



December 2012

RETIREE BENEFITS IN PUBLIC PENSION SYSTEMS

This 12/21/12 revision corrects portability calculations presented in Exhibit 10 and Appendix D.

The 2012 Legislature directed the Washington State Institute for Public Policy (Institute) to evaluate pension benefits provided by public employers in Washington and other states.¹ The legislation calls for an examination of public plans':

- benefit levels and adequacy;
- benefit portability; and
- impacts from overtime and excess compensation.

The assignment is detailed in Appendix A.

The Institute consulted with the Office of the State Actuary, Department of Retirement Systems, and local government plan sponsors in conducting this study.² We surveyed public pension plans in the 50 states to compare benefit levels. We also analyzed state data on recent retirees in Washington State to examine overtime and excess compensation. Finally, we contracted with a professional actuary who has expertise in public employee retirement systems to review our methods and findings.³

The report is organized in three parts:

- Part 1: Public Pensions in Washington and Other States
- Part 2: Portability of Local Public Pensions
- Part 3: Overtime and Excess Compensation Analysis

¹ Supplemental Operating Budget § 606 (13), 2012 Wash. Sess. Laws 2225

² Suggested citation: Pennucci, A., Bauer, J., Lee, S., & DeShazo, A. (2012). *Retiree benefits in public pension plans* (Document No. 12-12-4101r). Olympia: Washington State Institute for Public Policy.

³ Mark C. Olleman, FSA, MAAA, EA, Consulting Actuary with Milliman. <http://www.milliman.com/why-milliman/consultants/olleman-mark.php>

Summary

The 2012 Legislature directed the Institute to evaluate three topics related to public pension policies: benefit levels, portability, and excess compensation.

Pension Benefit Levels. We surveyed all 50 states to analyze pension plan features and benefit levels. To provide an “apples-to-apples” comparison, we calculated pension benefits using an “income replacement” measure (the percentage of a worker’s salary replaced by the pension at the time of retirement).

We found that, for general state employees and teachers, Washington’s pension plans provide income replacement near the average of the state systems reviewed. For law enforcement and fire fighters, Washington’s benefit levels are in the lower end of the distribution among state pension plans.

Benefit Portability. We collected information about local public pension plans in Washington State. Most local governments enroll their employees in the state systems. We identified five public entities that sponsor their own plans. For defined benefit plans, Washington’s portability laws reduce, but do not eliminate, the reduction in benefits for workers who move between state and local public plans. The portability rules do not apply to defined contribution plans.

Excess Compensation. Washington’s excess compensation law requires public employers to increase contributions to the state pension fund if a retiree’s pensionable income is more than twice the salary earned in the last year of working. Such late-career compensation growth may be due to substantial increases in overtime hours.

To examine this issue, we analyzed salary histories of all recent state retirees. On average, we did not find systematic increases in hours worked in the years just prior to retirement. There are, however, exceptions; a small fraction of employees work substantially more in the years that determine their pension benefits than they did in earlier years.

We gratefully acknowledge the helpful assistance from the Office of the State Actuary and Department of Retirement Systems as we conducted this study.

OVERVIEW

PUBLIC PENSION BENEFIT LEVELS. Of the questions raised in the study legislation, the adequacy of retirement benefits is the most difficult to estimate. There is no agreed-upon standard for post-retirement income levels, in absolute or relative terms.

The level of benefits provided in various public pension plans, however, can be estimated given a set of common assumptions. In this report, we compare benefit levels using the percentage of a worker's salary that is replaced by pension benefits at the time of retirement (for simplicity, we call this measure "income replacement").⁴

Washington's state pension income replacement for general employees and teachers is near the average of 65 state pension plans reviewed. For law enforcement and fire fighters, Washington's state pension income replacement is in the lower end of the distribution among 43 plans in other states.

PUBLIC PENSION BENEFIT PORTABILITY. Most local governments in Washington State enroll their employees in the state retirement systems. We identified five public entities that sponsor their own plans outside of the state system.⁵ The three first-class cities (Seattle, Spokane, and Tacoma) have defined benefit (DB) plans.

In DB plans, salary contributions are pooled across participants and pension benefits are guaranteed for life. Pension benefits are determined by a formula based on years of service, average salary, and a benefit multiplier.

⁴ This measure is frequently used by researchers, policy analysts, and actuaries to evaluate pension benefits. More complex metrics, such as the net-present value of pension wealth, would take into account factors such as cost-of-living adjustments (COLAs), which can substantively alter the value of pension benefits over the life span. To minimize the number of assumptions required to estimate pension benefit levels, we opted to use the simpler income replacement measure for this comparative study.

⁵ This review excludes optional 401(k)-type deferred compensation plans that supplement the state retirement systems.

Washington's pension portability laws decrease, but do not eliminate, the reduction in benefits for workers who move between state and local public defined benefit (DB) plans.

At least two local governments in Washington State sponsor defined contribution (DC) plans rather than a DB plan (the City of Lakewood and Sound Transit). DC plans are similar to private 401(k) plans. These plans accumulate salary contributions in an individual investment account. DC benefit levels are less predictable than in DB plans because their value depends on investment performance.

In DC plans, the benefits are more portable—that is, they are not tied to years of service with a single employer. Mobile workers who move among state DB plans and local public DC plans may incur benefit reductions, but Washington's portability laws do not apply to DC plans.

EXCESS COMPENSATION AND OVERTIME.

Washington's excess compensation law requires public employers to increase contributions to the state pension fund if a retiree's pensionable income is more than twice the salary earned in the last year of working. Such late-career compensation growth may be due to substantial increases in overtime hours.

We examined work histories for recent state pension plan retirees. These histories include information on ten years of earnings and hours worked and allow us to discern if behavior changes during the period in which average final compensation (AFC) is determined. On average, we did not find pervasive, systematic increases in hours worked during AFC periods. There are, however, exceptions; a small fraction of employees work substantially more in later years than they did in earlier years.

PART 1: PUBLIC PENSIONS IN WASHINGTON AND OTHER STATES

The Washington State Legislature directed the Institute to compare Washington's state public pension plans with other states' plans. We begin with an overview of Washington State pension systems, and then compare plan features and benefit levels among states.

The sub-sections are organized as follows:

- 1A) Washington State Pension Plans
- 1B) Comparison of Public Pension Plans across the United States

1A. WASHINGTON STATE PENSION PLANS

Exhibit 1 lists Washington State's major retirement systems.⁶ The systems provide pension benefits to general state employees, teachers and school staff, and public safety personnel. Each system includes one to three pension plans. Which plan employees join depends on where they work and when they were hired.

Exhibit 1
Washington State Pension Plans

System	Plans		
	1	2	3
Public Employees' Retirement System (PERS)	✓	✓	✓
Teachers' Retirement System (TRS)	✓	✓	✓
School Employees' Retirement System (SERS)		✓	✓
Public Safety Employees' Retirement System (PSERS)		✓	
Law Enforcement Officers' and Fire Fighters' Retirement System (LEOFF)	✓	✓	
Washington State Patrol Retirement System (WSPRS)	✓	✓	

WSIPP survey of state plans (see Appendix B).

⁶ Because we had a short time frame for this study, we exclude plans for judges (now closed to new employees, who now join PERS) and TIAA-CREF for higher education faculty (this plan is not administered by the state). We also exclude optional "deferred compensation" plans.

Plans 1. Washington State began offering public employee pensions soon after the creation of Social Security in 1935. The Teachers' Retirement System (TRS) opened in 1938,⁷ and the Public Employees' Retirement System (PERS) and Washington State Patrol Retirement System (WSPRS) followed in 1947. The Law Enforcement Officers' and Fire Fighters' Retirement System (LEOFF) opened in 1970 to consolidate local police and fire fighters into a state system.⁸

These first generation pension plans were closed to new employees starting in 1977.

Washington's early public pension plans provide retirees with a "defined benefit"—a monthly payment for life based on a formula. The formula includes an employee's years of service, highest salary, and a set benefit multiplier (2%):

Plans 1 Benefit Formula

$$\text{Pension Benefit} = \text{Up to 30 years of service} \times \text{Average of 2 highest salary years} \times \text{2\% multiplier}$$

An employee must work five years before becoming eligible to eventually collect these benefits. This eligibility requirement is called "vesting." A pensioner's years of service, including vesting years, are counted in the benefit formula. Individuals can draw retirement benefits after 30 years of service.⁹ WSPRS and LEOFF have earlier retirement ages (see Appendix B for details).

To illustrate: a state employee who retires after 30 years with \$50,000 highest average salary would have a PERS annual pension benefit of \$30,000:

For example:

$$\$30,000 = 30 \times \$50,000 \times 2\%$$

⁷ The Judges Retirement Fund, now closed, pre-dated TRS by one year (1937).

⁸ <http://www.drs.wa.gov/employer/employerhandbook/chpt1/history.htm>

⁹ Plans 1 members can also retire at age 60 (vested at five years) or age 55 with 25 years of service.

Public employers and employees contribute a percentage of employee salaries to the pension fund.¹⁰ The combined contributions are invested by the Washington State Investment Board (WSIB). Investment returns pay for most of the plan's benefits.¹¹

If a person leaves state employment before vesting (five years), there is no formula benefit. The employee contributions plus interest can be withdrawn (with tax penalties) or rolled over into a new retirement account. If a member is vested and leaves employment before their retirement age, they have the option to leave their contributions in the account while accruing interest. A member may collect their benefit when they reach the age of normal retirement with five years of service.

Plans 2. In 1977, Washington State opened new "Plan 2" pensions and PERS, TRS, and LEOFF (now referred to as "Plans 1") were closed.¹² New employees who would have previously joined Plans 1 instead enrolled in Plans 2. Like Plans 1, the new plans were designed to give retirees a "defined benefit" for life following the same basic formula, although there are differences in retirement ages and other provisions.

The Plans 2 have a set retirement age; members cannot collect pensions before age 65 without reductions in benefits.¹³ The Plans 2 also have a longer time frame for the average final salary period (five years rather than two). There is no service cap for Plans 2 (service beyond 30 years counts in the benefit calculation) and Plans 2 members get an automatic cost-of-living adjustment (COLA).¹⁴

¹⁰ Plans 1 employees contribute 6% and employers contribute an actuarially determined amount.

¹¹ http://www.leg.wa.gov/SCPP/Documents/2008/Pensions_101.pdf

¹² One reason for this change was to address the actuarial funded status of the plans. As of November 2012, the PERS 1 funded ratio was 71% (81% for TRS 1); all other Washington State plans' funded ratios are over 100%. See http://osa.leg.wa.gov/Actuarial_Services/Publications/PDF_Docs/Presentations/SOSP-WSIB11-15-12.pdf

¹³ The 2012 Legislature set the early retirement factors (ERFs) at a reduction of 5% of benefits per year younger than 65.

¹⁴ Up to 3% based on the Consumer Price Index (CPI). For Plans 1, COLAs are not automatic and must be authorized in new legislation, except for LEOFF 1 which has an automatic COLA.

Plans 2 Benefit Formula

Pension Benefit	=	Years of service	X	Average of 5 highest salary years	X	2% multiplier
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WSPRS Plan 2 was created in 2003, after some systems had already introduced a new type of plan, the "Plans 3."

Plans 3. In 1996, Washington State began to offer teachers a "Hybrid" retirement option (TRS 3) which includes both a DB and a DC component. DC retirement plans are similar to 401(k) plans, which were becoming more common in the private sector. In DC plans, the accumulated contributions plus interest and investment returns are distributed as a lump sum upon retirement.¹⁵

The rationale for adding a DC component was to improve the portability of pensions, given an increasingly mobile workforce and desires to benefit from stock market gains during this period.¹⁶

In Washington State's Plan 3 pensions, employees contribute to the DC component and employers contribute to the DB component. The defined benefit is half the amount as in Plans 1 and 2 (a 1% multiplier instead of 2%). The vesting period is longer (ten versus five years).¹⁷ Plans 3 early retirement requires fewer service credit years (ten versus twenty years as in Plans 2).

¹⁵ Retirees can also purchase annuities that convert the lump sum into a stream of payments similar to a DB plan.

¹⁶ The enacting legislation for TRS 3 indicated intent for "a new public retirement system that balances flexibility with stability, provides both increased employee control of investments and responsible protection of the public's investment in employee benefits, and encourages the pursuit of public sector careers without preventing employees from transitioning into other public or private sector employment." Teachers' retirement system plan III, 1995 Wash. Sess. Laws 805.

¹⁷ Plans 3 members can vest in five years if at least one year of service occurred when the employee was older than age 44.

Plans 3 Benefit Formula

$$\text{Pension Benefit} = \text{Years of service} \times \text{Average of 5 highest salary years} \times \text{1\% multiplier} \\ \text{-plus-} \\ \text{Defined contributions, interest, and investment returns}$$

Plans 3 in SERS and PERS were opened to new employees in 2000 and 2002.

For the DC component, individuals can choose to invest 5-15% of their salary and can direct how contributions are invested.¹⁸ For this part of the plan, there is no guaranteed post-retirement income. The value of a worker's DC assets upon retirement is determined by contribution levels and investment performance. There is no vesting requirement for the DC component; if public employees leave their positions before the end of the vesting period, they can take their contributions plus interest with them.

