



# Eating Their Young:

## How Cuts to State Pension Plans Fall on New Workers

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Leslie Kan and Chad Aldeman

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**TeacherPensions.org**

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### About TeacherPensions.org

Teacherpensions.org provides high-quality information and analysis to help stakeholders—especially teachers and policymakers—understand the teacher pension issue and the trade-offs among various options for reform. We believe there is a need for additional analysis of and communication about teacher pensions—an issue that has not yet gained sufficient traction nationally, despite its seriousness and immediacy. We aim to make the issues around teacher pensions more accessible and relevant to the general public, more compelling to policymakers, and more understandable for current teachers.

Teacherpensions.org focuses on questions affecting public policy choices; it is not personal or institutional investment advice. You should consult a qualified financial professional before making consequential financial decisions.



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## Introduction

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After years of expansion, state pension benefits for teachers have taken a substantial hit in the wake of the Great Recession. In terms of retirement benefits, now is the worst time in at least three decades to become a teacher.

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Today, states offer new teachers pension benefits that are less generous on average than at any other time in the last 30 years.

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Today, states offer new teachers pension benefits that are less generous on average than at any other time in the last 30 years. During the late 1990s stock market boom, states expanded benefits for workers and higher benefits became the norm nationwide. This was the case even after the dot-com bust in the early 2000s, as plans bet they could make the same high-investment returns. But legislators approved

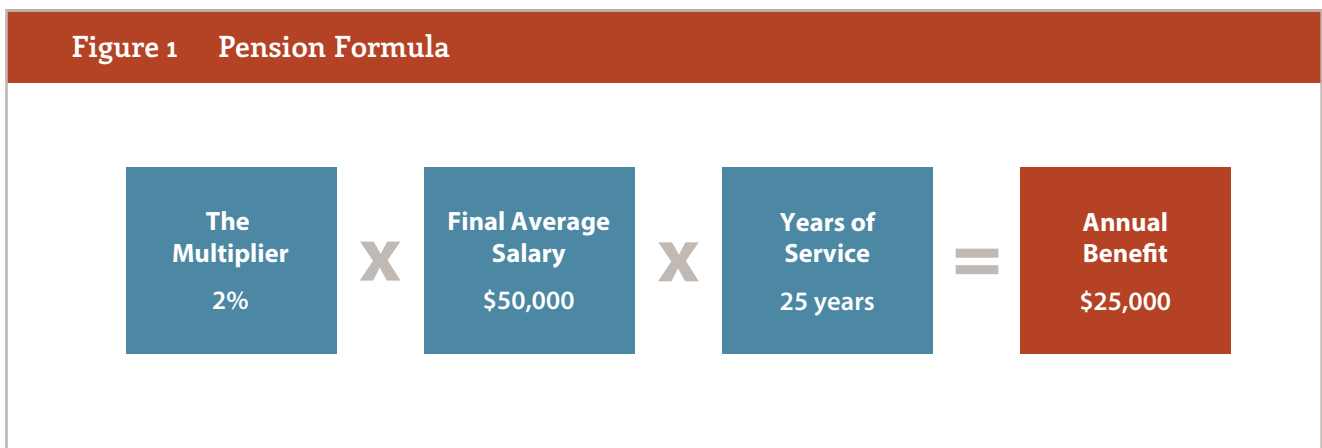
pension enhancements without a clear plan for how to pay for them. After the 2007–2009 recession, when investments soured and states incurred massive pension debt, the political landscape turned and legislators began cutting benefits.<sup>1</sup>

The cuts fall hardest on new and future teachers. Most states protect public-sector pension benefits with strong, near-ironclad legal rules that make it all but impossible to reduce benefits for existing workers.<sup>2</sup> These protections are good for teachers already in the system—but when tough budget times hit, states cut benefits for those just joining the teacher workforce. New teachers who do not plan to teach in the same state for a full career face the steepest cuts.

This brief uses a unique historical data set from the Wisconsin State Legislature to show how states have changed their pension plans over the last 30 years. The compiled data set shows how all 50 states changed their defined benefit pension plans for teachers from 1982 to 2012. The following report analyzes the changes states have made over time, and how those changes affect teachers.

## How Pension Plans Work

Before explaining how pensions have changed over time, it's important to understand how they work. Roughly nine out of 10 teachers today participate in a retirement plan known as a "defined benefit" pension plan.<sup>3</sup> In this type of plan, the employer promises a predetermined benefit level based on a formula calculated by multiplying a worker's total years of service, some measure of the worker's salary (usually the average salary from a teacher's final years of service), and a multiplier factor. Plans determine the number of years of service required to receive a minimum pension (the "vesting" requirement), as well as the age at which workers can retire (the normal retirement age). Upon retirement, pensions promise to deliver benefits over the course of a worker's entire lifetime; therefore, teachers in defined benefit plans are not at risk of outliving their benefits.



