CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM
428 East Fourth Street • Suite 205 • Charlotte, North Carolina • 28202 • (704) 626-2728 • Fax (704) 626-7365

MEMORANDUM

DATE: March 5, 2021

TO: Benefits Committee Members
Melinda K. Manning, Sheila Simpson, Lee Thompson, Ryan Pope, Renee Metzler

FROM: Sandy Thiry, Administrator

RE: Regular Meeting Notice

A regular meeting of the Benefits Committee of the Charlotte Firefighters' Retirement System is scheduled for **Thursday, March 11, 2021 at 8:00 A.M.** Due to the COVID19 restrictions in place, this meeting will be conducted remotely. You may join the meeting by dialing (267) 930-4000 with access code, 509617232.

AGENDA

1. Approval of February 11, 2021 Meeting Minutes
2. Noteworthy News
3. Act Amendment Update
4. Education Modules Update
5. CBIZ Study/City Options
    a. Compensation Definition
    b. Final Average Salary Period
6. New Business

If you would like copies of the agenda materials, please contact the CFRS office: CFRS@charlottenc.gov

The next Regular Meeting is scheduled for Thursday, April 15, 2021.

Vanessa Heffron, Chairperson of the Board
Lisa Flowers, Senior Assistant City Attorney
Charlotte Fire Department Stations

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BENEFITS COMMITTEE MINUTES

February 11, 2021

PRESENT: Melinda Manning - Chair, Lee Thompson, Renee Metzler, Ryan Pope and Sheila Simpson

OTHER: Staff - Sandy Thiry, Desiré Dixon, Tony Bass, Ty Phelps and Legal Counsel Lisa Flowers

OFFICIAL CALL TO ORDER

Melinda Manning called the meeting to order at 8:00 a.m. and attendance was taken via roll call.

I. MEETING MINUTES APPROVAL

Ryan Pope motioned to approve the minutes for the January 14, 2021 meeting and Renee Metzler seconded the motion and the motion carried via roll call vote.

II. POST RETIREMENT ADJUSTMENT

The Committee was assigned to review retiree benefits as a result of the January Board's discussion of post retirement adjustments. Staff researched and presented the Committee with the national 2021 poverty levels report and retiree benefit amount comparison along with COLA and bonus history comparison between CFRS and LGERS and Social Security. Sandy also provided the Committee with the City's budget process timing. The Committee will review the 2021 actuarial study once completed later this year. The Committee acknowledged the positive work that the Board has done over the past few years to improve the plan's funded levels in an effort to move toward the ability to review a bonus or COLA for the retirees. This work has included reducing administrative costs while developing efficiencies, monitoring and taking advantage of investment manager fee discounts, developing a funding initiative to increase funding levels approved by the City, and work in progress on developing a Funding Policy that will provide for an updated philosophy and process for providing post retirement payments.

III. FUNDING REQUEST/ACT AMENDMENT UPDATE

The City continues its commitment to the Funding Request. Lisa and Sandy are working with Dana Fenton through the legislative package process.

IV. 2021 COMMITTEE WORK PLAN

The Committee discussed the work plan responsibilities and timelines in consideration of the Board's recommendation. The Committee spent considerable time regarding communications, opportunities, and miscommunications. The Communication policy will move to priority along with the Funding Policy.

V. CBIZ STUDY/ACT AMENDMENTS

The Committee resumed discussion about options for the City's review. These discussions are on-going with the goal to provide the Board a review of different options that include the pro's and con's before providing the summary to the City. Staff will update previous analysis of averaging periods and compensation for future meeting discussion.

VI. NEW BUSINESS

No new business was presented during the February 11, 2021 Committee meeting.

Ryan Pope motioned to adjourn at 10:24 a.m. and Lee Thompson seconded the motion. The motion carried via roll call, excluding Renee Metzler.

Next Regular Meeting is scheduled for Thursday, March 11, 2021 at 8:00 a.m.

cc: Vanessa Heffron -Chair
John Carr – Vice Chair
Lisa Flowers – Sr. City Attorney

Benefits Committee 2021 Work Plan (in progress)

	Assigned to	1st Quarter 2021	2nd Quarter	3rd Quarter 2021	4th Quarter 2021
Funding					
Monitor Legislation Progress	Counsel, Staff				
Review Benefit Plan Options for City					
Compensation Definition	Committee				
Final Average Salary Period	Committee				
New Entrants in LGERS	Committee				
Education					
MySuccess Learning Modules					
CFRS Overview	Staff,Counsel, Lee, Ryan				
Benefit Calcualtion	Staff,Counsel, Lee, Ryan				
Governance					
Committee Charter Review	Committee				
Policies					
Bonus & COLAs (New)	Committee				
Communications (New)	Joey/Ryan/Staff				
Ethics Policy (Periodic Review)	Committee				
Funding (New)	Melinda, Renee, Staff				
Meetings (New)	Committee				
Travel (Periodic Review)	Committee				
Professional Services					
Medical Board Contract	Counsel, Staff				
Hired Legal Counsel (Review)	Committee				
Actuarial Service Provider (Review)	Committee				
Other					
Business Continuity (New)	Staff				
Citizen Trustee Searches (New)	Staff				

Windfall Elimination Provision

Your Social Security retirement or disability benefits can be reduced

The Windfall Elimination Provision can affect how we calculate your retirement or disability benefit. If you work for an employer who doesn't withhold Social Security taxes from your salary, such as a government agency or an employer in another country, any retirement or disability pension you get from that work can reduce your Social Security benefits.

When your benefits can be affected

This provision can affect you when you earn a retirement or disability pension from an employer who didn't withhold Social Security taxes ***and*** you qualify for Social Security retirement or disability benefits from work in other jobs for which you did pay taxes.

The Windfall Elimination Provision can apply if:

- You reached 62 after 1985.
- You became disabled after 1985.
- You first became eligible for a monthly pension based on work where you didn't pay Social Security taxes after 1985. This rule applies even if you're still working.

This provision also affects Social Security benefits for people who performed federal service under the Civil Service Retirement System (CSRS) after 1956. We won't reduce your Social Security benefit amounts if you only performed federal service under a system such as the Federal Employees' Retirement System (FERS). Social Security taxes are withheld for workers under FERS.

How it works

Social Security benefits are intended to replace only some of a worker's pre-retirement earnings.

We base your Social Security benefit on your average monthly earnings adjusted for average wage growth. We separate your average earnings into three amounts and multiply the amounts using three factors to compute your full Primary Insurance Amount (PIA). For example, for a worker who turns 62 in 2020, the first $960 of average monthly earnings is multiplied by 90 percent; earnings between $960 and $5,785 are multiplied by 32 percent; and the balance by 15 percent. The sum of the three amounts equals the PIA, which is then decreased or increased depending on whether the worker starts benefits before or after full retirement age (FRA). This formula produces the monthly payment amount.

When we apply this formula, the percentage of career average earnings paid to lower-paid workers is greater than higher-paid workers. For example, workers age 62 in 2020, with average earnings of $3,000 per month could receive a benefit at FRA of $1,516 (approximately 50 percent) of their pre-retirement earnings increased by applicable cost of living adjustments (COLAs). For a worker with average earnings of $8,000 per month, the benefit starting at FRA could be $2,740 (approximately 34 percent) plus COLAs. However, if either of these workers start benefits earlier than their FRA, we'll reduce their monthly benefit.

Why we use a different formula

Before 1983, people whose primary job wasn't covered by Social Security had their Social Security benefits calculated as if they were long-term, low-wage workers. They had the advantage of receiving a Social Security benefit representing a higher percentage of their earnings, plus a pension from a job for which they didn't pay Social Security taxes. Congress passed the Windfall Elimination Provision to remove that advantage.

Under the provision, we reduce the 90 percent factor in our formula and phase it in for workers who reached age 62 or became disabled between 1986 and 1989. For people who reach 62 or became disabled in 1990 or later, we reduce the 90 percent factor to as little as 40 percent.

Some exceptions

The Windfall Elimination Provision doesn't apply if:

- You're a federal worker first hired after December 31, 1983.
- You're an employee of a non-profit organization who was first hired after December 31, 1983.
- Your only pension is for railroad employment.
- The only work you performed for which you didn't pay Social Security taxes was before 1957.
- You have 30 or more years of substantial earnings under Social Security.

The Windfall Elimination Provision doesn't apply to survivors benefits. We may reduce spouses, widows, or widowers benefits because of another law. For more information, read *Government Pension Offset* (Publication No. 05-10007).

Social Security years of substantial earnings

If you have 30 or more years of substantial earnings, we don't reduce the standard 90 percent factor in our formula. See the first table that lists substantial earnings for each year.

The second table shows the percentage used to reduce the 90 percent factor depending on the number of years of substantial earnings. If you have 21 to 29 years of substantial earnings, we reduce the 90 percent factor to between 45 and 85 percent. To see the maximum amount we could reduce your benefit, visit ***www.socialsecurity.gov/planners/retire/wep-chart.html.***

A guarantee

The law protects you if you get a low pension. We won't reduce your Social Security benefit by more than half of your pension for earnings after 1956 on which you didn't pay Social Security taxes.

Contacting Social Security

The most convenient way to contact us from anywhere, on any device, is to visit ***www.socialsecurity.gov***. There are several things you can do online: apply for benefits; get useful information; find publications; and get answers to frequently asked questions.

When you open a *my* Social Security account, you have more capabilities. You can review your *Social Security Statement*, verify your earnings, and print a benefit verification letter. You can also change your direct deposit information, request a replacement Med-icare card, request a replacement Social Security card (if you have no changes and your state participates), and get a replacement SSA-1099/1042S.

If you don't have access to the internet, we offer many automated services by telephone, 24 hours a day, 7 days a week. Call us toll-free at **1-800-772-1213** or at our TTY number, **1-800-325-0778**, if you're deaf or hard of hearing.

A member of our staff can answer your call from 7 a.m. to 7 p.m., Monday through Friday, if you need to speak to a person. We ask for your patience during busy periods since you may experience a high rate of busy signals and longer hold times to speak to us. We look forward to serving you.

Year	Substantial earnings
1937–1954	$900
1955–1958	$1,050
1959–1965	$1,200
1966–1967	$1,650
1968–1971	$1,950
1972	$2,250
1973	$2,700
1974	$3,300
1975	$3,525
1976	$3,825
1977	$4,125
1978	$4,425
1979	$4,725
1980	$5,100
1981	$5,550
1982	$6,075
1983	$6,675
1984	$7,050
1985	$7,425
1986	$7,875
1987	$8,175
1988	$8,400

Year	Substantial earnings
1989	$8,925
1990	$9,525
1991	$9,900
1992	$10,350
1993	$10,725
1994	$11,250
1995	$11,325
1996	$11,625
1997	$12,150
1998	$12,675
1999	$13,425
2000	$14,175
2001	$14,925
2002	$15,750
2003	$16,125
2004	$16,275
2005	$16,725
2006	$17,475
2007	$18,150
2008	$18,975
2009–2011	$19,800
2012	$20,475

Year	Substantial earnings
2013	$21,075
2014	$21,750
2015-2016	$22,050
2017	$23,625
2018	$23,850
2019	$24,675
2020	$25,575

Years of substantial earnings	Percentage
30 or more	90 percent
29	85 percent
28	80 percent
27	75 percent
26	70 percent
25	65 percent
24	60 percent
23	55 percent
22	50 percent
21	45 percent
20 or less	40 percent

Securing today
and tomorrow

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Congressional Research Service
Informing the legislative debate since 1914

Social Security: The Windfall Elimination Provision (WEP)

Updated February 4, 2021

Congressional Research Service
https://crsreports.congress.gov
98-35

CRS REPORT
Prepared for Members and
Committees of Congress

Summary

Social Security is a work-based, federal insurance program that provides income support to workers and their eligible family members in the event of the worker's retirement, disability, or death. A worker's employment or self-employment is considered covered by Social Security if the services performed in that job result in earnings that are taxable and creditable for program purposes. Although participation in Social Security is compulsory for most workers, about 6% of all workers in paid employment or self-employment are not covered by Social Security.

The *windfall elimination provision* (WEP) is a modified benefit formula that reduces the Social Security benefits of certain retired or disabled workers who are also entitled to pension benefits based on earnings from jobs that were not covered by Social Security and thus not subject to the Social Security payroll tax. Its purpose is to remove an unintended advantage or "windfall" that these workers would otherwise receive as a result of the interaction between the regular Social Security benefit formula and the workers' relatively short careers in Social Security-covered employment.

In December 2020, about 1.9 million people (or about 3% of all Social Security beneficiaries) were affected by the WEP. Those workers mainly include state and local government employees covered by alternative staff-retirement systems as well as most permanent civilian federal employees hired before January 1, 1984, who are covered by the Civil Service Retirement System (CSRS).

WEP's supporters argue that the formula is a reasonable means to prevent overgenerous payments and unintended benefits to people who have earnings not covered by Social Security and receive pensions from noncovered work. Opponents argue that the provision substantially reduces a benefit that workers may have included in their retirement plans, and it reduces benefits disproportionately for lower-earning households. Others criticize the current WEP formula as an imprecise way to determine the actual windfall when applied to individual cases.

Recent legislation has generally proposed either to eliminate the provision for all or some affected beneficiaries, or replace the current-law provision with a new proportional formula based on past earnings from both covered and noncovered employment.

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Introduction

Social Security provides insured workers and their eligible family members with a measure of protection against the loss of income due to the worker's retirement, disability, or death. The amount of the monthly benefit payable to workers and their family members is based on the worker's career-average earnings from jobs covered by Social Security (i.e., jobs in which the worker's earnings were subject to the Social Security payroll tax).[1] The Social Security benefit formula is weighted to replace a greater share of career-average earnings for low-paid workers than for high-paid workers. This means that low-paid workers receive relatively high benefits in relation to their payroll tax contributions, although the dollar amount of their benefits is lower than that provided to high-paid workers.

The benefit formula, however, cannot distinguish between workers who have low career-average earnings because they worked for many years at low earnings in Social Security-covered employment and workers who appear to have low career-average earnings because they worked for many years in jobs not covered by Social Security. (Those years show up as zeros in their Social Security earnings records, which, when averaged, lower their career earnings from covered work.) Consequently, workers who split their careers between covered and noncovered employment—even highly paid ones—may also receive the advantage of the weighted formula.

The *windfall elimination provision* (WEP) is a modified benefit formula designed to remove the unintended advantage, or "windfall," of the regular benefit formula for certain retired or disabled workers who spent less than full careers in covered employment and who are also entitled to pension benefits based on earnings from jobs not covered by Social Security. The reduction in initial benefits caused by the WEP is designed to place affected workers in approximately the same position they would have been in had *all* their earnings been covered by Social Security.

Background on the Social Security Benefit Formula

Workers qualify for Social Security benefits if they worked and paid Social Security payroll taxes for a sufficient amount of time in covered employment.[2] Retired workers need at least 40 earnings credits (or about 10 years of covered work), whereas disabled workers generally need fewer earnings credits.[3] Initial benefits are based on a worker's career-average earnings from jobs covered by Social Security. In computing the initial benefit amount, a worker's annual taxable earnings are indexed (i.e., adjusted) to average wage growth in the national economy.[4] This is done to bring earlier years of earnings up to a comparable, current basis. Next, a summarized measure of a worker's career-average earnings is found by totaling the highest 35 years of

[1] For the purposes of this report, the term *payroll tax* includes the Social Security self-employment tax.

[2] Unless otherwise noted, the term *covered employment* includes self-employment covered by Social Security.

[3] A worker may earn up to four earnings credits per calendar year. In 2021, a worker earns one credit for each $1,470 of covered earnings, up to a maximum of four credits for covered earnings of $5,880 or more. Earnings credits are also called *quarters of coverage*. See Social Security Administration (SSA), *How You Earn Credits*, Publication No. 05-10072, 2021, https://www.ssa.gov/pubs/EN-05-10072.pdf.

[4] Years of earnings are indexed up to the second calendar year before the year of earliest eligibility (i.e., the year in which the worker first attains aged 62, becomes disabled, or dies). Years of earnings after the last indexing year are counted in nominal (i.e., unadjusted) dollars.

covered earnings and then dividing by 35.[5] After that, a monthly average, known as *average indexed monthly earnings* (AIME), is found by dividing the annual average by 12.

Once the worker's AIME has been derived, it is then entered into the Social Security benefit formula to produce the worker's initial benefit amount. The benefit formula is progressive, replacing a greater share of career-average earnings for low-paid workers than for high-paid workers. The benefit formula applies three factors—90%, 32%, and 15%—to three different levels, or *brackets*, of AIME. The result is known as the *primary insurance amount* (PIA) and is rounded down to the nearest 10 cents. The PIA is the worker's basic benefit before any adjustments are applied.[6] The benefit formula applicable to a given worker is based on the individual's earliest *eligibility year* (ELY), that is, the year in which the worker first attains age 62, becomes disabled, or dies.[7] For workers whose ELY is 2021, the PIA is determined as follows in **Table 1**.

Table 1. Social Security Benefit Formula for Workers Who First Become Eligible in 2021

Factor	Average Indexed Monthly Earnings (AIME)
90%	of the first $996, plus
32%	of AIME over $996 and through $6,002 (if any), plus
15%	of AIME over $6,002 (if any)

Source: CRS, based on Social Security Administration (SSA), Office of the Chief Actuary (OCACT), "Benefit Formula Bend Points," https://www.ssa.gov/oact/cola/bendpoints.html.

The averaging provision in the benefit formula tends to cause workers with short careers in Social Security-covered employment to have low AIMEs, even if they had high earnings in their noncovered career. This results in these workers having AIMEs that are similar to those of people who worked for low earnings in covered employment throughout their careers. This is because years of zero covered earnings are entered as zeros into the formula that averages the worker's earnings history over 35 years. For example, a person with 10 years in Social Security-covered employment would have an AIME that reflects 25 years of zero earnings, even if that person worked for 25 years in a high-paying, noncovered career.

Consequently, for a worker whose AIME is low because his or her career was split between covered and noncovered employment, the benefit formula replaces more of covered earnings at the 90% rate than if the worker had spent a full 35-year career in covered employment at the same earnings level. The higher replacement rate[8] for workers who have split their careers between Social Security-covered and noncovered jobs is sometimes referred to as a "windfall."[9]

[5] The number of benefit computation years for disabled or deceased workers may be fewer than 35 years.

[6] The worker's primary insurance amount (PIA) is subsequently adjusted to account for inflation through cost-of-living adjustments (COLAs). Additional adjustments may be made to the PIA to account for early retirement, delayed retirement, or certain other factors.

[7] Although the factors in the formula are fixed in law, the dollar amounts defining the brackets, also known as *bend points*, are adjusted annually for average earnings growth in the national economy. Because the bend points change each year, the benefit formula for a worker with an earliest eligibility year (ELY) in 2021 is different from the benefit formula for a worker with an ELY in any other year. For bend point amount for years prior to 2021, see SSA, Office of the Chief Actuary (OCACT), "Benefit Formula Bend Points," https://www.ssa.gov/oact/cola/bendpoints.html.

[8] The *replacement rate* is the ratio of the program benefit to a worker's prior earnings.

[9] The windfall elimination provision (WEP) is sometimes confused with the government pension offset (GPO), which

How the Windfall Elimination Provision Works

A different Social Security benefit formula, known informally as the *windfall elimination provision*, applies to certain workers who are entitled to Social Security benefits as well as to pension benefits from employment not covered by Social Security.[10] Under the WEP, the 90% factor in the first bracket of the formula is reduced to as low as 40%. The effect is to lower the proportion of earnings in the first bracket that are converted to benefits. **Table 2** illustrates how the regular benefit formula and the WEP work in 2021for someone with a 40% factor.

Table 2. Hypothetical Scenario: PIA for a Worker with AIME of $1,500 Who Becomes Eligible in 2021 and Has 20 Years of Substantial Coverage

Regular Formula		WEP Formula	
90% of first $996	$896.40	40% of first $996	$398.40
32% of earnings over $996 and through $6,002	161.28	32% of earnings over $996 and through $6,002	161.28
15% over $6,002	0.00	15% over $6,002	0.00
Total after rounding	**$1,057.60**	**Total after rounding**	**$559.60**

Source: CRS.

Note: PIA = Primary Insurance Amount. AIME = Average Indexed Monthly Earnings. By law, the PIA is rounded down to nearest 10 cents.

In this scenario, the monthly benefit is $498.00 lower under the WEP than under the regular benefit formula ($1,057.60 *minus* $559.60). Note that the WEP reduction is limited to the first bracket in the AIME formula (90% vs. 40%), while the 32% and 15% factors for the second and third brackets are unchanged. As a result, for AIME amounts that exceed the first formula threshold of $996, the WEP reduction remains a flat $498 per month. For example, if the worker had an AIME of $4,000 instead of $1,500, the WEP reduction would still be $498 per month. The WEP therefore causes a proportionally larger reduction in benefits for workers with lower AIMEs and monthly benefit amounts.[11]

A *guarantee* in the WEP ensures that the WEP reduction cannot exceed half of the noncovered pension based on the worker's noncovered work. This guarantee is designed to help protect workers with low pensions from noncovered work. The WEP does not apply to workers who have 30 or more years of substantial employment covered under Social Security, with an adjusted

reduces Social Security benefits paid to spouses and widow(er)s of insured workers if the spouse or widow(er) also receives a pension based on government employment not covered by Social Security. See CRS Report RL32453, *Social Security: The Government Pension Offset (GPO)*.

[10] Section 215(a)(7) and (d)(3) of the Social Security Act; 42 U.S.C. §415(a)(7) and (d)(3). See also 20 C.F.R. §§404.213 and 404.243. Moreover, see SSA, Program Operations Manual System, "RS 00605.360 WEP Applicability," June 24, 2013, https://secure.ssa.gov/apps10/poms.nsf/lnx/0300605360. The term *windfall elimination provision* is not specified in statute or in SSA's regulations.

[11] For the worker shown in **Table 2**, with an AIME of $1,500 and a monthly benefit of $1,057.60 under the regular benefit formula in 2021, the WEP reduction of $498.00 represents a cut of approximately 47% to the regular formula monthly benefit amount. By comparison, a worker with an AIME of $4,000 would be entitled to a PIA of $1,857.60 under the 2021 regular benefit formula, and the same WEP reduction of $498.00 per month would represent a 27% reduction in this worker's monthly benefit amount.

formula for workers with 21 to 29 years of substantial covered employment, as shown in **Table 3**.[12]

Table 3. Maximum WEP Reduction for Workers Who Become Eligible in 2021, by Years of Substantial Coverage

	Years of Social Security Coverage										
	20 or fewer	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30+**
First factor in formula:											
	40%	45%	50%	55%	60%	65%	70%	75%	80%	85%	90%
Maximum dollar amount of monthly WEP reduction for workers who first become eligible for Social Security in 2021[a]:											
	$498	$448	$398	$349	$299	$249	$199	$149	$100	$50	$0

Source: CRS analysis.

Notes: The WEP reduction may be lower than the amount shown because the reduction is limited to one-half of the worker's pension from noncovered employment. In addition, because the WEP reduces the initial benefit amount *before* it is reduced or increased due to early retirement, delayed retirement credits (DRCs), cost-of-living adjustments (COLAs), or other factors, the difference between the final benefit with the WEP and the final benefit without the WEP may be less than or greater than the amounts shown.

a. The maximum dollar amount of the monthly WEP reduction is based on a worker's ELY. Because the dollar amounts defining the brackets in the benefit formula change each year, the maximum dollar amount of the WEP reduction for a worker with an ELY of 2021 is different from the maximum deduction for a worker with an ELY of any other year. For maximum WEP reduction amounts for workers with ELYs prior to 2021, see SSA, "Windfall Elimination Provision (WEP) Chart," https://www.ssa.gov/planners/retire/wep-chart.html.

The WEP applies to benefits payable to retired or disabled workers who meet the criteria above and to their eligible dependents; however, it does *not* apply to benefits payable to survivors of deceased insured workers. Groups of workers likely to be affected by the WEP include certain state and local government employees who are covered by alternative pension plans through their employers[13] and most permanent civilian federal employees hired before January 1, 1984, who are covered by the Civil Service Retirement System (CSRS).[14] The WEP does *not* apply to

- federal employees performing service on January 1, 1984, to which coverage was extended on that date by reason of the Social Security Amendments of 1983 (P.L. 98-21);

[12] For determining years of coverage after 1978 for individuals with pensions from noncovered employment, "substantial coverage" is defined as 25% of the "old law" Social Security maximum taxable earnings base for each year in question. The old law maximum taxable earnings base refers to the earnings base that would have been in effect had the Social Security Amendments of 1977 (P.L. 95-216) not been enacted. In 2021, the old-law taxable earnings base is equal to $106,200; therefore, to earn credit for one year of substantial employment under the WEP, a worker would have to earn at least $26,550 in Social Security-covered employment. For the thresholds for previous years, see SSA, OCACT, "Old-Law Base and Year of Coverage," https://www.ssa.gov/oact/cola/yoc.html.

