 6, which reports single-year pension accruals for tier-1 employees hired at age 25 and their tier-5 counterparts, the midlife spike in pension accruals is much less dramatic in tier 5 and pension accruals do not turn negative until age 66, 10 years later than in tier 1. Nonetheless, the basic problems with the traditional state pension plan—an incentive structure that provides little reward for young, mobile workers, locks in middle-aged workers even if they are unproductive or unhappy, pushes older workers into retirement, and provides unequal pay for equal work—persist after the reforms.

**FIGURE 5**  
Average Annual Addition to Employer Pension Wealth from Working an Additional Five Years as Percentage of Salary, New Jersey PERS Tier 5, Employee Hired at Age 25, by Age

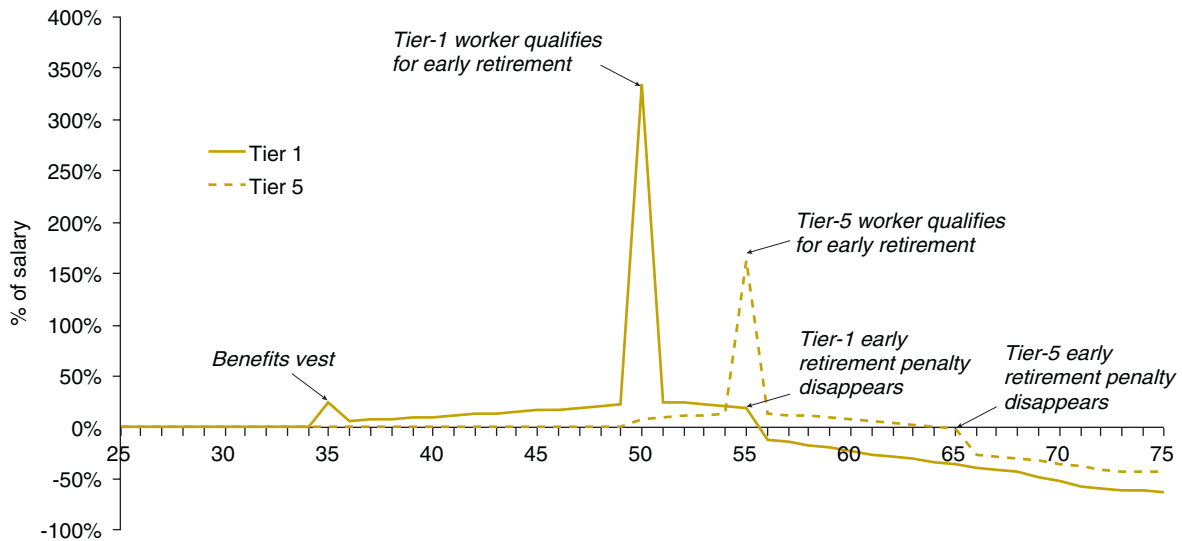


Source: Authors' calculations based on Division of Pensions and Benefits (2011).

Notes: Estimates are net of employee contributions. The analysis assumes a nominal interest rate of 5% and employee contribution rate of 7.5%, the rate now phasing in by 2018. PERS tier 5 covers general employees of the State of New Jersey hired on or after June 28, 2011. See the appendix for details.

**FIGURE 6**

Addition to Employer Pension Wealth from Working Another Year as Percentage of Salary, New Jersey PERS Tier 1 and Tier 5, Employees Hired at Age 25, by Age



Source: Authors' calculations based on Division of Pensions and Benefits (2011).

Notes: Estimates are net of employee contributions. PERS tier 1 covers general employees of the State of New Jersey hired before July 1, 2007, and tier 5 covers those hired on or after June 28, 2011. The analysis assumes a nominal interest rate of 5%. The employee contribution rate is set at 5.5%, the rate from 2007 to 2011, for tier 1 and 7.5%, the rate now phasing in by 2018, for tier 5, which is gradually phasing in. See the appendix for details.

### How Younger Workers Pay for the State's Past Sins

Since our focus here has been mainly on workers' well-being and the state's ability to attract and retain qualified employees, we have paid less attention to the returns (or discount rate) that the state and its actuaries assume will be earned on employer and employee contributions. Nearly all state plans assume that they will earn much more than the market rate on riskless assets. As it turns out, these actuarial assumptions imply that the state is counting on many or most newer employees' contributions to subsidize the plan's unfunded liabilities. That is, these employees contribute more to the plan (in present value at the state's assumed rate of return) than they get back.