States regularly adjust these variables to change the cost—and value—of teacher pensions. **Vesting** (or minimum service) requirements determine whether a teacher is entitled to a pension at all. Teachers who fall short of vesting requirements will not earn pensions and can only receive refunds on their original contributions, sometimes with interest. Shortening vesting periods makes it easier for teachers to qualify for pensions because it means they can qualify for a benefit earlier, while lengthening vesting periods makes it more difficult for new teachers to qualify. Given high turnover rates amongst new teachers, especially for those early in their careers, about half of new teachers will not meet state vesting requirements.<sup>4</sup>

Changing the pension **multiplier** will also change a teacher’s pension benefit. For example, a teacher with 35 years of service in a retirement plan with a 1.5 percent multiplier will receive a pension that is equal to half of her final average salary (35 years times 1.5 percent equals 53

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States regularly adjust these variables to change the cost—and value—of teacher pensions.

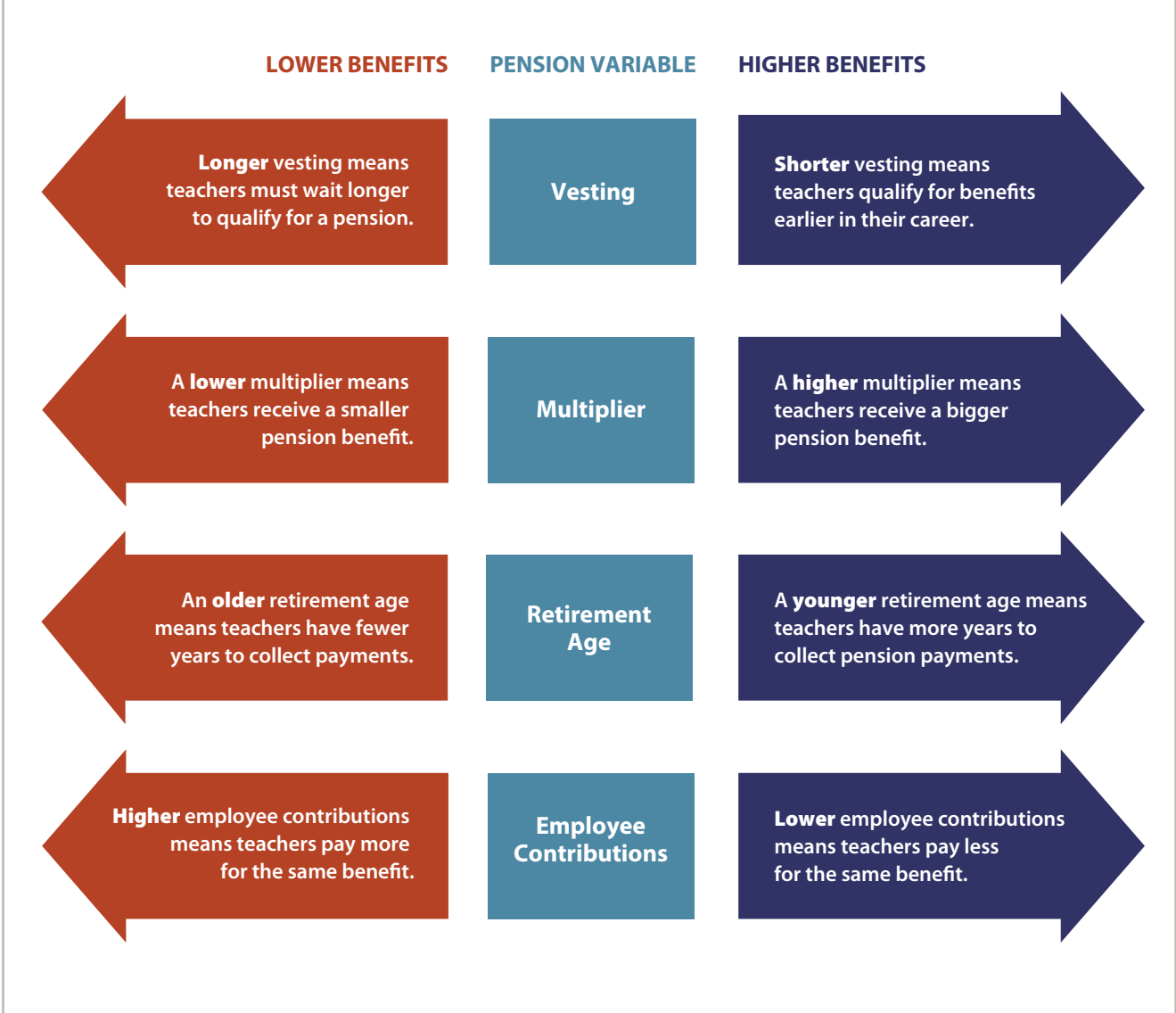
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percent). The same teacher in a retirement plan with a 2 percent multiplier will receive a pension that is 70 percent of her final average salary. The higher the multiplier, the higher the percentage of final average salary, and the higher the benefit the teacher will receive during retirement.

Benefits can also be increased or decreased by changing *when* a teacher is able to collect benefits. For example, decreasing the **normal retirement age** allows teachers to retire earlier, thus increasing both the number of years they can receive benefits and, ultimately, their total benefits. Most states allow teachers to retire before the normal retirement age, but they incur penalties for doing so. That’s because the earlier a teacher retires, the longer she will receive regular pension payments. Increasing the normal retirement age would decrease her overall benefits because she would need to spend more years working and fewer years in retirement, everything else being equal.