[13] See Department of the Treasury, Internal Revenue Service (IRS), *Federal-State Reference Guide*, IRS Publication 963 (Rev. 7-2020), https://www.irs.gov/pub/irs-pdf/p963.pdf.

[14] See CRS Report 98-810, *Federal Employees' Retirement System: Benefits and Financing*.

- employees of a nonprofit organization who were exempt from Social Security coverage on December 31, 1983, and who became covered for the first time on January 1, 1984, under P.L. 98-21;
- workers who attained age 62, became disabled, or were first eligible for a pension from noncovered employment before 1986;
- workers who receive foreign pension payments after 1994 that are based on a totalization agreement with the United States;[15]
- workers whose only noncovered pension is based on earnings from noncovered domestic or foreign employment before 1957;[16] and
- railroad workers whose only noncovered pension is based on earnings from employment covered by the Railroad Retirement Act.[17]

The Number of People Affected by the WEP

According to the Social Security Administration (SSA), as of December 2020, about 1.9 million Social Security beneficiaries were affected by the WEP (**Table 4**). The overwhelming majority of those affected (about 94%) were retired workers. Approximately 3% of all Social Security beneficiaries (including disabled workers and dependent beneficiaries) and 4% of all retired-worker beneficiaries were affected by the WEP in December 2020.[18] Of retired workers affected by the WEP, approximately 56% were men (**Table 5**).

Table 4. Number of Social Security Beneficiaries in Current Payment Status with Benefits Affected by WEP, by State and Type of Beneficiary: December 2020

State	Total	Type of Beneficiary: Retired Workers	Disabled Workers	Spouses and Children
Total	**1,948,427**	**1,836,538**	**12,520**	**99,369**
Alabama	18,233	17,193	158	882
Alaska	12,542	12,004	60	478
Arizona	38,103	36,106	213	1,784
Arkansas	10,642	10,147	117	378
California	273,399	258,520	1,639	13,240
Colorado	68,473	65,368	772	2,333
Connecticut	20,681	19,910	100	671
Delaware	4,454	4,262	34	158
District of Columbia	7,299	7,085	42	172

[15] *Totalization agreements* are bilateral agreements that provide limited coordination of the U.S. Social Security program with comparable social insurance programs of other countries. The agreements are intended primarily to eliminate dual Social Security taxation based on the same work and provide benefit protection for workers who divide their careers between the United States and a foreign country.

[16] The WEP does not apply in cases where the pension is based, in part, on noncovered military reserve duty before 1988 but after 1956.

[17] SSA, POMS, "RS 00605.362 Windfall Elimination Provision (WEP) Exceptions," November 1, 2019, https://secure.ssa.gov/poms.nsf/lnx/0300605362.

[18] Data on the total Social Security beneficiary and retired-worker populations used in these calculations are from SSA, OCACT, "Benefits Paid By Type Of Beneficiary," https://www.ssa.gov/oact/ProgData/icp.html.

State	Total	Type of Beneficiary		
		Retired Workers	Disabled Workers	Spouses and Children
Florida	107,178	101,174	575	5,429
Georgia	56,383	54,141	379	1,863
Hawaii	11,492	10,739	40	713
Idaho	9,107	8,598	68	441
Illinois	99,640	95,836	381	3,423
Indiana	17,698	16,776	148	774
Iowa	8,338	7,983	69	286
Kansas	9,563	9,110	75	378
Kentucky	25,207	24,185	172	850
Louisiana	48,276	45,681	581	2,014
Maine	19,423	18,764	78	581
Maryland	47,253	45,178	251	1,824
Massachusetts	83,156	80,073	580	2,503
Michigan	22,510	21,213	190	1,107
Minnesota	16,698	16,031	75	592
Mississippi	9,757	9,267	86	404
Missouri	40,780	39,536	222	1,022
Montana	6,611	6,290	32	289
Nebraska	5,622	5,362	40	220
Nevada	35,773	34,422	217	1,134
New Hampshire	8,880	8,482	83	315
New Jersey	23,132	21,662	196	1,274
New Mexico	13,939	13,065	115	759
New York	32,893	30,673	229	1,991
North Carolina	31,696	30,259	190	1,247
North Dakota	2,317	2,219	12	86
Ohio	152,863	146,441	1,364	5,058
Oklahoma	17,519	16,629	146	744
Oregon	18,614	17,664	84	866
Pennsylvania	36,813	34,770	280	1,763
Rhode Island	6,058	5,847	46	165
South Carolina	19,418	18,501	106	811
South Dakota	4,004	3,859	20	125
Tennessee	22,007	20,944	131	932
Texas	195,135	185,689	1,165	8,281
Utah	14,341	13,346	94	901
Vermont	2,674	2,542	7	125
Virginia	48,697	46,132	149	2,416
Washington	34,712	32,488	148	2,076
West Virginia	6,354	5,924	69	361
Wisconsin	12,679	12,124	60	495

State	Total	Type of Beneficiary		
		Retired Workers	Disabled Workers	Spouses and Children
Wyoming	2,635	2,519	20	96
Outlying Areas and Foreign Countries	106,756	83,805	412	22,539

Source: CRS, based on unpublished data from Social Security Administration (SSA), Office of Research, Evaluation, and Statistics (ORES), Table B, January 2021.

Table 5. Number of Social Security Worker Beneficiaries in Current Payment Status with Benefits Affected by WEP, by Gender and Type of Beneficiary, December 2020

Gender	All Workers	Retired Workers	Disabled Workers
All Beneficiaries	1,849,058	1,836,538	12,520
Women	816,502	810,447	6,055
Men	1,032,556	1,026,091	6,465

Source: CRS, based on unpublished data from SSA, ORES, Table W01, January 2021.

For data on the number and share of Social Security beneficiaries affected by the WEP in December 2019, by state, see **Table A-1** and **Table A-2** in the **Appendix**, respectively.

Legislative History and Rationale

The WEP was enacted in 1983 as part of major amendments (P.L. 98-21) designed to shore up the financing of the Social Security program. The 40% WEP formula factor was the result of a compromise between a House bill that would have substituted a 61% factor for the regular 90% factor and a Senate proposal that would have substituted a 32% factor.[19]

The purpose of the 1983 provision was to remove an unintended advantage that the regular Social Security benefit formula provided to certain retired or disabled worker-beneficiaries who were also entitled to pension benefits based on earnings from jobs not subject to the Social Security payroll tax. The regular formula was intended to help workers who spent their lifetimes in low-paying jobs, by providing them with a benefit that replaces a higher proportion of their career-average earnings than the benefit provided to workers with high career-average earnings. However, the formula does not differentiate between those who worked in low-paid jobs throughout their careers and other workers who appear to have been low paid because they worked many years in jobs not covered by Social Security and few years in covered jobs. Under the old law, workers who were employed for only a portion of their careers in jobs covered by Social Security—even highly paid ones—also received the advantage of the weighted formula, because their few years of covered earnings were averaged over their entire working career to determine the average covered earnings on which their Social Security benefits were based. The WEP is intended to place affected workers in approximately the same position they would have been in had *all* their earnings been covered by Social Security.

[19] U.S. Congress, Committee of Conference, *Social Security Amendments of 1983*, conference report to accompany H.R. 1900, 98th Cong., 1st sess., March 24, 1983, H.Rept. 98-47 (Washington: GPO, 1983), pp. 120-121, http://www.finance.senate.gov/imo/media/doc/Conf-98-47.pdf.

Arguments for the WEP

Proponents of the measure say that it is a reasonable means to prevent payment of overgenerous and unintended benefits to certain workers who otherwise would profit from happenstance (i.e., the mechanics of the Social Security benefit formula). Furthermore, they maintain that the provision rarely causes hardship because by and large the people affected are reasonably well off because by definition they also receive pensions from noncovered work. The guarantee provision ensures that the reduction in Social Security benefits cannot exceed half of the pension from noncovered work, which protects people with small pensions from noncovered work. In addition, the impact of the WEP is reduced for workers who spend 21 to 29 years in Social Security-covered work and is eliminated for people who spend 30 years or more in Social Security-covered work.

Arguments Against the WEP

Some opponents believe the provision is unfair because it substantially reduces a benefit that workers may have included in their retirement plans. Others criticize how the provision works. They say the arbitrary 40% factor in the windfall elimination formula is an imprecise way to determine the actual windfall when applied to individual cases.[20]

The WEP's Impact on Low-Income Workers

The impact of the WEP on low-income workers has been the subject of debate. Jeffrey Brown and Scott Weisbenner (hereinafter "Brown and Weisbenner") point out two reasons why the WEP can be regressive.[21] First, because the WEP adjustment is confined to the first bracket of the benefit formula ($996 in 2021), it causes a proportionally larger reduction in benefits for workers with lower AIMEs and benefit amounts. Second, a high earner is more likely than a low earner to cross the "substantial work" threshold for accumulating years of covered earnings (in 2021 this threshold is $26,550 in Social Security-covered earnings); therefore, high earners are more likely to benefit from the provision that phases out the WEP for people with between 21 and 29 years of covered employment.

Brown and Weisbenner found that the WEP does reduce benefits disproportionately for lower-earning households.[22] For some high-income households, applying the WEP to covered earnings even provides a higher replacement rate than if the WEP were applied proportionately to all earnings, covered and noncovered. Brown and Weisbenner found that the WEP can also lead to large changes in Social Security replacement rates based on small changes in covered earnings, particularly when a small increase in covered earnings carries a person over the threshold for an additional year of substantial covered earnings, leading to an adjustment in the WEP formula applied to the AIME.

[20] See, for example, the Social Security Advisory Board, *The Windfall Elimination Provision: It's Time to Correct the Math*, October 1, 2015, http://www.ssab.gov/Portals/0/OUR_WORK/REPORTS/WEP_Position_Paper_2015.pdf.

[21] Jeffrey R. Brown and Scott Weisbenner, "The Distributional Effects of the Social Security Windfall Elimination Provision," *Journal of Pension Economics and Finance*, vol. 12, iss. 04 (October 2013), pp. 415-434, http://business.illinois.edu/weisbenn/RESEARCH/PAPERS/JPEF_Brown_Weisbenner.pdf.

[22] For more information, see CRS Report R46194, *The Windfall Elimination Provision (WEP) in Social Security: Comparing Current Law with Proposed Proportional Formulas*.

Legislative Activity on the WEP in the 117th Congress

H.R. 82 (the Social Security Fairness Act of 2021) was introduced by Representative Rodney Davis on January 4, 2021. The legislation would repeal the WEP and the *government pension offset* (GPO), which reduces the Social Security benefits paid to spouses and widow(er)s of insured workers if the spouse or widow(er) also receives a pension based on government employment not covered by Social Security.[23] The elimination of the WEP and GPO would apply to benefits payable for months after December 2021. In 2016 (the most recent estimate available), SSA's Office of the Chief Actuary (OCACT) projected that repealing both the WEP and the GPO would reduce the long-range actuarial balance (i.e., increase the net long-term cost) of the combined Social Security trust funds by 0.13% of taxable payroll.[24] The OCACT estimated that repealing only the WEP would reduce the long-range actuarial balance of the combined trust funds by 0.08% of taxable payroll.[25]

Legislative Activity on the WEP in the 116th Congress

In the 116th Congress, several proposals were introduced to replace or amend the WEP. None of these was acted upon. These proposals are briefly described below.

H.R. 141 (the Social Security Fairness Act of 2019) and its companion bill, S. 521, were introduced by Representative Rodney Davis on January 3, 2019, and Senator Sherrod Brown on February 14, 2019, respectively. The bills would have repealed the WEP and the GPO for benefits payable for months after December 2020.[26]

S. 710 (the Social Security Fairness for Firefighters and Police Officers Act) was introduced by Senator Pat Toomey on March 7, 2019. The bill would have exempted certain firefighters and police officers with five years of qualified service from the WEP and the GPO.[27]

Past legislation has suggested replacing the WEP with a new proportional formula for new beneficiaries. The proportional formula would apply the regular Social Security benefit formula to all past earnings from covered and noncovered employment. The resulting benefit would then be reduced by the ratio of career-average earnings from covered employment to career-average earnings from both covered and noncovered employment (i.e., combined earnings). Based on the estimate from OCACT, among all current beneficiaries in 2018, about 69% of those affected by the WEP would receive an increase in Social Security benefits using the proportional formula,

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[23] See CRS Report RL32453, *Social Security: The Government Pension Offset (GPO)*. See also CRS In Focus IF10203, *Social Security: The Windfall Elimination Provision (WEP) and the Government Pension Offset (GPO)*.

[24] Letter from Stephen C. Goss, Chief Actuary, SSA, to the Honorable Sherrod Brown, U.S. Senate, February 24, 2016, https://www.ssa.gov/oact/solvency/SBrown_20160224.pdf. The projection was based on the intermediate assumptions of the 2015 Social Security trustees report. *Taxable payroll* is the total amount of earnings in the economy that is subject to Social Security payroll and self-employment taxes (with some adjustments).

[25] Informal cost estimate provided to CRS by OCACT on June 14, 2018. OCACT estimated that repealing only the GPO would reduce the long-range actuarial balance of the combined trust funds by 0.06% of taxable payroll.

[26] For more information, see "Legislative Activity on the WEP in the 117th Congress."

[27] Qualified service is defined in 34 U.S.C. §10284.

and the remaining 31% would receive a lower benefit. In addition, 13.5 million beneficiaries who are not affected by the current WEP would receive a lower benefit using the proportional formula.[28] Most workers who are not affected by the current WEP but would be affected by the proportional formula are those with noncovered employment who have 30 or more years of substantial covered earnings, or those with noncovered employment who are not receiving noncovered pension benefits; both groups are exempt from the WEP under current law. To protect future beneficiaries from further benefit reduction compared with the current law, the 2019 legislation based on the proportional formula would have generally attempted to hold beneficiaries harmless to a certain degree by providing the higher benefit of the current-law WEP or the proportional formula.

On July 24, 2019, H.R. 3934 (the Equal Treatment of Public Servants Act) was introduced by Representative Kevin Brady. The legislation would have replaced the WEP with a new proportional formula for individuals who would become eligible for OASDI benefits in 2022 or later. Individuals becoming eligible between 2022 and 2060 would receive the higher of their benefit under the current-law WEP or the proportional formula. The proposal would have also provided a rebate payment starting in 2022 for workers (up to $100 per month) and their dependents (up to $50 per month) affected by the current WEP. In 2019, OCACT estimated that the legislation would increase program cost by about $23.1 billion (mainly from the rebate) over the period 2020 through 2029, and would have no significant effect on the Social Security trust funds' long-range (75 years) actuarial balance.[29]

H.R. 4540 (the Public Servants Protection and Fairness Act) was introduced by Representative Richard E. Neal on September 27, 2019. Similar to H.R. 3934, the legislation would have replaced the WEP with the new proportional formula for individuals who would become eligible for OASDI benefits in 2022 or later. However, unlike H.R. 3934, all individuals becoming eligible on and after 2022 would receive the higher of their benefit under the current-law WEP or the proportional formula. Also, as under current law, workers with 30 or more years of substantial earnings and those not receiving noncovered pension benefits would be exempt from the WEP. The proposal would have provided a rebate payment starting nine months after enactment for retired-worker and disabled-worker beneficiaries affected by the current WEP (up to $150 per month), but not for their dependents. The proposal's cost would be covered by transfers from general revenues. In 2019, OCACT estimated that the legislation would increase program expenditures by about $34.3 billion (mainly from the rebate) between 2020 and 2029, which would be reimbursed from the General Fund of the U.S. Treasury. In the long run (75 years), the projected program cost would increase by an amount equal to 0.02% of taxable payroll, and the projected program income would increase by the same amount with transfers from the General Fund, thus having no significant effect on the combined trust funds' actuarial balance.[30]

In addition, H.R. 5529 (the Social Security Equity Act of 2019) was introduced by Representative Adam Smith on December 19, 2019. The bill would have changed the current-law WEP formula

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[28] Letter from Stephen C. Goss, Chief Actuary, SSA, to the Honorable Kevin Brady, U.S. House, July 24, 2019, https://www.ssa.gov/oact/solvency/KBrady_20190724.pdf. The projections are based on the intermediate assumptions of the 2019 Social Security trustees report.

[29] Ibid.

[30] Letter from Stephen C. Goss, Chief Actuary, SSA, to the Honorable Richard Neal, U.S. House, September 30, 2019, https://www.ssa.gov/oact/solvency/RNeal_20190930.pdf. The projections are based on the intermediate assumptions of the 2019 Social Security trustees report.

such that the WEP benefit reduction for most affected workers would be lower relative to current law.[31]

[31] H.R. 5529 would have revised the current WEP formula for the PIA computation to (1) lower from 30 to 25 the number of years of coverage required for exemption from the WEP; (2) alter the determination of partial exemptions for those who have more than 20 but less than 25 years of coverage; and (3) reduce the dollar amount required for a year of substantial coverage.

Appendix. WEP Affected Beneficiaries, by State

Table A-1. Number of Social Security Beneficiaries in Current Payment Status with Benefits Affected by WEP, by State and Type of Beneficiary, December 2019

State	Total	Type of Beneficiary: Retired Workers	Disabled Workers	Spouses and Children
Total	**1,912,706**	**1,797,415**	**12,943**	**102,348**
Alabama	18,590	17,421	175	994
Alaska	12,051	11,529	59	463
Arizona	37,048	35,007	207	1,834
Arkansas	10,650	10,120	125	405
California	266,728	251,501	1,664	13,563
Colorado	65,659	62,439	781	2,439
Connecticut	20,196	19,390	99	707
Delaware	4,376	4,182	31	163
District of Columbia	7,488	7,246	52	190
Florida	105,764	99,561	584	5,619
Georgia	55,458	53,113	430	1,915
Hawaii	11,351	10,574	43	734
Idaho	8,699	8,165	67	467
Illinois	98,706	94,682	415	3,609
Indiana	17,553	16,591	147	815
Iowa	8,395	8,003	65	327
Kansas	9,522	9,050	83	389
Kentucky	25,022	23,942	182	898
Louisiana	46,507	43,835	598	2,074
Maine	18,961	18,239	88	634
Maryland	47,808	45,572	279	1,957
Massachusetts	80,097	77,043	560	2,494
Michigan	22,365	20,990	196	1,179
Minnesota	16,813	16,090	77	646
Mississippi	9,832	9,300	92	440
Missouri	40,251	38,879	235	1,137
Montana	6,516	6,187	29	300
Nebraska	5,635	5,369	43	223
Nevada	34,363	33,016	233	1,114
New Hampshire	8,636	8,223	81	332
New Jersey	23,284	21,739	209	1,336
New Mexico	13,855	12,933	116	806
New York	33,190	30,854	249	2,087
North Carolina	31,418	29,940	191	1,287
North Dakota	2,352	2,247	11	94

		Type of Beneficiary		
State	Total	Retired Workers	Disabled Workers	Spouses and Children
Ohio	148,669	142,071	1,342	5,256
Oklahoma	17,645	16,682	154	809
Oregon	18,299	17,272	91	936
Pennsylvania	37,078	34,898	313	1,867
Rhode Island	5,935	5,702	46	187
South Carolina	19,362	18,388	126	848
South Dakota	4,000	3,842	21	137
Tennessee	21,752	20,651	135	966
Texas	189,031	179,306	1,176	8,549
Utah	14,183	13,157	91	935
Vermont	2,694	2,549	13	132
Virginia	49,184	46,405	173	2,606
Washington	34,257	31,939	167	2,151
West Virginia	6,373	5,920	70	383
Wisconsin	12,683	12,074	69	540
Wyoming	2,574	2,450	20	104
Outlying Areas and Foreign Countries	103,848	81,137	440	22,271

Source: CRS, based on unpublished data from SSA, ORES, Table B, January 2020.

Table A-2. Percentage of Social Security Beneficiaries in Current Payment Status Affected by the WEP, by State and Type of Beneficiary, December 2019

		Type of Beneficiary		
State	All Beneficiaries	Retired Workers	Disabled Workers	Spouses and Children
Total	**3.0%**	**4.0%**	**0.2%**	**2.2%**
Alabama	1.6%	2.4%	0.1%	1.1%
Alaska	11.5%	15.3%	0.5%	6.2%
Arizona	2.6%	3.4%	0.1%	2.0%
Arkansas	1.5%	2.2%	0.1%	0.8%
California	4.4%	5.7%	0.3%	2.8%
Colorado	7.3%	9.4%	0.8%	4.0%
Connecticut	2.9%	3.8%	0.1%	1.6%
Delaware	2.0%	2.6%	0.1%	1.3%
District of Columbia	8.9%	12.3%	0.4%	4.3%
Florida	2.2%	2.8%	0.1%	1.8%
Georgia	3.0%	4.1%	0.2%	1.5%
Hawaii	4.1%	4.8%	0.2%	4.2%
Idaho	2.4%	3.1%	0.2%	1.8%
Illinois	4.4%	5.8%	0.2%	2.3%
Indiana	1.3%	1.8%	0.1%	0.9%

State	All Beneficiaries	Type of Beneficiary		
		Retired Workers	Disabled Workers	Spouses and Children
Iowa	1.3%	1.7%	0.1%	0.8%
Kansas	1.7%	2.3%	0.1%	1.0%
Kentucky	2.5%	3.9%	0.1%	1.1%
Louisiana	5.0%	7.8%	0.4%	2.4%
Maine	5.4%	7.5%	0.2%	2.6%
Maryland	4.7%	6.1%	0.2%	3.1%
Massachusetts	6.2%	8.5%	0.3%	2.6%
Michigan	1.0%	1.4%	0.1%	0.7%
Minnesota	1.6%	2.1%	0.1%	0.9%
Mississippi	1.5%	2.2%	0.1%	0.9%
Missouri	3.1%	4.3%	0.1%	1.4%
Montana	2.7%	3.5%	0.1%	2.1%
Nebraska	1.6%	2.1%	0.1%	1.0%
Nevada	6.2%	8.0%	0.4%	3.4%
New Hampshire	2.8%	3.7%	0.2%	1.5%
New Jersey	1.4%	1.8%	0.1%	1.2%
New Mexico	3.1%	4.2%	0.2%	2.5%
New York	0.9%	1.2%	0.1%	0.7%
North Carolina	1.5%	2.0%	0.1%	1.0%
North Dakota	1.7%	2.3%	0.1%	1.1%
Ohio	6.2%	8.8%	0.4%	3.2%
Oklahoma	2.2%	3.1%	0.1%	1.4%
Oregon	2.1%	2.6%	0.1%	1.6%
Pennsylvania	1.3%	1.7%	0.1%	1.0%
Rhode Island	2.6%	3.5%	0.1%	1.2%
South Carolina	1.6%	2.2%	0.1%	1.2%
South Dakota	2.2%	2.8%	0.1%	1.3%
Tennessee	1.5%	2.1%	0.1%	1.0%
Texas	4.4%	6.1%	0.2%	2.3%
Utah	3.4%	4.4%	0.2%	2.5%
Vermont	1.8%	2.3%	0.1%	1.2%
Virginia	3.2%	4.2%	0.1%	2.5%
Washington	2.5%	3.2%	0.1%	2.2%
West Virginia	1.3%	2.0%	0.1%	0.9%
Wisconsin	1.0%	1.3%	0.0%	0.7%
Wyoming	2.2%	2.9%	0.2%	1.5%
Outlying Areas and Foreign Countries	6.7%	8.6%	0.3%	9.4%

Source: CRS analysis of data from the following sources: SSA, ORES, Table B, January 2020 (unpublished); and SSA, ORES, Congressional Statistics, 2019, released May 2020, at https://best.ssa.gov/policy/docs/factsheets/cong_stats/index.html.

Notes: The column "All Beneficiaries" includes survivor beneficiaries who are not subject to the WEP. The row "Outlying Areas and Foreign Countries" includes a small number of Social Security beneficiaries whose state or area is unknown.

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Acknowledgments

This report was previously authored by multiple former CRS analysts. SSA's Office of Research, Evaluation, and Statistics provided unpublished data on beneficiaries affected by the WEP.

