SEATTLE PUBLIC SCHOOLS (WASHINGTON)

SUMMARY

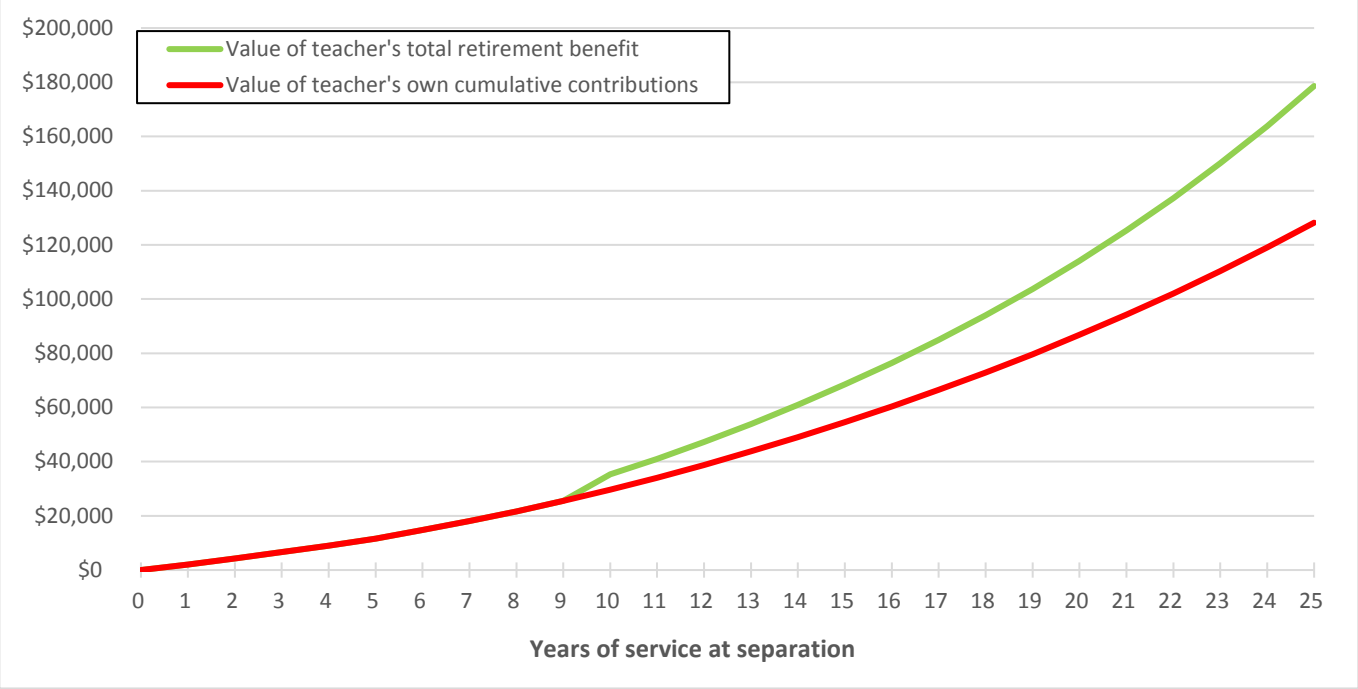
Teachers working in Seattle Public Schools can enroll in Plan 3 of the Washington Teachers' Retirement System, a hybrid plan composed of a traditional defined benefit pension and defined contribution 401(k)-style retirement account. In Seattle, the crossover point occurs after 10 years of service, meaning that a teacher must remain in the system 10 years before her total benefits are worth more than her cumulative contributions. This is also equivalent to the vesting period of the DB portion of the plan. A crossover point corresponding to this vesting point is typical of the hybrid plans in which the teacher contributes only to the defined contribution portion, and the employer to the defined benefit portion, of the plan. (Seattle teachers can also opt for Plan 2, a traditional DB plan only.)

About the District	
Students	50,509
Teachers (FTE)	2,868

About the Retirement Plan	
Type	Hybrid
Coverage	Teachers
Active members	62,463
Total members	76,677

Sources: Enrollment: NCES (2013–14). Retirement plan membership: Urban Institute (membership as of June, 2012)

Figure 1: A new teacher in Seattle Public Schools who opts for the hybrid plan must remain in the retirement system for 10 years before she realizes a return on her contributions



Note: Calculations assume inflation to be 2.5 percent, the real interest rate to be 2.5 percent, return on investments to be 5.0 percent, and a female teacher first hired in FY13 with an entry age of 25.