Exhibit 2 displays the number of members in each of Washington's major pension plans. Exhibit 3 summarizes the main characteristics of Plans 1, 2, and 3.

Exhibit 2

2011 Membership by Washington Pension Plan and Employment/Retirement Status

System		Plans		
		1	2	3
PERS	Employed	7,733	117,096	27,588
	Retired	53,264	24,711	1,388
TRS	Employed	3,740	10,285	52,178
	Retired	36,118	2,657	2,934
SERS	Employed		20,784	31,548
	Retired		3,823	2,605
PSERS	Employed		4,187	
	Retired		15	
LEOFF	Employed	250	16,805	
	Retired	7,932	2,015	
WSPRS	Employed	767	315	
	Retired	875	0	

Data source: Office of the State Actuary, Actuarial Valuation Report, Washington, September 2012

Exhibit 3

Washington State Pension Plan Features

System	Plans		
	1	2	3
Years to vest	5	5	10
Normal retirement age (NRA)	NA*	65	65
Earliest possible retirement age	NA	55**	55**
Average final salary period (yrs)	2	5	5
Benefit multiplier	2%	2%	1%
Automatic COLA***	No	Yes	Yes
Maximum years of service	30	NA	NA
DC component	No	No	Yes

WSIPP survey of state plans (see Appendix B)

*Any age with 30 years experience, age 55 with 25, or age 60 with 5.

**With benefit reductions for each year between ages 55-65.

***Indexed to Consumer Price Index up to 3%.

¹⁸ Individuals can manage their own investments under the "self-directed investment program" (SDIP), or choose to have their contributions directed to the WSIB to be invested in the "total allocation portfolio" (TAP).

1B. COMPARISON OF PUBLIC PENSION PLANS ACROSS THE UNITED STATES

This section describes retirement plans in other states and presents a comparative analysis of benefit levels.

How were plans selected for comparison? The design of public retirement systems is complex. Each plan has its own eligibility criteria, retirement ages, contribution rates, benefit calculation factors, and distribution methods. To compare like-plans to like, we limit our review to open state public pension plans that:

- cover general state employees, teachers, and/or law enforcement and fire fighters;¹⁹
- are the most recently opened plan in the state that is currently enrolling new hires; and
- allow members to pay into Social Security (as Washington State employees may do).²⁰

Our review includes 65 plans for general state employees and teachers, and 43 for law enforcement and fire fighters. Institute staff searched plan documents, laws, rules, and websites of state-administered retirement systems in each of the 50 states. Appendix B provides details on each plan included in our comparative review.

¹⁹ We selected general state employees and teachers because they represent two of the largest systems (PERS and TRS). We examined law enforcement and firefighter plans separately because they tend to have lower retirement ages. We did not collect comparative information for other retirement systems in Washington because we had a short time frame for the study.

²⁰ This excludes plans from these states: Alaska, Colorado, Louisiana, Maine, Massachusetts, Nevada, and New Hampshire. It is important to note that Washington members of LEOFF and WSPRS plans have the option to choose whether to contribute to Social Security, and most do not. Likewise, in many state plans, such as California STRS, most employees opt out of Social Security; they are included in our analysis because individuals can choose to opt in.

The following summary highlights key features of state public pension plans:

- Plan type (DB, DC, or Hybrid)
- Vesting rules
- Retirement ages
- Experience requirements
- Contribution rates
- Benefit calculation factors
- Cost of living adjustments (COLAs)

Plan Type. Of the 65 state plans for general employees and teachers included in our review, 50 (77%) are DB plans. We also identified four DC plans and 11 Hybrid plans.

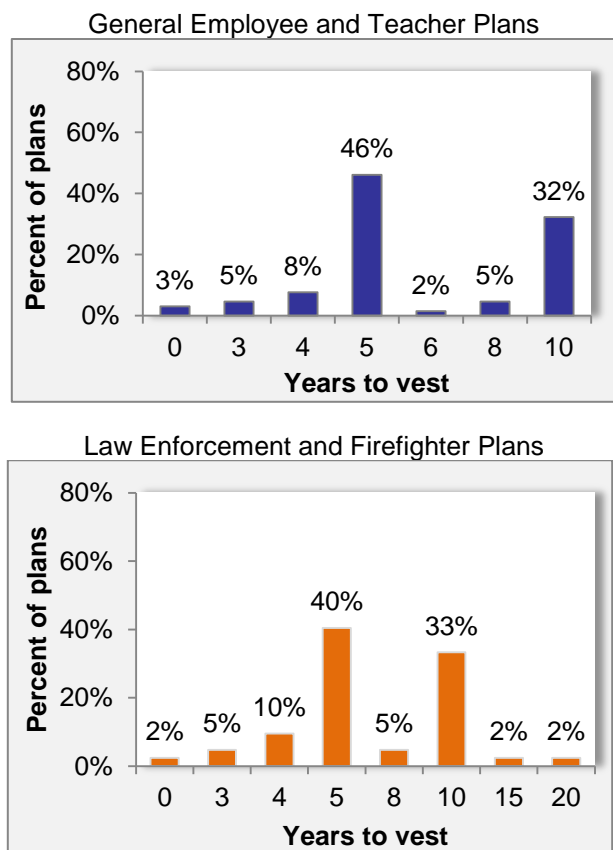
Thirty-eight (88%) of the 43 state pensions reviewed for law enforcement and fire fighters are DB plans; one is DC and four are Hybrid.

Vesting. In most (78%) of the open public plans reviewed, employees vest at five or ten years (see Exhibit 4). The average of the total vesting years across plans is seven years. Most of Washington's open plans require ten years to vest for DB retirement; LEOFF and PSERS plan members vest in five years.

Normal Retirement Age. Among the plans we reviewed, the most common age for normal retirement is 65. Because some plans allow for earlier retirements, the average normal retirement age is 63.5 years. In Washington State, normal retirement age is 65 for general plans and teachers, and 55 for law enforcement and fire fighters.

Service Credit Years. In DB and Hybrid plans, once members reach normal retirement age, they can retire and receive benefits if they have worked a certain number of years (usually five; the average is 6.5). Some plans require as many as ten years of service before an individual can retire with full benefits. In Washington State, Plans 1 and 2 require five, and Plans 3 require ten.

Exhibit 4 Vesting Requirements



WSIPP survey of state plans (see Appendix B)

Early Retirement. Among the plans reviewed for this report, early retirement is usually allowed at age 55, with reductions in benefits. The average number of required service credit years for early retirement is 11, but the most common number of service years required to retire early is five.

When individuals retire early, their benefits are reduced by a certain amount based on how far they are from normal retirement age. The most frequent benefit reduction percentage is 5% per year younger than normal retirement age.²¹

Employee Contribution Rates. To fund pensions, employees contribute 5% of their salary, on average. Some employees contribute as much as 10%, and some as little as 2%. Some plans are “non-contributory”—

only the employer contributes to the pension fund. We identified two non-contributory plans for general employees and teachers, and five for law enforcement plans.

Employer Contribution Rates. For general and teacher plans, the most common employer contribution is 6%, while the average is 12%. Some employers pay up to 34% for pension benefits. For law enforcement and fire fighters, the employer contributions tend to be higher—an average of 17% and a maximum of 61%.

Benefit Multiplier. The most frequent benefit multiplier used in the average final compensation calculation (AFC) is 2%, the same as Washington’s Plans 1 and 2. (See Exhibit 5, next page). The average multiplier is 1.84%. The highest benefit multiplier is 3.13%, and the lowest is 1%. Law enforcement and firefighter plans tend to have higher multipliers (average of 2.2%).²²

Hybrid plans generally have lower benefit multipliers because the plans include a DC component. For example, in Washington, the Hybrid Plans 3 benefit multiplier is 1%, and 2% in the DB Plans 1 and 2.

Average Final Compensation (AFC) Years. Most of the DB and Hybrid plans reviewed calculate retiree benefits based on the highest average salary in a three or five year period (see Exhibit 6, next page).

Cost-of-Living Adjustments (COLAs). A COLA increases the retiree’s benefit based on the changes of the Consumer Price Index (CPI). The adjustments are granted annually and can be automatic or on an ad hoc basis. Of the general and teacher plans reviewed, 57% offer an automatic post-retirement COLA. In 29% of the plans, COLAs are determined by the state legislature or the funded ratio of their plan. Nine plans do not offer a post-retirement COLA (some recently suspended theirs). Of plans that do offer an automatic COLA, 38% are a fixed amount, the average being 2.5%, with 3% being the most common.

²¹ This is the amount that Washington changed its early retirement factors to in 2012; it was previously 3%.

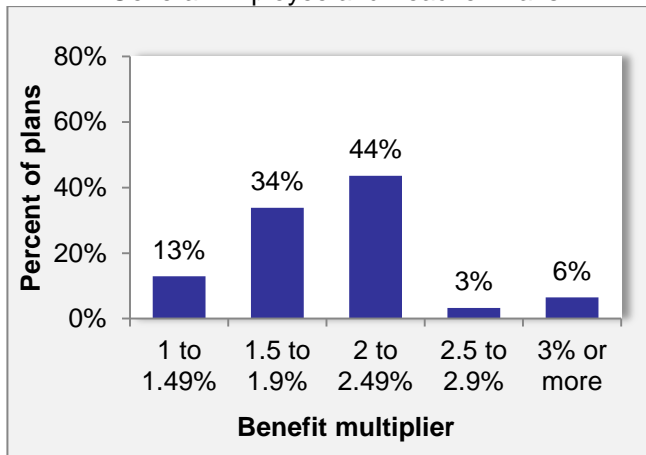
²² Washington LEOFF and WSPRS plan members can opt to pay in to Social Security, and most choose not to.

Washington’s Plans 2 and 3 offer a COLA (up to 3%, indexed to the Consumer Price Index), but not the closed Plans 1.²³ The percentage of law enforcement and firefighter plans that offer COLAs is similar to general and teacher plans.

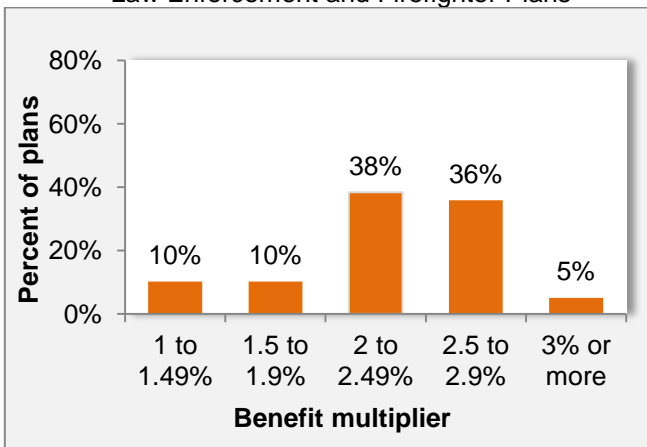
DC plans do not have COLAs. Retirees from DC plans can purchase a life-annuity that may include a COLA, such as Washington’s Total Allocation Portfolio (TAP) annuity.²⁴

**Exhibit 5
Benefit Multipliers**

General Employee and Teacher Plans



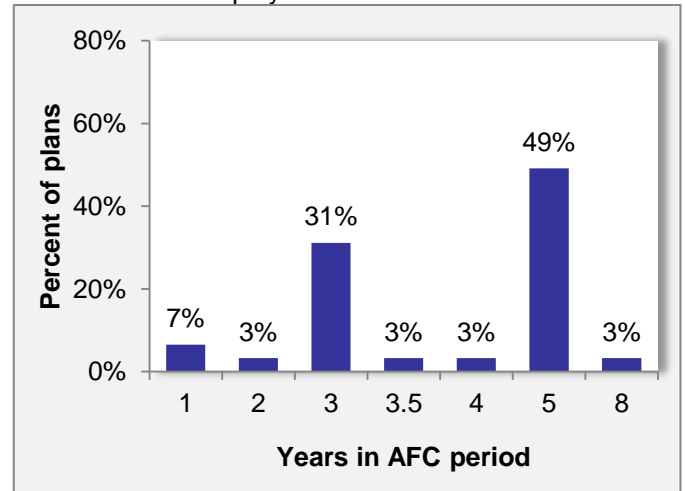
Law Enforcement and Firefighter Plans



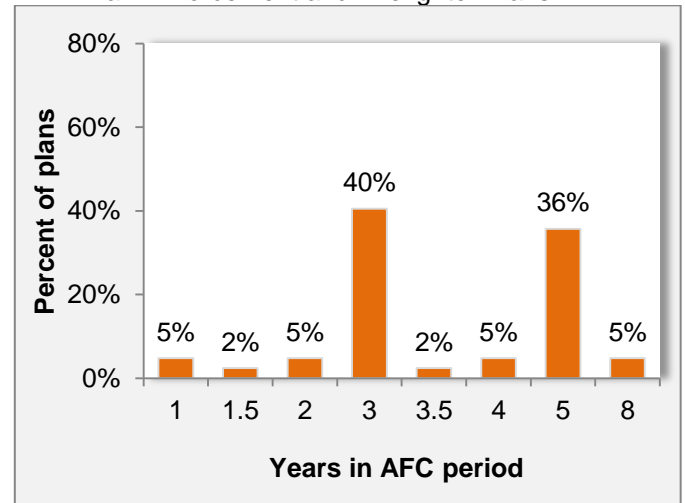
WSIPP survey of state plans (see Appendix B)

**Exhibit 6
AFC Periods**

General Employee and Teacher Plans



Law Enforcement and Firefighter Plans



WSIPP survey of state plans (see Appendix B)

²³ Washington Plans 1 allow members to decide whether they want to reduce their benefit multiplier and receive a COLA after they retire. The maximum COLA option is the same as Plans 2/3, up to 3% annually.