Disclaimer

Statement from the N.C. Department Of Revenue Re: The Bailey Case

Contact:
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Director of Public Affairs

Date:
5/1/98

RALEIGH -- On Friday, May 8 the North Carolina Supreme Court held in the *Bailey vs. State of North Carolina* case that the taxation of state retirement benefits earned and vested before Aug. 12, 1989 is an unconstitutional impairment of contract and that both protesters and nonprotesters are entitled to tax credits or refunds.

The state Supreme Court remanded the case to the trial court to enter further orders regarding the appropriate determination and administration of plaintiffs' class, tax credits or refunds, and the common fund.

"The North Carolina Department of Revenue is prepared to grant relief to taxpayers in whatever manner and at whatever time directed by the court," said Department Secretary Muriel Offerman.

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DIRECTIVE

Subject: *Bailey v. State of North Carolina; Emory v. State of North Carolina; Patton v. State of North Carolina*
Tax: Individual Income Tax
Statute: G.S. 105-134.5 and G.S. 105-134.6
Issued By: Personal Taxes Division
Date: March 4, 1999
Number: PD-99-1

This Directive explains the income tax consequences of the North Carolina Supreme Court's decision in *Bailey v. State of North Carolina* and the subsequent settlement of that case. That court action affects the taxation of retirement benefits paid to former employees of the State of North Carolina, its local governments, and the federal government, including persons receiving these benefits as survivor beneficiaries. If you have any questions about this Directive, you may call the Personal Taxes Division of the North Carolina Department of Revenue at (919) 733-3565. You may also write to the Division at P.O. Box 871, Raleigh, North Carolina 27602-0871.

History

Beginning in 1939, the North Carolina General Assembly provided retirement benefits to State and local government employees through various public employee retirement systems. Until August 12, 1989, State law exempted from State and local taxation the retirement benefits received from those systems. At the same time, State law excluded from taxation only a portion of the retirement benefits received by federal retirees.

In 1989, the United States Supreme Court, in *Davis v. Michigan*, ruled that a state law that taxes federal retirees differently than state retirees is unconstitutional because it violates the principle of intergovernmental immunity. To remedy the State's unconstitutional law, the State had to exclude all retirement benefits paid to both State and federal government retirees from income tax or impose a tax on those retirement benefits equally. The 1989 General Assembly elected to tax all but the first $4,000 of State, local, and federal government retirement benefits. The General Assembly also for the first time provided a partial exclusion of $2,000 for private retirement benefits. Legislation effecting these changes was enacted on August 12, 1989.

In 1990, State and local retirees filed suit against the State in *Bailey* claiming that the taxing of their retirement benefits beginning in 1989 was an unconstitutional impairment of contract. The Wake County Superior Court agreed and ruled that State and local government retirees who had five or more years of service as of August 12, 1989, could recover the income taxes paid on the retirement benefits since 1989 if they had timely protested the payment of the tax pursuant to G.S. 105-267.

The State appealed the Superior Court's decision in *Bailey*. On May 8, 1998, the North Carolina Supreme Court affirmed the trial court's decision that the taxation of retirement benefits paid by the State of North Carolina or its political subdivisions to former State and local government employees who had five or more years of service as of August 12, 1989, was unconstitutional. The Supreme Court reversed the trial court's ruling on the requirement to timely protest and held that any qualified State or local government retiree could recover income taxes paid on retirement benefits since 1989. The Supreme Court then sent the case to the trial court for further orders with respect to the determination of who was qualified.

Before the trial court issued a decision, the State and the plaintiffs in *Bailey* settled the lawsuit. The trial court issued an Order Approving Class Action Settlement on October 7, 1998. The settlement resolves the *Bailey* lawsuit and two related lawsuits: *Emory v. State of North Carolina* and *Patton v. State of North Carolina*. *Emory* was another lawsuit brought by State retirees offering a different theory as to the basis for recovery of taxes paid. *Patton* was a lawsuit brought by federal retirees in which they alleged that an unconstitutional discrepancy between the taxation of State and federal retirement benefits still existed because the General Assembly negated the effect of the loss of the full tax exemption afforded to State retirees prior to 1989 by providing an increased amount of retirement benefits at the same time the exclusion was reduced. The settlement resolves those claims without addressing the issues in those lawsuits.

The settlement requires the State to appropriate $799,000,000 for refunds to State, local, and federal retirees and provides that individuals who paid income tax for tax years 1989 through 1997 on State, local, and federal government retirement benefits and who were "vested" for receipt of those benefits are entitled to refunds. The settlement also provides that the plaintiffs will not pay North Carolina income tax in future years on their retirement benefits. Any State, local, or federal government retiree who was not "vested" is not eligible for a refund of taxes previously paid on retirement benefits and will continue to pay tax on retirement benefits received in future years, subject to the $4,000 deduction allowed to all government retirees. For most government retirement systems, a person is "vested" for receipt of benefits if the person had five or more years of creditable service in a qualifying State, local or federal retirement system as of August 12, 1989. For certain retirement systems, the "vesting" period is less.

Qualifying State or Local Retirement Systems

Since the October 7, 1998 order approving the settlement, the Court has issued several orders resolving questions about refund eligibility. In an Order Regarding Class Definition signed by Judge Thompson on November 20, 1998, the following retirement systems were designated as a "North Carolina state or local governmental retirement system:"

System	Law Creating the System
North Carolina Teachers' and State Employees' Retirement System	G.S. 135, Article 1
North Carolina Local Governmental Employees' Retirement System	G.S. 128, Article 3
North Carolina Consolidated Judicial Retirement System	G.S. 135, Article 4

North Carolina Legislative Retirement System	G.S. 120, Article 1A
North Carolina Disability Income Plan (both short-term and long-term disability benefits)	G.S. 135, Article 6
North Carolina Supplemental Retirement Income Plan	G.S. 135, Article 5
North Carolina Supplemental Retirement Income Plan for State Law Enforcement Officers	G.S. 143-166.30(d)
North Carolina Deferred Compensation Plan	G.S. 143B, Article 9
North Carolina National Guard Pension Fund	G.S. 127A-40
North Carolina Sheriffs' Supplemental Pension Fund	G.S. 143, Article 12H
North Carolina Registers of Deeds' Supplemental Pension Fund	G.S. 161, Article 3
North Carolina Supplemental Retirement Plan for Local Governmental Law Enforcement Officers	G.S. 143-166.50(e)
North Carolina Firemen's and Rescue Squad Workers' Pension Fund	G.S. 58, Article 86
Charlotte Firefighters' Retirement System	Session Laws 1947, Chapter 926, § 6(c)
Firemen's Supplemental Fund of Hickory	Session Laws 1971, Chapter 65
Winston-Salem Police Officers' Retirement System	Session Laws 1939, Chapter 296

In addition to the local plans listed in the table above, there may be other plans created by local governments pursuant to State authorization that enjoyed a tax exemption prior to 1989 pursuant to G.S. 105-141(b)(13) but have not been identified by the Court at this time. Retirement benefits from these plans are also exempt from income tax if the retiree is "vested."

The Court has not identified optional retirement programs for employees of State institutions of higher learning (Internal Revenue Code § 403(b), including TIAA-CREF) as a qualifying State or local retirement system. If the Court identifies these plans as a qualifying State or local retirement system, the Department will issue a supplementary Directive explaining the Court's decision.

"Vesting" Period for Qualifying State or Local Retirement Systems

The general rule is that a participant in a qualifying State or local retirement system listed in the above table is "vested" if the participant had five or more years of creditable service as of August 12, 1989. The general rule does not apply to qualifying optional contribution plans, however, or to certain other qualifying plans.

In the November Order, the Court held that participants in the State's Supplemental Retirement Income Plan (Internal Revenue Code § 401(k)) or the State's Deferred Compensation Plan (Code § 457) are vested in the plan as of August 12, 1989, if they contributed to the plan by August 12, 1989. If the participant contributed any money to a plan before August 12, 1989, tax paid on all withdrawals from that plan is subject to recovery through the settlement. All future withdrawals from that plan are excludable from future tax. Contributions to one plan prior to August 12, 1989, do not qualify contributions to the other plan as vested. If a State employee began contributing to the §401(k) plan in June, 1989, and to the §457 plan in October, 1989, the employee is vested only in the §401(k) plan. Participants in the State's Supplemental Retirement Income Plan or the State's Deferred Compensation Plan may have chosen an annuity as an investment option. In some cases, they receive the annuity payments and the subsequent tax information statement from the annuity company instead of the plan administrator. These amounts also qualify for the recovery and future tax exemption if the retiree was vested.

No local government optional contribution plans, similar to the State's Supplemental Retirement Income Plan and Deferred Compensation Plan, were afforded tax exemption prior to August 12, 1989. Therefore, retirement benefits from local optional contribution plans are not subject to the recovery or future tax exemption.

Participants in the North Carolina Firemen's and Rescue Workers' Pension Plan are vested as of August 12, 1989, only if the individual had both five years of service and had paid five years of contributions to the plan by August 12, 1989. Sheriffs receiving benefits from the North Carolina Sheriffs' Supplemental Pension Fund and Registers of Deeds receiving benefits from the North Carolina Registers of Deeds' Supplemental Pension Fund are vested as of August 12, 1989, only if the sheriff or the register of deeds (not a deputy or assistant) had five years of service as a sheriff or a register of deeds and five years of participation in the Local Government Employees' Retirement System (or equivalent local plan) by August 12, 1989.

An employee in a qualifying State or local government retirement system who was vested prior to August 12, 1989, and who leaves employment remains vested if the employee later returns to work, provided the employee did not withdraw his or her contributions to the retirement system. If the employee withdrew his or her contributions, the employee is no longer vested in the retirement system, even if the employee subsequently buys back the service time, unless the employee returned to employment in time to become vested again before August 12, 1989.

Qualifying Federal Retirement Systems

In an Order Regarding Class Definition-II signed by Judge Thompson on January 14, 1999, the following retirement systems were designated as a "federal governmental retirement system:"

- Federal Civil Service Retirement System
- Federal Employees' Retirement System
- Lighthouse Retirement System
- Thrift Savings Plan
- Foreign Service Retirement and Disability System and Pension Plan
- Military Retirement System
- Coast Guard Retirement System
- Central Intelligence Agency Retirement System
- Commissioned Corps of the Public Health Service Retirement System
- Comptrollers' General Retirement Plan
- Judicial Plans and Pay for Federal Judges Treated as Retirement Pay by Federal Law, including:
    - Judicial Retirement System

  - Judicial Survivors' Annuities System
  - Court of Federal Claims Judges' Retirement System
  - Court of Veterans Appeals Judges' Retirement Plan
  - Judicial Officers' Retirement System (for Bankruptcy Judges and Magistrates)
  - United States Tax Court Retirement Plan
  - United States Tax Court Survivors' Annuity Plan
  - Retirement Plans for District Court Judges for the Northern Mariana Islands, the Virgin Islands, and Guam
  - Court of Appeals for the Armed Forces Judges Retirement System
- National Oceanic and Atmospheric Administration Retirement System
- Tennessee Valley Authority Retirement System and TVA Savings and Deferral Retirement Plan
- Financial Institutions Retirement Fund (Office of Thrift Supervision Employees)
- Federal Home Loan Bank Board Retirement Systems
- Federal Home Loan Mortgage Corporation Plan
- Federal Reserve Employees Retirement Plans and Thrift Plan
- Nonappropriated fund plans, including:
  - Retirement Annuity Plan for Employees of Army and Air Force Exchange Service
  - Supplemental Deferred Compensation Plan for Members of the Executive Management Program (Army and Air Force Exchange Service)
  - Nonappropriated Fund Retirement Plan for Civilian Employees
  - United States Army Nonappropriated Fund Retirement Plan
  - Retirement Plan for Civilian Employees of United States Marine Corps Morale, Welfare, and Recreation Activities and Miscellaneous Nonappropriated Fund Instrumentalities
  - Navy Exchange Service Command Retirement Plan
  - Navy Nonappropriated Fund Retirement Plan for Employees of Civilian Morale, Welfare, and Recreation Activities
  - Norfolk Naval Shipyard Pension Plan
  - Retirement Savings Plan and Trust for Employees of the Army and Air Force Exchange Service
  - Coast Guard Nonappropriated Fund Retirement Plan
- District of Columbia Police Officers and Fire Fighters' Retirement Fund and Related Funds (including payments to Secret Service and U.S. Park Police covered by the Fund)
- District of Columbia Teachers' Retirement Fund and Related Funds
- District of Columbia Judges' Retirement Fund and Related Funds

"Vesting" Period for Qualifying Federal Retirement Systems

Generally, participants in the qualifying federal retirement systems listed above, including military retirees, are vested for purposes of the settlement if they had five or more years of creditable service as of August 12, 1989. The general rule, however, does not apply to the Thrift Savings Plan.

The Thrift Savings Plan has both an employee and an employer component. The employee component is similar to the State's § 401(k) and § 457 plans and allows the employee to voluntarily contribute to the Plan. The employee is vested in the employee component if the employee first made a contribution to the plan prior to August 12, 1989. The employer component includes both contributions by the employer of a fixed percentage of the employee's salary and contributions by the employer that match the employee's voluntary contributions.

The Court has not yet resolved issues about when the employer component is vested and how the settlement and future income tax exclusion apply to the retirement benefits received from the Federal Thrift Plan if the retiree is not vested in both the employee and employer components of the Plan.

Benefits from Other Retirement Plans

Retirees receiving benefits from government retirement plans of other states or territories were not class members in *Bailey* and are not entitled to recovery of taxes paid in earlier years or to tax exemption in future years, except for the $4,000 deduction provided by G.S. 105-134.6(b)(6). Private retirement benefits remain taxable except for the $2,000 deduction.

Settlement Extinguishes the State's Liability

The $799,000,000 paid under the settlement completely extinguishes the State's liability to all State, local, and federal retirees arising from the taxation of State, local, and federal retirement benefits from 1989 through 1997. A taxpayer may not amend a return for a tax year within the settlement period to recalculate any items arising from the taxation of retirement benefits. Adjustments that may not be made for a tax year within the settlement period include:

- Excluding qualifying retirement benefits from federal taxable income. Any recovery of tax paid in the settlement period years on qualifying retirement benefits will be received from the court.
- Claiming a $2,000 deduction for private retirement benefits included in federal taxable income when the $4,000 deduction has already been claimed on qualifying retirement benefits.
- Carrying forward a tax credit because the tax credit was not needed in the earlier year as a result of excluding the qualifying retirement benefits from federal taxable income.
- Recalculating penalties and interest on reduced North Carolina income tax due as a result of excluding the qualifying retirement benefits from federal taxable income.

Subject to the statute of limitations, taxpayers can amend returns for those years to make adjustments that do not arise from the settlement. The Department of Revenue can also adjust returns that are open under the statute of limitations to make other changes. Qualifying retirement benefits will not be deducted from federal taxable income when determining the amount of any additional tax due.

Exclusion of Qualified Retirement Benefits for Future Years

Retirement benefits paid to a retiree who is vested for purposes of the settlement are exempt from future State income tax, including benefits paid to survivor beneficiaries. A deduction for the entire amount of qualifying retirement benefits may be claimed on the appropriate line for "Other deductions" on page 2 of the North Carolina income tax return. The taxpayer may not also claim the $4,000 retirement benefits deduction for the same retirement benefits but is entitled to the $4,000 deduction for government retirement benefits that remain taxable, such as those from another state or those from a qualifying plan in which the participant was not vested as of August 12, 1989.

If a retiree has not filed a tax return for a year within the settlement period, the retiree should deduct the entire amount of qualifying retirement benefits on the line for "Other deductions" on page 2 of the Form D-400 when filing the delinquent return.

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North Carolina
Department of Revenue

DIRECTIVE

Subject: *Bailey v. State of North Carolina; Emory v. State of North Carolina; Patton v. State of North Carolina*
Tax: Individual Income Tax
Law: G.S. 105-134.5 and G.S. 105-134.6
Issued By: Personal Taxes Division
Date: November 5, 1999
Number: PD-99-2

This Directive supplements Directive PD-99-1, issued on March 4, 1999. Directive PD-99-1 explains the income tax consequences of the North Carolina Supreme Court's decision in Bailey v. State of North Carolina and the subsequent settlement of that case and the two related cases of Emory v. State of North Carolina and Patton v. State of North Carolina. As explained in PD-99-1, the Bailey settlement affects the taxation of retirement benefits paid to former employees of the State of North Carolina, its local governments, and the federal government, including persons receiving these benefits as survivor beneficiaries.

Distributions Other Than Retirement Pay

A qualifying retirement system can make several kinds of payments to beneficiaries of the system. One kind of payment is retirement benefits paid to former employees who have met the requirements to retire from active service. The tax treatment of this kind of payment was addressed in PD-99-1. Two other kinds of payments are a distribution to an individual who terminates employment before qualifying to receive retirement benefits and a distribution to beneficiaries of an individual who died and was still employed at the time of death. The tax treatment of these two payments has been addressed by the Court since PD-99-1 was issued.

In an Order Regarding Class Membership signed by Judge Thompson on September 3, 1999, the Court ruled that the Bailey settlement applies only to the first kind of payment, which is retirement benefits paid to retired vested employees or to beneficiaries of retired vested employees. The Bailey settlement does not apply to the latter two kinds of payments. Therefore, individuals, including beneficiaries of deceased individuals, receiving a return of contributions or other distributions (other than retirement benefits) from qualifying retirement systems are not part of the settlement and will not recover the North Carolina income tax they paid on these distributions through the settlement process.

Although the Court decided that taxes paid on the latter two kinds of payments cannot be recovered in the settlement process, the Court did not determine whether it is legal to impose tax on these payments. It is the Department's position that it is not legal to impose tax on these payments and that the payments are, therefore, exempt from North Carolina income tax to the same extent as retirement benefits paid from those same systems. Consequently, an individual who was vested in a qualifying retirement system as of August 12, 1989, and who receives a distribution from the system because of termination of employment prior to retirement may exclude the distributions from North Carolina taxable income. Similarly, an individual who receives a distribution from the system as a beneficiary of an individual who was vested in the system and who died while employed may exclude the distributions from North Carolina taxable income.

A refund of taxes paid on these distributions for returns filed on or before October 9, 1998, is allowed only if the taxpayer meets the requirements of G.S. 105-267. The three-year statute of limitations applies to refunds of taxes paid on these distributions for returns filed on or after October 9, 1998.

Settlement Period

The Court's Order Approving Class Action Settlement was issued on October 9, 1998. The settlement requires the State to appropriate $799,000,000 for refunds to State, local, and federal retirees. It provides that individuals who paid income tax for tax years 1989 through 1997 on State, local, and federal government retirement benefits and who were "vested" for receipt of those benefits are entitled to refunds. It also provides that the plaintiffs will not pay North Carolina income tax in future years on their retirement benefits.

After the order was issued, some taxpayers filed returns for a tax year covered by the settlement and paid tax on benefits that are not subject to tax under the settlement. Some also made payments for back taxes owed for a covered tax year that included retirement benefits that are not subject to tax under the settlement. The question arose as to whether these tax returns filed and payments made after October 9, 1998, are to be refunded under the settlement.

On June 25, 1999, the Court issued an order addressing this question. The Court held that, with two exceptions, Class Counsel is not required to recognize tax returns, including amended tax returns, filed after October 9, 1998, or taxes paid after October 9, 1998, in calculating the payout of the settlement to that Class member. The first exception is for a 1997 return timely filed by October 15, 1998, under a proper extension of time to file. That return must be considered in the calculation of the payout to a class member. The second exception is for a late or an amended return that results in a decrease in the payout to a class member. In this circumstance, Class Counsel can, but is not required to, consider the return in calculating the payout.

As a result, some issues involving returns filed and payments made after October 9, 1998. must be addressed by the Department of Revenue or the taxpayer rather than the Court. If the Department receives a delinquent return after October 9, 1998, that is for a tax year covered by the settlement and includes retirement benefits that are not subject to tax, the Department may adjust the return or the taxpayer may amend the return to exclude the retirement benefits from taxable income. Any tax payments received after October 9, 1998, and any resulting offsets of refunds for taxes that are owed for tax years 1989 through 1997 on retirement benefits that are not subject to tax may be refunded. A refund of a tax payment on qualifying retirement benefits received after October 9, 1998, is subject to the general statute of limitations rule requiring the overpayment to be discovered by the Department or the refund to be demanded in writing by the taxpayer within three years after the date set by the statute for the filing of the return or within six months after the payment of the tax alleged to be an overpayment, whichever is later.

Qualifying State or Local Retirement Systems

Directive PD-99-1 lists the qualifying State and local retirement systems designated by the Court in its Order Regarding Class Definition signed by Judge Thompson on November 20, 1998. Since that date, the court has issued several orders concerning qualifying State and local retirement systems. The orders address the Separate Insurance Benefits Plan for State and Local Governmental Law Enforcement Officers, the New Hanover County School Employees' Retirement Plan, optional retirement plans available to administrators and faculty of the University of North Carolina system, and optional contribution plans available to public school teachers and employees.

In an Order Supplementing Order Regarding Class Definition, signed by Judge Thompson on June 25, 1999, the Court clarified that the Separate Insurance Benefits Plan for State and Local Governmental Law Enforcement Officers (G.S. 143-166.60) is a qualifying State or local retirement system. The Separate Insurance Benefits Plan is a noncontributory benefits plan that, prior to August 12, 1989, was afforded an exemption from State income tax.

In another Order Supplementing Order Regarding Class Definition, signed by Judge Thompson on October 22, 1999, the Court found that Chapter 1307 of the 1979 Session Laws had exempted from North Carolina income tax retirement benefits paid to New Hanover County school employees from the New Hanover County School Employees' Retirement Plan. Therefore, the New Hanover School Employees' Retirement Plan is a qualifying State or local retirement system.

In another Order Supplementing Order Regarding Class Definition, signed by Judge Thompson on March 26, 1999, the Court clarified that the Optional Retirement Program (ORP) created by G.S. 135-5.1 is a qualified retirement system. Directive PD-99-1 identifies the North Carolina Teachers' and State Employees' Retirement System (TSERS) as a qualifying State retirement system. By law, administrators and faculty of the University of North Carolina system have the option of participating in the TSERS or in the ORP created by G.S. 135-5.1, a provision of Article 1 of Chapter 135. The ORP is offered in lieu of participation in the TSERS and the election is irrevocable.

There are three carriers authorized to provide investment options and pay retirement benefits under the ORP. They are (1) Lincoln Life Insurance Company; (2) Teachers Insurance and Annuity Association/College Retirement Equities Fund (TIAA-CREF); and (3) The Variable Annuity Life Insurance Company (VALIC). Although the Order identifies the ORP as a qualified retirement system, significant issues remain as to how to determine the portion of the retirement benefits that are subject to recovery or future tax exemption under the settlement. When the Court resolves these issues, the Department will issue another Directive explaining the Court's decision.

In an Order Regarding Certain Plans not Included Within the Class Definition, signed by Judge Thompson on June 25, 1999, the Court clarified two issues concerning plans established pursuant to sections 401(k), 403(b), and 457 of the Internal Revenue Code. First, the Court clarified that plans established pursuant to § 403(b) of the Code are not qualifying State or local retirement systems. Teachers and other employees of North Carolina's public schools have the option of contributing to optional contribution plans established pursuant to § 403(b) of the Code, and the same carriers that administer the ORP may administer these plans. Because the § 403(b) plans are not qualifying State or local retirement systems, benefits from these plans are not recoverable under the settlement and are not exempt from future taxes.

Second, the Court clarified that the only State or local plans established pursuant to sections 401(k) or 457 of the Code that are qualifying State or local retirement plans for the purposes of Bailey are those the Court previously identified in its Order Regarding Class Definition. That Order, signed by Judge Thompson on March 26, 1999, as well as Directive PD-99-1, identifies the North Carolina Supplemental Retirement Income Plan and the North Carolina Deferred Compensation Plan as qualified State retirement systems. Both of these are optional contribution plans established pursuant to sections 401(k) and 457 of the Internal Revenue Code, respectively. These two are the only § 401(k) and § 457 plans whose benefits are recoverable under the settlement and are exempt from future taxes.

The Department has received several inquiries about whether the special separation allowance provided to qualified retired law enforcement officers is a qualified State or local retirement system pursuant to Bailey. The special separation allowance is paid pursuant to Chapter 143, Article 12D of the General Statutes. The statutes providing for the special separation allowance have never afforded an exemption from tax for the allowance. Therefore, the allowance is not a qualified State or local retirement system.