One of the lesser-known facts about traditional defined benefit plans—private as well as public—is that they always counted on providing few benefits to mobile employees. We saw this, for example, in New Jersey's plan for tier-1 workers, who receive nearly nothing in pension benefits if they start at 25

and leave before age 40. However, when almost all plan contributions are made by the employer as compensation, the employee's net pension benefits are generally still positive, though often small.

Now consider what happens when the plan bumps up employee contributions, reduces benefits, and provides a lower return on past employee contributions than the return it assumes it will earn on plan assets. So far, our calculations have assumed that employee contributions could grow annually at 2 percent plus inflation (a 5 percent nominal rate of return). We generally consider this an appropriate return and discount rate for a plan with little risk of cutting promised benefits once earned.<sup>15</sup> Certainly, few private annuities today offer such a high return. However, like most other states, New Jersey's actuaries assume a much higher nominal return of 8.25 percent per year on the risky assets that fund the plan. This rate is close to the long-term historic rate of return on stocks. If the plan returns only, say, 5 percent on contributions by employees who leave before they qualify for benefits, the state effectively

makes money on those contributions in the same way as a bank, hedge fund, or other financial arbitrageur. The state makes even more money if it pays less interest on refunded employee contributions.

In figure 7, we have replicated the calculations used in figure 5 but now use the actuaries' assumption of an 8.25 percent nominal return on contributions. For refunded contributions, we assume that the plan pays only 2 percent nominal interest, the rate it actually pays now.<sup>16</sup> As the figure shows, tier-5 employees in every age group, except the late forties and early fifties, are accruing negative pension benefits—in other words, they're earning less than they would if they were simply given an 8.25 percent return on their own contributions. For those with less than 10 years of service, the state earns a little over 6 percent on the employee contributions. It also makes money—in this case by the more elaborate benefit formula—for a great many of those with more than 10 years of service.

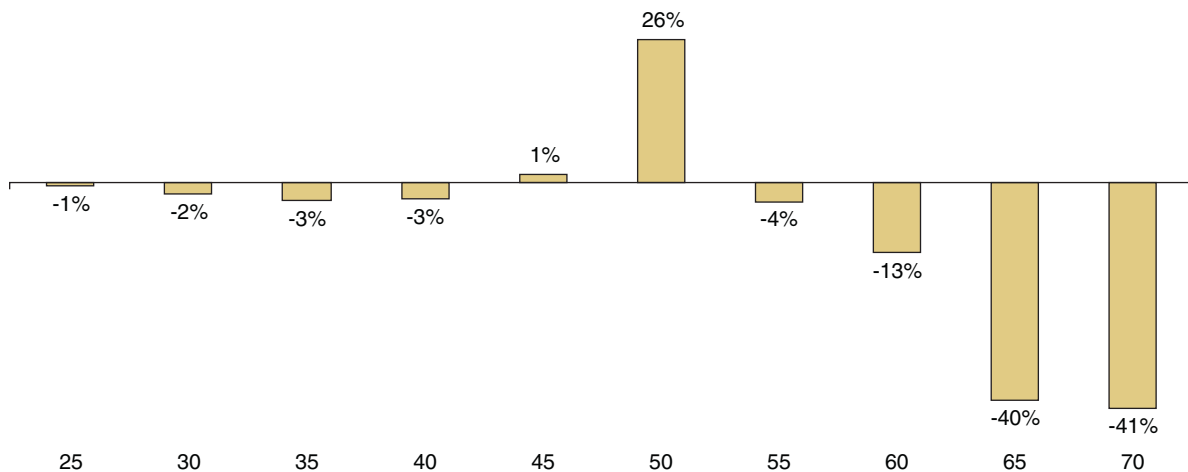
Put another way, these types of pension reforms now count on contributions from many newer and more mobile employees, who leave before their fifties, to subsidize unfunded liabilities from the past.

Only those who stay for several decades but don't work much beyond retirement age will come out ahead, and even they will largely have financed their own retirement benefits. For example, tier-5 employees hired at age 25 accumulate positive pension wealth only if they remain on the job until at least age 55 and retire by age 64.<sup>17</sup> Their pension wealth peaks at only 73 percent of annual salary.<sup>18</sup>

Our pension wealth calculations here and earlier in the report depend on various assumptions that are subject to debate. Our wealth profiles would change, for example, if we assumed a different inflation rate, an alternative growth pattern for salary, and different survival rates. Additionally, the calculations cover workers who take their benefits as single-life annuities. Considering benefits for surviving spouses could boost estimated pension wealth. We also fail to account for the expenses the state incurs running the plan. It may be appropriate for the plan to make some money from young workers who leave state employment before qualifying for an immediate pension to help cover these administrative costs. It seems unlikely, however, that addressing these caveats would fundamentally change our basic conclusion:

**FIGURE 7**

Average Annual Addition to Employer Pension Wealth from Working an Additional Five Years as Percentage of Salary, New Jersey PERS Tier 5, Employee Hired at Age 25, Using the Plan's Assumed Interest Rate of 8.25%, by Age



Source: Authors' calculations based on Division of Pensions and Benefits (2011).