²⁴ Plan 3 retirees in Washington can opt to purchase a TAP Annuity under RCW 41.34.060. This annuity product offers an automatic 3% annual COLA and currently grows at the Pension Funding Council rate of 7.9%.

Plan by Plan Comparison of Benefit Levels

Of the questions raised in the study legislation, the adequacy of retirement benefits is the most difficult to estimate. There is no agreed-upon standard for post-retirement income levels, in absolute or relative terms.

The level of benefits provided in various pension plans, however, can be estimated and compared, given a set of common assumptions. In this report, we compare benefit levels using a metric commonly used by researchers, policy analysts, and actuaries—the percentage of a worker’s salary that is replaced by retirement benefits at the time of retirement, which we refer to as “income replacement.”²⁵

This income replacement measure allows us to directly compare pension benefits in different public plans for a certain person at a single point in time. Using salary history data from the Department of Retirement Systems (DRS), we developed earnings profiles of recent retirees. We then estimated what each profile’s income replacement would be in Washington’s and other state pension systems. The technical details are in Appendix C.

Assumptions. To construct an “apples-to-apples” comparison of different types of retirement plans, we had to make a variety of assumptions. First, we created earnings profiles for two hypothetical Washington retirees, one age 65 and one age 55,²⁶ both with 30 years of service. This allowed us to compute average final compensation (AFC) under the various plan definitions. We used assumptions about pension fund growth (7.9%) currently adopted by the Washington State Pension Funding Council. When comparing various state plans, we used default

contribution rates for each plan, and when plans had more than one possible benefit factor for retirees under a DB plan, we selected the midpoint. Key features of each plan, including AFC, contribution rates, and benefit factors, are described in Appendix B.

Limitations. This analysis examines only the state benefit portion of retirement income, and not other important sources such as Social Security and individual savings plans.

Because we examined benefit levels at the time of retirement rather than over the lifespan, the results do not account for provisions such as COLAs,²⁷ health or disability benefits, or joint (spouse) and survivor benefits.²⁸

In addition, because DC plans do not usually provide for automatic payment of benefits after retirement, we assumed that DC plan beneficiaries would not cash out a lump sum of benefits at retirement, but rather purchase an annuity that would guarantee them regular income for a number of years into the future. The details of all assumptions can be found in Appendix C.

²⁵ More complex metrics, such as the net-present value of pension wealth, would take into account plan provisions such as cost-of-living allowances (COLAs), which can substantively alter the value of pension benefits over the life span. To minimize the number of assumptions required to estimate pension benefit levels, we opted to use the simpler income replacement measure for this comparative study.

²⁶ For early retirement, we calculated benefits using the 5% (per year younger than 65) reduction in benefits set by the 2012 Legislature (SB 6378). For other states, we collected information about the plans’ early retirement percentage-per-year benefit reduction and calculated the benefits the same way.

²⁷ Our computations of first-year income replacement for DB plans (which make up the majority of plans) do not include COLAs; COLAs would not apply in the first year after retirement. However, our computations of income replacement for DC and Hybrid plans do. Because we must compute the long-term growth of DC plan investments in order to calculate the first-year income replacement, we necessarily had to assume post-retirement COLAs and a rate of growth for DC plans and the DC portion of Hybrid plans. These assumptions are described in detail in Appendix C.

²⁸ In many plans, these provisions are optional. Our estimates do not include these in order to minimize the number of assumptions made in our analysis.

Results. Exhibits 7 and 8 (next two pages) display the income replacement measure for each state plan reviewed.

For general and teacher plans, Washington's income replacement for a worker retiring at age 65 with 30 years of service is near average among states. The income replacement is 57% for Plans 2 and 56% for Plans 3.²⁹

Washington's general and teacher plans rank lower among states at the earlier retirement age (55). Plans 3 fall slightly below average and Plans 2 in the bottom quarter of states.

Washington's income replacement for law enforcement and fire fighters retiring at age 65 with 30 years of service is the same as for general and teacher plans (57%). These plans rank low (in the bottom quarter) in comparison with other states' plans for law enforcement and fire fighters.

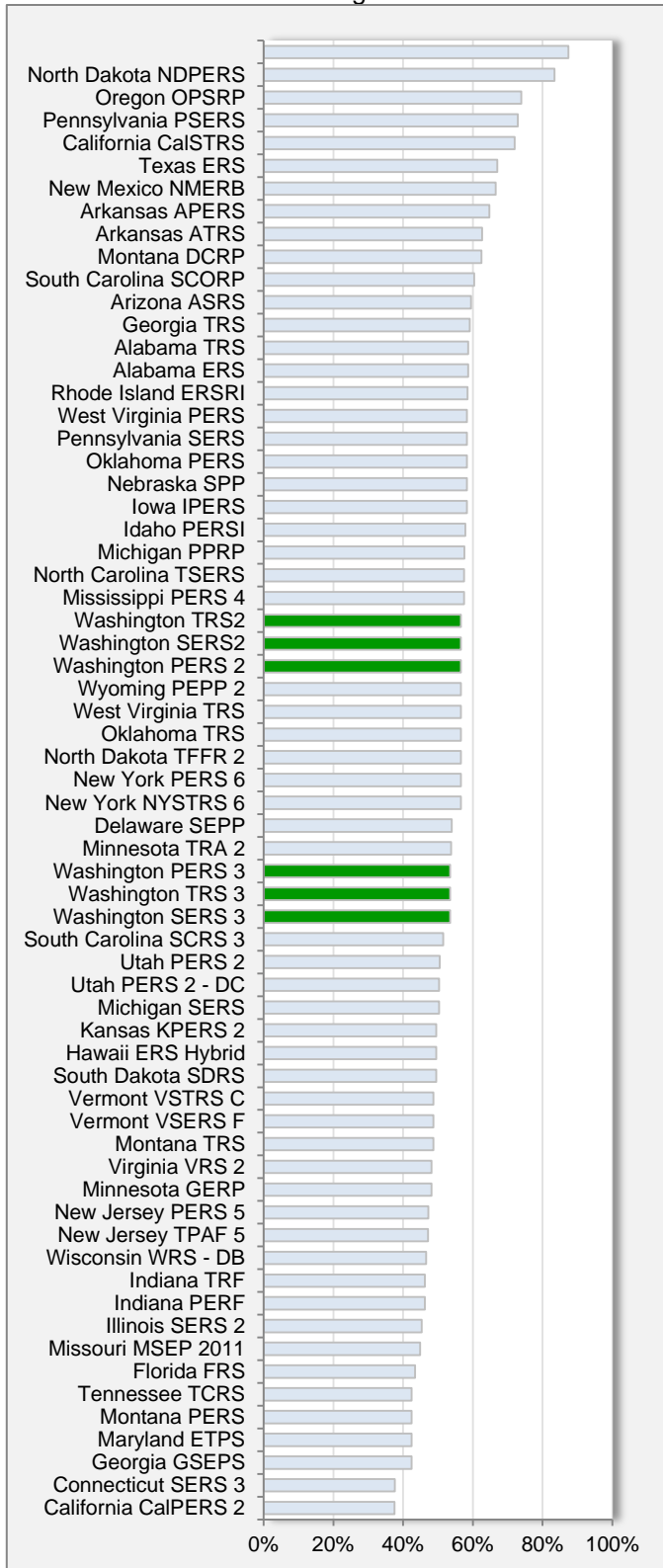
For an earlier retirement age (55), LEOFF 2 and WSPRS 2 provide the same income replacement (57%) and rank below average. For PSERS 2 members, retiring at age 55 involves an early retirement benefit reduction, so the income replacement is 48%, in the bottom quarter of the plans reviewed.

²⁹ For the DC component of Plans 3, we assume the default contribution rate (5% of salary). These plans would rank higher if employees opted for higher contribution rates.

Exhibit 7

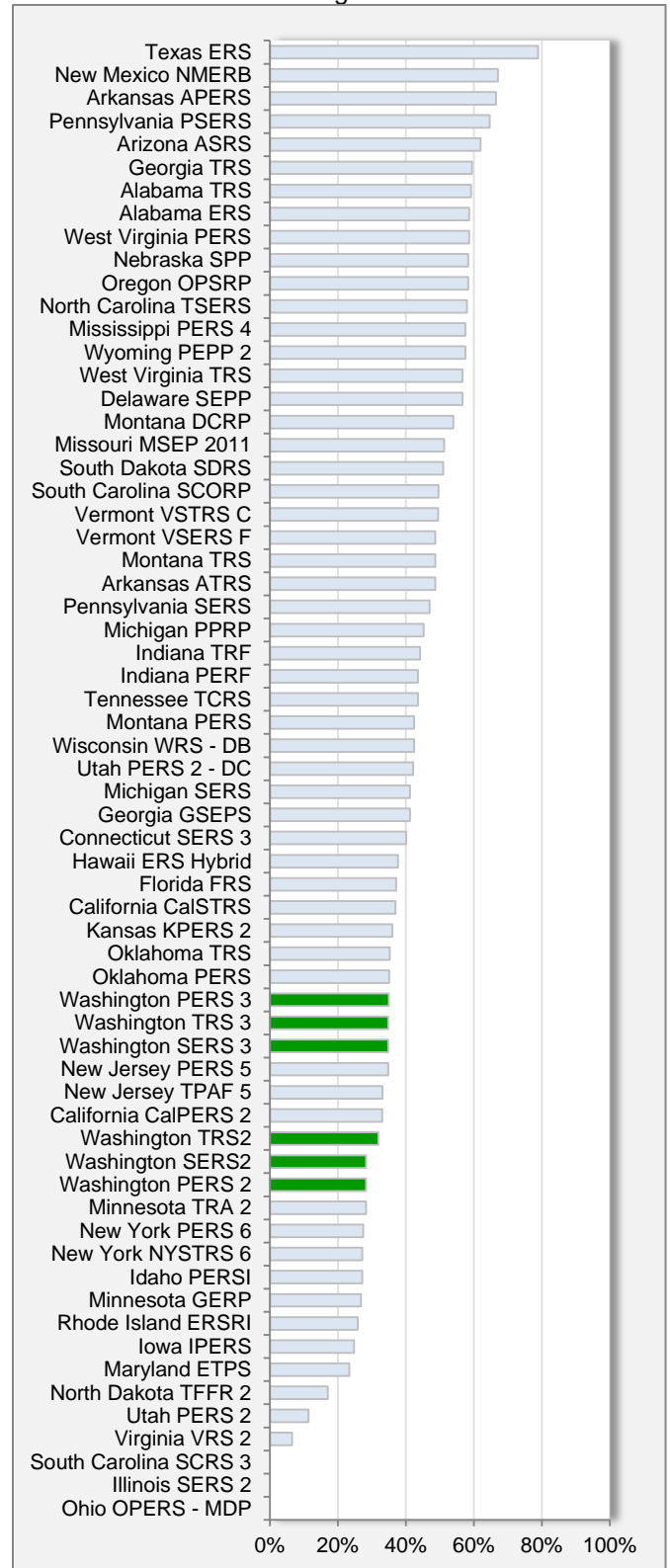
Income Replacement for General and Teacher State Retirement Plans

Retire at age 65



WSIPP analysis of state benefits (see Appendix C)

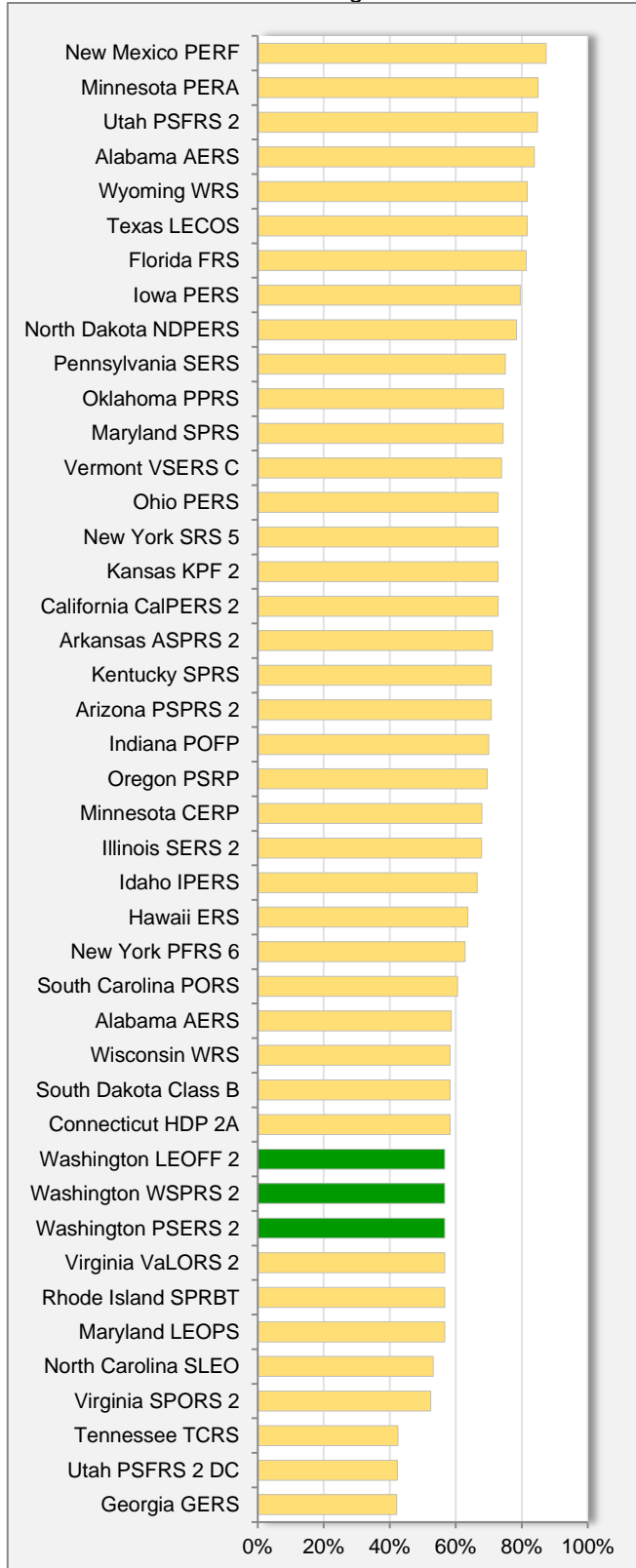
Retire at age 55



WSIPP analysis of state benefits (see Appendix C)