States pay for pension plans through a mix of employee contributions, employer contributions (which can be from the state or from individual school districts), and earnings on investments. Although variations in **employee contributions** are not part of the formulas used to determine benefits, they are directly tied to a teacher’s net retirement wealth. All else being equal, higher employee contributions reduce the total *net* value of a teacher’s salary and retirement compensation.

**Figure 2 States Use Pension Variables as Levers to Increase or Decrease Benefits**





Unfortunately, the current pension structure leaves the majority of teachers without secure retirement benefits. The pension formula depends upon service time and final average salary rather than on total earnings, which results in a disproportionate amount of pension wealth accruing at the back end. Meanwhile, teachers are mobile, with most failing to stay in a single system long enough to accrue substantial benefits.<sup>5</sup> Early-career teachers earn relatively lower salaries than late-career teachers, amounting to lower overall benefits. Additionally, because younger teachers must wait until the normal retirement age to collect a pension, their benefits will wear away from inflation before they can actually access them. At the other end of the spectrum, career teachers who continue to work instead of retiring forfeit benefits for every year spent working beyond the normal retirement age.<sup>6</sup> Older public school teachers may want to stay in the classroom beyond the normal retirement age, but pensions don't take teacher preferences into account.

Examining the ways that states have changed plan variables over time shows how teacher pensions have evolved, and to what extent teachers have benefitted.

## How States Changed Pension Plans over the Decades

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Individual states differ in the extent to which they adjusted variables, but collectively, state plans show general patterns of expansion in the late 1990s and early 2000s and retraction in recent years:

- » **Vesting.** Overall, the median or middle state offers a much lower vesting period compared to several decades ago, dropping from 10 years to five years. Mean or average vesting periods declined from nearly eight years in the 1980s to less than six years in the early and mid-2000s (making benefits more accessible for early-career teachers), but have since risen. Today, a third of defined benefit state plans require vesting periods of six to 10 years.
- » **Benefit Multiplier.** The average benefit formula multiplier increased from 1.8 percent in the 1980s to a high of almost 2 percent in 2008. After the last recession, the average multiplier fell slightly to 1.94. Nearly four out of five states did not change their multiplier after 2008, and 17 states use the same multiplier as they did in 1982. While many states increased their benefit multipliers during the 1990s and 2000s, most states have chosen to use levers other than the multiplier to reduce benefits after the recession.

- » **Normal Retirement.** States began lowering the normal retirement age in the 1990s and continued into the 2000s (from an average of age 57 in the 1980s to 55 in the 2000s), allowing teachers to retire with more years to collect a pension benefit. Recently, states have increased the normal retirement age, decreasing retirement benefits for teachers and leading to fewer years to collect a pension. In 2012 alone, 19 plans increased their normal retirement age for new teachers, pushing the average retirement from age 55 to 58 and decreasing the number of pension payments that a teacher can collect in retirement.
- » **Employee Contributions.** Average employee contribution rates remained relatively constant throughout the 1980s, 1990s, and 2000s, but increased after the recession, thereby lowering teachers' net retirement compensation.

Table 1 summarizes each of the pension variables—vesting, the benefit formula multiplier, normal retirement age, and employee contributions—over the past three decades.

**Table 1** Average Pension Variables, 1982–2012

	Average Vesting Years	Average Benefit Formula Multiplier	Average Normal Retirement Age	Average Employee Contribution Rate
1982	7.5	1.80	58	5.5
1992	6.9	1.83	56	5.7
2002	5.8	1.95	55	5.6
2012	6.3	1.94	58	7.2

Source: Wisconsin State Legislature, Comparative Retirement Study of Major Public Employee Retirement Systems, 1982–2012, [http://docs.legis.wisconsin.gov/misc/lc/comparative\\_retirement\\_study](http://docs.legis.wisconsin.gov/misc/lc/comparative_retirement_study). See Data Sources Appendix for more detailed information.

Although these may seem like small changes, even slight increases or decreases to elements like the formula multiplier or retirement age result in noticeably different benefits for an individual teacher. For example, Iowa increased its multiplier from 1.67 percent in 1982 to 2 percent beginning in the late 1990s. This may sound trivial, but for a teacher who taught for 35 years, it represents an increase from a pension equal to 58 percent of that teacher's final average salary (35 years times 1.67 equals 58) to 70 percent of final average salary (35 years times two equals 70).<sup>7</sup> On the

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These changes can amount to pension reductions of thousands of dollars a year—or hundreds of thousands of dollars over the course of a teacher's retirement.

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other hand, in Alabama, the state plan maintained a 2.01 percent multiplier for two decades, but then abruptly decreased the multiplier to 1.65 percent for teachers hired on or after January 1, 2013. Where an Alabama teacher hired in 2012 who stays for 35 years of service can receive 70 percent of her final average salary, a teacher hired after 2013 with the same years of service will qualify for less than 58 percent of her final average salary.<sup>8</sup> Alabama also changed the plan formula from a final average salary

based on the highest three years to one based on the highest five years, reducing the base salary from which benefits are calculated and further lowering benefits. These changes can amount to pension reductions of thousands of dollars a year—or hundreds of thousands of dollars over the course of a teacher's retirement.