Notes: Estimates are net of employee contributions. The analysis assumes that the plan earns 8.25% per year on assets but pays only 2% nominal interest on refunded employee contributions. The employee contribution rate is set at 7.5%, the rate now phasing in by 2018. PERS tier 5 covers general employees of the State of New Jersey hired on or after June 28, 2011. See the appendix for details.

for employees who leave before early retirement, their own contributions will fully fund their own benefit as well as help cover other plan liabilities.

This, then, is the dilemma posed by the past underfunding of pension plans and the shifting forward of risks to current and future generations. When the day of reckoning comes, someone has to pay. Only three groups can be tapped: existing employees or retirees, newer employees, or taxpayers. Many states are attempting to limit the hit on taxpayers and particularly on older current employees, who will contribute more for only part of their careers and will not be subject to many other benefit reductions. This leaves newer and younger employees with the burden of covering costs for which they were not responsible.<sup>19</sup>

To be clear, this dilemma stretches across most state pension plans. New Jersey PERS is merely an illustrative example. We are engaged in a longer-term project to provide similar data on plans—whether reformed or not—in all 50 states and the District of Columbia.

State pension plan reform is a microcosm of a broader societal problem, as debts from the past are shifted to current or future generations. For state pension plans, reform may help an overall budget, but may also reduce retirement security for those younger workers being hired now and, through uneven incentives across different age groups, limit the government's ability to recruit or retain the best workers.

### **Pension Designs to Reward Work and Provide More Equal Pay for Equal Work**

New Jersey's is only one example of state pension reforms occurring across the United States. The incentives present throughout New Jersey's retirement system, including the most recent round of reforms, are not unique to that state. Rather they are endemic to traditional pension plans and make reform especially difficult in states that assume high rates of return that later lead to significant underfunding.

Because benefits are essentially frozen when workers leave—earning no real interest return and further eroding with inflation—these plans penalize those who quit years before retirement. Thus, they

don't particularly appeal to young mobile workers, those likely to interrupt their careers to raise children or care for other family members, or those who simply want to consider more than one career in one state pension system over their lifetimes. Older workers eligible to retire forfeit a year of benefits for every year they remain on the payroll, providing them with strong incentives to cash in their pensions as soon as possible. As workers respond to these retirement incentives, they deprive the public sector of talented, seasoned employees.<sup>20</sup> This talent drain is becoming increasingly problematic as the workforce ages and the pool of younger workers stagnates, rendering older workers the largest source of underused resources.<sup>21</sup>

While traditional pension plans continue to cover nearly all government workers, private-sector employers—particularly those in high-growth industries—recognized long ago that these plans prevent them from attracting and retaining the best workers in today's aging and increasingly mobile labor force. The more flexible 401(k)-type plans have many problems, but do provide real value to young mobile workers because they don't penalize short-term employment. Unlike traditional retirement benefits, 401(k) account balances continue earning interest after employees leave their jobs. And 401(k)s don't penalize older employees who work past some arbitrary retirement age because their account balances can continue to grow as long as they work and contribute. In fact, workers with 401(k) plans tend to retire much later than those with traditional pension plans.<sup>22</sup>

By the same token, workers in 401(k) plans are exposed to investment risk, leaving them vulnerable to fluctuations in the stock and bond markets. Moreover, if they choose to convert their balances to annuities, their payouts can fluctuate dramatically depending on the interest rates in effect when they annuitize. The majority of participants who don't annuitize run the risk of depleting their accounts before they die.