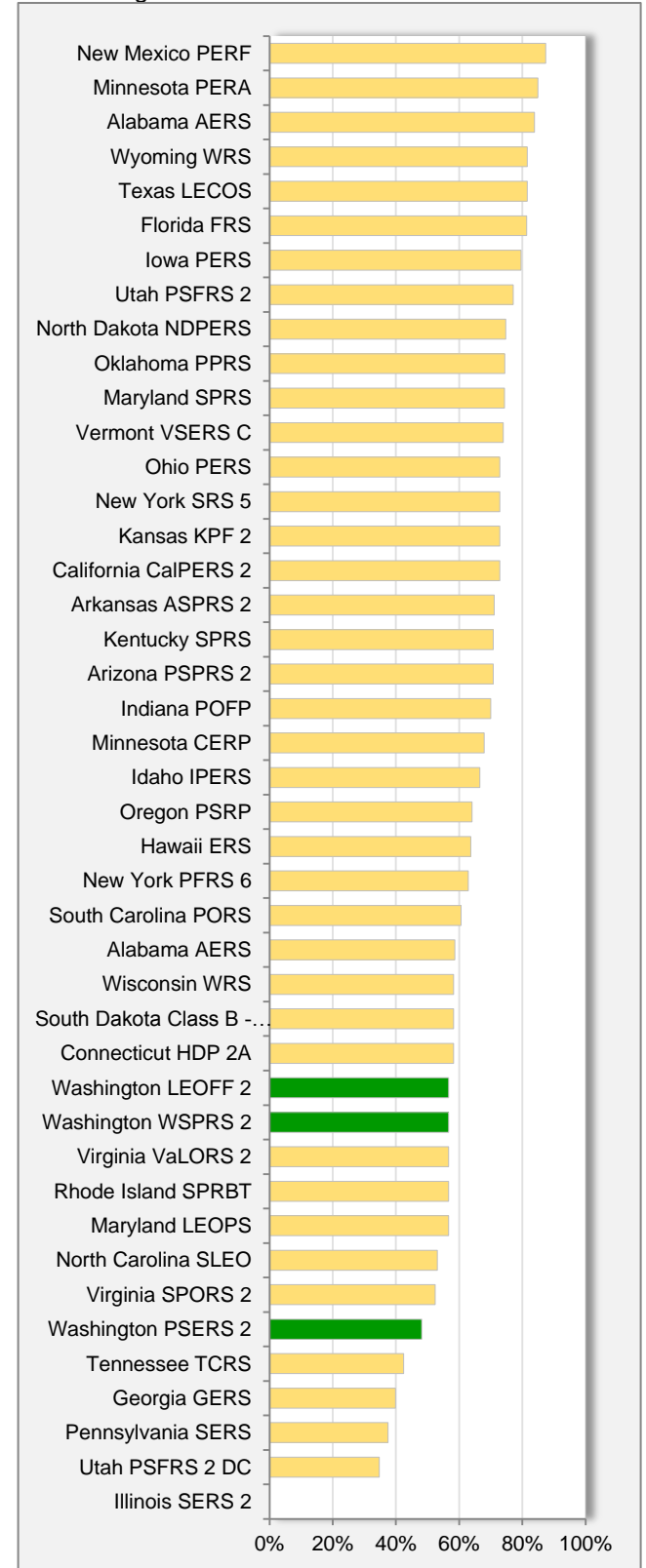
Exhibit 8
Income Replacement for Law Enforcement and Firefighter State Retirement Plans

Retire at age 65



WSIPP analysis of state benefits (see Appendix C)

Retire at age 55



WSIPP analysis of state benefits (see Appendix C)

PART 2: PORTABILITY OF LOCAL PUBLIC PENSION PLANS

Part of the legislative direction for this study calls for an examination of “barriers to the portability of retirement benefits between public employers in the state.” This section describes locally sponsored public retirement plans, defines “portability,” and describes policy options to address portability issues.

LOCAL PUBLIC RETIREMENT PLANS IN WASHINGTON STATE

Most public employers in Washington participate in one of the state-administered systems described in the previous section. All county and most city employees enroll in the state systems administered by the Washington State Department of Retirement Systems (DRS).

As shown in Exhibit 9, we identified only four cities that offer their own retirement plans in lieu of DRS-administered plans—the three first-class cities (Seattle, Tacoma, and Spokane), and Lakewood. Most other public employees (such as utilities, ports, and local law enforcement) participate in the state system. Sound Transit is one public entity that offers its own plan with no option to enroll in PERS or another state system.³⁰

³⁰ We identified these plans by conducting Internet searches and consulting with DRS, OSA, legislative staff and members, and retirement benefit professionals. Our list of local plans may not be exhaustive; we did not have time to conduct a comprehensive survey of all local governments in the state. Additionally, we did not review supplementary, optional defined contribution plans that many local governments offer in addition to the state-administered plans. We restricted our review to all locally sponsored plans that are the primary source of retirement benefits for local governments in Washington State.

Exhibit 9
Local Public Retirement Plans in Washington

Plan	Type
Seattle City Employees' Retirement System	DB
Spokane City Employees' Retirement System	DB
Tacoma Employees' Retirement Services	DB
Lakewood International City Management Association - Retirement Corporation (ICMA-RC) 401A plan	DC
(Sound Transit) Central Puget Sound Regional Transit Authority Pension Plan	DC

WSIPP review of local public plans

DB = defined benefit DC = defined contribution

All three first-class cities sponsor DB plans. For each, the benefit multiplier is 2% and the AFC period is two years (similar to the state's Plans 1).

Seattle. The City of Seattle's plan has a retirement age of 62 with five years of creditable service, or any age with 30 years. Employees vest after five years and contribute 10.03% of their salary to the fund (the city contributes 11.01%). The pension includes a post-retirement COLA of 1.5% per year. Members participate in Social Security.

Spokane. Spokane's plan has a retirement age of 62 with five years creditable service. Employees can also retire if they meet the “rule of 75” (age 50 with 25 years of service, or age 55 with 20 years, and so on). Employees vest after five years. Both employees and employers contribute 8% of salary to the pension fund. No post-retirement COLA is provided. Pension benefits are limited to 70% of the final average salary. Members participate in Social Security.

Tacoma. Tacoma's plan has a retirement age of 60 with any years of service, any age with 30 years, or the “rule of 80” (e.g., age 55 with 25 years). Employees vest after five years. Employees contribute 9.2% of salary and employers, 10.8%, to the pension fund. An automatic COLA is provided, depending on

the CPI. Members participate in Social Security.

Lakewood. In Lakewood, the city and employees make contributions to the International City Management Association-Retirement Corporation (ICMA-RC) Internal Revenue Code (IRC) 401(a) plan.³¹ The employee chooses how contributions are invested, given choices ranging from conservative (low risk) to aggressive (high risk). Employees vest 20% for each of first five years of service, after which they are fully vested.

Prior service credit in Washington State DRS plans is credited towards the vesting schedule in Lakewood. For example, if an individual had worked in a full-time job with a DRS-administered plan for two years, upon employment with the city of Lakewood, the employee would be 100% vested in three years.

Individuals covered under Lakewood's plan do not pay into Social Security; instead, the city and county contribute an additional percentage of salary for an "SS Replacement" plan.³²

Sound Transit. Similar to Lakewood, the Central Puget Sound Regional Trust Authority (Sound Transit) offers employees an ICMA-RC administered 401(a) retirement plan. Both employees and Sound Transit contribute to the benefits³³ and employees vest 20% per year of service for the first five years of service. Sound Transit also offers an optional Internal Revenue Code section 457 deferred compensation plan.³⁴ Members do not participate in Social Security.

Other Local Public Plans. Some public employers in Washington allow newly hired employees a choice between a local plan and a state plan. For example, the University of Washington offers employees a choice

between a state plan and the University's own tax-deferred DC plan.³⁵

For other public employers, such as the Port of Seattle, whether individuals join a DRS-administered plan or a local plan depends on whether their union offers retirement benefits. For example, while most Port employees are in a PERS plan, members of Local 32³⁶ instead join the Plumbers and Pipefitters DB pension plan.³⁷ The Port also matches employee contributions to a DC plan for up to \$2,200 annually.

Similar to most local public employers, Washington State retirement systems include an option for state employees to voluntarily participate in a DC plan.³⁸

WHAT IS "PORTABILITY"?

Pension portability refers to the ability of workers to change jobs without losing value in their retirement benefits. There is a tradeoff between predictability and portability in the design of pension plans.

Portability issues tend to arise with DB plans and mobile workers (members who change jobs over the course of their careers). In these plans, the pension benefit is based on the length of job tenure and salary level. DB plans provide predictable benefits that increase the longer employees stay on the job. When employees leave, they no longer accrue additional benefits.

In contrast, the accumulated contributions in DC retirement accounts continue growing from investment returns whether an employee

³⁵ For more information about the University of Washington Retirement Plan, see <http://www.washington.edu/admin/hr/benefits/retirement/plans/urwp/index.html>

³⁶ Local 32 of the United Association of Journeymen and Apprentices of the Plumbing and Pipefitting Industry of the United States and Canada- AFL-CIO

³⁷ http://www.portseattle.org/Business/Labor-Relations/Documents/Labor_Mgt_Agreement_2008_2011.pdf

³⁸ Participants are charged a 0.129% administrative fee. For more information about Washington's deferred compensation program, see: https://www.dcpprovider.com/PDF/washington/DCP_Overview.pdf

³¹ 7.62% and 5.08% of salary, respectively.

³² 6.20% and 4.77% respectively. For the Social Security component, individuals are vested immediately.

³³ 10% and 12% respectively.

³⁴ In deferred compensation plans, employees can divert up to \$17,000 in salary per year to a tax-deferred investment account.

stays in the same job or not (so long as the employee does not cash out the balance when changing jobs). In this case, the benefits are not pre-determined by formula (they depend on investment performance), so the ultimate benefit level is more uncertain.

DC plans have become more common in the private sector as the American workforce has become increasingly mobile. In the public sector, DB plans continue to be the norm for state retirement systems, as shown in the previous section.

Comparison of Benefit Levels for Stable and Mobile Workers

To illustrate how retirement benefits are impacted by job mobility, we estimated benefit levels comparing two hypothetical workers with similar earnings profiles:

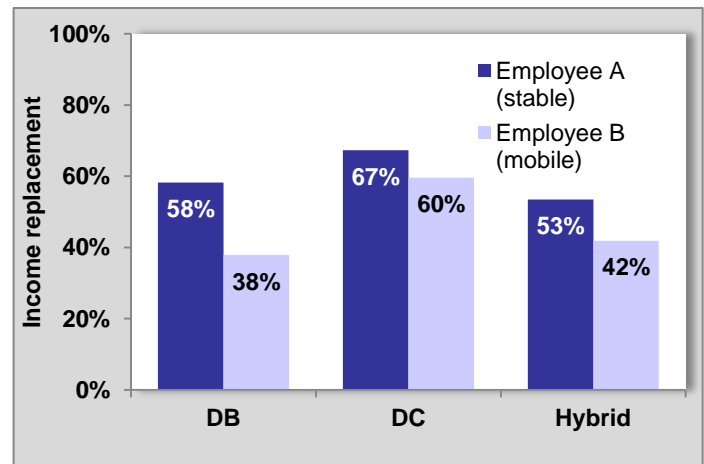
- a “stable employee” (Employee A); and
- a “mobile employee” (Employee B).

Employee A stays in the same job for 30 years, whereas Employee B changes jobs over the course of their career. We compare pension benefits at the time of retirement for each of these workers. Appendix D provides details about the analysis.