Meanwhile, life expectancies continue to rise. In 1982, a typical teacher could retire at age 58 and expect to live (and collect pension payments) for another 26 years. By 2000, a teacher with the same level of experience could retire at age 55 and expect to live for another 30 years—and hence collect pension payments for an additional four years.<sup>9</sup>

This trend, however, flips beginning in 2008, when states started to increase their normal retirement ages. From 2008 to 2012, more than 20 states increased the normal retirement age for new teachers, meaning teachers would need to prolong retirement by several years and have fewer retirement years to collect pension benefits. In South Dakota, for example, the state made its first increase to the normal retirement age in more than two decades, increasing the retirement age by 10 years (from 55 to 65). Granted, these increases in the average retirement age may be more in line with rising life expectancies and still fall significantly below Social Security's normal retirement age of 67.<sup>10</sup>

In addition to changes in the benefit multiplier and normal retirement age, state and local plans use employee contribution rates as a way to either expand or diminish worker benefits. While average employee contribution rates remained fairly constant for most of the last three decades, a number of plans have increased employee contributions in recent years.<sup>11</sup> In 1982, only 13 plans had employee contribution rates set at 7 percent or above. By 2012, almost half of

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State and local plans adjust employee contribution rates as a way to expand or diminish worker benefits.

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states (24 plans) required employee contributions of 7 percent or above. Additionally, the number of plans with zero or low employee contribution rates fell; only six plans allowed teachers to contribute 5 percent or less of their salary in 2012. However, pension plans typically require the same percentage of employee contributions from all employees, regardless of their hire date or the generosity of their particular pension plan. For example, Missouri adopted a series of benefit enhancements in the late

1990s that are still in place today. But, because of subsequent increases to employee contributions to pay for the enhancements, new teachers would have been better off, on net, under the old plan. The new, higher contribution rates did not significantly impact teachers who were already members of the retirement system prior to the benefit enhancements, as they had already worked most of their careers paying the lower employee contribution rates.<sup>12</sup>

## How Today's Pension Plans Shortchange New Teachers

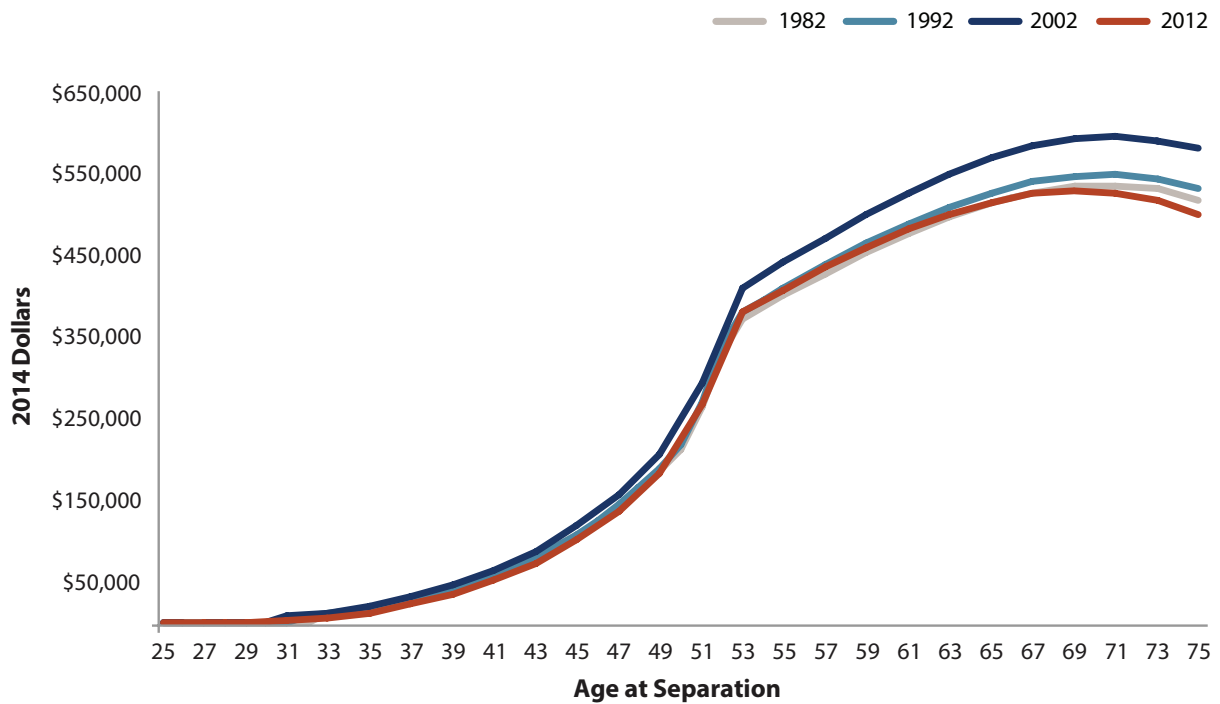
To see how these variables all work together, we can compare the overall retirement compensation, netting or subtracting out employee contributions, for a newly hired 25-year-old teacher using the average pension plan components for 1982, 1992, 2002, and 2012. Although these projections aren't for a specific plan or teacher, they illustrate how changes in plan formulas compare across decades and how changing plan variables affect teachers. The following calculations are based on a starting salary of \$40,000 with a 2 percent annual increase and 2014 mortality assumptions, so the changes in benefits reflect changes in the formula components, not salaries or life expectancies. Each year is presented in inflation-adjusted, 2014 dollars.