Researchers and plan administrators have attempted to strike a balance between the pros and cons of 401(k)s, perhaps along the lines of cash balance plans—hybrids that combine features of 401(k)s and traditional plans.<sup>23</sup> Cash balance plans set aside a given percentage of salary each year for each employee and credit them with interest, usually

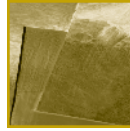


based on some benchmark like the U.S. Treasury bill rate. Benefits are expressed as an account balance, as with 401(k)s, but pay benefits (either as a lump sum or an annuity) from commingled funds invested in a pension trust on behalf of all participants. Typically, cash balance plans provide annuities at much more favorable rates than are available to 401(k)-type participants, and annuities for surviving spouses are often subsidized. Unlike traditional plans, cash balance plans accumulate benefits more evenly over a career. Younger workers value these benefits because they are not back-loaded late in their careers. Older employees don't forfeit benefits when they remain on the job into their sixties and seventies, because the account balance keeps growing. At the same time, cash balance plans in the private sector could (but often do not) allow workers to share in any returns from investing in stocks and similar risky assets. Private-sector employees often cash out and spend these benefits if they leave their employers before retirement, leaving themselves financially vulnerable in old age.

At the end of the day, there is no perfect pension instrument. States in the process of pension reform would do well to try to combine the best features of these different plan types, including (1) annuities to

protect against outliving savings and (2) equal pay for equal work to avoid discriminating against the younger and the more-seasoned employees. States even enjoy certain advantages over the private sector; they are subject to less regulation and, because they are permanent institutions, can better share some risks across generations.

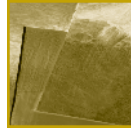
The dilemma today for many states is that they are forced to remedy bad pension compensation and funding decisions made in the past that have left liabilities to many taxpayers and workers who were not responsible for those decisions. To work through this economic and political maze, state employers and their employees should fully understand the effects of their current system and of alternative reforms on how benefits are accruing over time, how accumulations depend on age and when each employee begins and leaves employment, and how employee benefits relate to total compensation. Regardless of the cost states decide they can afford, such efforts would enhance the probability of developing compensation systems that compensate employees with relatively equal pay for equal work and better retirement protections, and would better prepare states to compete in the labor markets of the 21st century.



## Notes

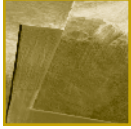
1. Snell (2012).
2. This report is part of a larger project examining work disincentives created by state and local pension plans in all 50 states and the District of Columbia. Please contact the authors at [retirementpolicy@urban.org](mailto:retirementpolicy@urban.org) for more information.
3. Actuaries debate the appropriate rates of return to assume for pension calculations (Novy-Marx and Rauh 2011). If the state effectively guarantees benefits, then the risks incurred in investing in risky assets are effectively transferred to future taxpayers or employees. There is a related budget estimating issue: often increased or reduced costs from those risks only show up after things go awry, not when the legislature increases or decreases those risks. This report does not further examine what would be an appropriate actuarial assumption, only the assumption's implications for the net pension compensation paid to employees.
4. Bureau of Labor Statistics (2011).
5. Ibid.
6. The Urban Institute's Program on Retirement Policy is estimating how pension benefits affect recruitment and retention for most state plans and would be glad to share these results with policy officials and employee groups interested in designing employee compensation packages for today's and tomorrow's workers. Please contact [retirementpolicy@urban.org](mailto:retirementpolicy@urban.org) for more information.
7. Honan and Gralla (2011); *Star-Ledger* Editorial Board (2011).
8. New Jersey state employees also receive Social Security retirement benefits, which replace about 45 percent of lifetime earnings for the median worker (Favreault et al. 2012).
9. Our pension calculations use an employee contribution rate of 5.5 percent for tier-1 participants and 7.5 percent for tier-5 participants.
10. In addition to retirement benefits, tier-1 employee contributions also fund disability and death benefits. Because our computations assume that all contributions fund pension benefits, we are somewhat understating pension wealth. Our underestimate is small, however, because the expected value of future disability and death benefits is modest. Retirement benefits accounted for 88 percent of the state's accrued liability for active members from June 2010 to June 2011 (Buck Consultants 2011).
11. In reality, New Jersey public employees who leave before their benefits vest lose money (accumulating negative pension wealth) because the state currently pays only 2 percent annual interest on refunded contributions (Division of Pensions and Benefits 2011).
12. As with tier-1 employees, we somewhat understate pension wealth in tier 5 because we assume that all employee contributions help fund retirement benefits. However, the underestimate is likely small because tier-5 employees are not eligible for disability benefits, and death benefits are modest.
13. The plan forces workers to save, which could make them better off even without any contributions from the state, although they might be able to earn higher returns on their savings elsewhere.
14. Some states have tried to eliminate effective pay cuts for older state employees by offering deferred retirement option plans (DROPs). These schemes allow workers near retirement to freeze their pension wealth while they continue to work. The state deposits their pension