Across pension plan types, at the time of retirement, the hypothetical mobile employee accrues annual pension benefits up to a third less than those of a stable employee in DB and Hybrid plans (see Exhibit 10). In DC plans, assuming that salaries tend to increase with a job change, the mobile employee receives a slightly higher benefit at the time of retirement than a stable employee (although as a percentage of income, the value is slightly lower).³⁹

³⁹ We assume that the employee's salary increases by 5% at each job change, which increases the value of the DC contributions. We also assume that employees roll over the DC account upon each job change (rather than cashing it out). We varied some of the assumptions in the analysis to see how sensitive our results are to different specifications. Appendix D discusses the sensitivity analysis.

Exhibit 10
Income Replacement at Retirement:
Two Hypothetical Employees⁴⁰



WSIPP modeling of plan structures (see Appendix D)

Washington State Portability Rules

To address portability issues for DB and Hybrid plans, Washington allows individuals to be part of more than one state pension plan under “dual membership” provisions.⁴¹ Individuals qualify for dual membership if they:

- are currently a member of one of Washington’s systems;
- previously contributed to a different Washington system; and
- have not yet retired or received disability benefits.

Dual membership rules apply to defined benefits in the following plans:

- | | |
|----------------|--|
| • PERS 1, 2, 3 | • LEOFF 2 |
| • TRS 1, 2, 3 | • WSPRS 1, 2 |
| • SERS 2, 3 | • First class cities (Seattle, Spokane and Tacoma) |
| • PSERS 2 | |

⁴⁰ This example is not specific to Washington’s plans.

⁴¹ RCW 41.54. The deferred indexed vested benefit for Plans 3 and LEOFF 2 also provide for greater portability.

Dual membership allows people who have accumulated retirement benefits in more than one system to:

- **Combine service credit** earned in all dual member systems to become eligible for retirement.

For example, if an employee works five years for the state in PERS2 and 15 years for the city of Spokane, the employee could retire at age 55 with benefits from both systems.

- **Use the highest base salary** across jobs to calculate your retirement benefit for both systems.

Continuing the example above, if the AFC was \$50,000 at the state and \$55,000 at the city, the pension benefits for both would be based on the higher AFC.

- **Purchase service credit** for previously withdrawn service by repaying the amount withdrawn plus interest.

*If the employee had cashed out their PERS 2 balance upon taking the city job, the employee could purchase five years of service credit based on their time at the state, so the city benefit would be $AFC * 20 * 2\%$ rather than $AFC * 15 * 2\%$.⁴²*

Across Washington State plans, retirees can also purchase up to five years of “air time” service credits (years not worked).⁴³ This credit cannot be used to determine eligibility for retirement, but can increase the monthly retirement benefit for life.

For Washington State workers in a DB plan, the portability laws increase the mobile employee’s pension benefits so that they are more comparable to those of a stable employee. Using assumptions similar to those used to compare state plans (see Appendix D for details), we found that for a

stable employee, income replacement might be 58%, compared to 38% for a mobile employee without portability. The mobile employee’s income replacement would increase to 51% with portability rules applied.

Portability rules have fiscal implications, because they increase benefits for mobile workers. Washington’s Office of the State Actuary analyzes data regarding these fiscal implications and uses the results to adjust contribution rates to cover the increased costs.

The portability rules do not apply to DC plans, and income replacement tends to be lower for these types of benefits. If the state desired to offer portability for individuals who move from a state plan to a local public DC plan, policy options include:

- allowing the service years at the DC job to count in determining retirement eligibility and/or the benefit amount for the DB plan; and
- allowing the final salary for the DC job to count in determining the benefit amount for the DB plan.

Like dual membership, these potential policy options have fiscal implications for state pension funds. Under the second option, employees who start out in a DRS-administered plan would have contributions made at an earlier (lower) salary rate, but their benefits would be based on the higher end-of-career AFC while in the DC plan. These higher costs would be borne by the DRS plans, unless provisions were made to charge sponsors of DC plans for the higher DB pension costs.

⁴² <http://drs.wa.gov/publications/member/multisystem/dualMemberships.htm#ex1>

⁴³ The purchase cost is based on an annuity factor that varies by age and plan.

PART 3: OVERTIME AND EXCESS COMPENSATION ANALYSIS

As part of this study's assignment, the Legislature directed the Institute to examine the:

*"treatment of overtime earnings in public employee retirement plans relative to the treatment of earnings in other states, including the impact of excess compensation on state retirement system contribution rates with a particular emphasis on agencies that operate on a 24-hour basis, such as the state patrol, ferry system, and state prisons."*⁴⁴

We begin with an overview of "excess compensation" definitions and rules in Washington and other states. We then use data from Washington State DRS to examine changes in earnings and hours worked among recent retirees. The data allow us to determine the extent to which behavior changes during AFC determination periods. We also assess the contribution of overtime payments to total compensation for recent state agency retirees using Human Resource Management System (HRMS) data.

The sub-sections are organized as follows:

- 2A) Excess Compensation Rules in Washington and Other States
- 2B) Overtime and Excess Compensation Analysis of Washington Data

2A. EXCESS COMPENSATION RULES IN WASHINGTON AND OTHER STATES

In Washington State, "excess compensation" refers to specific types of reportable compensation that exceed statutory limits for inclusion in pension benefit calculations. When an individual is reported by DRS as having excess compensation, the employer is billed the present value of the resulting increase in an employee's retirement benefit.

Washington State statute defines "excess compensation" as one of the following:

- (a) A cash-out of unused annual leave in excess of two hundred forty hours;
- (b) A cash-out of other forms of leave, including sick leave and holiday leave;
- (c) A payment for a personal expense, if the payment qualifies as reportable compensation in the employee's own retirement system;
- (d) That portion of any payment, such as an overtime or incentive payment, that exceeds twice the employee's regular rate of pay for the period of time that the overtime or incentive payment applies; and
- (e) A termination or severance payment.⁴⁵

Excess compensation is rare, especially among members of open plans. (See Appendix E, Exhibit E3.) Among employees retiring between January 2009 and June 2012, 18% of PERS1 members had some reported excess compensation. Only seven of the more than 10,000 PERS2 retirees (less than a tenth of 1%) over this period had reported excess compensation. In Plans 2 and 3, leave cash-outs are not included in pension calculations.

Implications of End-of-Career Compensation Increases

Salary growth over the course of an individual's career is expected as experience and productivity increase. If pay jumps sharply at the end of a career, the resulting increase in pension benefits can substantially raise pension costs. The increase in costs may not be fully borne by the retiree and their employer. To the extent that these costs are unexpected, they could force future contribution rates to rise.

The following two stylized examples illustrate how overtime hours or salary increases concentrated at the end of a career impact pensions.

⁴⁴ Supplemental Operating Budget § 606 (13), 2012 Wash. Sess. Laws 2225

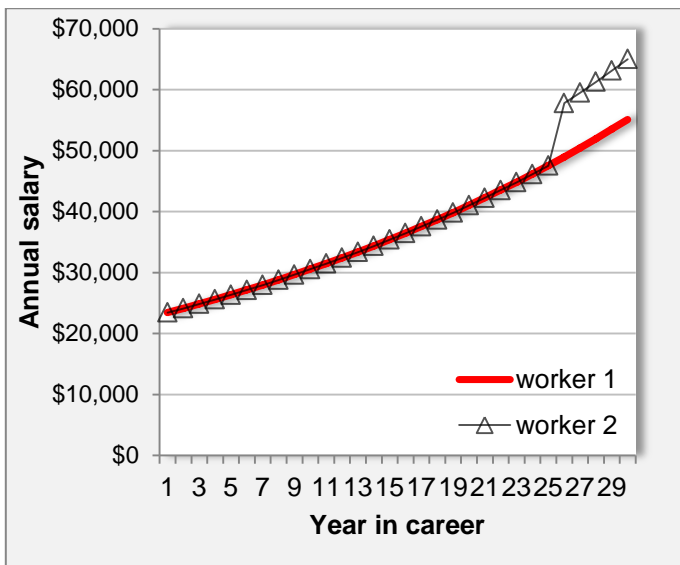
⁴⁵ RCW 41.50.150.

Stylized Example 1: End-of-career increases. This example illustrates the fiscal implications of hours and/or salaries that increase substantially and unexpectedly during the AFC period. The example illustrates the strong incentives for employees to supply more hours of work toward the end of a career. It also demonstrates that the costs of resulting extra pension benefits are not fully covered by the worker's or employer's contributions.

The specific assumptions used in this analysis are described in Appendix E.

In Exhibit 11, Worker 1 supplies the same number of hours every year and annual salary increases steadily throughout the career. Worker 2's hours and earnings follow a similar trajectory until the last five years of the career (the AFC period). During the AFC period, Worker 2 supplies 250 hours of overtime (just over 20 hours a month).

Exhibit 11
Stylized Example 1:
Illustration of Late-career Salary Increases



WSIPP stylized model (see Appendix E)

The resulting impact on AFC and pension benefits is summarized in Exhibit 12. Worker 2 contributes an extra \$2,500 to the system and gets an extra \$97,000 in expected pension benefits. The worker and employer contributions combined cover only a small portion of the gain in benefits.

The Office of the State Actuary measures and accounts for wage trends in its pension funding analyses. Any required increases in contribution rates are spread across all employers and employees in a plan. Excess compensation (monitored by DRS) applies if overtime or other late-career compensation increases cause salary to more than double.

Exhibit 12
Stylized Example 1: Summary Impact of Overtime
on Pension Benefits and Contributions

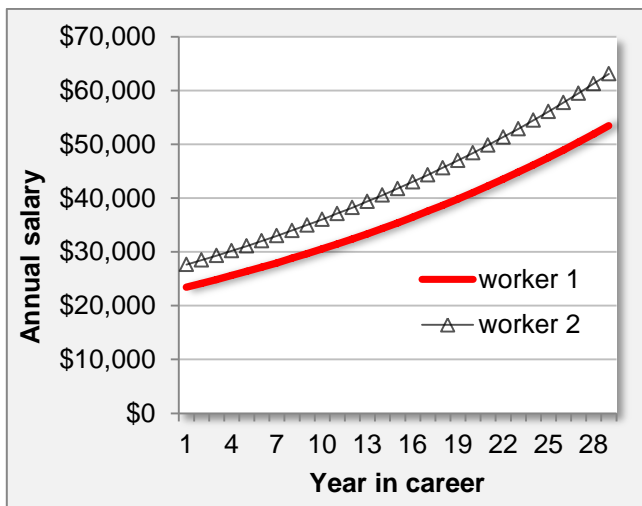
	Worker 1	Worker 2
AFC	\$51,967	\$61,337
Annual Pension Benefit	\$31,180	\$36,802
PDV Pension Benefits	\$537,116	\$633,951
Value worker contributions at retirement	\$161,721	\$164,234
Value employer contributions at retirement	\$246,098	\$249,921
Total contribution value	\$407,819	\$414,154
Extra contribution by Worker 2		\$2,512
Extra contribution by Employer 2		\$3,823
Total extra contributions		\$6,335
PDV of extra pension benefit (gain)		\$96,836

WSIPP analysis of stylized model (see Appendix E)

PDV = present discounted value.

Stylized Example 2: Overtime worked throughout the course of a career. This example demonstrates that a constant level of overtime increases pension benefits, but in this case the cost of the extra benefit is largely borne by worker and employer contributions. All parameters are the same as in Example 1, except that Worker 2 works 250 overtime hours throughout their career (Exhibit 13).

Exhibit 13
Stylized Example 2:
Illustration of Career-long Salary Increases



WSIPP stylized model (see Appendix E)

In this case, Worker 2 still receives \$97,000 more in expected pension benefits than Worker 1. The worker and employer, in this example, pay for much of the cost of the benefit increase (see Exhibit 14).

Exhibit 14
Stylized Example 2: Summary Impact of Overtime
on Pension Benefits and Contributions

	Worker 1	Worker 2
AFC	\$51,967	\$61,337
Annual Pension Benefit	\$31,180	\$36,802
PDV Pension Benefits	\$537,116	\$633,951
Value worker contributions at retirement	\$161,721	\$190,878
Value employer contributions at retirement	\$246,098	\$290,467
Total contribution value	\$407,819	\$481,345
Extra contribution by Worker 2		\$29,157
Extra contribution by Employer 2		\$44,369
Total extra contributions		\$73,525
PDV of extra pension benefit (gain)		\$96,836

WSIPP analysis of stylized model (see Appendix E)
PDV = present discounted value.

Policy Options to Minimize Unexpected Impacts on Pension Systems

Some states, including Washington, have laws to limit end-of-career increases to pensionable salary, including:

- charging employers for excess compensation;
- placing a limit on how high the AFC can be;
- lengthening the AFC period; and
- restricting includable compensation (e.g. excluding leave cash-outs).⁴⁶

Charging Employers. In our review of other states' pension plans, we identified one other state, Illinois, that charges employers for excess compensation as Washington does. In Illinois, the employer pays contributions on any salary increase that exceeds 6% of the members' final average salary.

Limiting AFC or Benefit Amounts. Rather than charging for excess compensation, we found that many states simply limit the size of the AFC, either in terms of a percentage of the final year of salary or as a set benefit dollar amount.