"Vesting" Period for Qualifying Federal Retirement Systems

Directive PD-99-1 identifies the Thrift Savings Plan (Plan) as a qualified federal retirement system and explains that the Plan has both an employee and an employer component. The employee component is similar to the State's § 401(k) and § 457 plans and allows the employee to contribute voluntarily to the Plan. The employee is vested in the employee component if the employee first made a contribution to the plan prior to August 12, 1989.

The employer component includes both contributions by the employer of a fixed percentage of the employee's salary and contributions by the employer that match the employee's voluntary contributions. At the time the Directive was issued, the Court had not resolved issues about when an employee is vested under either employer component. It also had not decided how the settlement and future income tax exclusion apply to retirement benefits received from the Plan if the retiree is vested in the employee component but not the employer fixed percentage component.

The Court addressed these issues in its Order Supplementing Order Regarding Class Definition With Respect to the Federal Thrift Savings Plan, which was signed by Judge Thompson on March 26, 1999. The Court ruled that an employee who is vested in the employee component of the plan is also vested in the employer component for matching contributions. The Court further ruled that an employee is vested in the employer fixed percentage component only if the employee had three years of service (two years of service for certain highly ranked employees) as of August 12, 1989. The only exception to the three-year (or two-year) rule is that an employee who died prior to completing the mandatory three years (or two years) is still considered vested if the date of death was on or before August 12, 1989.

It is possible for a participant in the Plan to be vested in the employee component but not in the employer fixed percentage component as of August 12, 1989. The annual tax information statement (Form 1099-R) sent by the Plan to every benefit recipient under the Plan does not distinguish between the various components when reporting the amount distributed during the year. Therefore, a recipient who is vested in one component but not both cannot readily determine the amount to exclude from North Carolina income tax. A recipient can use Form TSP-8, Thrift Savings Plan Participant Statement, to determine how much to exclude each year. When a participant in the Plan ceases employment, the recipient is provided a Form TSP-8. The Form identifies the cash balances in the various components. To determine the proper amount to exclude, the recipient should multiply the annual distribution by a fraction, the numerator of which is the balance of the components in which the recipient is vested as of August 12, 1989, and the denominator of which is the total cash balance of all components. That same fraction is to be used for each year the recipient receives distributions from the Plan.

Settlement Extinguishes the State's Liability

The Consent Order signed by Judge Thompson on June 10, 1998, provides that the $799,000,000 paid under the settlement completely extinguishes the State's liability to all State, local, and federal retirees arising from the taxation of their retirement benefits from 1989 through 1997. The Department of Revenue has received amended returns for those years from taxpayers who did not claim the $4,000 retirement benefits deduction allowed under G.S. 105-134.6(b)(6). It is the Department's position that, for taxpayers who are members of the class under the settlement, the Department cannot issue refunds based on those amended returns because those claims arise from the taxation of State, local, and federal retirement benefits.Amended returns claiming a $4,000 deduction filed by retirees who are not part of the settlement will be processed. This group of retirees consists of those who were not vested as of August 12, 1989, or receive retirement benefits from a plan that is not a qualifying State, local, or federal retirement plan.

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DIRECTIVE

Subject: *Bailey v. State of North Carolina; Emory v. State of North Carolina; Patton v. State of North Carolina*
Tax: Individual Income;
Tax Law: G.S. 105-134.5 and G.S. 105-134.6
Issued By: Personal Taxes Division
Date: May 19, 2000
Number: PD-00-1

This Directive supplements Directive PD-99-1, issued on March 4, 1999, and Directive PD-99-2, issued on November 5, 1999. Directive PD-99-1 explains the income tax consequences of the North Carolina Supreme Court's decision in *Bailey v. State of North Carolina* and the subsequent settlement of that case and the two related cases of *Emory v. State of North Carolina* and *Patton v. State of North Carolina*. The *Bailey* settlement affects the taxation of retirement benefits paid to former employees of the State of North Carolina, its local governments, and the federal government, including persons receiving these benefits as survivor beneficiaries. Directive PD-99-2 addresses questions concerning the *Bailey* settlement that were answered by a court order issued after March 4, 1999, but before November 5, 1999, or by administrative decisions made during that time period. Topics addressed in Directive PD-99-2 include distributions other than retirement pay, the settlement period, additional qualifying State or local retirement systems, and the vesting period for the Federal Thrift Savings Plan.

This Directive addresses questions concerning the Bailey settlement that have been answered by a court order issued after November 5, 1999, or by an administrative decision made after that date. If you have any questions about this Directive, you may call the Personal Taxes Division of the North Carolina Department of Revenue at (919) 733-3565. You may also write to the Division at P.O. Box 871, Raleigh, North Carolina 27602-0871.

Qualifying State or Local Retirement Systems

Directive PD-99-1 lists the qualifying State and local retirement systems designated by the Court in its Order Regarding Class Definition signed by Judge Thompson on November 20, 1998. Directive PD-99-2 addresses the Order Supplementing Order Regarding Class Definition, signed by Judge Thompson on March 26, 1999, in which the Court clarified that the Optional Retirement Program (ORP) created by G.S. 135-5.1 is a qualified retirement system. That Directive identified the three carriers authorized to administer the ORP and advised that the carriers also administer retirement plans that are not qualifying State or local retirement systems. The plans that do not qualify include optional contribution plans established pursuant to § 403(b) of the Internal Revenue Code, retirement plans of private educational institutions in North Carolina, and retirement plans of public or private educational institutions in other states. Although the March 26, 1999 Order identifies the ORP as a qualified retirement system, it does not address when a participant in the ORP is vested nor how to determine the portion of the retirement benefits that are subject to recovery or future State tax exemption under the settlement.

In an Order regarding the Optional Retirement Program for State Institutions of Higher Education, signed by Judge Thompson on November 19, 1999, the Court addresses these issues. The Court ruled that a participant is vested in the ORP if the participant enrolled in the ORP prior to August 12, 1989. The determination of whether retirement benefits received from the ORP are recoverable under the settlement and exempt from future State income tax is not as simple as the determination of vesting. The answer depends on the participant's investment history.

A principle advantage of the ORP is that a participant who moves from one institution of higher learning in the United States to another can transfer the accumulated ORP account balance at the first institution to the other institution. An ORP participant who moves from one institution to another also has the option of not transferring the ORP account balance. Instead, the employee may establish a separate account with the new institution or simply add the contributions and earnings with the new institution into the existing ORP account. The transfer option selected by the participant may impact the participant's right to recover the taxes previously paid or the future State tax exemption of benefits received. If the ORP participant leaves the University of North Carolina system and becomes employed at another educational institution contracting with the same carrier, the retirement benefits are exempt from State income tax only if, and to the extent that, the ORP contributions and earnings have retained their character as ORP contributions and earnings. To the extent that distributions received from one of the three carriers are ORP benefits, taxes paid on the distributions in tax years 1989 through 1997 by ORP participants, beneficiaries, including survivor annuitants and estates, and former spouses receiving the benefits under an equitable distribution order or qualified domestic relations order, are recoverable through the settlement and those benefits will be exempt from future State income tax.

The following rules determine when the distributions received by an ORP participant are recoverable under the settlement and excludable from future North Carolina income tax:

- **Not exempt** - If an ORP participant leaves service with the University of North Carolina System, takes a position with an institution of higher learning outside of the UNC System, and transfers the ORP account into the benefit plan of the new employer, the ORP contributions and benefits lose their character as ORP benefits and are not exempt from North Carolina income tax.
- **Exempt** - If the ORP benefits are not transferred to the new institution's retirement plan, the participant maintains separate accounts for each institution, and receives a separate check from the ORP account at the time of retirement, the ORP benefits have retained their character and will be fully exempt from State income tax.
- **Prorated Exemption** - If either of the following circumstances applies, the participant may exclude from State income tax a portion of the retirement benefits.

  (1) The ORP benefits are not transferred to the new employer's retirement plan, the participant maintains separate accounts, but the participant combines the multiple retirement accounts at the time of retirement for payment purposes. Note: Participants retiring on or after January 1, 2000, must receive a separate check for their ORP benefits to qualify for an income tax exclusion.

  (2) The ORP benefits are not transferred and the contributions and earnings with the new employer are added in with the existing ORP account.

If sufficient documentation is available to determine the portion of the multiple accounts balance at the time of retirement that is from the ORP account or the portion of the single account balance that is from the ORP employment period, the participant may exclude that percentage of the retirement benefits received each year. If sufficient documentation is not available, the participant may exclude a portion of the retirement benefits based on the percentage of total service time in which the participant was employed by the University of North Carolina system.

- **IRAs** - If an ORP participant leaving service with the University of North Carolina system rolls over his or her ORP account into an IRA, the ORP contributions and earnings lose their character as ORP funds. Benefits ultimately paid from the rollover IRA are therefore not exempt from State income tax under the terms of the *Bailey* settlement.

A taxpayer claiming a deduction on the North Carolina return to exclude retirement benefits received as a result of participation in the ORP should attach information to support the exclusion. Supporting information can include a statement from the plan administrator identifying which of the participant's separate accounts were from the ORP participation or a statement from the administrator as to the total service time during which the administrator received contributions and a statement from the University of North Carolina system as to the service time within the University system.

Qualifying Federal Retirement Systems

Directive PD-99-1 lists the qualifying federal retirement systems designated by the Court in its Order Regarding Class Definition - II signed by Judge Thompson on January 14, 1999. In an Order Supplementing Order Regarding Class Definition - II signed by Judge Thompson on December 22, 1999, the Court identifies three additional federal retirement plans that are qualifying federal retirement systems under the settlement. Those plans are:

(1) the Uniformed Services University of the Health Sciences Plan;
(2) the Smithsonian Institution Defined Contribution Retirement Plan; and
(3) the USDA Graduate School Plan.

Each of the three plans listed are administered by TIAA-CREF, which is also one of the administrators for the ORP discussed in the previous section of this Directive. The Uniformed Services University of the Health Sciences Plan is also administered by Fidelity Investments. The Court held that participants in these three federal plans are vested and qualify for recovery of taxes previously paid on and the future income tax exclusion of retirement benefits from the plans to the same extent as participants in the ORP.

Income Tax Treatment of Refunds

The income tax refunds received by retirees from class counsel are included in gross income for federal income tax purposes in the year received to the extent the tax being refunded was deducted in a previous year and the deduction provided a tax benefit. The following example demonstrates how to determine the portion of a refund that is reportable on the federal income tax return. As the example illustrates, a taxpayer who claimed the standard deduction in determining federal taxable income for a taxable year is not required to include in gross income a refund of the tax paid on retirement benefits for that taxable year. A taxpayer who claimed itemized deductions is required to include in gross income a refund of the tax paid on retirement benefits for that taxable year to the extent the taxpayer claimed a deduction for North Carolina income tax paid and received a tax benefit from that deduction.

Taxpayer A received a refund of $3,600 from class counsel in 1999. The Form 1099-G issued by class counsel indicates that the total refund consisted of refunds of $1,100 for 1995, $1,200 for 1996, and $1,300 for 1997. Taxpayer A had claimed the standard deduction on his 1995 federal return. Taxpayer A claimed itemized deductions of $5,300 for 1996, including state income tax paid of $1,200, and $5,150 for 1997, including state income tax paid of $1,300. Taxpayer A claimed a filing status of single for all three years.

Taxpayer A must include $2,200 in gross income for 1999, consisting of $1,200 from 1996 and $1,000 from 1997. The refund of $1,100 for the tax year 1995 is not reportable because Taxpayer A claimed the standard deduction on the 1995 federal return; therefore, Taxpayer A received no tax benefit from the state income tax paid that year.

The total amount of refund for the tax year 1996 is reportable. The standard deduction for a single taxpayer for 1996 was $4,000. Because the itemized deductions claimed of $5,300 exceeded the standard deduction by more than $1,200 (the amount of state income tax paid), Taxpayer A received a tax benefit for the entire amount of state income tax deducted.

Only $1,000 of the refund for the tax year 1997 is reportable. The standard deduction for 1997 was $4,150. Because the itemized deductions claimed of $5,150 exceeded the standard deduction by only $1,000 (which is less than the amount deducted for state income tax paid), Taxpayer A received a tax benefit of only $1,000 of the state income tax deducted.

Treatment of Refunds for Inheritance and Estate Tax Purposes

We have received several inquiries about whether refunds received under the Bailey settlement by the estate or beneficiaries of a deceased retiree are subject to North Carolina inheritance or estate tax and, if so, when should a previously filed inheritance or estate tax return be amended. The answers to these questions depend on the decedent's date of death.

North Carolina's inheritance and estate tax (for a decedent whose date of death was prior to January 1, 1999) and North Carolina's estate tax (for a decedent whose date of death was on or after January 1, 1999) are determined based on the value of the decedent's assets at the date of death. The Order Approving Class Action Settlement was issued by the Court on October 9, 1998, meaning that a retiree whose date of death was prior to October 9, 1998, was not entitled to a refund at the date of death and the refunds paid to the estate or beneficiaries are not includable in the inheritance or estate tax returns. Refunds are subject to inheritance or estate tax, however, if the retiree's date of death is on or after October 9, 1998.

The total refund will be issued in installments; therefore, an amended North Carolina inheritance or estate tax return should not be filed until the final refund installment is received. Because North Carolina's estate tax is equal to the credit for state death taxes on the federal estate tax return, the federal estate tax return must be amended before the North Carolina estate tax return can be amended. Interest will not be assessed on the additional North Carolina inheritance or estate tax if the additional tax is paid within 90 days after the date class counsel issues the final refund installment.

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DIRECTIVE

Subject: Bailey v. State of North Carolina; Emory v. State of North Carolina; Patton v. State of North Carolina
Tax: Individual Income Tax
Law: G.S. 105-134.5 and G.S. 105-134.6
Issued By: Personal Taxes Division
Date: June 30, 2003
Number: PD-03-1

This Directive supplements previous Directives on this subject and addresses the consequences of rollover distributions from a qualifying tax-exempt Bailey retirement account. It also addresses the consequences of rolling over amounts from other retirement plans or IRAs into a qualifying tax-exempt Bailey retirement account. If you have any questions about this Directive, you may call the Personal Taxes Division of the North Carolina Department of Revenue at (919) 733-3565. You may also write to the Division at P.O. Box 871, Raleigh, North Carolina 27602-0871.

The information contained in this Directive is based on the rationale used by Superior Court Judge Jack A. Thompson in his Order Regarding the Optional Retirement Program for State Institutions of Higher Education, which he signed on November 19, 1999. This Order addressed when a participant in the Optional Retirement Program (ORP) is vested and how to determine the portion of the retirement benefits in the ORP that are subject to future income tax exemption under the Bailey settlement. Directive PD-00-1 explains Judge Thompson's Order in detail. The Department's position in this Directive is also consistent with the treatment of distributions from the Thrift Savings Plan when a participant in the Plan was "vested" in the employee component but not in the employer fixed percentage component as of August 12, 1989. Information regarding the treatment of distributions from the Thrift Savings Plan is contained in Directive PD-99-2.

The Economic Growth and Tax Relief Reconciliation Act of 2001

On June 7, 2001, President Bush signed the Economic Growth and Tax Relief Reconciliation Act of 2001 (P.L. 107-16). This Act made numerous changes with respect to pension portability. In general, beginning in 2002, distributions from most types of retirement plans may be rolled over into another retirement plan or into an IRA. Because of the increase in rollover flexibility, especially for governmental §457 plans, the Department has issued this Directive to address the impact rollovers have on the tax-exempt status of State, local, and federal governmental retirement plans that qualify under the Bailey settlement.

Rollover Distributions From a Qualifying Tax-Exempt Bailey Retirement Account

Under the Bailey settlement, State, local, and federal governmental employees and retirees who were "vested" in a qualifying retirement system as of August 12, 1989 do not pay North Carolina income tax on their retirement benefits in future years. This means that retirement benefits are exempt from North Carolina income tax if the benefits are distributed from a qualifying Bailey retirement account in which the employee/retiree was "vested" as of August 12, 1989. If the employee/retiree rolls over any of the qualifying tax-exempt benefits into another retirement plan, the benefits retain their tax-exempt status **only** if the retirement plan into which the benefits are rolled over is also a qualifying Bailey retirement account in which the employee/retiree was "vested" as of August 12, 1989. Rollovers to IRAs will always result in a loss of the tax-exempt status since IRAs do not qualify under the Bailey settlement.

> **Example:** Taxpayer A was "vested " in both the State's Deferred Compensation Plan (§ 457 plan) and the State's Supplemental Retirement Income Plan (§ 401(k) plan) as of August 12, 1989. In 2002, Taxpayer A elected to roll over the balance in his Deferred Compensation account into his Supplemental Retirement Income account. Future distributions from Taxpayer A's Supplemental Retirement Income account will be exempt from North Carolina income tax.

> **Example:** Taxpayer B was "vested" in the State's Deferred Compensation Plan (§ 457 plan) as of August 12, 1989; however, he was not vested in the State's Supplemental Retirement Income Plan (§ 401(k) plan) as of that date. In 2002, Taxpayer B elected to roll over the balance in his Deferred Compensation account into his Supplemental Retirement Income account. Future distributions from Taxpayer B's Supplemental Retirement Income account will be subject to North Carolina income tax, except for the $4,000 deduction provided by G.S. 105-134.6(b)(6).

> **Example:** Taxpayer C was "vested" in the State's Deferred Compensation Plan (§ 457 plan) as of August 12, 1989. In 2002, Taxpayer C elected to roll over the balance in his Deferred Compensation account into an IRA. Future distributions from Taxpayer C's IRA will be subject to North Carolina income tax, except for the $2,000 deduction provided by G.S. 105-134.6(b)(6).

Rollovers Into a Qualifying Tax-Exempt Bailey Retirement Account

Retirement plan distributions rolled over into a qualifying tax-exempt Bailey retirement account are tax-exempt only if they are rolled over from another qualifying tax-exempt Bailey retirement account.

If a qualifying tax-exempt Bailey retirement account includes rollover distributions from IRAs or other retirement plans (other than another qualifying tax-exempt Bailey retirement account), only a portion of the retirement benefits is exempt from North Carolina income tax. To determine the portion of each distribution that is exempt from State income tax, the employee/retiree must determine the portion of the account balance at the time of retirement that is attributable to any rollover distributions from IRAs and other retirement plans (other than another qualifying tax-exempt Bailey retirement account). For simplicity, the portion attributable to rollover distributions from IRAs and other retirement plans (other than another qualifying tax-exempt Bailey retirement account) does not include any amounts earned subsequent to rollover. The following formula is used to determine the percentage of the retirement benefits received each year that are exempt from State income tax:

$$\frac{(B - R)}{B} = E$$

"E" is the exempt percentage.

"B" is the account balance at the time of retirement.

"R" is the portion of account balance at the time of retirement attributable to any rollover distributions from IRAs or other retirement plans (other than another qualifying tax-exempt Bailey account).

Example: Taxpayer X was "vested " in both the State's Deferred Compensation Plan (§ 457 plan) and the State's Supplemental Retirement Income Plan (§ 401(k) plan) as of August 12, 1989. In 2002, Taxpayer X elected to roll over the balance in his Deferred Compensation account into his Supplemental Retirement Income account. Future distributions from Taxpayer X's Supplemental Retirement Income account will be 100% exempt from North Carolina income tax.

Example: Taxpayer Y was "vested" in the State's Deferred Compensation Plan (§ 457 plan) as of August 12, 1989. In 2003, Taxpayer Y ceases his secondary employment with a private company and elects to roll over the $25,000 balance in his § 401(k) plan with the private company into his State Deferred Compensation account. When Taxpayer Y retires in 2010, his State Deferred Compensation account has a balance of $50,000. Future distributions from Taxpayer Y's State Deferred Compensation account will be 50% exempt from North Carolina income tax under the Bailey settlement. [($50,000 - $25,000) / $50,000 = 50%]. The portion of the distributions that are subject to tax (50%) will be eligible for the $4,000 deduction provided by G.S. 105-134.6(b)(6). Therefore, if Taxpayer Y receives distributions totaling $5,000 from his Deferred Compensation account during 2011, $2,500 would be exempt from State income tax under the Bailey settlement and the remaining $2,500 would be excludable from State income tax under G.S. 105-134.6(b)(6).

Example: Taxpayer Z was "vested" in the State's Supplemental Retirement Income Plan (§ 401(k) plan) as of August 12, 1989. In 2003, Taxpayer Z elects to roll over $20,000 from his IRA into his Supplemental Retirement Income account. When Taxpayer Z retires in 2020, his Supplemental Retirement Income account has a balance of $60,000. Future distributions from Taxpayer Z's Supplemental Retirement Income account will be 67% exempt from North Carolina income tax under the Bailey settlement. [($60,000 - $20,000) / $60,000 = 67%]. Therefore, if Taxpayer Z receives distributions totaling $25,000 from his Supplemental Retirement Income account during 2021, $16,750 would be exempt from State income tax under the Bailey settlement and $4,000 would be excludable from State income tax under G.S. 105-134.6(b)(6).

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North Carolina Department of Revenue

DIRECTIVE

Subject: *Bailey v. State of North Carolina; Emory v. State of North Carolina; Patton v. State of North Carolina*
Tax: Individual Income Tax
Law: G.S. 105-134.5 and G.S. 105-134.6
Issued By: Personal Taxes Division
Date: August 23, 2004
Number: PD-04-1

This Directive amends and supersedes Directive PD-03-1, in which the Department advised that a proportionate ratio would be required to determine the tax exempt portion of a distribution from a qualifying tax-exempt *Bailey* retirement account when the account contained rollover distributions from IRAs or other retirement accounts (other than another qualifying tax-exempt *Bailey* retirement account). This position was based on the rationale used by Superior Court Judge Jack A. Thompson in his Order Regarding the Optional Retirement Program for State Institutions of Higher Education, signed on November 19, 1999. The North Carolina Attorney General's Office recently advised the Department that the rationale used in Judge Thompson's Order is limited to ORP benefits and should not be used in determining the taxability of benefits distributed from the other plans that qualify for exemption from State taxation under the *Bailey* settlement. Therefore, the Department has changed its position regarding the taxability of distributions from a qualifying tax-exempt *Bailey* retirement account that contains rollover distributions from IRAs or other retirement accounts. (Participants in the Optional Retirement Program for State Institutions of Higher Education (ORP) should refer to Directive PD-00-1 to determine the taxability of distributions from the ORP.)

On June 7, 2001, President Bush signed the Economic Growth and Tax Relief Reconciliation Act of 2001 (P.L. 107-16). This Act made numerous changes with respect to pension portability. In general, beginning in 2002, distributions from most types of retirement plans may be rolled over into another retirement plan or into an IRA. Because rollover distributions lose their character upon rollover, all distributions from a qualifying *Bailey* retirement account in which the employee/retiree was "vested" as of August 12, 1989, are exempt from State income tax regardless of the source of the funds contained in the account. Conversely, qualifying tax-exempt *Bailey* benefits rolled over into another retirement plan lose their character and would not be exempt upon distribution from the other plan unless that plan is a qualifying *Bailey* retirement account in which the employee was vested as of August 12, 1989. (Rollovers to IRAs will always result in a loss of tax-exempt status since IRAs do not qualify under the *Bailey* settlement.)

Taxpayers who may have paid North Carolina income tax on a portion of their benefits distributed from a qualifying tax-exempt *Bailey* retirement account based on the Department's previous position with respect to the proportionate ratio method described in Directive PD-03-1, should file an amended income tax return to exclude any qualifying benefits.

If you have questions about this Directive, you may call the Personal Taxes Division of the North Carolina Department of Revenue at (919) 733-3565. You may also write to the Division at P.O. Box 871, Raleigh, North Carolina 27602-0871.