Table 2 and Figure 3 show how teacher pension benefits have changed over the past three decades. Benefits peaked in the 2000s, only to fall in 2012 to the lowest levels in 30 years.

**Table 2** Net Present Value of Pension Benefits Depends on the Year a Teacher Begins Teaching

Average Pension Plan Offered to Teachers Beginning Their Career In:	Net Pension Benefit After 10 Years of Service	Net Pension Benefit After 20 Years of Service	Net Pension Benefit After 35 Years of Service
1982	\$16,354	\$105,158	\$463,896
1992	\$16,590	107,548	\$475,535
2002	\$19,376	\$117,954	\$512,011
2012	\$11,969	\$99,947	\$469,782

**Figure 3 Net Pension Benefits by Year of Entrance, 1982–2012**



Source: Calculations for benefits use the benefit parameters found in Table 1 for new hires, as well as the model found in Robert Costrell and Mike Podgursky, "Peaks, Cliffs, and Valleys: The Peculiar Incentives in Teacher Retirement Systems and Their Consequences for School Staffing," *Education Finance and Policy* 4, no. 2 (2009): 175–211, and in Robert Costrell and Josh McGee, "Teacher Pension Incentives, Retirement Behavior, and Potential for Reform in Arkansas," *Education Finance and Policy* 5, no. 4 (2010): 492–518. Benefits are based on the Society of Actuaries RP 2014 Mortality Table, a discount rate of 5 percent, a final average salary based on the final three years of service, and a starting salary of \$40,000 with a 2 percent annual increase. Calculations do not include cost-of-living adjustments or benefit caps.

### Cuts Fall on New Hires

When states reduce pension benefits, those cuts disproportionately fall on new and future teachers. While benefit *increases* tend to apply to all workers, benefit decreases typically only affect new workers. This means that a teacher hired in the 1980s might actually still be able to participate in a 2000s plan with boosted benefits, whereas a teacher hired after the recession can only participate in a post-recession plan. Additionally, most states have legal protections making it difficult or nearly impossible to cut benefits for existing workers or retirees. Instead, states typically pass benefit cuts on to newly hired workers, who are placed into a new “tier” according to a specific hire date (usually with worse benefits); meanwhile, all teachers are

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Two teachers with the same amount of experience would receive very different pension benefits simply based upon when they were hired.

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required to pay the same contribution rates regardless of their benefit levels.<sup>13</sup> More than 40 states currently place teachers in separate tiers by their hire date, according to the Urban Institute’s state report card.<sup>14</sup>

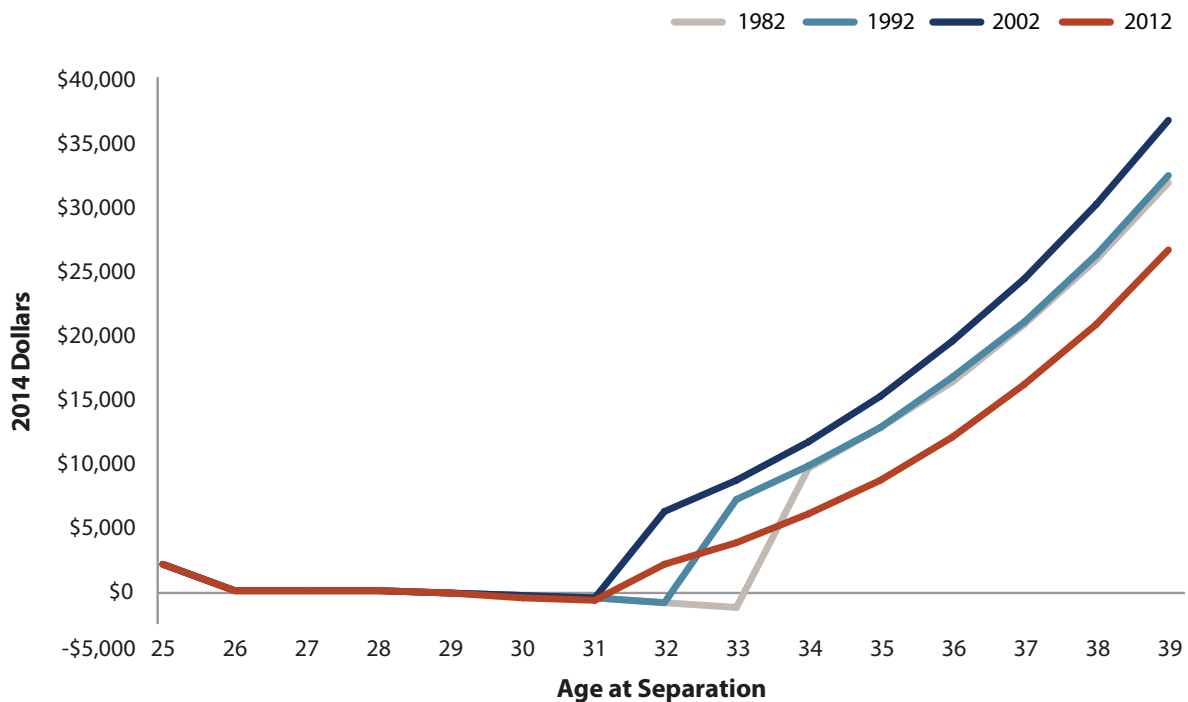
Moreover, because pension benefits are severely backloaded, early-career teachers inherently accrue relatively little wealth at the beginning of their careers. Shifting the benefit parameters to create lower benefits only magnifies these