- benefits into special interest-bearing accounts and continues to pay their full salaries. Once they stop working, they collect their account balances as a lump sum and begin receiving the same monthly pension they would have collected if they had stopped working when they began participating in the DROP. These programs substantially reduce early retirement incentives because workers do not lose pension wealth by remaining on the job, and DROPs appear to increase retirement ages significantly (Alva, Coe, and Webb 2010). However, they also raise pension costs because they allow more state workers to maximize their pension wealth.
15. The one exception is that some states (including New Jersey) have scaled back the postretirement COLA.
  16. Division of Pensions and Benefits (2011).
  17. Pension wealth begins growing at age 45, when workers hired at age 25 first do better by collecting a future pension rather than having their contributions refunded. However, pension wealth does not exceed zero until they reach age 55.
  18. As noted earlier, we slightly understate pension wealth because we ignore the value of death benefits.
  19. Nearly all public school teachers are covered by traditional retirement plans. By discouraging young workers from entering the profession, these plans could lower educational quality and ultimately the nation's productivity and competitiveness.
  20. Samwick (1998); Stock and Wise (1990).
  21. Mermin, Johnson, and Toder (2008).
  22. Friedberg and Webb (2005).
  23. Johnson and Steuerle (2004).



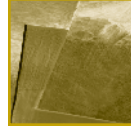
## References

- Alva, Samson, Norma B. Coe, and Anthony Webb. 2010. "The Impact of a DROP Program on the Age of Retirement and Employer Pension Costs." Chestnut Hill, MA: Center for Retirement Research at Boston College.
- Buck Consultants. 2011. "Public Employees' Retirement System of New Jersey Fifty-Seventh Annual Report of the Actuary." Secaucus, NJ: Buck Consultants. <http://www.state.nj.us/treasury/pensions/pdf/financial/2011-pers-valuation.pdf>. (Downloaded April 17, 2012.)
- Bureau of Labor Statistics. 2011. "Employee Benefits Survey Retirement Benefits, March 2011." Washington, DC: U.S. Department of Labor. [http://www.bls.gov/ncs/ebs/benefits/2011/benefits\\_retirement.htm](http://www.bls.gov/ncs/ebs/benefits/2011/benefits_retirement.htm). (Downloaded April 5, 2012.)
- Division of Pensions and Benefits. 2011. "State of New Jersey Public Employees' Retirement System Member Handbook." Trenton, NJ: New Jersey Department of the Treasury. <http://www.state.nj.us/treasury/pensions/epbam/exhibits/handbook/persbook.pdf>. (Downloaded April 5, 2012.)
- Favreault, Melissa M., Richard W. Johnson, Karen E. Smith, and Sheila R. Zedlewski. 2012. "Boomers' Retirement Income Prospects." Washington, DC: The Urban Institute.
- Friedberg, Leora, and Anthony Webb. 2005. "Retirement and the Evolution of Pension Structure." *Journal of Human Resources* 40(2): 281–308.
- Honan, Edith, and Joan Gralla. 2011. "New Jersey Gov Signs Pension-Cutting Bill." *Reuters*, June 28. <http://www.reuters.com/article/2011/06/28/newjersey-pensions-idUSN1E75R1HJ20110628>. (Downloaded April 5, 2012.)
- Johnson, Richard W., and Eugene Steuerle. 2004. "Promoting Work at Older Ages: The Role of Hybrid Pension Plans in an Aging Population." *Journal of Pension Economics and Finance* 3(3): 315–37.
- Mermin, Gordon B.T., Richard W. Johnson, and Eric J. Toder. 2008. "Will Employers Want Aging Boomers?" Retirement Project Discussion Paper 08-04. Washington, DC: The Urban Institute. <http://www.urban.org/url.cfm?ID=411705>.
- Novy-Marx, Robert, and Joshua Rauh. 2011. "Public Pension Promises: How Big Are They and What Are They Worth?" *Journal of Finance* 46(4): 1211–49.
- Samwick, Andrew A. 1998. "New Evidence on Pensions, Social Security, and the Timing of Retirement." *Journal of Public Economics* 70(2): 207–36.
- Snell, Ron. 2012. "State Pension Reform, 2009–2011." Denver: National Conference of State Legislatures. <http://www.ncsl.org/documents/employ/StatePensionReform2009-2011.pdf>. (Downloaded April 6, 2012.)
- Star-Ledger* Editorial Board. 2011. "Tweak the Benefits Reforms, but Don't Kill Them." *Star-Ledger*, June 20. [http://blog.nj.com/njv\\_editorial\\_page/2011/06/tweak\\_the\\_reforms\\_but\\_dont\\_kil.html](http://blog.nj.com/njv_editorial_page/2011/06/tweak_the_reforms_but_dont_kil.html). (Downloaded April 5, 2012.)
- Stock, James H., and David A. Wise. 1990. "Pensions, the Option Value of Work, and Retirement." *Econometrica* 58(5): 1151–80.