Nineteen states limit AFC to between 60% and 120% of final salary in at least one of their open public pension plans. Most of these states set the limit at 100% (see Exhibit 15).⁴⁷

Federal law limits the amount of AFC to be included in pension benefit calculations to less than \$250,000.⁴⁸ Eight states set lower limits for general state employee and teacher plans. At least six states set a lower limit for law enforcement and fire fighters (see Exhibit 16).

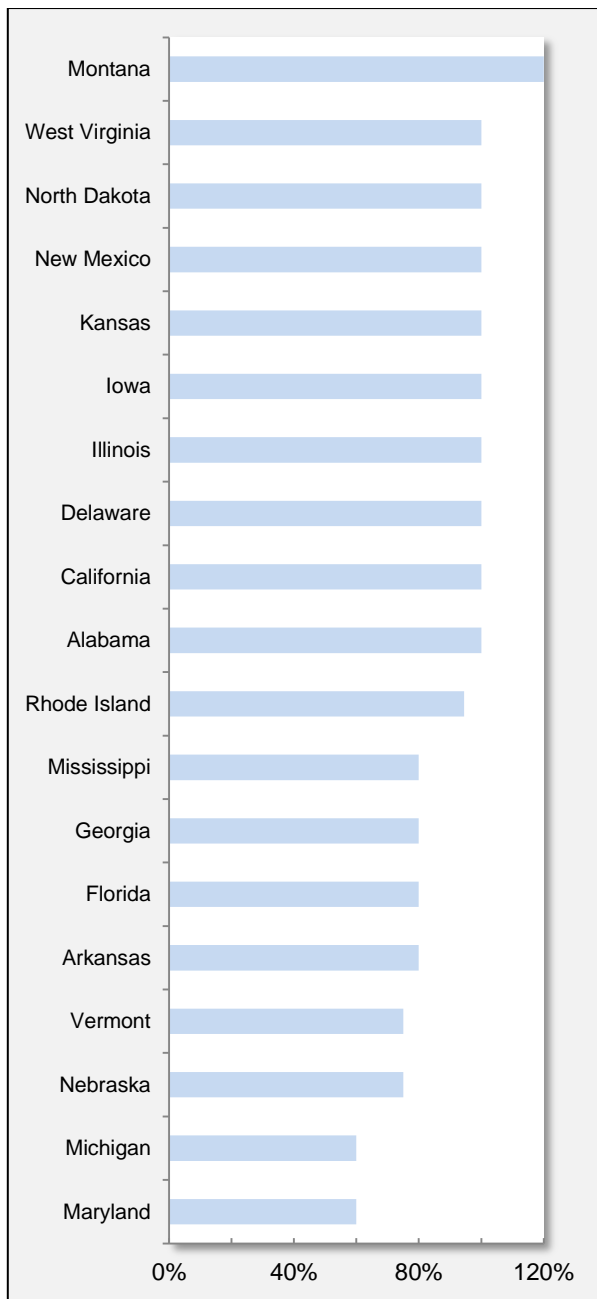
⁴⁶ Painter, D. (2012, May). *Pension spiking*. Presentation to the Washington State Joint Select Committee on Pension Policy, Olympia, WA.

⁴⁷ Note that some states have different limits for different plans; in the graphs, we display the higher one or states that have multiple plans

⁴⁸ Internal Revenue Code (IRC) Section 401(a)(17)

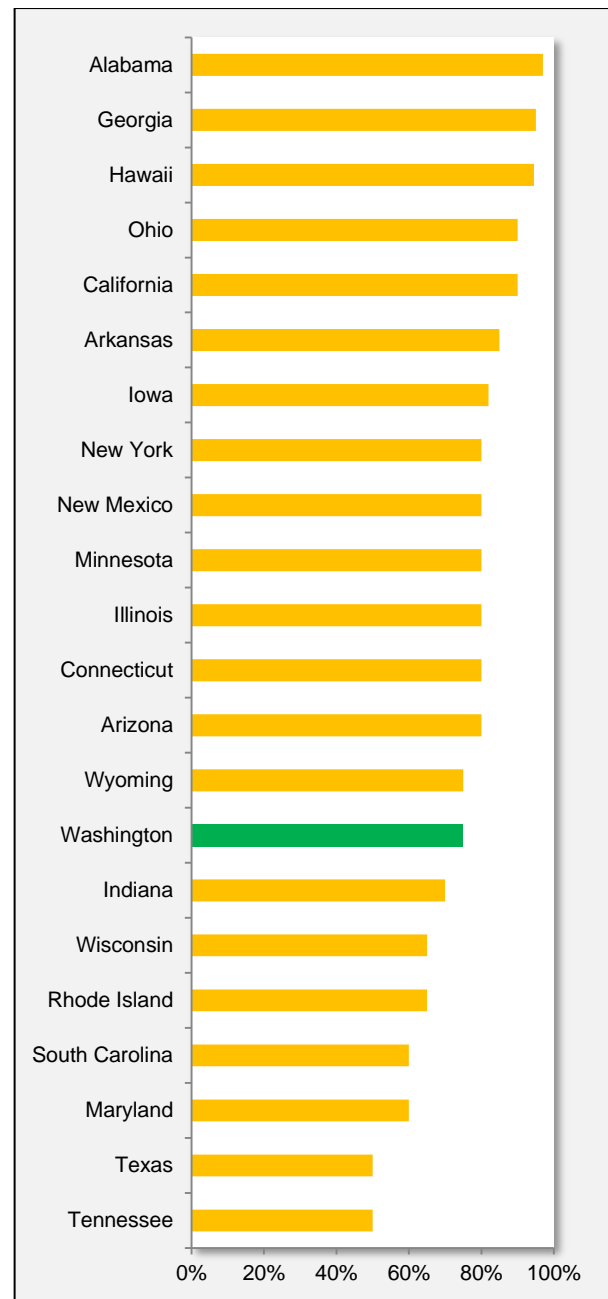
Exhibit 15
States that Limit AFC as a Percentage of the Highest Average Salary

General Employee and Teacher Plans



WSIPP survey of state plans (see Appendix B)

Law Enforcement and Firefighter Plans⁴⁹

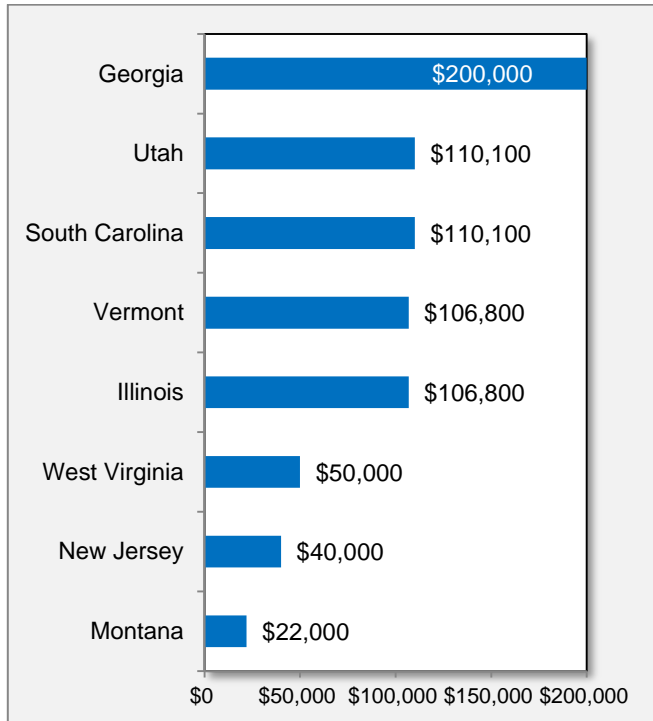


WSIPP survey of state plans (see Appendix B)

⁴⁹ Washington's 75% limitation is for WSPRS 2.

Exhibit 16
States that Limit AFC to Less than the Federal Limit (\$250,000)

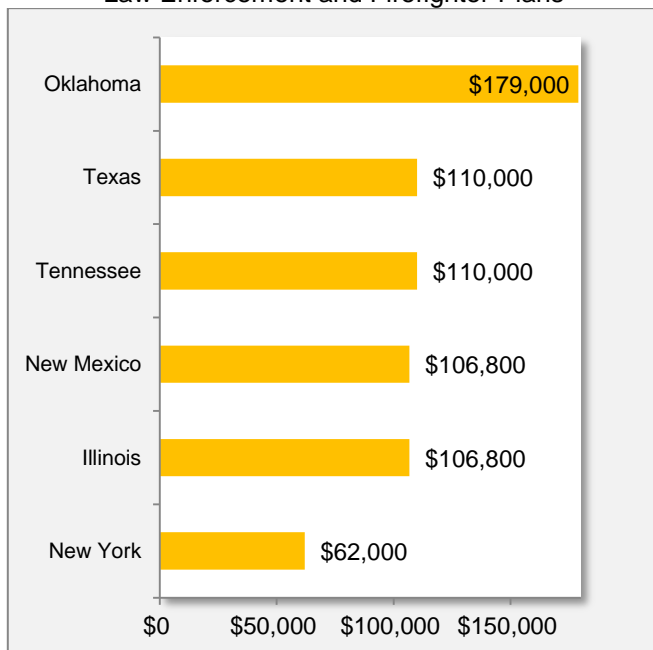
General and Teacher Plans



WSIPP survey of state plans (see Appendix B)

AFC Periods. Twenty-six states have the same AFC periods as Washington's open plans. Two states have longer AFC periods (Illinois and Florida). For law enforcement and firefighter plans, most states have an AFC period of three to five years; Washington's is five years. Two states have eight-year AFC periods (see Exhibit 17).

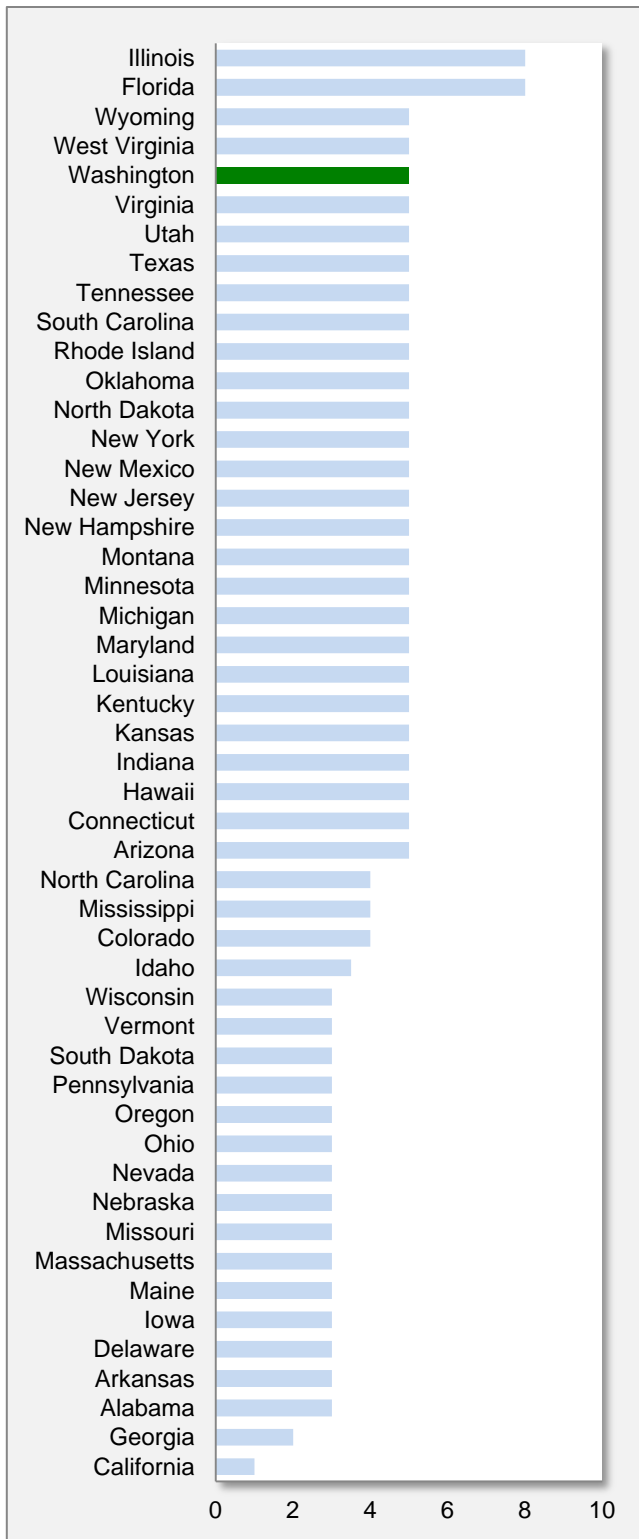
Law Enforcement and Firefighter Plans



WSIPP survey of state plans (see Appendix B)