inherent structural inequities: Although pension benefits for career teachers fell only 1 percent from 1982 to 2012, teachers who were hired in 2012 and stay 10 years would qualify for an inflation-adjusted pension benefit worth 25 percent less than their peers who began in 1982.

Figure 4 shows the same pension wealth accrual curves as Figure 3, but it zooms in on teachers with 15 or fewer years of service. Retirement compensation appears negative for teachers before they vest because the present value of benefits falls below employee contributions. While the vesting period improves and shortens from 1982 to 2012, teachers who entered the profession in 2012 will be worse off on average throughout their careers. Two teachers with the exact number of service years and other demographic information would experience significant differences in benefits simply based upon when they were hired. A teacher who left after 10 years in 1982 would have more than \$16,000 in net lifetime pension benefits. However, a teacher hired after the recession in 2012 who works 10 years would qualify for a total lifetime pension worth less than \$12,000.



**Figure 4 Net Pension Benefits by Year of Entrance, 1982–2012**



Source: Calculations use the same methodology as Robert Costrell and Mike Podgursky, "Peaks, Cliffs, and Valleys: The Peculiar Incentives in Teacher Retirement Systems and Their Consequences for School Staffing," *Education Finance and Policy* 4, no. 2 (2009): 175–211, and Robert Costrell and Josh McGee, "Teacher Pension Incentives, Retirement Behavior, and Potential for Reform in Arkansas," *Education Finance and Policy* 5, no. 4 (2010): 492–518.

Although teachers who leave before vesting can receive a refund on their contributions, often with interest, in many state plans even vested teachers experience *negative* net retirement compensation for the first few decades because benefits accrue relatively slowly during the first half of a teacher's career. In California, a teacher's pension benefits do not exceed the value of her contributions plus interest (refunded with 4.5 percent interest) until she has put in 22 years of service.<sup>15</sup> Similarly, in Illinois, recent reforms cut down benefits to such an extent that teachers in the newest tier earn negative net pension benefits for the first 26 years of service (contributions are not refunded with interest).<sup>16</sup> In other words, a new Illinois teacher would not see a positive return on her contributions unless she served more than two decades in the system. By making such draconian cuts, these states and others have left their new teachers vulnerable to a precarious and insecure path to retirement.

## Conclusion

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During good economic times, states expanded pension benefits for teachers of all experience levels. But states made these promises without responsibly planning how to pay for them. Collectively, state pension plans now face a \$1.4 trillion shortfall, and teacher pensions alone account for \$500 billion of that unfunded liability. For every \$100 that states and districts contribute to teacher pension plans, an average of \$70 goes toward paying down pension debt, rather than toward actual retirement benefits or other teacher compensation.<sup>17</sup>

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Today's new teachers are paying the price for years of pension enhancements and underfunding—in the form of lower benefits *and* stagnant salaries.

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With the aftermath of the recession, states are now attempting to reverse their past decisions by enacting stricter pension plan provisions. A number of states have increased their vesting requirements to 10 years in addition to increasing employee contribution rates, making it more difficult for new teachers to earn even a

minimal pension or come out with a positive return. Today's new teachers are now paying the price for years of pension enhancements and underfunding—in the form of lower benefits and stagnant salaries.

States have made a risky trade-off. By boosting benefits without a clear plan to pay for them, they simultaneously risk losing a quality teaching workforce as pension debt cuts into education resources and teacher benefits. To avoid further cuts and deepening intergenerational inequity, states must fully fund the promises they've already made, while also balancing the needs of the present and future teaching workforce and providing sustainable benefits for all teachers.

## Appendix: Data Sources

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Since 1982, the Wisconsin Retirement Research Committee (RRC) and Legislative Council—nonpartisan legislative service agencies for the Wisconsin state legislature—have conducted a comparative retirement study of public employee pension plans in 87 total retirement systems in all 50 states. The data span from 1982 to 2012 and are based on annual reports, employee handbooks, statutes, actuarial reports, and related materials collected by the Wisconsin RRC and Legislative Council from each state’s retirement systems. When specific information was not available, the RRC and Legislative Council reported data from the National Association of State Retirement Administrators’ Public Fund Survey. All comparative studies are publicly available online at [http://docs.legis.wisconsin.gov/misc/lc/comparative\\_retirement\\_study](http://docs.legis.wisconsin.gov/misc/lc/comparative_retirement_study).