COMPARISON OF FINAL AVERAGE SALARY PERIODS

		Firefighter II Salary 2 year avg	Firefighter II Current Plan W2 Plan Compensation 2 year avg	Firefighter II W2 Plan Compensation 3 year avg	Firefighter II W2 Plan Compensation 4 year avg	Firefighter II Salary 3 year avg	Firefighter II Salary 4 year avg
	Example:						
	Salary History						
	FY 19 Pay 4	$ 65,699.00	$ 125,140.00	$ 125,140.00	$ 125,140.00	$ 65,699.00	$ 65,699.00
	FY 18 Pay 3	$ 62,840.00	$ 101,055.00	$ 101,055.00	$ 101,055.00	$ 62,840.00	$ 62,840.00
	FY 17 Pay 2	$ 60,105.00		$ 60,105.00	$ 60,105.00	$ 60,105.00	$ 60,105.00
	FY 16 Pay 1	$ 59,217.00			$ 59,217.00		$ 59,217.00
	Vacation/Sick Payout: (52 hr worker)						
272	Sick Hours (Val Assumptions)	3,258	3,258	3,258	3,258	3,258	3,258
93	Vacation Hours (2yr + current yr accrual)	1,116	1,116	1,116	1,116	1,116	1,116
	Hourly Rate	$ 24.30	$ 24.30	$ 24.30	$ 24.30	$ 24.30	$ 24.30
	Sick Days paid by City	43.50	43.50	43.50	43.50	43.50	43.50
	Sick Payout used in FAS	$ 6,997.53	$ 6,997.53	$ 6,997.53	$ 6,997.53	$ 6,997.53	$ 6,997.53
	Vac Payout used in FAS	$ 18,076.94	$ 18,076.94	$ 18,076.94	$ 18,076.94	$ 18,076.94	$ 18,076.94
	Total Unused Sick/Vac Payout FAS	$ 25,074.47	$ 25,074.47	$ 25,074.47	$ 25,074.47	$ 25,074.47	$ 25,074.47
	Residual Sick Leave hours	2,736	2,736	2,736	2,736	2,736	2,736
	Residual Sick to convert	228	228	228	228	228	228
	Additional service extended	1.00	1.00	1.00	1.00	1.00	1.00
	Years of Service Earned	25	25	25	25	25	25
	Total Credited Service	26.000	26.000	26.000	26.000	26.000	26.000
	Factor	2.60%	2.60%	2.60%	2.60%	2.60%	2.60%
	Final Average Salary	$76,807	$125,635	$103,791	$92,648	$71,239	$68,234
	Basic Benefit (Life Only)	$51,921	$84,929	$70,163	$62,630	$48,158	$46,126
	% Final Average Salary	68%	68%	68%	68%	68%	68%
	% to Salary	79%	129%	107%	95%	73%	70%

COMPARISON OF FINAL AVERAGE SALARY PERIODS

	Engineer Salary 2 year avg	Engineer Current Plan W2 Plan Compensation 2 year avg	Engineer W2 Plan Compensation 3 year avg	Engineer W2 Plan Compensation 4 year avg	3 year avg Salary 3 year avg	4 year avg Salary 4 year avg
Example:						
Salary History						
FY 19 Pay 4	$ 67,342.00	$ 101,932.00	$ 101,932.00	$ 101,932.00	$ 67,342.00	$ 67,342.00
FY 18 Pay 3	$ 64,411.00	$ 90,052.00	$ 90,052.00	$ 90,052.00	$ 64,411.00	$ 64,411.00
FY 17 Pay 2	$ 61,608.00		$ 64,032.00	$ 64,032.00	$ 61,608.00	$ 61,608.00
FY 16 Pay 1	$ 60,698.00			$ 60,698.00		$ 60,698.00
Vacation/Sick Payout: (52 hr worker)						
272 Sick Hours (Val Assumptions)	3,258	3,258	3,258	3,258	3,258	3,258
93 Vacation Hours (2yr + current yr accrual)	1,116	1,116	1,116	1,116	1,116	1,116
Hourly Rate	$ 24.90	$ 24.90	$ 24.90	$ 24.90	$ 24.90	$ 24.90
Sick Days paid by City	43.50	43.50	43.50	43.50	43.50	43.50
Sick Payout used in FAS	$ 7,172.52	$ 7,172.52	$ 7,172.52	$ 7,172.52	$ 7,172.52	$ 7,172.52
Vac Payout used in FAS	$ 18,529.01	$ 18,529.01	$ 18,529.01	$ 18,529.01	$ 18,529.01	$ 18,529.01
Total Unused Sick/Vac Payout FAS	$ 25,701.53	$ 25,701.53	$ 25,701.53	$ 25,701.53	$ 25,701.53	$ 25,701.53
Residual Sick Leave hours	2,736	2,736	2,736	2,736	2,736	2,736
Residual Sick to convert	228	228	228	228	228	228
Additional service extended	1.00	1.00	1.00	1.00	1.00	1.00
Years of Service Earned	25	25	25	25	25	25
Total Credited Service	26.000	26.000	26.000	26.000	26.000	26.000
Factor	2.60%	2.60%	2.60%	2.60%	2.60%	2.60%
Final Average Salary	$78,727	$108,843	$93,906	$85,604	$73,021	$69,940
Basic Benefit (Life Only)	$53,220	$73,578	$63,480	$57,868	$49,362	$47,280
% Final Average Salary	68%	68%	68%	68%	68%	68%
% to Salary	79%	109%	94%	86%	73%	70%

COMPARISON OF FINAL AVERAGE SALARY PERIODS

	Captain Salary 2 year avg	Captain Current Plan W2 Plan Compensation 2 year avg	Captain W2 Plan Compensation 3 year avg	Captain W2 Plan Compensation 4 year avg	Captain Salary 3 year avg	Captain Salary 4 year avg
Example:						
Salary History						
FY 19 Pay 4	$ 87,753.00	$ 118,339.00	$ 118,339.00	$ 118,339.00	$ 87,753.00	$ 87,753.00
FY 18 Pay 3	$ 83,934.00	$ 96,144.00	$ 96,144.00	$ 96,144.00	$ 83,934.00	$ 83,934.00
FY 17 Pay 2	$ 80,358.00		$ 80,358.00	$ 80,358.00	$ 80,358.00	$ 80,358.00
FY 16 Pay 1	$ 79,170.00			$ 79,170.00		$ 79,170.00
Vacation/Sick Payout: (52 hr worker)						
272 Sick Hours (Val Assumptions)	3,258	3,258	3,258	3,258	3,258	3,258
93 Vacation Hours (2yr + current yr accrual)	1,116	1,116	1,116	1,116	1,116	1,116
Hourly Rate	$ 32.45	$ 32.45	$ 32.45	$ 32.45	$ 32.45	$ 32.45
Sick Days paid by City	43.50	43.50	43.50	43.50	43.50	43.50
Sick Payout used in FAS	$ 9,346.47	$ 9,346.47	$ 9,346.47	$ 9,346.47	$ 9,346.47	$ 9,346.47
Vac Payout used in FAS	$ 24,145.06	$ 24,145.06	$ 24,145.06	$ 24,145.06	$ 24,145.06	$ 24,145.06
Total Unused Sick/Vac Payout FAS	$ 33,491.53	$ 33,491.53	$ 33,491.53	$ 33,491.53	$ 33,491.53	$ 33,491.53
Residual Sick Leave hours	2,736	2,736	2,736	2,736	2,736	2,736
Residual Sick to convert	228	228	228	228	228	228
Additional service extended	1.00	1.00	1.00	1.00	1.00	1.00
Years of Service Earned	25	25	25	25	25	25
Total Credited Service	26.000	26.000	26.000	26.000	26.000	26.000
Factor	2.60%	2.60%	2.60%	2.60%	2.60%	2.60%
Final Average Salary	$102,589	$123,987	$109,444	$101,876	$95,179	$91,177
Basic Benefit (Life Only)	$69,350	$83,815	$73,984	$68,868	$64,341	$61,635
% Final Average Salary	68%	68%	68%	68%	68%	68%
% to Salary	79%	96%	84%	78%	73%	70%

Pensions for State and Local Government Workers Not Covered by Social Security: Do Benefits Meet Federal Standards?

by Laura D. Quinby, Jean-Pierre Aubry, and Alicia H. Munnell*

Federal law allows certain state and local governments to exclude employees from Social Security coverage if those employees are provided with a sufficiently generous pension. Because the benefits provided by many public pensions have declined in recent years, this article assesses whether those currently offered by state and local governments satisfy federal standards and whether the standards ensure pension benefits equivalent to those of Social Security. We find that state and local government plans adhere to the standards and provide equivalent benefits at the full retirement age. However, the standards ignore differences between public pensions and Social Security in key provisions that drive lifetime resource levels. Accounting for those differences, a wealth-based generosity test suggests that 43 percent of public pensions fall short of Social Security for a significant minority of noncovered new hires. Equally important, some plans could exhaust their trust funds within 10 years, putting beneficiaries at risk.

Introduction

In 2018, one-quarter of state and local government employees—approximately 6.5 million workers—were not covered by Social Security on their current job. The Social Security Act of 1935 excluded all federal, state, and local government employees from coverage because of constitutional ambiguity over the federal government's authority to impose Federal Insurance Contributions Act payroll taxes on public employers and because these employees were already covered by defined benefit pensions (Internal Revenue Service [IRS] 2014). Beginning in the 1950s, a series of amendments allowed governments to enroll some of their employees in Social Security, so that by 1991 the program covered all federal employees and most state and local government employees. Today, state and local government employers may continue to exclude some employees from Social Security coverage, but only if these employees are enrolled in a retirement plan that meets federal regulations requiring sufficiently generous benefits.

The legal requirements for benefit generosity are specified in IRS regulations known as the Employment Tax Regulations, issued pursuant to Section 3121 of the Internal Revenue Code (IRC). Defined benefit pensions—the dominant type of plan offered by state and local governments—must provide members with an annuity, commencing on or before the Social Security

Selected Abbreviations

AIME	average indexed monthly earnings
AWI	average wage index
COLA	cost-of-living adjustment
CPI	Consumer Price Index
FAS	final average salary
FRA	full retirement age

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Selected Abbreviations—*Continued*

GAO	Government Accountability Office
IRC	Internal Revenue Code
IRS	Internal Revenue Service
NASRA	National Association of State Retirement Administrators
NRA	normal retirement age
OASI	Old-Age and Survivors Insurance
PIA	primary insurance amount
SSA	Social Security Administration
WEP	Windfall Elimination Provision

full retirement age (FRA), which ranges from 65 to 67 depending on the worker's birth year. The annuity must equal the value of the Social Security benefit the member would have received at FRA had he or she participated in the program. To help state and local governments determine whether the benefit formulas they offer comply with the regulations, the federal government has established "Safe Harbor" formulas to calculate annual benefits; the formulas were designed to assure that benefits equal those provided by Social Security for a typical noncovered public employee. Legally, state and local pensions that meet the Safe Harbor requirements comply with the Employment Tax Regulations.

Whether state and local governments currently satisfy the Safe Harbor standards, and whether the standards continue to ensure that the plans provide benefits equal in generosity to Social Security, is unclear. The need to assess whether state and local pensions comply with federal standards has increased since financial downturns in 2001 and 2008 dramatically reduced the assets held by state and local pension funds and triggered a wave of benefit reductions, usually affecting new hires (Aubry and Crawford 2017; Munnell and others 2013; Munnell, Aubry, and Cafarelli 2014). Additionally, some government pension plans could soon exhaust their assets and revert to pay-as-you-go systems, seriously endangering future benefit payments and compromising the retirement security of their members (Monahan 2017).

Given recent benefit cuts and looming reductions for some plans, this article explores the extent to which noncovered public employees receive benefits commensurate with what they would have received under Social Security. We first determine whether the retirement plans for noncovered state and local government employees satisfy the Safe Harbor requirements and whether the requirements provide Social Security–equivalent income at age 67 (the FRA for workers born in 1960 or later). We examine a large sample of benefit formulas for noncovered workers and find that all sampled formulas meet or exceed the Safe Harbor requirements. To determine whether the legislated Safe Harbor parameters produce the required income at age 67, we compare the benefit levels to which a typical employee would be entitled under a public plan that meets the minimum Safe Harbor requirements and under Social Security. Our finding suggests that the Safe Harbor–compliant benefit formulas produce about the same level of income at age 67 as Social Security.

Although the sampled state and local benefit formulas satisfy the letter of the law, noncovered public employees still might not receive Social Security–equivalent resources in retirement for three reasons. First, state and local government pensions often set very long vesting periods and, second, in recent years, they are increasingly unlikely to grant full cost-of-living adjustments (COLAs) after retirement. These shortcomings are partially offset by the third factor: the much younger normal retirement ages (NRAs) established by state and local government pensions. We incorporate the vesting period, COLA, and NRA into a wealth-based generosity test, which requires calculating the present value of lifetime retirement benefits—arguably, a more meaningful measure of retirement resources—for a typical noncovered public employee and for a worker continuously covered by Social Security. That calculation shows that 43 percent of sampled benefit formulas for noncovered workers fall short of Social Security benefit levels, although we note that the calculation is very sensitive to the employment and earnings patterns of the noncovered employees. Additionally, the legal standards for benefit generosity ignore the spousal, survivor, and disability benefits provided by Social Security. These ancillary benefits represent a potentially substantial difference between public plans and Social Security. Such benefits are beyond the scope of this article, but they are valuable to retirees and should be the focus of future work.

Finally, this article grapples with an additional conceptual complication: A number of pension plans for noncovered state and local government employees have low funded ratios, and Social Security likewise faces a projected financial shortfall. A simple projection of pension cash flows using information from the *Public Plans Database*, maintained by the Center for Retirement Research at Boston College (http://publicplansdata.org/), reveals that two plans sponsored by the City of Chicago could exhaust their assets within 10 years. The article summarizes the ongoing debate over the legal responsibility of state and local governments to provide full benefits after trust funds are exhausted. It also asks how state and local pension assets should be compared with Social Security's Old-Age and Survivors Insurance (OASI) trust fund. The question is pertinent, given that the 2019 *Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and the Federal Disability Insurance Trust Funds* (hereafter, the *Trustees Report*)[1] projects OASI trust fund depletion in 2034, which could trigger an automatic benefit reduction.

The article contains six sections, beginning with this introduction. The next section presents an overview of federal regulations on pension benefit generosity and frames the current analysis within the existing literature on state and local pension finances. The third section compares the various benefit formulas currently offered to noncovered state and local government employees with the Safe Harbor requirements and examines whether the Safe Harbor–compliant designs provide Social Security–equivalent benefits at age 67. The fourth section addresses the differing provisions for vesting periods, COLAs, and NRAs, then calculates lifetime retirement wealth for both a typical noncovered state or local employee and a similar worker continuously covered by Social Security. The fifth section addresses the issues surrounding the exhaustion of pension trust fund assets. The final section concludes with a discussion of potential policy responses should a public plan violate federal standards. Appendices provide methodological details, assumptions, and supporting materials.

Background

This section outlines the federal standards regulating retirement benefit generosity for state and local government plans, then briefly discusses prior research on the topic.

An Overview of Federal Generosity Requirements for State and Local Retirement Plans

Until the 1950s, wages in the public sector were not subject to payroll taxes, and employees earned no Social Security credit for their time in government. A series of amendments to the Social Security Act, enacted beginning in 1951, allowed state and local governments to enroll some of their employees by establishing job-specific agreements with the Social Security Administration (SSA) under Title II, Section 218 of the act, "Voluntary Agreements for Coverage of State and Local Employees" (42 U.S. Code § 418).[2] The Omnibus Budget Reconciliation Act (OBRA) of 1990 (Public Law 101-508, Section 11332(b)) mandated coverage for all state and local government employees who do not participate in their employer's retirement plan. Because Section 218 at that time did not clarify the definition of an employer "retirement system," OBRA 1990 also amended IRC Section 3121 to help government employers determine whether their employees were exempt from mandatory Social Security coverage. Specifically, IRC Section 3121(b)(7)(F) authorized the Secretary of the Treasury, in coordination with the SSA, to limit the definition of a retirement plan by setting minimum benefit requirements. IRC Section 3121 was meant to ensure that state and local government employees would be covered either by Social Security or by an employer-sponsored pension providing "meaningful" benefits comparable to those of Social Security (IRS 1991).

The minimum benefit requirements described in the IRS regulations issued pursuant to IRC Section 3121 are very specific. As described in the *Code of Federal Regulations,* a government employee's defined benefit plan meets the requirements

> if and only if, on that day, the employee has an accrued benefit under the system that entitles the employee to an annual benefit commencing on or before his or her Social Security retirement age that is at least equal to the annual Primary Insurance Amount the employee would have under Social Security.

The regulators' concept of benefit generosity is worth considering. First, it was not sufficient for an employee's benefit to be equivalent to that of Social Security at the time of separation from government employment; instead, the employee's public pension benefits had to accrue *at the exact same rate*, over the course of his or her career, at which Social Security benefits would have accrued. Second, by comparing the public pension benefit to the Social Security primary insurance amount (PIA)—defined as the benefit received by a worker if claimed at FRA—the regulators focused on retirement income adequacy at only one point in time.[3]

Perhaps recognizing that traditional defined benefit pensions might not provide benefits equivalent to the Social Security PIA for every member on every day, the IRS contemporaneously issued Revenue Procedure 91-40, describing the Safe Harbor formulas for defined benefit plans. The formulas are designed to produce a benefit equal to the Social Security PIA for the "average wage earner," and any plan that adopts one of the formulas satisfies the minimum benefit requirement for all employees covered by that formula (IRS 1991).[4] Table 1 outlines the acceptable formulas for defined benefit plans. All of the formulas assume an NRA of 65[5] and lack Social Security's guaranteed COLA. The regulations also outline Safe Harbor requirements for defined contribution plans (tax-deferred retirement savings accounts), stipulating that total employer and employee contributions equal at least 7.5 percent of salary annually and that assets be managed according to fiduciary standards.

Table 1.
Safe Harbor minimum benefit factors for defined benefit pension plans, by basis for calculating final average salary

Basis	Benefit factor (%)
Highest—	
3 years	1.50
4 years	1.55
5 years	1.60
6–10 years	1.75
More than 10 years	2.00

SOURCE: IRS Revenue Procedure 91-40.

NOTE: Safe Harbor formulas calculate benefits as final average salary times years of noncovered employment times the benefit factor.

Prior Research

Despite the strong legal link between state and local pension generosity and Social Security coverage, the issue remains largely undiscussed. It is not clear that the benefits earned by newly hired state and local government employees satisfy the Safe Harbor requirements because years of inadequate contributions and two stock market downturns have left many public-sector defined benefit plans with insufficient assets to cover their liabilities. To try to alleviate the funding shortfalls, government sponsors have reduced plan benefits (Brown and Wilcox 2009; Novy-Marx and Rauh 2014; Aubry and Crawford 2017). The reduced benefit levels frequently target new hires because state statutes typically protect accrued pension benefits as contractual obligations that cannot be impinged (Munnell and Quinby 2012). These benefit reductions have taken various forms, including a lower COLA, a lower benefit multiplier, a longer period for computing the final average salary (FAS), and tighter retirement eligibility requirements for new hires than for their longer-tenured coworkers (Quinby, Sanzenbacher, and Aubry 2018).[6] Occasionally, governments have also cut the COLA for current workers, arguing in court that only first-year benefits are protected by statute. In the wake of these cutbacks, state and local pensions may not match Social Security for new hires. For example, Kan and Aldeman (2014) demonstrate that Chicago teachers, who are not covered by Social Security, often accrue less pension wealth than they would have earned under Social Security.

In addition, the legal hurdles to cutting promised benefits have left some state and local governments responsible for legacy liabilities that they may be unable to meet (Munnell and Aubry 2016; Warshawsky and Marchand 2016). Under a scenario in which sponsors exhaust the assets in their pension trust funds and convert them to pay-as-you-go systems, legal scholars question whether state legislatures could be forced to pay promised benefits in full (Monahan 2010, 2017; Cloud 2011; Reinke 2011). The federal pension generosity standards make no provision for an asset-exhaustion scenario.

Do Pension Benefits for Newly Hired Noncovered Workers Satisfy the Letter of the Law?

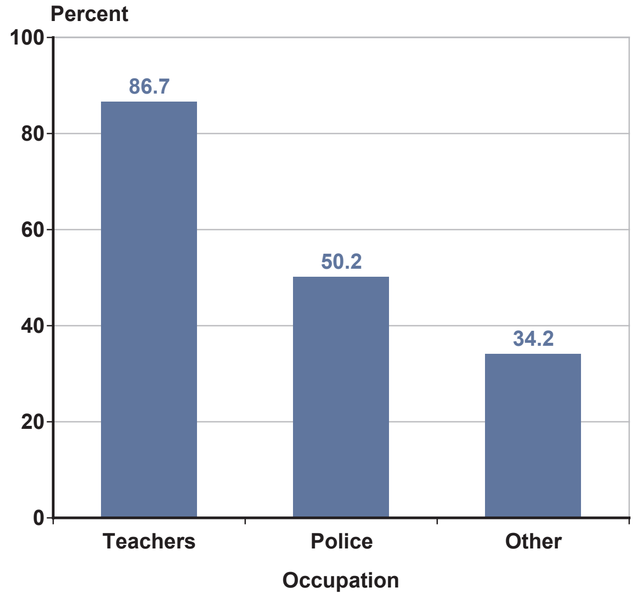
This section assesses the generosity of benefits currently offered to noncovered state and local government employees within the legal framework described above. The analysis has two goals: to determine whether retirement benefits for new hires meet the Safe Harbor requirements and to confirm that the Safe Harbor–required benefits provide Social Security–equivalent income at age 67.

To this end, data on Social Security coverage were gathered using two independent surveys of plan administrators, one conducted by the authors and the other by the National Association of State Retirement Administrators (NASRA). The surveys targeted the 56 largest state-administered retirement systems in 13 states that account for 80 percent of U.S. noncovered state and local payroll (Government Accountability Office [GAO] 2010). We also collected plan membership counts by occupation using the Census Bureau's Annual Survey of Public Employment & Payroll and obtained detailed descriptions of benefit provisions for state and local workers without Social Security coverage from the plans' actuarial valuation reports. The final study sample consists of 38 retirement plans offering 81 benefit formulas for significant numbers of noncovered workers in 12 of those 13 states.[7]

Table 2 shows that the Social Security coverage rates we estimate for state and local government workers in the 13 states are consistent with those reported in GAO (2010). The differences largely reflect the fact that we estimate the noncovered share of employees and GAO estimated the noncovered share of earnings. Because nearly 90 percent of teachers in the 13 sampled states were excluded from Social Security (Chart 1),[8] and teachers tend to be more highly paid than other public employees, an earnings-based estimate of the noncovered share of workers will usually be higher than an employee-based calculation.

Table 2 also shows the variation in the number of retirement systems and the types of benefit formulas offered, by state. Because benefit designs may vary by occupation, the number of formulas exceeds the number of systems in most states. Most of the formulas for noncovered workers are structured as traditional defined benefit pensions, although seven of the 38 systems offer voluntary defined contribution plans and three offer hybrid plans (either mandatory or voluntary) that pair a less-generous defined benefit formula with a defined contribution account. Five systems have a cash-balance structure for at least some members; in this type of defined benefit plan, the employer contributes a set percentage of the participant's salary each year and the account earns interest at a notional rate.

Chart 1.
Percentage of state and local government employees in 13 states who are not covered by Social Security, by selected major occupation



SOURCES: Authors' and NASRA surveys of public plan administrators; Census Bureau Annual Survey of Public Employment & Payroll; and various plan documents, websites, and news articles.

Table 2.
Selected characteristics of the study sample, by state examined

State	Share of employees without Social Security coverage, as estimated in—		Study sample number of offered—	
	This study (percentage of employees)	GAO (2010) (percentage of earnings)	Retirement systems	Benefit formulas
California	42	60	3	12
Colorado	76	70	5	10
Connecticut	64	45	2	2
Georgia	22	25	2	2
Illinois	42	64	7	13
Kentucky	29	33	1	1
Louisiana	87	83	3	4
Massachusetts	100	97	8	22
Missouri	20	35	1	1
Nevada	100	96	1	2
New Jersey	0	9	. . .	. . .
Ohio	100	99	3	9
Texas	35	53	2	3

SOURCES: Authors' and NASRA surveys of public plan administrators; Census Bureau Annual Survey of Public Employment & Payroll; various plan documents, websites, and news articles; and GAO (2010).

NOTE: . . . = not applicable.

Do Retirement Benefits for Noncovered New Hires Meet the Safe Harbor Requirements?

For defined benefit pensions, the Safe Harbor regulations set a maximum NRA and a formula for calculating annual benefits: FAS times years of state/local tenure times a benefit factor (multiplier). FAS is calculated using the worker's earnings in the final years of employment (that is, the highest earning years); the number of years used in the calculation varies from one benefit formula to another.[9] Table 3 summarizes the NRAs and the benefit factors for our sample of defined benefit formulas for noncovered workers, and compares the results with the Safe Harbor requirements. Although the NRAs set by a couple of formulas are older than the Safe Harbor NRA of 65, no formula's NRA exceeds the Social Security FRA of 67 (for workers born after 1959), and many allow for normal retirement at substantially younger ages: The median NRA is 62. Similarly, the parameters that determine the level of annual benefits are typically more generous than those required by law. For example, among formulas that calculate FAS using the final 3 years, the median benefit factor is 3 percent, whereas the Safe Harbor formula requires a minimum factor of only 1.5 percent. Among defined contribution plans, the median total contribution rate (employer plus employee) is 18 percent of salary and the sample minimum is 10 percent, well above the Safe Harbor minimum requirement of 7.5 percent. In short, the benefits earned by noncovered state and local new hires appear to satisfy the Safe Harbor requirements.