Take a look at Figure 1. The red line is the value of a teacher's cumulative contributions should she separate from the system after a given number of years of service. The green line is a teacher's total retirement benefit at that point. It is equal to the balance of her retirement account (the DC portion of the plan), plus the value of her pension (the DB portion). Where the red line lies directly on top of the green, the value of a teacher's contributions is the same as her total benefit. In other words, her net benefit is zero. Where the green line is above the red, her total benefit is worth more than her contributions and her net benefit is positive.[1] In Seattle, a new teacher must stay 10 years to reach the crossover point (where the green line is above the red) and receive any return on her contributions after retirement.

The shape of the green line is due to the two components of the hybrid plan. From the day a teacher begins her career, her benefits always include the balance of her retirement account (the DC portion of the hybrid). This portion of her benefit is portable and has no vesting period. Because we use the system's own assumed rate of return on investment, the balance of her retirement account accrues in a fairly smooth and constant manner.[2] But she is not eligible for any pension benefits until she vests, which is represented in the figure at the point where the green line diverges from the red. (Once vested, she would not start receiving pension benefits until she reaches the age of retirement eligibility, even if she leaves the system before that.) DB benefits increase in value the longer she stays.[3] Exact figures can be found in Tables 1 and 2.

Let's take a look at how this plays out should a teacher choose to separate from the system at different points.

WHAT IS THE CROSSOVER POINT?

This study asks: how long must a new teacher wait until the value of her retirement benefits exceeds the value of her contributions (the "**crossover point**")?[4] A new teacher begins contributing a percentage of her salary to her retirement system the day she receives her first paycheck. The idea is that, over her career, she and her employer will make contributions to prefund her benefit and, when she leaves the system, she receives retirement benefits. The total benefit the teacher receives after she leaves depends on the plan's parameters and provisions, among other factors.

In a traditional **defined benefit** (DB) plan, retirement benefits take the form of pension payments made periodically for the rest of her life after retirement. The pension benefit is based on a formula: the number of years of service in the system, multiplied by an average of her final years' salaries, times an accrual factor, which is a percentage generally around 1 percent to 2.5 percent. In order to receive any retirement benefits, a teacher must be vested in the system, meaning she has stayed long enough that she's eligible for a pension when she leaves. Vesting periods generally range from three to 10 years. A teacher can only begin to receive benefits once she reaches retirement eligibility**,** a condition usually determined by some combination of the teacher's age and years of service.[5] The *total* value of the retirement benefit the teacher receives under a DB plan—her **pension wealth**—depends on the yearly benefit, plus her age at retirement and life expectancy.[6] Before the crossover point in a DB plan, a teacher's expected lifetime retirement benefit is worth less than what she contributed over her career. After the crossover point, her benefit is worth more than what she contributed. The longer it takes a new teacher to reach the crossover point, the longer it takes for her to realize any return on her contributions.

In a **defined contribution** (DC) plan, retirement benefits are equal to what the retirement account is worth: her and her employer's contributions, plus any gains (or losses) from investment performance over time. She typically can transfer the balance of her account to another retirement system, withdraw it completely as a lump-sum amount, or draw down balances as periodic payments (less taxes, should she leave early). In a DC plan there is no crossover point, and the value of her benefits will always be greater than her contributions (assuming the investment gained value over time).

A **hybrid plan** combines elements of both DB and DC plans. A teacher's total benefits are equal to the balance of her retirement savings account plus whatever pension benefits she is eligible for. Depending on the specific terms of the plan, there may or may not be a crossover point.

In all three cases, to calculate the crossover point we compare the value of a teacher's contributions with her expected benefits.[7] While the concept of retirement "benefits" implies a positive return on contributions, the analyses presented in this study show that, in order to reach the crossover point and receive a true benefit, new teachers in many of the nation's largest districts must remain in their retirement system for 20 or 30 years—or more. These teachers, usually enrolled in traditional DB plans, are financially penalized if they leave at any point before the crossover. Moreover, they cannot enroll in a different system that would give them larger, or more short-term, benefits. New teachers in DC plans, and most of the hybrid plans we consider, do see a return on their contributions even early in their career.