The Wisconsin RRC and Legislative Council did not conduct a retirement study in 1998, but otherwise conducted a study every two years from 1982 to 2012. The Wisconsin comparative studies include at least one statewide plan for each of the 50 states.

This report draws on data collected for the Wisconsin comparative studies—specifically from state-defined benefit plans, based on a final average salary, that teachers participated in from 1982 to 2012. The data represents a total of 50 defined benefit plans, one from each state (the data set does not include information on Washington, D.C.) and tracked vesting, the benefit multiplier, normal retirement age, and employee contributions across three decades for any changes. The report excluded defined contribution, cash balance, and hybrid plans. State plans were either a specific teaching retirement plan open to teachers only, or a state retirement plan in which teachers participate alongside other public-sector employees. (For example, Maryland teachers participate in the Maryland State Retirement and Pension System alongside state employees.) In order to compare apples to apples, this brief looked at the pension plan offered in each year to newly hired, 25-year-old teachers who remain in a single plan.

**Table A1** Average Vesting Years

	Mean	Median	Maximum	Minimum
1982	7.5	9	15	0
1984	7.8	10	20	0
1986	7.7	10	20	0
1988	7.5	6.5	20	0
1990	7.4	5	20	3
1992	6.9	5	10	3
1994	6.8	5	10	3
1996	6.7	5	10	0
2000	6.1	5	10	0
2002	5.8	5	10	0
2004	5.6	5	10	0
2006	5.6	5	10	0
2008	5.7	5	10	0
2010	5.8	5	10	0
2012	6.3	5	10	0

**Table A2** Average Benefit Multiplier (percent)

	Mean	Median	Maximum	Minimum	Average % of salary for a teacher with 30 years of experience (average multiplier x 30)
1982	1.80	1.96	2.5	0.8	54
1984	1.80	1.7	2.5	0.8	54
1986	1.79	1.85	2.5	0.8	54
1988	1.83	1.88	2.5	0.8	55
1990	1.83	1.85	2.5	0.8	55
1992	1.83	1.87	2.5	0.8	55
1994	1.85	1.88	2.5	0.8	55
1996	1.86	1.90	2.5	0.8	56
2000	1.91	1.94	2.5	1.25	57
2002	1.95	2.00	2.67	1.25	58
2004	1.96	2.00	2.67	1.25	59
2006	1.99	2.00	2.67	1.5	60
2008	2.00	2.00	2.67	1.5	60
2010	1.97	2.00	2.5	1.4	59
2012	1.94	2.00	2.5	1.5	58

**Table A3** Average Normal Retirement Age

	Mean	Median	Maximum	Minimum
1982	57.8	55	45	65
1984	57.4	55	45	65
1986	56.9	55	45	65
1988	56.8	55	45	65
1990	56.4	55	45	67
1992	56.4	55	50	67
1994	56.0	55	45	67
1996	56.0	55	45	67
2000	55.3	55	45	65
2002	55.1	55	45	65
2004	55.1	55	45	65
2006	55.1	55	45	66
2008	55.3	55	45	65
2010	55.6	55	45	65
2012	58.2	58	45	67

**Table A4** Average Employee Contributions (percent)

	Mean	Median	Maximum	Minimum
1982	5.5	6	9.5	0
1984	5.7	6	9.5	0
1986	5.5	6	9.5	0
1988	6.1	6	10	0
1990	5.7	6	10.5	0
1992	5.7	6	11	0
1994	5.5	6	11	0
1996	5.5	6	10.5	0
2000	5.5	5.9	10.5	0
2002	5.6	6	10.5	0
2004	5.8	6	10.5	0
2006	6.3	6	12	0
2008	6.2	6	11.25	0
2010	6.7	6.5	14	0
2012	7.2	7	14.5	0