Do the Safe Harbor–Compliant Designs Provide Social Security–Equivalent Benefits at Age 67?

The Employment Tax Regulations state that public-plan retirement benefits at age 67 should be equivalent to the Social Security PIA. The Safe Harbor–compliant plans could fall short because final-pay-based defined benefit pensions are back-loaded, providing generous benefits to long-tenure workers, but relatively little to their short- and medium-tenure colleagues (Poterba and others 2007; Diamond and others 2010; Costrell and Podgursky 2009; Beshears and others 2011; Quinby 2020). By contrast, Social Security benefits are front-loaded—a result of the program's progressive benefit formula using wage-indexed earnings.

This phase of the analysis compares the benefits generated by a Safe Harbor–compliant formula with Social Security benefits for a hypothetical worker who enters the labor market in 2018 at age 25 and works part of his or her career in noncovered government employment. The Safe Harbor–compliant defined benefit formula we analyze offers a 1.5 percent benefit factor, a 3-year FAS period, an NRA of 65, and

Table 3.
Characteristics of benefit formulas offered to noncovered state and local government new hires in 2016

Characteristic	Number of benefit formulas	Mean	Median	Minimum	Maximum	Safe Harbor requirement
			Defined benefit formulas			
NRA	. . .	62	62	50	67	65
Benefit factor (%) in formulas that calculate FAS for a period of—						
1 year	1	3	3	3	3	1.50
2 years	1	2	2	2	2	1.50
3 years	22	2	3	1	3	1.50
5 years	33	2	3	2	3	1.60
6–10 years	8	2	2	2	3	1.75
			Defined contribution formulas [a]			
Combined employer and employee contribution rate (%)	10	17.4	18.0	10.0	23.5	7.50

SOURCES: Authors' and NASRA surveys of public plan administrators; and plan actuarial valuation reports.

NOTES: Some complicated plan designs, such as benefit multipliers that vary based on tenure, have been simplified to reflect the experience of most employees.

. . . = not applicable.

a. Includes hybrid and cash-balance plans.

no COLA. Because Safe Harbor regulations do not stipulate a vesting requirement, the analysis assumes immediate vesting. We calculate Safe Harbor formula benefits at age 67 simply as the benefit factor times the FAS in the noncovered job times the total tenure in the noncovered job.

A Social Security benefit calculation is based on a worker's covered earnings. For our analysis, however, we exclude earnings in covered employment and only consider earnings in noncovered employment in calculating the hypothetical Social Security benefit for the noncovered state or local worker. The actual Social Security benefit calculation takes the average indexed monthly earnings (AIME)—the monthly average of the highest 35 years of covered earnings, indexed for wage inflation—then applies three graduated benefit multipliers. The formula applies a 90 percent multiplier to the lowest portion of the AIME, up to a given threshold amount (called a "bend point"); a 32 percent multiplier to any portion of the AIME above the first threshold, up to a second bend point; and a 15 percent multiplier to any portion of the AIME exceeding the second threshold. The AIME calculation omits annual earnings that exceed the maximum taxable amount. Normally, the AIME calculation also omits earnings from noncovered state and local employment, and the multiplier for AIME up to the first bend point is adjusted downward according to the Windfall Elimination Provision (WEP) if a worker receives a pension from noncovered employment (and the worker does not qualify for a WEP exception).[10] However, to compare Social Security and public pension benefits, our hypothetical AIME calculation includes earnings from noncovered public employment and replaces all earnings from covered employment with zeros (that is, as if the worker had no covered employment).[11] The calculation also purposely ignores the standard WEP adjustment.

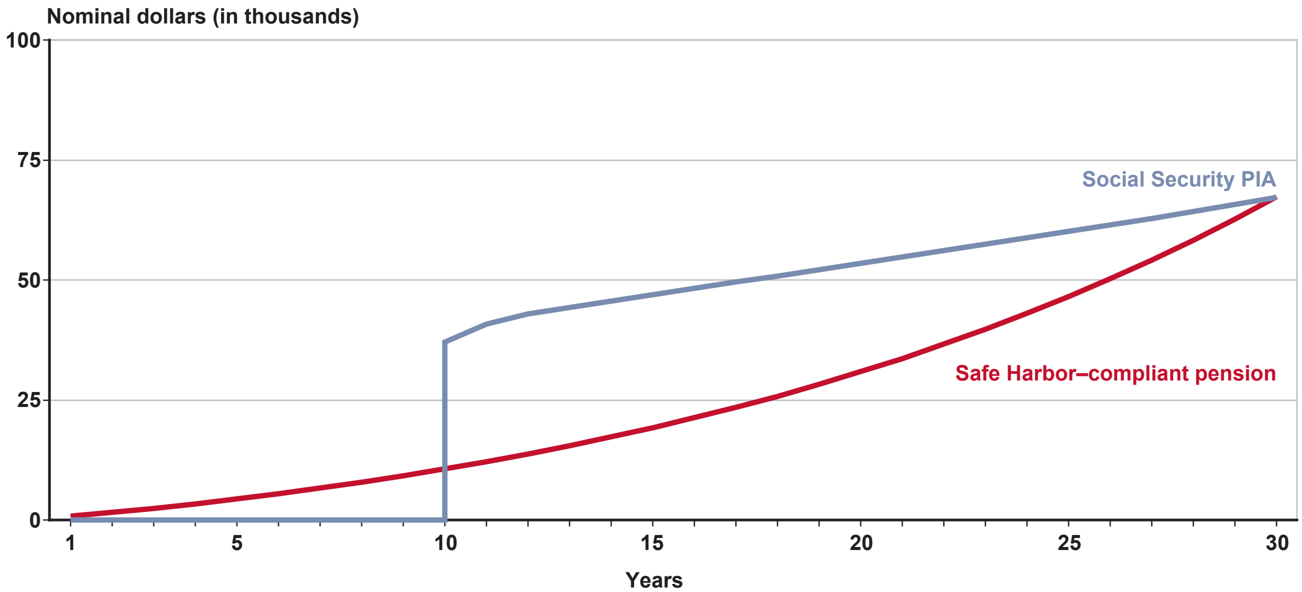
For analytical tractability, and to maintain the spirit of the Employment Tax Regulations, this article considers only individual benefits and ignores spousal and survivor benefits. Because the hypothetical worker will retire many years in the future (in 2058, at age 65), the Social Security benefit calculation requires projections of several annually adjusted program parameters, including the average wage index (AWI), the COLA, the taxable maximum, and the benefit formula's bend points. We assume that the AWI and COLA will increase by the long-run intermediate assumptions in the 2018 *Trustees Report;* the taxable maximum and bend points are projected using legislated formulas that refer to the AWI.[12]

Critical to the calculation is a set of assumptions about the earnings history of the hypothetical worker. The two key variables in the Safe Harbor formula are the worker's FAS and his or her total tenure in the noncovered job. For Social Security, the worker's earnings history determines AIME, on which the benefit calculation is based. We assume the hypothetical worker enters government employment at age 35 (in 2028) with a $50,000 starting salary and that his or her wages rise by 3.8 percent annually.[13] Alternative assumptions about his or her tenure in government range from 1 year to 30 years to reflect the uncertainty of the future tenure of new hires. Forty-five percent of new pension members stay in the system for no more than 5 years, 16 percent stay for 6–10 years, 32 percent stay for 11–30 years, and 7 percent stay for more than 30 years (Munnell and others 2012). The average expected tenure of new hires is 12 years.[14]

Chart 2 presents the results of this analysis.[15] Annual benefits (in nominal age-67 dollars) are plotted against the number of years worked in state or local government. From 1 to 10 years of state or local government tenure, the Safe Harbor–compliant formula provides more income at age 67 than Social Security does because the worker has not yet accrued the 40 quarters of covered earnings necessary to be insured. After 10 years of tenure, the relationship flips, with the Safe Harbor–compliant formula providing an annual average of 42 percent less income than Social Security. By 30 years of tenure, however, the Safe Harbor–compliant formula catches up with Social Security and provides a roughly equivalent benefit.

Although Chart 2 seems to indicate that the Safe Harbor–compliant formula falls short for the one-third of noncovered state and local government employees who separate with 11 to 30 years of tenure, those workers could still have secure retirements if they earn Social Security benefits by working in the private or covered government sectors. To demonstrate this point, Chart 3 plots a more realistic alternative for calculating AIME than the assumption used in Chart 2.[16] In Chart 3, we assume that the worker's Social Security earnings history reflects positive earnings for all of the years he or she worked in covered employment and zero earnings for the years in noncovered employment. We also assume that Social Security benefits are reduced by the WEP. The analysis then estimates total retirement income at age 67 by adding Safe Harbor–compliant plan benefits to the PIA calculated using the more realistic AIME estimate and the WEP adjustment.[17] When periods of covered and noncovered

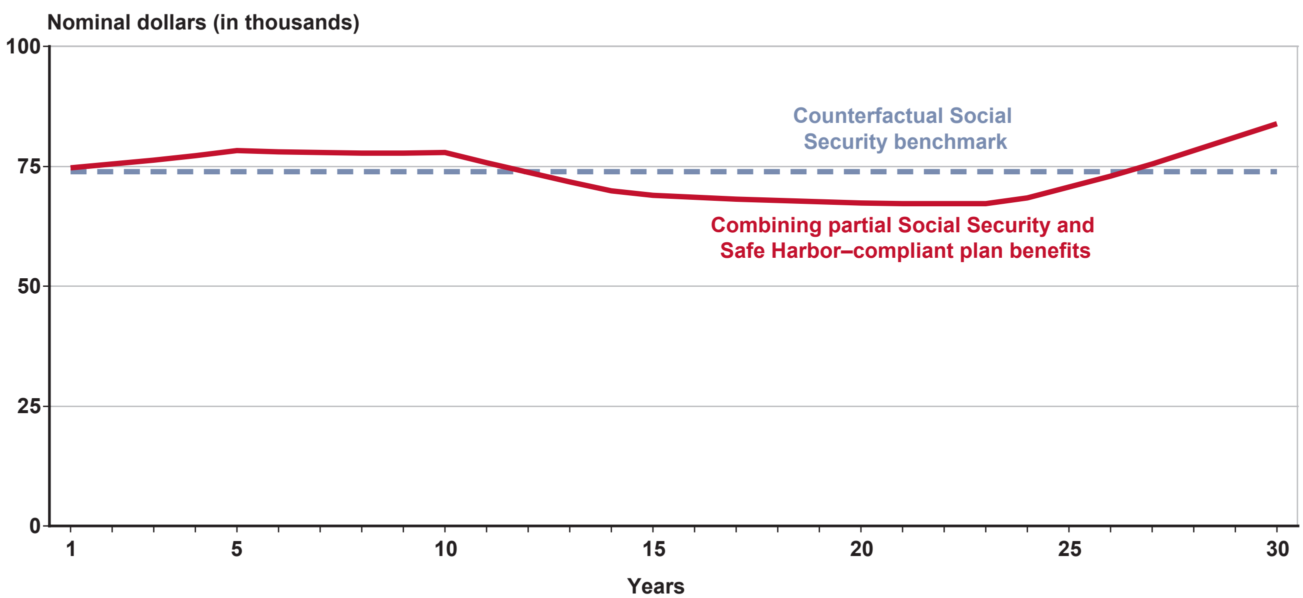
Chart 2.
Estimated annuitized Social Security benefit and Safe Harbor–compliant pension benefit for a hypothetical 2018 labor force entrant aged 25, by number of years worked in noncovered employment



SOURCE: Authors' calculations.

NOTE: Appendix Tables C-1 and C-2 present underlying assumptions and estimated yearly benefit amounts, respectively.

Chart 3.
Estimated annuitized retirement benefit that combines some Social Security and some Safe Harbor–compliant pension coverage for a hypothetical 2018 labor force entrant aged 25, by number of years in noncovered employment



SOURCE: Authors' calculations.

NOTES: Appendix Tables C-1 and C-2 present underlying assumptions and estimated yearly benefit amounts, respectively.

The Social Security component of the combined benefit is WEP-adjusted.

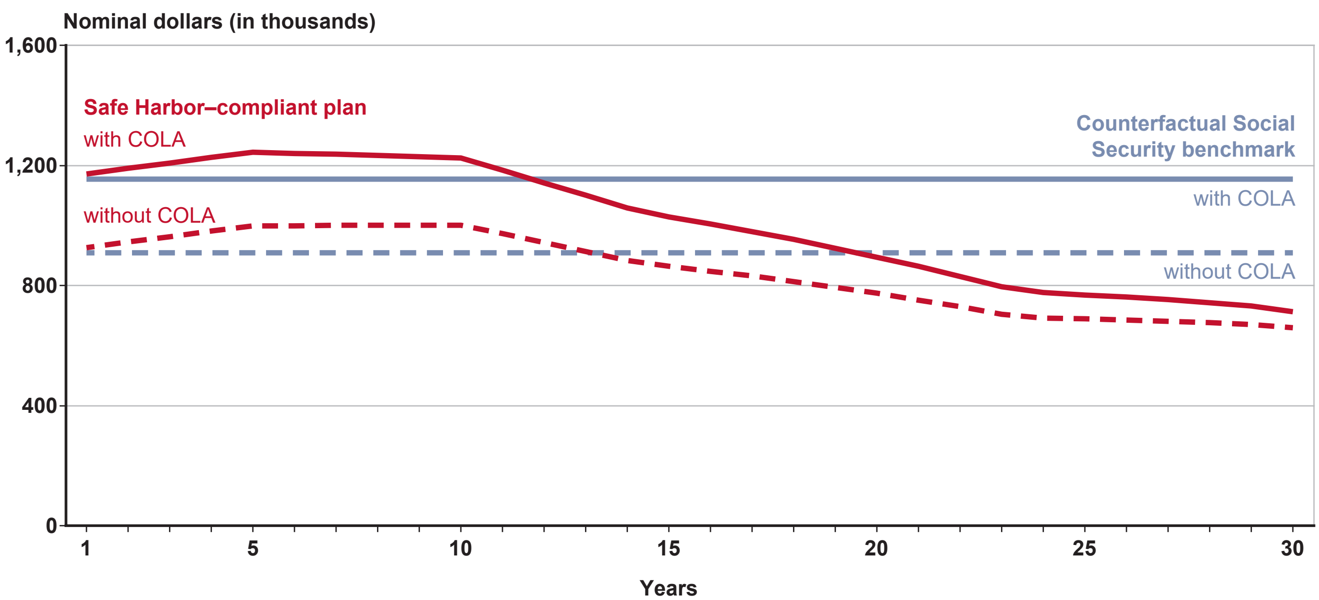
employment are combined, the years worked in noncovered employment have little effect on age-67 income, relative to a counterfactual Social Security benefit that assumes equivalent lifetime earnings in covered employment only. This analysis suggests that the Safe Harbor–compliant defined benefit formulas successfully match Social Security benefits at age 67.

The conclusion is less clear for the Safe Harbor–compliant defined contribution plan, which produces a stock of assets at age 67 rather than an annual benefit. In theory, this stock of assets should generate Social Security–equivalent benefits in retirement. A straightforward comparison measures the plan account balance at age 67 against the present value of lifetime Social Security benefits. To account for time worked in covered employment, this analysis adopts the assumption used for Chart 3, simulating the Safe Harbor–compliant plan account balance and adding its plan assets to Social Security wealth accrued from covered employment.

The analysis assumes that contributions to the Safe Harbor–compliant defined contribution account—7.5 percent of salary—are invested safely and yield a nominal return of 5.3 percent annually.[18] Contributions cease once the hypothetical worker separates from noncovered employment, but assets in the account continue to appreciate until the worker reaches age 67. The present value of lifetime Social Security benefits is calculated by adjusting each future benefit by the COLA, multiplying the projected benefit by the probability that the worker is still alive, and discounting these amounts to age 67.[19] For consistency, we set the discount rate as equal to the worker's expected return on assets.

The assumption about COLAs raises an interesting issue. The Safe Harbor formulas for defined benefit plans do not provide a COLA, suggesting that Safe Harbor–compliant defined contribution wealth should be compared with the present value of unadjusted Social Security benefits. Yet, Social Security benefits do have COLAs, and ignoring this adjustment paints an unrealistic picture of the defined contribution plan. As a compromise, the analysis calculates Social Security benefits with and without the COLA (Chart 4).[20] We find similar results in both COLA scenarios. Chart 4 suggests that, unlike the defined benefit formulas, the Safe Harbor–compliant defined contribution plan may not generate enough wealth to compensate noncovered state and local government employees fully for lost Social Security benefits.

Chart 4.
Estimated present-value lifetime wealth from a combination of Social Security and a Safe Harbor–compliant defined contribution plan for a hypothetical 2018 labor force entrant aged 25, by number of years in noncovered employment



SOURCE: Authors' calculations.

NOTES: Appendix Table C-1 presents the underlying assumptions.

The Social Security component of the combined benefit is WEP-adjusted.

Do Pension Benefits for Noncovered New Hires Provide the Same Lifetime Resources as Social Security?

Although the defined benefit formulas currently offered to newly hired noncovered state and local government employees satisfy the Safe Harbor requirements, and the Safe Harbor–compliant defined benefit formulas achieve the goal of the IRS Employment Tax Regulations, it is not clear that noncovered new hires will enjoy Social Security–equivalent resources in retirement. The Safe Harbor formulas ignore three key contributors to lifetime resources that differ between the public pensions and Social Security. On the negative side, state and local pensions often have very long vesting periods and are increasingly unlikely to grant full COLAs after retirement.[21] For example, the median vesting period in our sample of benefit formulas for noncovered workers is 10 years (Table 4), and a few plan sponsors recently extended vesting periods from 5 years to 10 years as part of reforms intended to curb rising pension costs.[22] Similarly, 15 percent of plans for noncovered workers award COLAs only periodically or if plan investments perform well, and 20 percent of plans award only simple (noncompounding) COLAs. On the positive side, state and local pensions allow members to collect full benefits at much younger ages than are required to qualify for full Social Security benefits (see Table 3). Many plans also allow members to claim reduced benefits before the normal retirement age with an actuarial adjustment that is more generous than Social Security's.

To account for these factors in testing the generosity of noncovered workers' pension benefits, we turn from estimating age-67 benefits to estimating lifetime retirement wealth. To that end, we calculate the following ratio:

$$\frac{\textit{Noncovered pension wealth} + \textit{Covered Social Security wealth}}{\textit{Counterfactual Social Security wealth}}$$

We define noncovered pension wealth as the present value of future state and local pension benefits from noncovered employment. We define covered Social Security wealth as the present value of future Social Security benefits earned from covered employment (adjusted for the WEP). Counterfactual Social Security wealth equals the present value of the future Social Security benefits that the hypothetical worker *would have received* had he or she never entered the noncovered government position and instead accrued equivalent lifetime earnings entirely in covered employment. We refer to this equation as the "counterfactual wealth ratio." Values equal to or greater than 1 indicate that the noncovered worker is no worse off (and potentially better off) than he or she would have been if he or she never entered noncovered employment.

We evaluate state and local defined benefit formulas using the same hypothetical worker with whom we assessed Safe Harbor compliance.[23] We posit a baseline scenario in which this worker enters the labor market with a private-sector job at age 25. At age 35, the worker takes a noncovered government position with a $50,000 salary. He or she receives 3.8 percent nominal wage increases annually for 12 years, after which he or she returns to private-sector employment until retirement at age 65. Public pension benefits are calculated as in Charts 2 and 3, with the provisions of each state and local formula for noncovered workers substituting for the Safe Harbor parameters. We assume that the hypothetical worker claims his or her public pension benefit at the plan's NRA, after which benefits increase according to the plan's COLA provision.[24] We also assume that the 15 percent of state and local plans that grant only unscheduled COLAs will not grant any future adjustments. For consistency across plans with different NRAs, benefits are discounted to age 25.[25]

By definition, covered Social Security wealth (in the numerator of the equation above) excludes noncovered earnings from state or local government employment. We assume that covered Social Security benefits are claimed at the worker's FRA and are adjusted for the WEP and for cost-of-living increases after claiming. We discount the benefits to age 25, using the same rate as that used for the public pension (the worker's expected return on assets).

Table 4.
Vesting and COLA provisions of defined benefit formulas offered to noncovered state and local government new hires in 2016

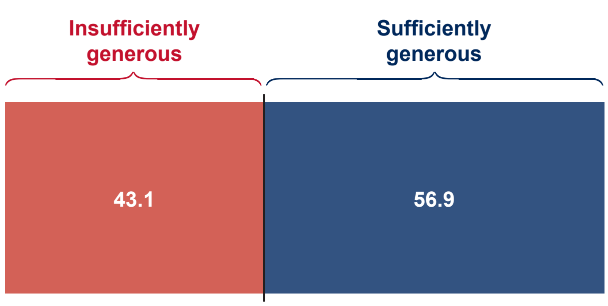
Characteristic	Value
Vesting period (years)	
Mean	8.3
Median	10
Minimum	5
Maximum	15
Percentage of plans with—	
Any COLA	100
A COLA applied only at unscheduled intervals	15
A noncompounding COLA	20

SOURCES: Authors' and NASRA surveys of public plan administrators; and plan actuarial valuation reports.

We calculate counterfactual Social Security wealth (the denominator of the equation above) assuming that the worker never entered noncovered government employment; hence, his or her entire earnings record is in covered employment and provides the basis for his or her benefit calculation. We assume that the worker claims counterfactual Social Security benefits at FRA, that the benefits are not adjusted for the WEP, and that COLAs will be applied after claiming. Counterfactual Social Security benefits are likewise discounted to age 25, with the discount rate set to equal the worker's expected return on assets.

Chart 5 shows that 57 percent of the evaluated formulas have a counterfactual wealth ratio of 1 or more, indicating sufficient generosity. Of course, formulas that "pass" the test with a counterfactual wealth ratio of 1.01 provide substantively equivalent benefits to those that "fail" with a ratio of 0.99. For this reason, Chart 6 plots the full distribution of formulas by counterfactual wealth ratios. Of the 43 percent of formulas that do not pass the test, all provide at least 85 percent of the worker's counterfactual Social Security wealth and most provide 95–99 percent. Among the formulas that pass, a number of designs provide substantially more wealth than the worker would have received from Social Security alone. In particular, police officers and firefighters often amass significant pension wealth over their lifetimes because they tend to retire earlier and receive benefits for many more years than teachers do. Chart 7 compares the counterfactual wealth-ratio distributions for teachers and police officers. Moreover, state and local employers may design their pension formulas not only to replace Social Security as required by statute and regulation but also to attract and retain desirable workers by offering benefits that provide supplemental retirement saving, as many private-sector employers do.

Chart 5.
Sufficiency of state and local government defined benefit plans for new hires as evaluated using the counterfactual wealth ratio (in percent)



SOURCE: Authors' calculations based on plan actuarial valuation reports.

NOTES: "Sufficiency" is indicated by a counterfactual wealth ratio of 1 or more.

Appendix Table C-3 presents the assumptions about the hypothetical worker for whom each plan's counterfactual wealth ratio is calculated.

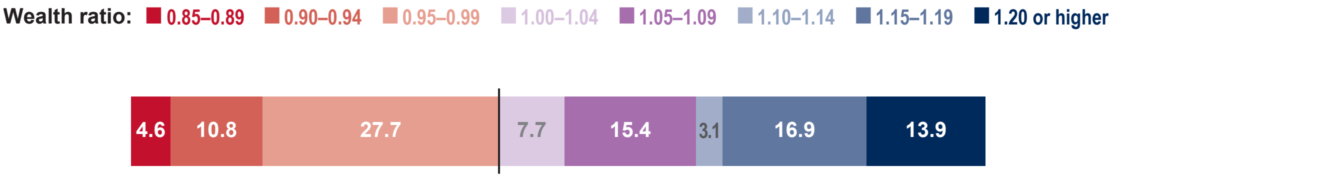
Each formula's counterfactual wealth ratio is sensitive to assumptions about the worker's employment history, particularly about his or her tenure in the noncovered government position. Chart 8 illustrates by contrasting two distributions of counterfactual wealth ratios. It compares the baseline distribution from Chart 6, which assumes 12 years of noncovered tenure, with the distribution for a worker who stays only 5 years in the noncovered government position (recall that 45 percent of new hires remain no longer than 5 years). The 5-year state or local worker always accrues benefits at least as valuable as he or she would have accrued from a career in Social Security–covered work, most often a nearly equal amount. This result is intuitive: Although the public pension provides very little, the worker still has 35 years in which to earn full Social Security benefits in covered employment.