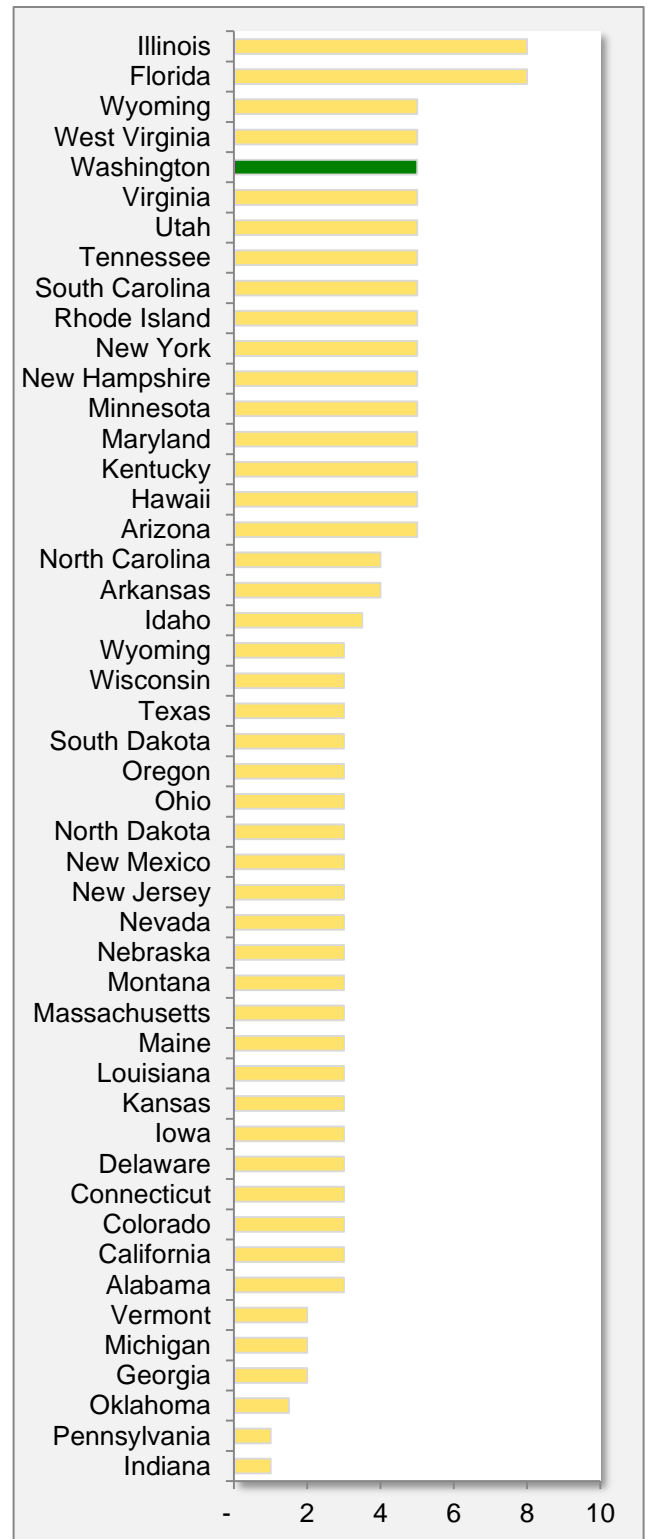
Exhibit 17
States by AFC Period

General and Teacher plans



WSIPP survey of state plans (see Appendix B)

Law Enforcement and Firefighter Plans



WSIPP survey of state plans (see Appendix B)

Overtime. Overtime is generally defined as hours worked beyond the regular 40-hour work week. Employers typically offer a higher rate of pay (1.5 to 2 times more than base pay) for overtime. Some types of jobs require more overtime than others (such as law enforcement, ferry workers, and corrections officers).

For the general public employee and teacher plans, 12 states include overtime in AFC calculations,⁵⁰ and 11 plans do for law enforcement and fire fighters.⁵¹

In Washington State, overtime is included in AFC calculations for general plans,⁵² as well as for the LEOFF 2 plan. There is no limit on the amount of overtime that counts in the AFC, but if the overtime pushes AFC to more than twice the regular pay, the employer must pay additional contributions (determined by the state actuary) under the “excess compensation” law described earlier.

Unused Sick and Vacation Leave. When an employee retires with a balance of sick or vacation leave, some states allow that amount to be included in AFC. Twenty-six states allow sick leave to be included and 15 allow vacation leave (see Appendix B for details). In Washington State, leave cash-outs are only included in AFC in Plans 1.

Severance and Subsistence Pay.

Severance pay is additional pay granted to an employee when they leave employment. Our review of other states’ open plans found that no states include this payment in with AFC calculations. Subsistence pay is money paid to an employee for reimbursement of expenses while on the job. The only state that includes subsistence pay in the AFC within the general plans is Oregon. For law

enforcement plans, Virginia also includes subsistence pay in AFC calculations.

2B. OVERTIME AND EXCESS COMPENSATION ANALYSIS OF WASHINGTON DATA

The Data

Washington State DRS provided data for individuals retiring from one of the state plans during the three and a half years from January 2009 to June 2012. These data included information for roughly 27,000 pension system members from LEOFF, PERS, SERS, TRS and WSPRS plans.⁵³

In addition to information about their pensions, data also included monthly compensation and hours worked histories for about 20,500 of the retirees. These histories, which include up to ten years of data, allowed us to examine the extent to which earnings and hours increase during AFC determination periods (see Appendix E for a more detailed description of these data).

The main limitation with the DRS data is that overtime earnings are not reported separately by employers. Job classification and job title are also not reported. We support the current efforts by DRS to increase the level of detail that employers report regarding types of compensation, hours worked and job classification.

Average Earnings and Hours

On average, earnings rise gradually with tenure. Exhibit 18 displays the average earnings profiles for recent retirees in Washington’s open plans. The graph presents average monthly earnings over the ten years prior to retirement.⁵⁴

The rise in earnings over a career does increase average final compensation levels. These increases vary across plans and workers. It is important to note that the extent

⁵⁰ Alabama, Arizona, California, Connecticut, Delaware, Hawaii, Illinois, Kentucky, Maryland, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New York, Ohio, South Dakota, Vermont, and Washington.

⁵¹ Arizona, California, Connecticut, Kentucky, Louisiana, Montana, Nebraska, New Jersey, New Mexico, New York, Oklahoma, Rhode Island, South Dakota, Virginia, Washington (LEOFF 2 only), and Wisconsin.

⁵² TRS 1 also includes overtime; TRS 2 and 3 do not.

⁵³ The data include information for 119 WSPRS1 retirees; no information was available for WSPRS2.

⁵⁴ Earnings and hours vary dramatically by month for SERS and TERS plan members, so the chart uses 12-month moving averages (MA) for these members.

to which earnings increase with tenure is determined by many factors. Workers with more education, for example, tend to have steeper earning profiles. Also, seniority-based pay systems tend to create steeper earnings profiles by providing regular salary step increases.

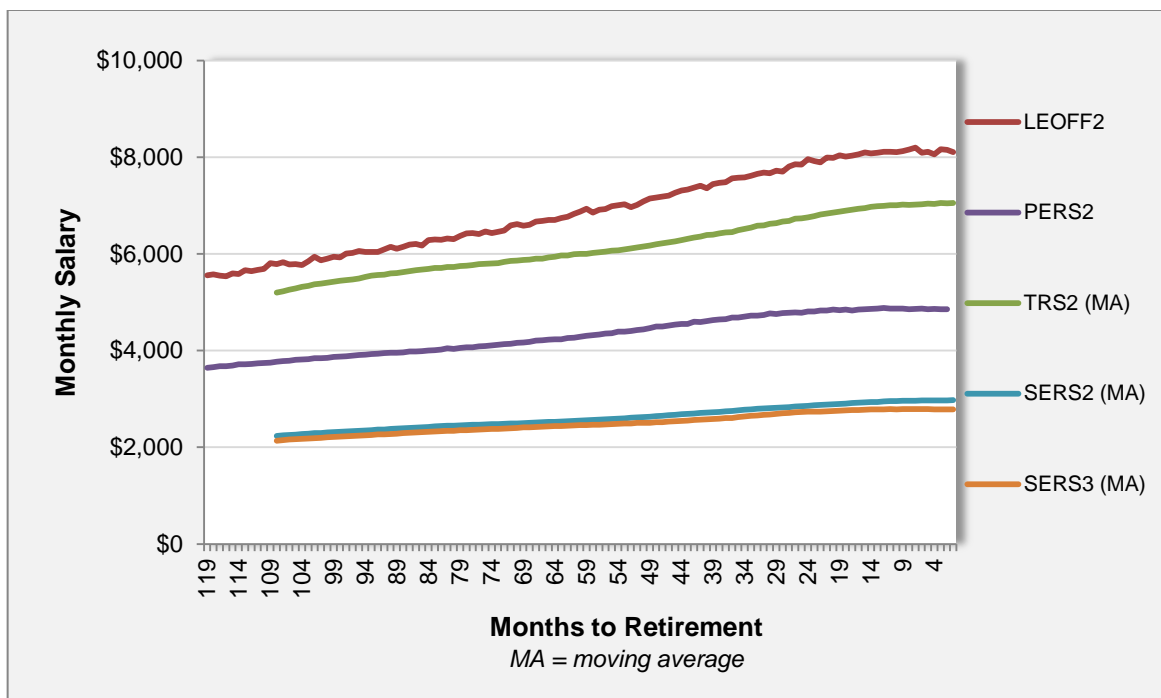
Increases in average earnings per hour, rather than total hours, largely drive the observed increases in earnings with tenure. Among recent retirees in Washington's state pension systems, monthly hours worked tend to be stable throughout a worker's tenure, though there is a tendency for hours to decline marginally when workers are closer to retirement. In all of Washington's state-administered public pension systems, average monthly hours are not systematically higher during AFC periods (Exhibit 19, next page).

Overtime practices vary across occupations and employers, and we see large differences in average hours per month across plans and groups of workers. Persistently high overtime is common among some employers (per our Stylized Example 2), and this contributes to the high AFCs for their employees.

Exhibit 20 (next page) examines earnings growth across plans and groups in greater detail.

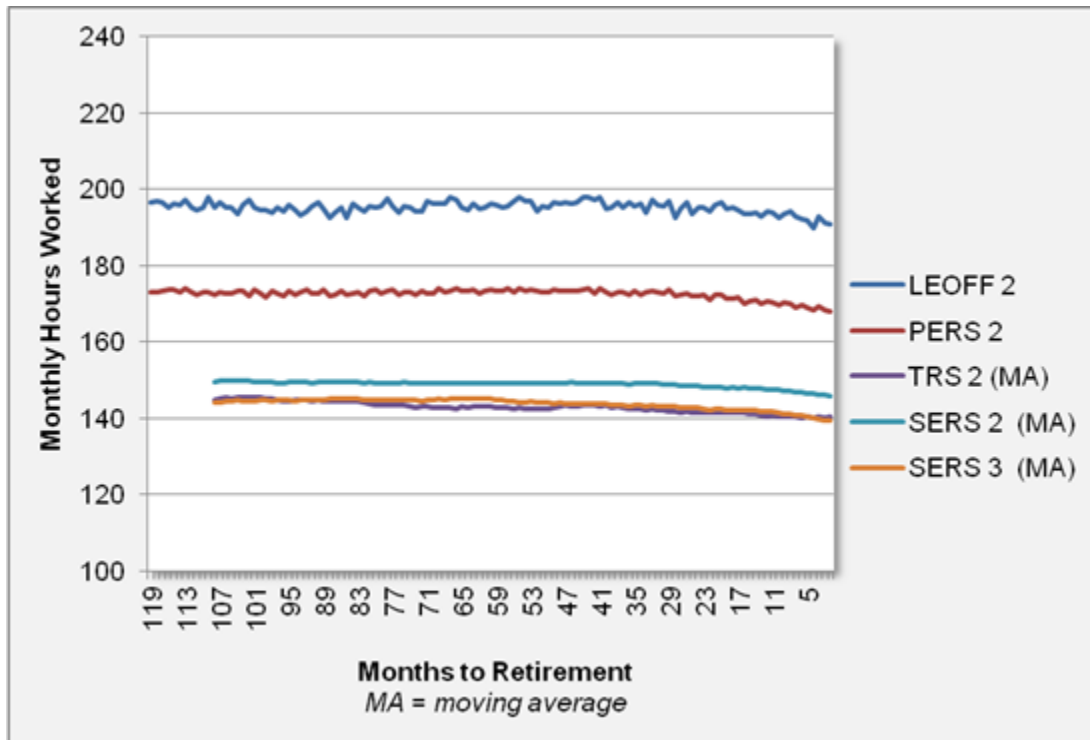
Variation in earnings growth across these groups does not tend to be driven by changes in *average* hours worked over time (Exhibit 21, page 27). See Appendix E for additional detailed analysis across employers.

Exhibit 18
Average Earnings Profiles for Washington's Open Public Plans
 Retirements from January 2009 to June 2012



WSIPP analysis of DRS data on recent retirees (see Appendix E)

Exhibit 19
Hours Profiles for Washington's Open Public Plans



WSIPP analysis of DRS data on recent retirees (see Appendix E)

Exhibit 20
Average Monthly Earnings Before and During AFC Period
 Retirements from January 2009 to June 2012

Plan/System	N	Avg. Earnings Pre-AFC	Avg. Earnings AFC	Avg. Increase	% Increase
LEOFF1	109	\$6,811	\$8,458	\$1,647	24.2%
LEOFF2	731	\$6,149	\$7,633	\$1,484	24.1%
PERS1	3577	\$4,287	\$5,088	\$801	18.7%
PERS2	6182	\$3,946	\$4,672	\$726	18.4%
PERS3	158	\$4,201	\$4,991	\$789	18.8%
SERS2	1115	\$2,345	\$2,756	\$411	17.5%
SERS3	251	\$2,254	\$2,616	\$362	16.1%
TRS1	1968	\$6,031	\$7,142	\$1,111	18.4%
TRS2	558	\$5,631	\$6,674	\$1,043	18.5%
TRS3	258	\$5,276	\$6,282	\$1,006	19.1%
WSPRS1	99	\$6,190	\$7,348	\$1,158	18.7%
PERS2: FERRIES	52	\$4,417	\$5,156	\$738	16.7%
PERS1: CORRECTIONS	93	\$4,017	\$4,693	\$676	16.8%
PERS2: CORRECTIONS	324	\$3,522	\$4,157	\$635	18.0%

WSIPP analysis of DRS data (see Appendix E)

Note: Reference periods vary by plan.