EARLY CAREER

A Seattle teacher who chooses the hybrid plan and who leaves after **five years** of service (or at any point before the DB vesting point of 10 years) is only eligible to receive the DC portion of her retirement benefit. Her pension wealth is zero. But even if she separates from the system after only five years, she is still eligible for the balance in her retirement account, equal to $11,609, which consists of her contributions plus investment earnings. Her net benefit before vesting is zero, because the total value of her benefits is equal to the value of her cumulative contributions.

Table 1. At key points in a teacher's career, what is the value of her total retirement benefit, and the benefit from each component of her hybrid plan? What is the value of her contributions? And what is the difference between the two?

Age	Years of Service	Benefits from DB portion (value of teacher's pension benefit) (A)	Benefits from DC portion (teacher's individual retirement account balance) (B)	Value of total retirement benefit (A+B)	Value of teacher's cumulative contributions to date (C)	Net benefit (A+B-C)
30	5	$ 0	$ 11,609	$ 11,609	$ 11,609	$ 0
35	10	$ 5,670	$ 29,613	$ 35,282	$ 29,613	$ 5,670
40	15	$ 13,904	$ 54,554	$ 68,457	$ 54,554	$ 13,904
50	25	$ 50,436	$ 128,175	$ 178,611	$ 128,175	$ 50,436

AT THE CROSSOVER

After 10 years, a Seattle teacher enrolled in the hybrid plan reaches the crossover point, meaning her total benefit is worth more than her cumulative contributions and her net benefit becomes positive. This corresponds to the vesting period of the DB portion of the hybrid plan. After 10 years, a teacher's total retirement benefit is worth $35,282—the balance of her retirement account ($29,613) plus the value of her pension benefit ($5,670).

After 10 years (and for the remainder of her career), a Seattle teacher in the hybrid plan has a positive net benefit. Her net benefit is also equal to the value of her DB benefit, because her DC benefit is exactly equal to the value of her cumulative contributions. However, while she is always eligible to receive her DC benefit, she must wait to receive her DB benefit until she reaches retirement age.[8]

MID-CAREER

Say a teacher enrolled in the hybrid plan separates from the system after 15 years—the average experience of a teacher who leaves the profession.[9] Her total retirement benefit is worth $68,457, about 20 percent of which is from the DB portion of the plan and the remainder from the DC portion. Her net benefit is $13,904, again equivalent to the benefit from the DB portion.

AFTER 25 YEARS OF SERVICE

A 25-year career is longer than most teachers' careers—fewer than one out of four teachers nationwide stays more than 20 years.[10] Should a Seattle teacher who chose the hybrid plan stay 25 years, her net benefit is much larger than it was mid-career. After 25 years, a Seattle teacher's total benefit is worth $178,611, with 28 percent of that from the DB portion of the plan.

Bottom Line: A Washington teacher in the state's hybrid plan who starts at age 25 under the Seattle Public Schools salary schedule must wait 10 years to reach the crossover point. The relatively short time to the crossover point is

because of the DC portion of her total benefit. The hybrid plan somewhat dampens a common feature of a traditional DB plan—namely, having a crossover point that does not occur until very late in a teacher's career. And, unlike teachers in a traditional DB plan (and even some other hybrids), if a teacher leaves the Washington system before the crossover, at least her net benefit is zero (as opposed to negative).

TECHNICAL MATTERS

Retirement System

Seattle Public Schools teachers can choose to enroll in Plan 3 of the Washington Teachers' Retirement System, a hybrid plan composed of a traditional defined benefit plan and defined contribution 401(k)-style retirement account. Under this plan, a teacher's total retirement benefit consists of a pension benefit payable for the rest of her life and the balance of her retirement account. (Seattle teachers may also opt for Plan 2, a traditional defined benefit pension plan.)

Plan Provisions by the Numbers

Eligibility for retirement benefits: Defined benefit portion of hybrid plan

- Vesting requirement: 10 years (or five years with at least one year of service credit earned after age 44)
- Normal retirement eligibility requirements (age/years of service): 65/10
- Early retirement eligibility requirements for reduced benefits (age/years of service): 55/10

Employer and employee contributions: Defined benefit portion of hybrid plan

- Employee contribution rate: none
- Employer contribution rate: 14.78 percent of salary
- Refundable contributions: n/a

Benefit formula: Defined benefit portion of hybrid plan

The DB portion of a new teacher's retirement benefit is equal to the formula below:

Annual benefit = (1.0%) x (YOS) x (FAS)

Where YOS = number of years of service, FAS = final average salary, the average of the five highest years of creditable earnings.