A related analysis considers how the worker's vesting status affects benefit sufficiency. Chart 8 shows that a nonvested worker is at risk of falling short only if he or she accrues more than 5 years in noncovered employment. In practice, around half of the formulas sampled have vesting periods longer than 5 years and, as expected, none of those formulas satisfy the counterfactual wealth test for a worker who separates right before vesting.[26] However, even if those formulas were to shorten their vesting periods, they still might not pass the counterfactual wealth test; very few formulas require more than 10 years to vest, yet Chart 8 shows that many fall short for a worker with 12 years of tenure.

The counterfactual wealth ratio is also sensitive, albeit less so, to the assumed age of entry into noncovered public-sector employment. Chart 9 contrasts the baseline distribution of counterfactual wealth ratios with a new distribution that assumes that the worker begins his or her 12-year government-job tenure at age 25 instead of age 35. The public benefit formulas are less likely to provide Social Security–equivalent benefits to the worker who enters at age 25 because the worker's pension benefit, which is based on final salary, erodes with wage inflation for an additional 10 years.

Finally, the distribution of counterfactual wealth ratios does not appear to be sensitive to realistic

Chart 6.
Percentage distribution of state and local government defined benefit plans, by counterfactual weath ratio

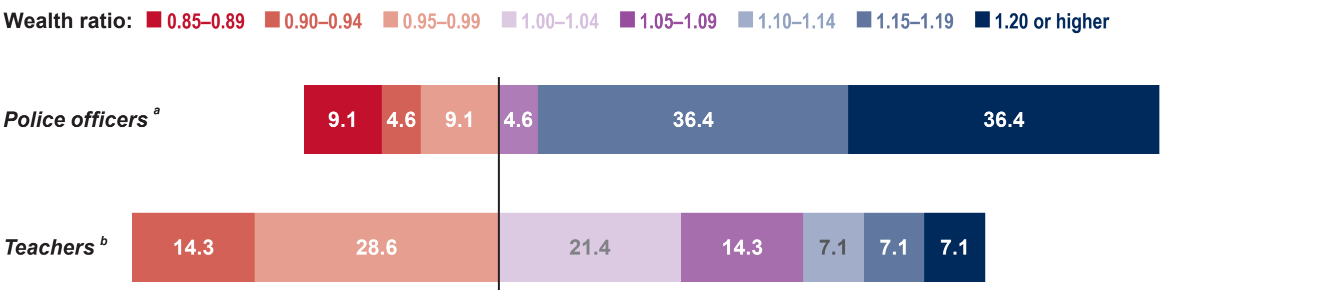


SOURCE: Auhors' calculations based on plan actuarial valuation reports.

NOTES: Rounded components of percentage distribution do not sum to 100.0.

Appendix Table C-3 presents the assumptions about the hypothetical worker for whom each plan's counterfactual wealth ratio is calculated.

Chart 7.
Percentage distribution of state and local government defined benefit plans for teachers and police officers, by counterfactual wealth ratio



SOURCE: Authors' calculations based on plan actuarial valuation reports.

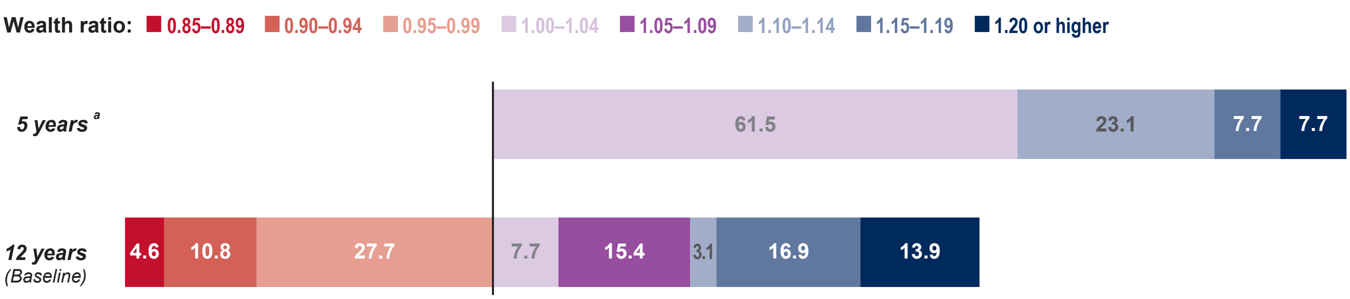
NOTES: Rounded components of percentage distributions do not sum to 100.0.

Appendix Table C-3 presents the assumptions about the hypothetical workers for whom each plan's counterfactual wealth ratio is calculated.

a. No plans in the 1.00–1.04 or 1.10–1.14 ranges.

b. No plans in the 0.85–0.89 range.

Chart 8.
Percentage distribution of state and local government defined benefit plans, by counterfactual wealth ratio and worker's tenure in noncovered employment



SOURCE: Authors' calculations based on plan actuarial valuation reports.

NOTES: Rounded components of percentage distributions do not necessarily sum to 100.0.

Appendix Table C-3 presents the assumptions about the hypothetical workers for whom each plan's counterfactual wealth ratio is calculated.

a. No plans in the 0.85–0.89, 0.90–0.94, 0.95–0.99, or 1.05–1.09 ranges.

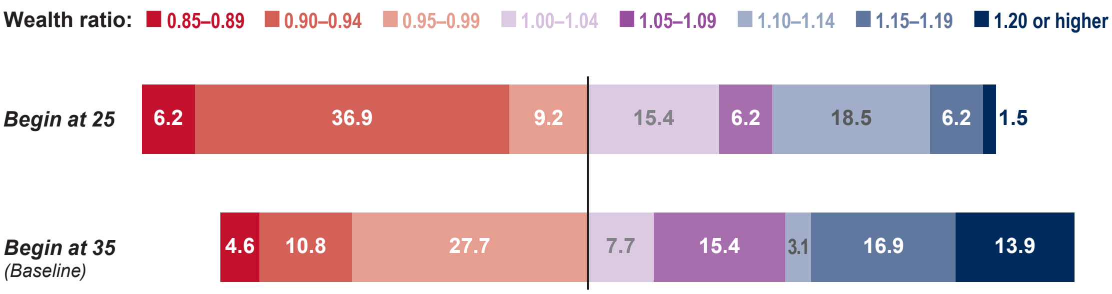
variation in earnings levels. We define a hypothetical high earner as having a $60,000 starting salary in noncovered employment with 4.3 percent annual wage increases and a hypothetical low earner as starting at $40,000 and having annual wage increases of 3.3 percent.[27] For each earner, about 45 percent of formulas generate a counterfactual wealth ratio of less than 1 (Chart 10). However, the story changes for very high earners (not shown). If a worker is assumed to earn the taxable maximum amount each year, then 95 percent of formulas generate counterfactual wealth ratios greater than 1, and most provide benefits considerably greater than the counterfactual Social Security level.

The preceding analysis suggests that a number of state and local pension formulas fall short of providing Social Security–equivalent benefits for some of their members. In practice, of course, the extent of the problem depends on the demographic characteristics of workers earning benefits under the different formulas, particularly their propensity to stay in state or local government for a full career. However, fully accounting for these formula-specific factors would require highly detailed data on plan members and assistance from each plan's actuary.

In summary, although the benefit formulas for noncovered state and local government employees meet the federal Safe Harbor requirements, those requirements do not account for vesting-period, COLA, and retirement-age differences between the public plans and Social Security. As such, some formulas may still fall short of Social Security equivalence for a significant minority of members.

The analysis to this point has assumed that future public pension benefits will be paid as promised. The next section tests that assumption and considers

Chart 9.
Percentage distribution of state and local government defined benefit plans, by counterfactual wealth ratio and worker's age of entry into noncovered employment

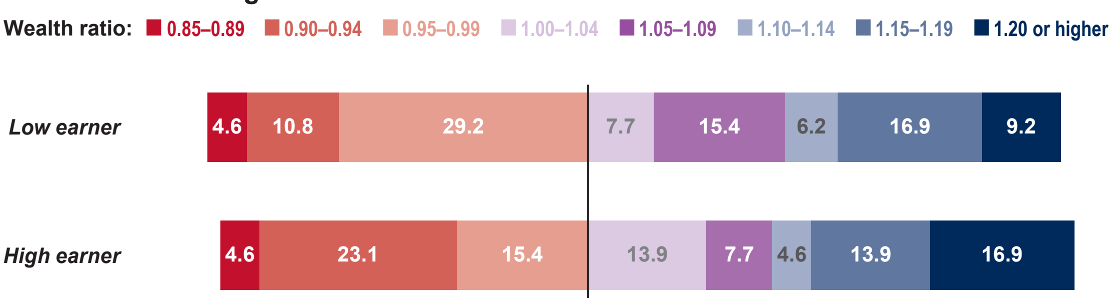


SOURCE: Authors' calculations based on plan actuarial valuation reports.

NOTES: Rounded components of percentage distributions do not sum to 100.0.

Appendix Table C-3 presents the assumptions about the hypothetical workers for whom each plan's counterfactual wealth ratio is calculated.

Chart 10.
Percentage distribution of state and local government defined benefit plans, by counterfactual wealth ratio for low and high earners



SOURCE: Authors' calculations based on plan actuarial valuation reports.

NOTES: Rounded components of percentage distributions do not necessarily sum to 100.0.

Appendix Table C-3 presents the assumptions about the hypothetical workers for whom each plan's counterfactual wealth ratio is calculated.

whether federal regulators may want to account for the financial health of pension funds for noncovered state and local government employees.

Will State and Local Retirement Benefits Be Paid in the Future as Currently Promised?

In the wake of the 2008 financial crisis, the aggregate funded ratio reported by state and local defined benefit plan sponsors declined from 86 percent to 72 percent, and the trust funds have yet to fully recover (Aubry, Crawford, and Wandrei 2018).[28] Additionally, a handful of governments have persistently failed to make the actuarially required contributions to build a meaningful stock of assets. What might happen if a public pension exhausts the assets in its trust fund and reverts to pay-as-you-go status?

The legal scholarship on state and local pension plans notes tension between strong contractual protections for promised benefits and a state's sovereign power to choose how it collects and allocates revenue. Most state statutes grant retired public employees contractual rights to the benefits that they were promised when they joined the government workforce (Munnell and Quinby 2012). The IRC also discourages government sponsors from dipping into pension trust funds to pay for other services (26 U.S. Code § 401(a)). Monahan (2017) argues that although state and local government retirees have a legal right to disbursements from the trust fund, neither state nor federal courts would grant them the right to general appropriations. Hence, so long as trust funds are well stocked, state and local retirees can claim a legal right to the benefits that they were promised during their working life. Once trust funds are depleted, however, benefit payments depend on the goodwill of the government. This logic also seems to apply in the years preceding trust fund exhaustion. For example, several state and local governments have been able to renege on pension promises by making the case in court that pension costs are crowding out vital public services such as police protection and sanitation (Monahan 2010; Cloud 2011; Reinke 2011). Ancillary features, such as COLAs, have proven particularly vulnerable to default.

Moreover, Monahan (2017) argues that retirees may have little *legal* recourse even in states such as Illinois, where the state constitution grants strong pension rights. Of course, such constitutional protections exert strong *political* pressure on state legislatures to respect pension promises because the legal challenges to pension cuts would likely prove costly.

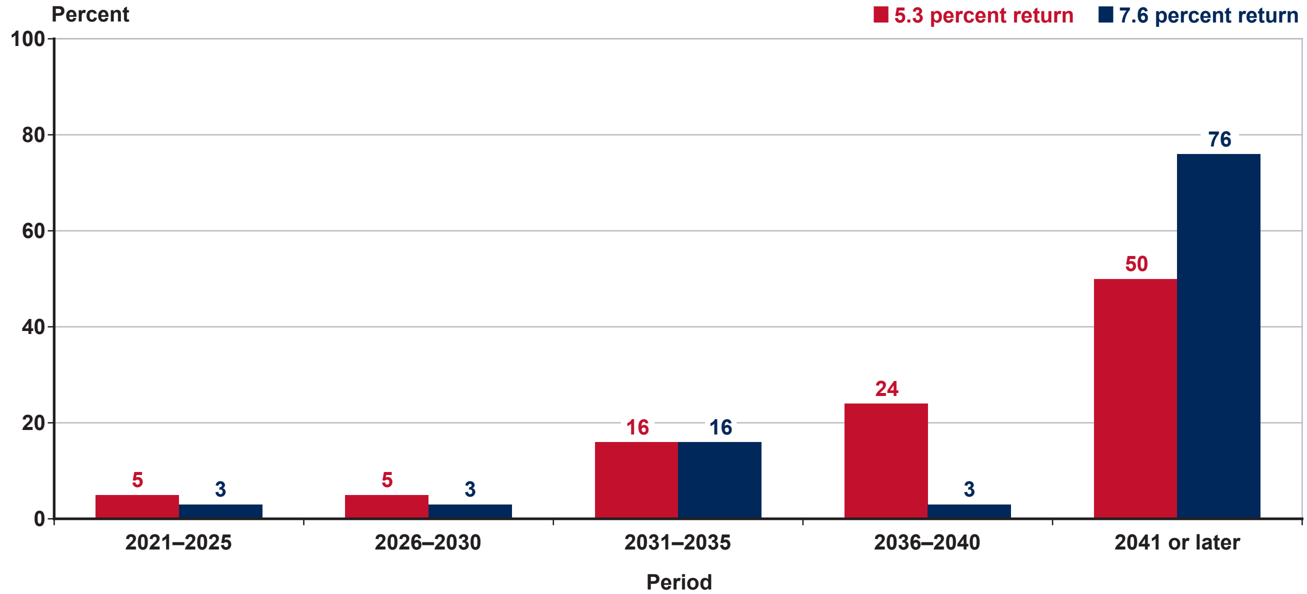
Consequently, the possibility of trust fund exhaustion is an important metric of benefit generosity. This article assesses the likelihood of exhaustion in the near term by projecting cash flows and estimating the date on which each of the pension plans in the sample could run out of assets.[29] For this analysis, we use information from the *Public Plans Database* maintained by the Center for Retirement Research at Boston College. For each trust fund, the database provides the market level of assets, annual expenditures, payroll, and employer and employee contributions. We assume that the future annual growth rates for expenditures and payroll will equal their average growth rates from 2012 to 2016. Future contributions as a percentage of payroll are held at their 2016 level. In each year, the projected balance in the plan's trust fund equals the prior-year balance, plus investment income and contributions, minus expenditures.

A fund's investment return is a key parameter in our asset projection. Munnell and Aubry (2016) note that assumed investment return for state and local pensions in the *Public Plans Database* is far higher than the returns assumed by many investment firms. Specifically, in 2016, the public plans reported a 7.6 percent expected annual return on their portfolios. Because more than half of the assets were invested in equities, that assumption implies expected stock returns of 9.6 percent. By contrast, eight large investment firms surveyed by Munnell and Aubry projected an average equity return of only 5.5 percent over the next decade. To acknowledge uncertainty around the future performance of equities, we project assets under two portfolio investment-return assumptions: 7.6 percent and 5.3 percent.[30] The outcome of interest is the fund's exhaustion date, defined as the year in which assets decline below zero.

Chart 11 shows the distribution of defined benefit public plans by projected exhaustion dates under the two investment-return assumptions. Under either assumption, two plans for noncovered workers in Chicago—the Municipal Employees' Annuity and Benefit Fund and the Policemen's Annuity and Benefit Fund—are projected to exhaust their assets by 2026 (results by individual plan are not shown). Another six plans are projected to exhaust their trust funds by 2035 under both investment-return assumptions.[31]

This simple projection is an imperfect indicator of a plan's future financial health. Because returns to risky investments do not follow a deterministic path, many

Chart 11.
Percentage distributions of state and local government defined benefit plans by year of projected trust fund exhaustion under alternative rates of return on investment



SOURCE: Authors' calculations based on data for 2012–2016 from the *Public Plans Database*.

NOTE: Rounded components of percentage distributions do not necessarily sum to 100.

studies have simulated pension finances stochastically (for example, Boyd and Yin 2017; Farrell and Shoag 2016; and Munnell, Aubry, and Hurwitz 2013). Additionally, expenditures are unlikely to grow at historical rates in perpetuity because the baby boom generation will complete its transition to retirement and be followed by cohorts with less generous benefit packages. Most importantly, plan sponsors could shore up troubled pension systems by infusing their trust funds with new revenue, as a few have begun to do.[32] Nevertheless, the projection is sufficient for the short run to identify financially precarious plans. For example, in 2010, the Commission to Strengthen Chicago's Pension Funds similarly predicted that pension trust fund assets for the police would exhaust in 2022 and those for municipal workers would exhaust in 2026.[33]

Although the Illinois constitution grants strong pension rights to Chicago's public employees, it is possible that benefits will be cut if the municipal-worker and police plans revert to pay-as-you-go systems. According to the *Public Plans Database*, in 2016, the municipal workers' trust fund paid benefits equal to 53 percent of municipal payroll, while contributions from the city and pension members were each equal to only about 9 percent of payroll. Similarly, the police trust fund paid benefits equal to 62 percent of payroll, whereas total contributions equaled only 25 percent.

Chicago's pension plans all satisfy the federal Safe Harbor requirements. In 2017, the Chicago municipal-worker and police plans each offered two design options to new members. The first is a cash-balance plan in which around 20 percent of the employee's salary is deposited into an account that earns interest and is annuitized when the member reaches age 60 (50 for police).[34] The second is a defined benefit pension with an NRA of 65 (55 for police), an 8-year period for computing FAS, a 2.4 percent benefit multiplier (2.5 percent for police), a 10-year vesting period, and a noncompounding COLA capped at one-half of the Consumer Price Index (CPI) for All Urban Consumers. For newly hired municipal workers and police, both options currently provide benefits well above those required by law. Trust-fund exhaustion is a separate problem, unrelated to the level of benefits currently promised to new hires.[35]

This looming challenge has important implications for noncovered state and local workers and for federal policymakers. Underscoring the challenge is the uncertainty of how unfunded state and local benefit promises should be valued.[36] A similar problem arises with respect to Social Security, which also faces a financial shortfall. The 2019 *Trustees Report* estimates that the OASI trust fund will exhaust its assets in 2034. At that point, absent new legislation, OASI will become a pay-as-you-go program, with benefit payments supported entirely by payroll tax revenue. The *Trustees Report* projects that the payroll tax as currently legislated will be sufficient to fund about 80 percent of scheduled benefits in 2035, implying a sharp 20-percent reduction for current and future retirees. Hence, not only are state and local pension promises vulnerable to cuts, but benchmark Social Security benefits also entail risk.

Conclusion

Section 218 of the Social Security Act allows state and local governments to extend Social Security coverage to their employees, and the Omnibus Budget Reconciliation Act of 1990 mandates Social Security coverage for state and local workers unless they participate in a sufficiently generous employer-sponsored retirement system. The requirements for generosity are elaborated in the IRS Employment Tax Regulations, pursuant to IRC Section 3121. Public plans must provide their members, on reaching their Social Security FRA, with a monthly benefit that matches the PIA that the member would have received had he or she been covered by Social Security. Alternatively, a public plan's benefit formula can simply match one of the Safe Harbor formulas established by the IRS's Revenue Procedure 91-40.

State and local plans adhere to the Safe Harbor guidelines, and the Safe Harbor–compliant plans provide Social Security–equivalent benefits at the member's FRA, but the federal standards ignore three key drivers of lifetime resources that often differ between public pensions and Social Security. On one hand, state and local plans often require very long vesting periods and are increasingly unlikely to grant full COLAs. On the other hand, public pensions frequently allow members to claim full benefits at a younger age than that required to claim full Social Security benefits. Incorporating these factors into a wealth-based measure of benefit generosity suggests that 43 percent of benefit formulas for noncovered workers fall short of Social Security equivalence for a significant minority of new hires. Specifically, the public plans fall short for members who stay in their noncovered position for more than a few years but less than a full career. These medium-tenure employees make up about one-third of the state and local government workforce.

Of equal concern is that a few state and local pensions are so poorly funded that their dedicated trust funds may be depleted within the next decade. Once these plans revert to pay-as-you-go status, sponsors and beneficiaries will enter a legal gray zone with an elevated likelihood of future benefit cuts and possible defaults.

How could policymakers ensure Social Security–equivalent protections for all state and local government employees? A practical first step might be to update the Safe Harbor defined benefit plan requirements with reasonable vesting periods and full COLAs. Policymakers could also revisit the contribution-rate requirements for defined contribution plans in light of current economic conditions, and develop new Safe Harbor requirements for the hybrid defined benefit/defined contribution plans that are becoming more prevalent in state and local government (IRS 2017).

Alternatively, legislators could obviate the need for federal generosity standards by enrolling all state and local government employees in Social Security. Mandatory coverage is already a common feature of proposals to improve Social Security's financial position (Bipartisan Commission on Entitlement and Tax Reform 1994; Diamond and Orszag 2005; Domenici and Rivlin 2012; Gale, Holmes, and John 2015; GAO 2005; National Commission on Fiscal Responsibility and Reform 2010; Munnell 2000; Warshawsky 2016). It would also provide noncovered state and local government employees with important ancillary benefits that they may currently lack, such as spousal and survivor benefits and disability protection (Nuschler, Shelton, and Topoleski 2011; Munnell, Aubry, and Belbase 2014).[37]

However, mandatory Social Security coverage of all future earnings will not protect currently noncovered state and local retirees whose pensions are poorly funded. Of course, Social Security also faces financial challenges, with the 2019 *Trustees Report* predicting exhaustion of the OASI trust fund in 2034. Should the program revert to a pure pay-as-you-go system, the payroll-tax contribution rate as currently legislated is projected to be sufficient to fund about 80 percent of scheduled benefits initially, before declining to 75 percent in the long run. Given the uncertainty over future benefit levels, it is not obvious how public pension benefits should be valued relative to an underfunded Social Security program. We leave that question to future research.

Appendix A: Retirement Systems Reviewed for This Analysis

Table A-1.
State and local government pension systems included in the analysis sample

State or local retirement system	Source of data on Social Security coverage of plan members
California	
Public Employees' Retirement Fund [a]	NASRA survey
Teachers' Retirement Fund	Authors' survey
University of California Retirement Plan [a]	2016 actuarial valuation report
Colorado	
Fire and Police Pension Association	Authors' survey
Public Employees' Retirement Association—	
Local Government Division	NASRA survey
Police and Fire Division	NASRA survey
School Division	NASRA survey
State Division	NASRA survey
Connecticut	
Municipal Employees' Retirement System [a]	2016 actuarial valuation report
Teachers' Retirement System	NASRA survey
Georgia	
Public School Employees' Retirement System [a]	Authors' survey
Teachers' Retirement System [a]	NASRA survey
Illinois	
City of Chicago—	
Firemen's Annuity and Benefit Fund	Baker (2013); Hicken (2014); other blogs/articles
Municipal Employees' Annuity and Benefit Fund	Baker (2013); Hicken (2014); other blogs/articles
Policemen's Annuity and Benefit Fund	Baker (2013); Hicken (2014); other blogs/articles
Public School Teachers' Pension and Retirement Fund	Chicago Teachers' Union website
State Employees' Retirement System [a]	2016 actuarial valuation report
State Universities Retirement System	NASRA survey
Teachers' Retirement System	NASRA survey
Kentucky	
Teachers' Retirement System	NASRA survey
Louisiana	
Parochial Employees' Retirement System [a]	Authors' survey
State Employees' Retirement System	NASRA survey
Teachers' Retirement System	NASRA survey
Massachusetts	
Barnstable County Retirement Association	Authors' survey
Boston Retirement Board	Authors' survey
Cambridge Retirement System	Authors' survey
Middlesex Regional Retirement Board	Authors' survey
Plymouth County Retirement Board	Authors' survey
State Employees' Retirement System	Authors' survey
Teachers' Retirement System	Authors' survey
Worcester Regional Retirement Board	Authors' survey
Missouri	
Public Schools' Retirement System	2016 actuarial valuation report
Nevada	
Public Employees' Retirement System	NASRA survey

(Continued)

Table A-1.
State and local government pension systems included in the analysis sample—*Continued*

State or local retirement system	Source of data on Social Security coverage of plan members
Ohio	
Police and Fire Pension Fund	NASRA survey
Public Employees' Retirement System	NASRA survey
Teachers' Retirement System	NASRA survey
Texas	
Municipal Retirement System [a]	NASRA survey
Teachers' Retirement System	Texas Classroom Teachers Association website

SOURCE: Authors' research.