Plans 1: AFC periods include the 24 months prior to retirement (12 months prior for LEOFF1). Pre-AFC periods can include up to 96 months.

Plans 2/3: The AFC and Pre-AFC periods include up to 60 months for the open plans.

Exhibit 21
Average Monthly Hours Before and During AFC Period
Retirements from January 2009 to June 2012

Plan/System	N	Avg. Hrs Pre-AFC	Avg. Hours AFC	Difference	Std Dev AFC Avg.
LEOFF1	109	186.3	182.9	-3.40	21.8
LEOFF2	731	195.4	194.9	-0.50	26.1
PERS1	3,577	170.2	169.3	-0.90	18.8
PERS2	6,182	173.0	172.1	-0.90	17.8
PERS3	158	171.1	169.0	-2.10	20.1
SERS2	1,115	147.2	146.1	-1.10	28.0
SERS3	251	143.0	140.8	-2.20	26.9
TRS1	1,968	153.1	154.1	1.00	18.7
TRS2	558	143.6	141.3	-2.30	14.1
TRS3	258	141.0	139.1	-1.90	18.3
WSPRS1	99	180.3	177.2	-3.10	9.7
PERS2: FERRIES	52	178.5	179.5	1.00	13.6
PERS1: CORRECTIONS	93	179.0	176.3	-2.70	10.2
PERS2: CORRECTIONS	324	180.0	179.1	-0.90	16.7
Total	15,475	167.3	166.5	-0.79	19.2

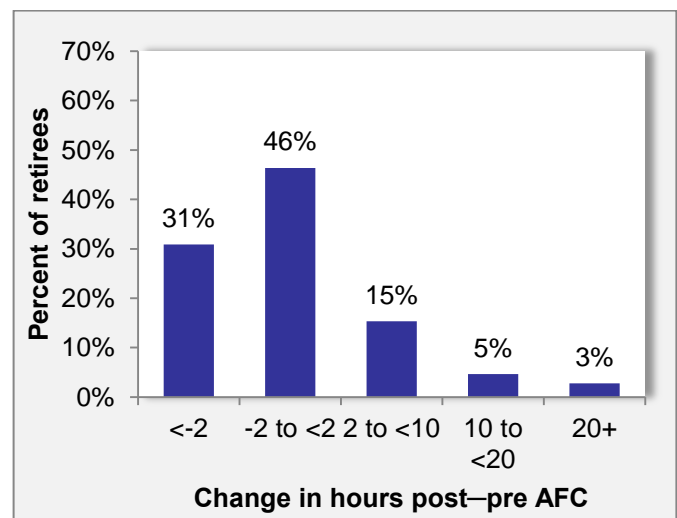
WSIPP analysis of DRS data (see Appendix E)

Variation in AFC Hours Gains

Although we do not observe systematic increases in average hours during AFC periods, there are exceptions. As demonstrated in Exhibit 22, some employees (8%) work substantially more hours during AFC periods, in comparison with the pre-AFC period. Three percent work more than 20 additional hours per month. Most (77%) work less or the same amount during the AFC period as the pre-AFC period.

Exhibit 22
Difference in Average Monthly Hours in AFC and Pre-AFC Periods

All Washington Systems & Plans,
Retirements from January 2009 to June 2012



WSIPP analysis of DRS data (see Appendix E)

Exhibit 23 shows how many retirees worked more, less, or the same amount of hours before and during the AFC period. The shaded squares indicate the number of people who worked about the same amount of hours during the AFC as before.

For example, 7,151 recent retirees worked a typical 40-hour week before and during the AFC period. Among those who worked a typical 40-hour week prior to the AFC period, 413 worked marginally less (35-38 hours) and 357 worked marginally more (42-45 hours) during the AFC period.

Exhibit 23 illustrates some important points. First, most members tend to work roughly the same number of hours before and during the AFC period. Those who work overtime during the end of their career tended to also do so earlier in their career (like Stylized Example 2). Second, there are exceptions—hours increased substantially for some members, and extreme increases are rare. Third, hours decline for some members. See Appendix E for detailed analyses by plan and employer groups.

Exhibit 23
Number of Retirees by Average Hours Before and During the AFC Period

Average Hours: Pre-AFC	Average Monthly Hours: AFC Period							Total
	(1) <128 (15-29/wk)	(2) 128-149 (30-34/wk)	(3) 150-166 (35-38/wk)	(4) 167-179 (39-41/wk)	(5) 180-192 (42-45/wk)	(6) 193-214 (45-49/wk)	(7) 215+ (50+/wk)	
(1) <128 (15-29/wk)	699	131	35	20	3	0	1	889
(2) 128-149 (30-34/wk)	240	1153	382	65	11	7	2	1860
(3) 150-166 (35-38/wk)	47	470	1189	369	32	5	9	2121
(4) 167-179 (39-41/wk)	29	107	413	7151	357	34	13	8104
(5) 180-192 (42-45/wk)	0	6	37	543	577	134	16	1313
(6) 193-214 (45-49/wk)	1	2	4	59	137	236	50	489
(7) 215+ (50+/wk)	0	0	0	14	15	36	165	230
Total	1016	1869	2060	8221	1132	452	256	15006

WSIPP analysis of DRS data (see Appendix E)

Hours Worked and Pension Rule Incentives

Some employees do increase hours worked during AFC periods. It is not clear whether this is due to increased job responsibilities versus behavior intended to increase pensions. The following statistical regression analysis attempts to gauge the extent to which pension plan rules—the time periods included in AFC calculations—affect hours worked.

We take advantage of the 'natural experiment' that arises from differences in AFC periods across PERS 1 (two years) and PERS 2 and 3 (five years). PERS 1 members have an incentive to increase hours worked during the last 24 months years prior to retirement. PERS 2 and 3 members have an incentive to increase hours during the last 60 months prior to retirement. Importantly, from 24 to 60 months prior to retirement, the incentives operate only on PERS 2 and 3 members.

We estimated the extent to which hours deviate from trend during the 60 to 24 month period prior to retirement for PERS 1 versus PERS 2 and 3 members. We would expect the increase in hours to be higher during this period for PERS 2 and 3 members, since they have the greater incentive for working more. Each additional hour worked increases their AFC and results in relatively large increases in lifetime pension benefits.

We estimated 'fixed effects' regressions, which examine changes in hours from month to month for individual members. The method effectively controls for observed and unobserved member characteristics that do not change over time. We estimated several different models using different functional forms (see Appendix E for results).

We first estimated the regressions using data for all recent PERS retirees. These estimates suggest that members do respond to retirement incentives, but the overall impact on hours is modest. PERS 2 and 3 members tended to work marginally more hours during the 60 to 24 month test period. PERS 1 members, after controlling for time trend and

member characteristics, worked 0.6 additional hours per month, whereas PERS 2 and 3 members worked an additional 0.8 hours per month.

The larger increase in hours among PERS 2 and 3 members provides some evidence for an incentive effect. On average, however, the effect was small. Across *all* recent PERS 2 and 3 retirees, the pension incentive appears to have increased hours worked by 0.20 hours per month. This is an overall average; some members increased hours substantially, others not at all.

We would expect the incentive effect to be greater among employers where overtime is more prevalent. We did not, however, find this to be the case (calling into question the robustness of our test).

We identified two groups of PERS employers with higher than average rates of overtime. Among non-state agencies, public utility districts (PUD) and ports report high monthly hours. Overtime also appears to be more prevalent among some state agencies (such as the Department of Corrections and Department of Transportation). We estimated the regression tests for these employer groups (see Appendix E).

The estimates for PUD and Port employees were sensitive to the functional form of the regression—the results varied across different models. All estimates suggest that PERS 1, 2, and 3 members worked more hours during the incentive period, with estimates ranging from 1 to 2 hours more per month. According to some models, PERS 2 and 3 workers increased hours by more than did PERS 1 members, providing evidence of an incentive effect. However, in other models, PERS 1, 2, and 3 members increased hours by similar amounts (about an hour per month).

Estimates for the selected state agencies tell a similar story. All PERS members increase monthly hours during the AFC period by roughly an hour per month on average.

Overtime Compensation for State Agency Retirees

Human Resource Management System (HRMS) data provide information on earnings components, including overtime, for state agency employees. The Washington State Office of Financial Management extracted HRMS data for retirees in our analysis.

The following section summarizes earnings information for recent state agency retirees from PERS 1, 2, and 3 who are matched with the HRMS data. The earnings data run from the second half of 2006 through the first half of 2012. For this analysis, we excluded the partial years and focus on the 2007 to 2011 data to obtain estimates of annual overtime compensation. We also excluded annual earnings observations for cases where the worker retires during that year. After these restrictions, we were left with 5,764 annual earnings observations for 1,811 state agency retirees. For each retiree in the sample, we calculate total annual compensation and total annual overtime compensation.

The HRMS data are largely confined to the AFC periods for these retirees. We cannot examine differences in the importance of overtime before and during AFC periods. However, we use the data to examine the contribution of overtime to total annual earnings for this sample of state agency retirees.

Among the state agency retirees included in these data, 28% had overtime compensation at some time in the five-year period. Across all workers, including those with no overtime in the five-year period, annual overtime compensation averaged \$735 (accounting for 1.26% of total compensation; see Exhibit 24). Among the subset of employees who did work overtime in the five-year period, annual overtime compensation averaged \$2,670 (accounting for 4.6% of total compensation).

Exhibit 24
Average Annual Overtime (OT) Compensation and Share of Total Compensation

Sample of State Agency Retirees	Average OT pay	OT Share of Annual Compensation
All Retirees, including OT=0	\$735	1.26%
Retirees with OT>0	\$2,670	4.6%

WSIPP analysis of HRMS data (see Appendix E)

Note: State agency retirees from January 2009 to June 2012. Compensation data from 2007 to 2011. Data include 5,764 annual earnings records for 1,811 retirees. 28% of annual earnings records include some overtime compensation.

Overtime compensation is substantial for some retirees. When overtime compensation is received, it exceeds \$5,000 per year in 13.4% of cases; it exceeds \$10,000 in 5.2% of cases (Exhibit 25).

Exhibit 25
Overtime (OT) Compensation
(Among cases where OT > 0)

OT Range		Annual earnings	
from	to	observations	%
\$1	<\$100	168	10.6%
\$100	<\$500	330	20.8%
\$500	<\$1000	209	13.2%
\$1,000	<\$2500	395	24.9%
\$2,500	<\$5000	273	17.2%
\$5,000	<\$10,000	130	8.2%
\$10,000+		83	5.2%
Total		1,588	100.0%

WSIPP analysis of HRMS data (see Appendix E)

Note: Data include 1,588 annual earnings records for cases where OT compensation is included.

The following table summarizes overtime compensation among the larger agencies in our sample. By agency, the sample sizes are relatively small. We suggest that future analyses examine compensation among all

employees (not only recent retirees) in the agencies where overtime appears to be more prevalent.

Exhibit 26
Overtime (OT) Compensation by Agency
 Sample of Retirees (January 2009 - June 2012)

Agency	Retirees in sample	Annual earnings observations	% observations with OT>0	Avg. OT comp, all retirees	Avg. OT comp, where OT>0	OT share of total comp, where OT>0
Department of Transportation	185	593	55.1%	\$2,065	\$3,744	5.5%
Department of Corrections	206	667	52.2%	\$1,937	\$3,712	6.5%
Dept. of Natural Resources	40	126	34.1%	\$1,636	\$4,795	9.7%
Department of Licensing	39	124	32.3%	\$319	\$989	2.0%
Dept of Social & Health Serv.	623	1959	26.3%	\$516	\$1,961	3.6%
Department of Fish & Wildlife	46	159	20.8%	\$472	\$2,277	3.8%
Dept of Labor & Industries	87	269	13.8%	\$154	\$1,123	2.1%
Employment Security Dept	74	239	11.7%	\$242	\$2,064	3.4%

WSIPP analysis of HRMS (see Appendix E)

CONCLUSION

The 2012 Legislature directed the Institute to evaluate Washington's and other state and local public retirement systems.

We found that, compared with other state plans, Washington's state pensions provide income replacement at or below the average levels.

In Washington State, most local governments participate in the state retirement systems. Washington has portability laws that decrease, but do not eliminate, the reduction in benefits for workers who move between state employment and local governments that opt out of the state systems.

We examined whether members of Washington's state pension plans significantly increase their hours worked late in their careers (when compensation is counted in pension calculations). We did not find systematic increases in hours worked in the years just prior to retirement, although there are some exceptions.

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