## Acknowledgments

The Alfred P. Sloan Foundation provided generous financial support. The authors are grateful to Barbara Butrica for help with the pension wealth calculations, Richard Shea for valuable comments on an earlier draft, and Serena Lei for editorial assistance.

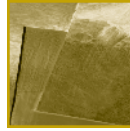


## About the Authors

**Richard W. Johnson** is a senior fellow at the Urban Institute, where he directs the Program on Retirement Policy.

**C. Eugene Steuerle** is an Institute Fellow and Richard B. Fisher Chair at the Urban Institute.

**Caleb Quakenbush** is a research assistant at the Urban Institute.



## Technical Appendix

Table A1 describes the details of each tier of New Jersey's PERS, which covers the state's general employees. Vested workers who leave state employment before they can begin collecting benefits qualify for a deferred annuity, which may begin at the normal retirement age. Pension wealth for a given age is computed as the expected present value of the future stream of pension benefits, minus the present

value of employee contributions. The calculations assume that the employee stops working at that age and begins collecting benefits at the time that maximizes pension wealth (or immediately, if the optimal age has already passed). Pension wealth accounts for expected survival probabilities, career earnings growth, interest rates, and changes in the consumer price index. We express pension wealth as multiples

**TABLE A1.**  
Details of New Jersey Public Employees Retirement Plan

	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5
Start date of covered employees	Before 7/1/07	7/1/07–11/1/08	11/2/08–5/30/10	5/31/10–6/27/11	After 6/27/11
Vesting (years)	10	10	10	10	10
Normal retirement age	60	60	62	62	65
Percentage factor	1.82%	1.82%	1.82%	1.67%	1.67%
Years included in final average salary	Top 3	Top 3	Top 3	Top 5	Top 5
Years of service required to qualify for early retirement	25	25	25	25	30
Early retirement reduction (per year)	3%, before age 55	1%, age 55–59; 3% before 55	1%, age 55–61; 3% before 55	1%, age 55–61; 3% before 55	3% before age 65
COLA (percentage of change in CPI)	60%	60%	60%	60%	None
Employee contributions					
July 2007 to Sept. 2011	5.5%	5.5%	5.5%	5.5%	NA
Oct. 2011 to June 2012	6.5%	6.5%	6.5%	6.5%	6.5%
July 2012 to June 2018 <sup>a</sup>	Between 6.5 and 7.5%	Between 6.5 and 7.5%	Between 6.5 and 7.5%	Between 6.5 and 7.5%	Between 6.5 and 7.5%
After June 2018	7.5%	7.5%	7.5%	7.5%	7.5%

Source: Division of Pensions and Benefits (2011).

a. The employee contribution rate gradually increases from 6.5 to 7.5 percent between 2012 and 2018.

of the previous year's salary. Unless otherwise noted, the calculations assume an annual real interest rate of 2 percent and an annual inflation rate of 3 percent, and thus a nominal interest rate of 5 percent. Survival probabilities are based on a unisex life table from the Social Security Administration's Office of the Chief Actuary. We estimate earnings growth by regressing annual earnings on age and other demographic characteristics for a sample of state and local government employees in the 2010 American Community Survey.

Pension accrual at a given age is computed as the difference in pension wealth at the current age and wealth the previous year. Pension wealth generally

increases each year before participants qualify for benefits (even if their future annual payments do not change) because the time to retirement shrinks, reducing financial discounting and improving participants' survival chances. So that pension accrual reflects only the impact of additional work on future benefits, when constructing the measure we divide pension wealth at the current age by one plus the interest rate and multiply by the probability of surviving from the previous age to the current age. We express pension accruals as a percentage of the previous year's salary. Average annual five-year accruals are expressed as a share of average annual earnings over the previous five years.



**URBAN  
INSTITUTE**

2100 M Street, NW  
Washington, DC 20037

Phone: 202.833.7200

Fax: 202.429.0687

<http://www.urban.org>