NOTE: Except as noted, less than 10 percent of plan members are also covered by Social Security.

a. Between 10 percent and 89 percent of plan members are also covered by Social Security.

Table A-2.
State and local government pension systems studied but omitted from the analysis sample

State or local retirement system	Reason omitted
Colorado	
Denver Employees' Retirement Plan	≥90% of plan members also covered by Social Security
Connecticut	
State Employees' Retirement System	No data on Social Security coverage available
Georgia	
Employees' Retirement System	≥90% of plan members also covered by Social Security
Municipal Employees' Benefit System	No data on Social Security coverage available
Peace Officers' Annuity and Benefit Fund	No data on Social Security coverage available
Illinois	
Municipal Retirement Fund	≥90% of plan members also covered by Social Security
Kentucky	
County Employees Retirement System	≥90% of plan members also covered by Social Security
Employees' Retirement System	≥90% of plan members also covered by Social Security
Louisiana	
Municipal Police Employees' Retirement System	No data on Social Security coverage available
Missouri	
County Employees' Retirement System	No data on Social Security coverage available
Local Government Retirement System	≥90% of plan members also covered by Social Security
Public Education Employee's Retirement System	≥90% of plan members also covered by Social Security
State Employees' Retirement System	≥90% of plan members also covered by Social Security
New Jersey	
Police and Firemen's Retirement System	≥90% of plan members also covered by Social Security
Public Employees' Retirement System	≥90% of plan members also covered by Social Security
Teachers' Retirement System	≥90% of plan members also covered by Social Security
Texas	
County and District Retirement System	≥90% of plan members also covered by Social Security
Employees' Retirement System	≥90% of plan members also covered by Social Security

SOURCE: Authors' research.

Table A-3.
Estimated percentage of state and local government employees who are represented by retirement systems whose administrators provided valid responses

State	Among active defined benefit plan members	Among all full-time equivalent employees
California	79	79
Colorado	91	75
Connecticut	41	33
Georgia	77	61
Illinois	90	85
Kentucky	99	84
Louisiana	70	54
Massachusetts	100	94
Missouri	72	66
Nevada	100	93
Ohio	79	89
Texas	91	83

SOURCES: Authors' and NASRA surveys of public plan administrators; Census Bureau Annual Survey of Public Employment & Payroll; and various plan documents, websites, and news articles.

NOTE: Many part-time, seasonal, and temporary state and local government employees do not participate in an employer-provided retirement system.

Appendix B: Methodology for Calculating State and Local Retirement Benefits and Social Security Old-Age Benefits

Our calculations follow the sequence described below.

Calculating State and Local Defined Benefit Pension Benefits

We begin by projecting the worker's nominal earnings from labor-market entry to labor-market exit:

$$Salary_{current\ age} = Salary_{age\ entering\ noncovered\ job} \times \left(1 + wage\ growth\right)^{current\ age - age\ entering\ noncovered\ job} \tag{1}$$

Next, we calculate the FAS depending on the age at which the worker leaves the noncovered job:

$$FAS_{current\ age} = \frac{\sum_{y = current\ age - FAS\ period}^{current\ age} Salary_y}{FAS\ period} \tag{2}$$

The nominal pension benefit equation is simply:

$$Benefit_{current\ age} = Benefit\ multiplier \times FAS_{current\ age} \times Tenure\ in\ noncovered\ job_{current\ age} \tag{3}$$

Calculating State and Local Defined Contribution Wealth

The defined contribution account balance is calculated using the worker's salary history and the assumed return on plan assets. Contributions are assumed to take place at the end of each year, with interest credited at the beginning of the next year:

$$Balance_{current\ age} = Balance_{end\ of\ prior\ year} \times \left(1 + investment\ return\right) + \left(0.075 \times Salary_{current\ age}\right) \tag{4}$$

The account balance continues to earn interest after the worker separates from the noncovered state or local job. The account earns interest until the worker's Social Security FRA:

$$Balance_{FRA} = Balance_{current\ age} \times \left(1 + investment\ return\right)^{FRA - current\ age} \tag{5}$$

Calculating Social Security Benefits According to IRC Section 3121

The first step in this calculation is to alter the worker's earnings history by entering zero covered earnings for the years when the worker was *not* employed in the noncovered state or local job, regardless of actual earnings in those years.

The next step is to cap the altered earnings at the Social Security taxable maximum ("tax max") in any year when it may apply. To do this, the tax max in future years must be projected according to a legislated formula (rounded to the nearest multiple of 300). The tax max formula depends on the Social Security AWI, which must also be projected:

$$Tax\,max_{current\ age} = \frac{60{,}600 \times AWI_{current\ age - 2}}{AWI_{year\ 1992}} \tag{6}$$

where

$$AWI_{current\ age} = AWI_{current\ age - 1} \times \left(1 + CPI + Real\ wage\ differential\right) \tag{7}$$

and

$$Capped\ salary_{current\ age} = min\left\{Salary_{current\ age},\ Tax\ max_{current\ age}\right\} \tag{8}$$

The third step in the calculation is to index the capped earnings history to reflect the growth in the AWI:

$$Index\ factor_{current\ age} = \begin{cases} \dfrac{AWI_{age\ 60}}{AWI_{current\ age}} & if\ current\ age < 61 \\ 1 & if\ current\ age \geq 61 \end{cases} \tag{9}$$

$$Indexed\ salary_{current\ age} = Capped\ salary_{current\ age} \times Index\ factor_{current\ age} \tag{10}$$

Using the indexed earnings history, we calculate the AIME:

$$AIME_{current\ age} = \frac{\sum Highest\ 35\ indexed\ annual\ earnings\ amounts}{35 \times 12} \tag{11}$$

Then we obtain the worker's PIA by applying the formula:

$$\begin{aligned} PIA_{age\ 62} = & \left(0.9 \times AIME\ up\ to\ the\ first\ bend\ point\right) \\ & + \left(0.32 \times AIME\ between\ the\ first\ and\ second\ bend\ points\right) \\ & + \left(0.15 \times AIME\ above\ second\ bend\ point\right) \end{aligned} \tag{12}$$

SSA revises the bend points each year based on the AWI. The PIA formula uses the bend points in the year when the worker reaches age 62. SSA uses the following formulas to calculate bend points:

$$First\ bend\ point = \frac{180}{9{,}779.44} \times AWI_{age\ 60} \tag{13}$$

$$Second\ bend\ point = \frac{1{,}085}{9{,}779.44} \times AWI_{age\ 60} \tag{14}$$

Lastly, the PIA is adjusted to keep pace with inflation in the years after the worker reaches age 62 until he or she reaches FRA:

$$PIA_{age\ FRA} = PIA_{age\ 62} \times \left(1 + CPI\right)^{age\ FRA - age\ 62} \tag{15}$$

Calculating WEP-Adjusted Social Security Benefits from Private-Sector or Covered Public-Sector Employment

To simulate a more realistic Social Security benefit for the noncovered worker, this phase of the analysis alters the worker's earnings history (equation 1) by entering the positive earnings amounts for the years when the worker was not employed in the noncovered position, and zero earnings for the years when the worker was employed in the noncovered position. The procedure then follows equations (6) through (15) to calculate the worker's PIA.

The next step is to apply the WEP to the PIA. The WEP adjusts the multipliers in the PIA formula (equation 12) based on the number of years with "substantial earnings." A year of earnings is substantial if the worker's salary exceeds one-quarter of what is called the Old Law Contribution and Benefits Base (that is, what the tax max would have been if the 1977 Social Security Amendments had not been enacted). The Old Law Contribution and Benefits Base is determined by a legislated formula (rounded to the nearest multiple of 300):

$$Substantial\,threshold_{current\ age} = \frac{45,000 \times AWI_{current\ age-2}}{22,935.42} \times 0.25 \tag{16}$$

Table B-1 shows the WEP multiplier that applies to the PIA formula for each number of years with substantial earnings.

Table B-1.
PIA formula multipliers required under the WEP, by number of years with substantial covered earnings

Years	Multiplier
30 or more	0.90
29	0.85
28	0.80
27	0.75
26	0.70
25	0.65
24	0.60
23	0.55
22	0.50
21	0.45
20 or fewer	0.40

SOURCE: SSA.

Then, the penultimate step in the calculation applies the WEP-adjusted PIA formula to the AIME as described in equation (12). The amount by which the WEP reduces the PIA is capped at one-half of the monthly public pension benefit that the worker receives at FRA:

$$PIA_{age\ 62} = \max\left\{PIA_{WEP}, PIA_{unadjusted} - \frac{monthly\ pension\ benefit}{2}\right\} \tag{17}$$

Finally, as with equation 15, the worker's PIA is adjusted for cost-of-living increases until his or her Social Security FRA:

$$PIA_{age\ FRA} = PIA_{age\ 62} \times \left(1 + CPI\right)^{age\ FRA-62} \tag{18}$$

Transforming Annual Benefits into Lifetime Wealth

We calculate the present discounted value of future benefits from Social Security or a public pension by multiplying the annual benefit by a factor that accounts for cost-of-living increases, the cumulative probability of survival, and the discount rate:

$$Wealth_{age\ FRA} = Benefit_{age\ FRA} \times \sum_{age=FRA}^{120} \frac{\Pr\left(alive\right)_{age} \times \left(1 + CPI\right)^{age-FRA}}{\left(1 + discount\ rate\right)^{age-FRA}} \tag{19}$$

Appendix C: Economic and Demographic Assumptions About the Hypothetical Worker; and Additional Results

Table C-1.
Economic and demographic assumptions used for benefit comparisons in Charts 2–4

Parameter	Chart 2	Chart 3	Chart 4
Defined benefit plans for noncovered workers			
Vesting period	Immediate	Immediate	. . .
FAS calculation period (years)	3	3	. . .
Benefit factor (multiplier)	1.5	1.5	. . .
Claiming age	65	65	. . .
COLA	None	None	. . .
Defined contribution plans for noncovered workers			
Vesting period	. . .	. . .	Immediate
Total contribution rate (%)	. . .	. . .	7.5
Nominal return on assets (%)	. . .	. . .	5.3
Claiming age	. . .	. . .	67
Social Security			
Credited earnings are from—	Noncovered employment	Covered employment	Covered employment
Nominal AWI growth (%)	3.8	3.8	3.8
Inflation (%)	2.6	2.6	2.6
Claiming age	67	67	67
WEP adjustment	No	Yes	Yes
Worker demographics			
Age at labor force entry	25	25	25
Age at start of noncovered employment	35	35	35
Starting annual salary in noncovered job ($)	50,000	50,000	50,000
Nominal wage growth (%)	3.8	3.8	3.8
Age at retirement	65	65	65

SOURCES: Authors' research based on intermediate assumptions of the 2018 *Trustees Report,* Munnell and others (2012), and plan actuarial valuation reports.

NOTE: . . . = not applicable.

Table C-2.
Nominal benefits received at age 67 by the hypothetical worker in Charts 2 and 3, by years in noncovered employment

Years	Chart 2		Chart 3			
			Combined-benefit component			
	Safe Harbor–compliant pension	Social Security PIA	Safe Harbor–compliant pension	Social Security PIA	Total combined benefit	Counterfactual Social Security benchmark
1	789.51	0.00	789.51	73,865.29	74,654.79	73,865.29
2	1,609.02	0.00	1,609.02	73,865.29	75,474.30	73,865.29
3	2,459.66	0.00	2,459.66	73,865.29	76,324.95	73,865.29
4	3,404.18	0.00	3,404.18	73,865.29	77,269.46	73,865.29
5	4,416.92	0.00	4,416.92	73,865.29	78,282.21	73,865.29
6	5,501.71	0.00	5,501.71	72,544.84	78,046.55	73,865.29
7	6,662.58	0.00	6,662.58	71,224.38	77,886.96	73,865.29
8	7,903.72	0.00	7,903.72	69,903.93	77,807.65	73,865.29
9	9,229.57	0.00	9,229.57	68,583.48	77,813.05	73,865.29
10	10,644.77	37,137.71	10,644.77	67,263.03	77,907.79	73,865.29
11	12,154.19	40,851.48	12,154.19	63,603.93	75,758.13	73,865.29
12	13,762.97	42,973.69	13,762.97	59,944.84	73,707.80	73,865.29
13	15,476.46	44,294.14	15,476.46	56,285.74	71,762.20	73,865.29
14	17,300.30	45,614.59	17,300.30	52,626.65	69,926.94	73,865.29
15	19,240.40	46,935.05	19,240.40	49,723.19	68,963.60	73,865.29
16	21,302.98	48,255.50	21,302.98	47,230.23	68,533.21	73,865.29
17	23,494.52	49,575.95	23,494.52	44,663.96	68,158.48	73,865.29
18	25,821.86	50,896.40	25,821.86	42,020.49	67,842.34	73,865.29
19	28,292.15	52,216.85	28,292.15	39,295.75	67,587.90	73,865.29
20	30,912.90	53,537.30	30,912.90	36,485.49	67,398.38	73,865.29
21	33,691.96	54,857.76	33,691.96	33,585.22	67,277.18	73,865.29
22	36,637.61	56,178.21	36,637.61	30,590.26	67,227.87	73,865.29
23	39,758.46	57,498.66	39,758.46	27,495.70	67,254.16	73,865.29
24	43,063.60	58,819.11	43,063.60	25,390.26	68,453.87	73,865.29
25	46,562.52	60,139.56	46,562.52	24,069.81	70,632.33	73,865.29
26	50,265.17	61,460.02	50,265.17	22,749.36	73,014.53	73,865.29
27	54,181.99	62,830.64	54,181.99	21,378.73	75,560.72	73,865.29
28	58,323.90	64,253.36	58,323.90	19,956.02	78,279.92	73,865.29
29	62,702.36	65,730.13	62,702.36	18,421.77	81,124.12	73,865.29
30	67,329.36	67,263.03	67,329.36	16,505.65	83,835.01	73,865.29

SOURCE: Authors' calculations.

NOTES: The hypothetical worker is assumed to enter the labor market in the private sector in 2018 at age 25, enter noncovered government employment at age 35 with a starting salary of $50,000 and experience 3.8 percent nominal annual wage growth until retiring at age 65.

Appendix Table C-1 summarizes the underlying economic and demographic assumptions.

Table C-3.
Economic and demographic assumptions used for benefit comparisons in Charts 5–10

Parameter	Charts 5–7	Chart 8	Chart 9	Chart 10
Defined benefit plans for noncovered workers				
Vesting period	a	a	a	a
FAS calculation period (years)	a	a	a	a
Benefit factor (multiplier)	a	a	a	a
Claiming age	[a] NRA	[a] NRA	[a] NRA	[a] NRA
COLA	a	a	a	a
Social Security				
Credited earnings	b	b	b	b
Nominal AWI growth (%)	3.8	3.8	3.8	3.8
Inflation (%)	2.6	2.6	2.6	2.6
Claiming age	[c] 67	[c] 67	[c] 67	[c] 67
WEP adjustment	d	d	d	d
Worker demographics				
Year of labor force entry	2018	2018	2018	2018
Age at labor force entry	25	25	25	25
Age at start of noncovered employment	35	35	25 and 35	35
Starting annual salary in noncovered job ($)	50,000	50,000	50,000	[e] 40,000 and 60,000
Nominal wage growth (%)	3.8	3.8	3.8	[e] 3.3 and 4.3
Discount rate (%)	5.3	5.3	5.3	5.3
Age at retirement	65	65	65	65
Years in noncovered employment	12	5 and 12	12	12

SOURCES: Authors' research based on intermediate assumptions of the 2018 *Trustees Report,* Munnell and others (2012), and plan actuarial valuation reports.

NOTE: Cells containing two values indicate the variable(s) that the given chart compares.

a. Varies from plan to plan.

b. In the numerator of the counterfactual wealth ratio equation, lifetime earnings in covered employment are credited; in the denominator, total lifetime earnings from covered and noncovered employment are credited.

c. FRA for the hypothetical worker (born 1993).

d. Adjustment is applied to covered Social Security wealth (in the numerator of the counterfactual wealth ratio equation) but not to the counterfactual Social Security wealth calculation (the denominator of that equation).

e. The "low earner" is assumed to have a $40,000 starting salary and 3.3 percent wage growth; the "high earner" is assumed to have a $60,000 starting salary and 4.3 percent wage growth.

Notes

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[1] This article refers to various recent editions of the *Trustees Report.* Current and previous *Trustees Reports* are available at https://www.ssa.gov/OACT/TR/index.html.

[2] A single government may employ both covered and noncovered workers. Early amendments prohibited many states from enrolling police officers and firefighters, but other employee groups could elect Social Security coverage with a referendum by secret ballot. In 1983, existing and future Section 218 agreements were made irrevocable. Most state and local government employees are covered by Medicare, which became mandatory for new hires in 1986. All states were allowed to enroll police and firefighters beginning in 1994. For detailed information about Section 218 agreements, see https://www.ssa.gov/slge/sect_218_agree.htm.

[3] Further, the regulators focused on old-age benefits for the primary earner, without requiring public pensions to provide spousal, survivor, or disability benefits comparable to Social Security's.

[4] For a detailed introduction to Revenue Procedure 91-40, see https://www.ssa.gov/slge/revenue_procedure_91-40.htm. The formula approach was adopted because the administrative burden of confirming benefit levels for every plan member individually would have been excessive.

[5] Note the distinction between the Social Security FRA and the varying NRAs set by individual state and local government retirement plans.

[6] Many traditional defined benefit pensions calculate benefits with the formula of FAS times the benefit multiplier times years of tenure.

[7] In Appendix A, Table A-1 lists the 38 retirement systems in our final sample and Table A-2 lists the other 18 systems covered by either our survey or the NASRA survey. We found that large state-administered retirement systems are more likely to share information with researchers. Teachers and other state employees typically participate in the large retirement systems administered by their states, whereas local employees—especially police and firefighters—often participate in small, locally administered retirement systems, which are less likely to appear in the final sample. Table A-3 presents the estimated shares of all state and local pension plan participants in each state who are included in our sample. With a few exceptions, we were able to gather information for sizable majorities of state and local defined benefit plan members.

[8] Kan and Aldeman (2014) likewise found that teachers are least likely to be covered.

[9] The longer the period, the lower the FAS.

[10] The WEP reduces the PIA of workers who receive both Social Security benefits and pensions based on their noncovered employment. The WEP aims to counteract the progressivity of the PIA formula for noncovered workers whose AIMEs would understate their full lifetime earnings. See Brown and Weisbenner (2013) for a detailed discussion of the WEP.

[11] This methodology for comparing a Safe Harbor–compliant formula with Social Security is described in IRC Section 3121.

[12] Appendix B presents the calculation methodologies, including the details of these formulas.

[13] The starting salary is consistent with membership data published in pension plan actuarial valuation reports, if projected to 2028. The wage growth assumption is the long-run intermediate assumption of the 2018 *Trustees Report.* Public pension actuaries typically assume nominal annual wage growth between 5 percent and 10 percent during the first 10–15 years of public employment, decreasing to around 4 percent after 20 years. Because that earnings profile is very steep relative to private-sector profiles estimated by the Federal Reserve Bank of Atlanta's *Wage Growth Tracker,* this study adopts wage-growth assumptions consistent with those of the SSA actuaries, which reflect private-sector employment.

[14] This distribution of tenure accounts for workers who switch jobs while remaining in the same retirement system (for example, a teacher who moves to a different school district within the state). It underestimates tenure for workers who move to a public-sector job covered by a different retirement system but are able to transfer their tenure credits to the new system. Although some locally administered pension plans have tenure reciprocity agreements with state-administered plans in the same state, cross-state reciprocity agreements are relatively rare.

[15] In Appendix C, Table C-1 summarizes the underlying economic and demographic assumptions and Table C-2 presents the year-by-year estimated benefits.

[16] Appendix B describes the calculation methodology and Appendix Table C-1 presents the underlying economic and demographic assumptions.

[17] Appendix Table C-2 presents the year-by-year estimated benefits plotted in Chart 3.

[18] This return assumption equals the assumed long-run real Treasury yield from the 2018 *Trustees Report* plus inflation.

[19] The present-value calculations employ a 50-50 male-female split of the cohort mortality tables developed for the

2017 *Trustees Report.* The cohort tables were obtained on request from the SSA's Office of the Chief Actuary. Appendix B describes the present-value formulas.

[20] Appendix Table C-1 presents the underlying economic and demographic assumptions.

[21] Vesting periods in plans for noncovered state and local government workers are long relative to those of private-sector defined contribution plans. The Pension Protection Act of 2006 requires that private-sector employer contributions to defined contribution plans vest after a 3-year cliff or on a 6-year graded schedule. Consequently, around 50 percent of the plans managed by the Vanguard Group investment advisors have vesting periods no longer than 3 years (Vanguard 2018). Like private-sector defined contribution plans, most public-sector defined benefit plans require employees to contribute to prefund benefits. These contributory plans frequently allow nonvested members who separate from the government to withdraw their employee contributions, which have earned a low rate of interest. Consistent with Kan and Aldeman (2014), this analysis does not treat withdrawn contributions as retirement benefits.

[22] The distribution of vesting periods is bimodal, with peaks at 5 years and 10 years. Consequently, small changes in the sample of benefit formulas can produce large shifts in the median vesting period. Although plans do not frequently change their vesting periods, the three plans covering teachers and university faculty in Illinois extended their vesting periods from 5 years to 10 years following the 2008 financial crisis.

[23] Appendix Table C-3 presents the economic and demographic assumptions used to calculate counterfactual wealth ratios for the hypothetical worker.

[24] We assume that the worker claims pension benefits at his or her NRA because incorporating early retirement provisions would require peak wealth calculations (see Coile and Gruber 2007).

[25] The worker is assumed to live until at least age 25, and then have a positive probability of dying in each subsequent year. This mortality assumption rewards state and local plans with early NRAs. The discount rate is the long-run nominal interest rate from the 2018 *Trustees Report.*

[26] Relatively few nonvested workers have more than 5 years of tenure. Munnell and others (2012) show that only 16 percent of newly hired state and local government employees stay in their jobs for 6 to 10 years. Moreover, studies have shown that public employees adjust their separation patterns in order to vest in their pensions (Quinby 2020 reviews the literature).

[27] The difference in wage growth is designed to simulate a college-educated worker and a high-school educated worker, based on the Federal Reserve Bank of Atlanta's *Wage Growth Tracker.*

[28] Financial economists frequently contend that the funded ratios reported by plan sponsors overstate plan health because the rates used to discount future liabilities are artificially high (Brown and Wilcox 2009; Novy-Marx and Rauh 2009). Whereas public plans currently discount liabilities by the assumed return on assets in the trust fund (around 8 percent historically), financial economists recommend discounting liabilities using a rate that reflects the risk of default on the pension debt.

[29] The estimation methodology is similar to those in Rauh (2010) and Munnell and others (2011).

[30] The 5.3-percent return assumption is consistent with the 2018 *Trustees Report.*

[31] The six plans are the Chicago Public School Teachers' Pension and Retirement Fund, the Illinois State Employees' and State Universities Retirement Systems, the Kentucky Teachers' Retirement System, the Louisiana State Employees' Retirement System, and the Ohio Teachers' Retirement System.

[32] For example, the city of Chicago revised its funding policy in 2016 and 2017 (Public Acts 99-0506 and 100-0023, respectively) to raise the funding levels for police and municipal worker pensions to 90 percent by 2058.

[33] The analysis assumed an 8 percent annual return on assets (Commission to Strengthen Chicago's Pension Funds 2010).

[34] The interest rate is not disclosed in the actuarial valuation reports or other publications for members. The contribution rate varies over time, depending on the statutory employer contribution rate.

[35] In general, the exhaustion dates estimated in this analysis are positively correlated with counterfactual wealth ratios—suggesting that plans with robust finances also offer more generous benefits—but the association is very weak (a correlation coefficient of 0.08).

[36] Warshawsky and Marchand (2016) suggest a methodology for valuing underfunded pensions.

[37] Unlike Social Security, state and local government plans do not permit households to receive a separate spousal benefit based on the government employee's work history. Survivor benefits are also typically less generous in nonfederal government plans because they require retirees to purchase a joint-survivor annuity at the cost of reduced monthly income. Most government pensions offer disability insurance, but we are not aware of research establishing whether these benefits are comparable with those from Social Security.

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