## Endnotes

- <sup>1</sup> Sarah Anzia and Terry Moe, "The Politics of Pensions" (conference paper, American Political Science Association Annual Meeting, December 2013).
- <sup>2</sup> Several state constitutions and statutes explicitly protect the existing benefits, and sometimes even future unearned benefits, for public workers. Amy Monahan, "Statutes as Contracts? The 'California Rule' and its Impact on Public Pension Reform," *Iowa Law Review* 97 (2012), 1029-1071. Jennie Herriot-Hatfield, Amy Monahan, Sarah Rosenberg, and Bill Tucker, "A Legal Guide to State Pension Reform," *Education Sector*, 2012. While this report does not examine the impact of cost-of-living adjustments, it should be noted that several state pension plans have cut or eliminated cost-of-living adjustments for current workers or retirees, and these cuts have been upheld by most state courts. Alicia Munnell, Jean-Pierre Aubry, and Mark Cafarelli, "COLA Cuts in State-Local Pensions," (National Bureau of Economic Research conference paper, April 10-11, 2015).
- <sup>3</sup> Josh McGee and Marcus Winters, "Modernizing Teacher Pensions," *National Affairs* 22 (2015).
- <sup>4</sup> Chad Aldeman and Andrew Rotherham, "Friends without Benefits," Washington, D.C.: *Bellwether Education Partners*, 2014, [http://bellwethereducation.org/sites/default/files/BW\\_PensionPaper\\_031314.pdf](http://bellwethereducation.org/sites/default/files/BW_PensionPaper_031314.pdf).
- <sup>5</sup> Chad Aldeman and Andrew Rotherham, "Friends without Benefits." Richard Ingersoll, Lisa Merrill, and Daniel Stucky, "Seven Trends: The Transformation of the Teaching Force," Consortium for Policy Research in Education, 2014.
- <sup>6</sup> In Illinois, a teacher who works five years beyond 35 years forfeits \$49,000 in lifetime pension benefits. Richard Johnson, "Reforming Government Pensions to Better Distribute Benefits: What Are the Options, Urban Institute," Urban Institute, 2014, <http://webarchive.urban.org/publications/2000171.html>.
- <sup>7</sup> Additionally, the 1982 multiplier of 1.67 percent would have been applied to the highest five years of final average salary, whereas the 2 percent multiplier would have been applied to the highest three years of final average salary. Because teacher salary schedules increase primarily at the back end, calculating a teacher's final average salary based on the final three years versus five years will likely produce a higher average salary, further augmenting pension benefits.
- <sup>8</sup> Alabama also changed the plan formula, from a final average salary based on the highest three years in the last 10 years to the five highest years in the last 10 years, further reducing benefits for new hires. See note above.
- <sup>9</sup> "Vital Statistics of the United States, 1982 Life Tables (Table 6-3)," Centers for Disease Control and Prevention (1985), [http://www.cdc.gov/nchs/data/lifetables/life82\\_2acc.pdf](http://www.cdc.gov/nchs/data/lifetables/life82_2acc.pdf). Elizabeth Arias, "National Vital Statistics Report: United States Life Tables, 2002 (Table A)," Centers for Disease Control and Prevention (2002), [http://www.cdc.gov/nchs/data/nvsr/nvsr53/nvsr53\\_06.pdf](http://www.cdc.gov/nchs/data/nvsr/nvsr53/nvsr53_06.pdf). Elizabeth Arias, "National Vital Statistics Report: United States Life Tables, 2010 (Table A)," Centers for Disease Control and Prevention (2010), [http://www.cdc.gov/nchs/data/nvsr/nvsr63/nvsr63\\_07.pdf](http://www.cdc.gov/nchs/data/nvsr/nvsr63/nvsr63_07.pdf).
- <sup>10</sup> Alicia Munnell, "Social Security's Real Retirement Age Is 70," Center for Retirement Research, 2013.
- <sup>11</sup> Employer contribution rates, on the other hand, fluctuated even more widely than employee contribution rates. Nationally, employer contribution rates for teacher pensions have risen over the years, mainly because of plans' underfunded liabilities. According to data from the Bureau of Labor Statistics, the average employer contribution for retirement benefits and Social Security was 12.8 percent of a teacher's earnings in 2006 and rose to 17 percent in 2013. Rates for states that do not offer teachers Social Security tend to have higher employer rates, averaging 11 percent of earnings, compared to states that do not offer teachers Social Security and average 9 percent of earnings. Robert Costrell and Michael Podgursky, "Teacher Retirement Benefits," *Education Next* 9, no. 2 (2009), <http://educationnext.org/teacher-retirement-benefits/>. However, the employer contributions recorded in the comparative studies are less reliable because of variations in the way plans report and designate employer contribution rates, as noted by the original Wisconsin State Legislature comparative retirement study. Some plans described just the annual cost of benefits, while others included the cost of unfunded liabilities in addition to the annual cost of benefits and/or other administrative costs, creating inconsistencies. These reporting differences make it difficult to form adequate comparisons of employer contributions across states over time.



- <sup>12</sup> Cory Koedel, Shawn Ni, and Michael Podgursky, "Who Benefits from Pension Enhancements?" *Education and Finance Policy* 9, no. 2 (2014): 165–192.
- <sup>13</sup> Jennie Herriot-Hatfield, Amy Monahan, Sarah Rosenberg, and Bill Tucker, "A Legal Guide to State Pension Reform."
- <sup>14</sup> "The State of Retirement: Grading America's Public Pension Plans," *UrbanInstituteRetirementPolicy.org*, 2014, <http://datatools.urban.org/features/SLEPP/index.html>.
- <sup>15</sup> Robert Costrell and Michael Podgursky, *Reforming K-12 Educator Pensions: A Labor Market Perspective* (TIAA-CREF Institute, 2011). Richard W. Johnson and Benjamin G. Southgate, *Can California Teacher Pensions Be Distributed More Fairly?* (Washington, D.C.: Urban Institute, 2014). Richard Johnson, Barbara Butricia, Owen Haaga, and Benjamin Southgate, *How Long Must State and Local Employees Work to Accumulate Pension Benefits?* (Washington, D.C.: Urban Institute, 2014).
- <sup>16</sup> Robert Costrell and Michael Podgursky, *Reforming K-12 Educator Pensions: A Labor Market Perspective*.
- <sup>17</sup> Kathryn Doherty, Sandi Jacobs, and Martin Lueken, "Doing the Math on Teacher Pensions," *National Council on Teacher Quality*, 2015, [http://www.nctq.org/dmsView/Doing\\_the\\_Math](http://www.nctq.org/dmsView/Doing_the_Math).

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