Eligibility for retirement benefits: Defined contribution portion of hybrid plan

- Vesting requirement: Teachers immediately vest in their own contributions
- Retirement eligibility: no age or years of service requirements. Teachers may withdraw the balance of their retirement account at any time.

Employer and employee contributions: Defined contribution portion of hybrid plan

- Employee contribution rate: 5 percent of salary (default), up to a maximum of 15 percent
- Employer contribution rate: none

Benefits: Defined contribution portion of hybrid plan

The DC portion of a new teacher's retirement benefit is equal to the balance of her retirement account.

Summary of Plan Provisions

A Seattle teacher's hybrid plan benefits consists of two components: (1) a pension benefit (determined by a combination of age, years of service, and final average salary), and (2) the balance of her personal retirement account (her cumulative contributions, plus investment earnings).

Under normal retirement eligibility requirements, a Seattle teacher qualifies for full pension benefits at age 65 with 10 years of service. The annual benefit is equal to a teacher's years of service, multiplied by her average salary of her final five years, times an accrual factor of 1.0 percent. A teacher vests into the pension portion after 10 years, meaning after 10 years of service she qualifies for a pension benefit payable for life, starting at the earliest age that she becomes eligible for normal retirement. The plan does offer reduced pension benefits for early retirement, available at age 55 with 10 years of service.

The employer contribution rate to the defined benefit portion is 14.78 percent of earnings. The employee contribution rate to the defined benefit portion is zero.

Upon leaving the retirement system, a Seattle teacher also receives the balance of her personal retirement account: her own contributions plus investment earnings. There are no age or years of service requirements for retirement. After entering service, a teacher immediately vests in her own contributions.

The employer contribution rate to the defined contribution portion is zero. The employee contribution rate to the defined contribution portion is set at a minimum of 5 percent of earnings.

Seattle teachers do pay into Social Security.

Assumptions for Computing Retirement Benefits

- Entry age: 25 years old
- Gender: female
- Teacher has bachelor's degree for first five years; master's degree for the remainder[11]
- Teacher salary schedule for 2012–13 school year[12]

For DB benefits:

- Survival probabilities from *2007 CDC Life Tables*[13]
- Overall rate of return (defined benefit portion): we use each system's own assumptions for return on investments

For DC benefits:

- Member contributions to retirement savings accounts = minimum (required) amount
- Overall rate of return: 5 percent (2.5 percent inflation, 2.5 percent real interest rate)

Sources: Teacher salary schedule is from district website (or requested directly from the district where required). The salary schedule is supplemented by the district collective bargaining agreement and/or teacher work rules for the 2012–13 school year where applicable/necessary.[14] Retirement plan parameters are primarily taken from a database assembled by the National Council on Teacher Quality, and supplemented where necessary with information from plan documents.[15]

Table 2: Total benefits, contributions, and net benefit for a representative new teacher in Seattle Public Schools who opts for the hybrid plan

Age	Years of Service	Benefits from DB portion (value of teacher's pension benefit) (A)	Benefits from DC portion (teacher's individual retirement account balance) (B)	Value of total retirement benefit (A+B)	Value of teacher's cumulative contributions to date (C)	Net benefit (A+B-C)
25	0	$ 0	$ 0	$ 0	$ 0	$ 0
26	1	$ 0	$ 2,069	$ 2,069	$ 2,069	$ 0
27	2	$ 0	$ 4,260	$ 4,260	$ 4,260	$ 0
28	3	$ 0	$ 6,576	$ 6,576	$ 6,576	$ 0
29	4	$ 0	$ 9,023	$ 9,023	$ 9,023	$ 0
30	5	$ 0	$ 11,609	$ 11,609	$ 11,609	$ 0
31	6	$ 0	$ 14,724	$ 14,724	$ 14,724	$ 0
32	7	$ 0	$ 18,050	$ 18,050	$ 18,050	$ 0
33	8	$ 0	$ 21,629	$ 21,629	$ 21,629	$ 0
34	9	$ 0	$ 25,479	$ 25,479	$ 25,479	$ 0
35	10	$ 5,670	$ 29,613	$ 35,282	$ 29,613	$ 5,670
36	11	$ 6,925	$ 34,045	$ 40,970	$ 34,045	$ 6,925
37	12	$ 8,403	$ 38,791	$ 47,194	$ 38,791	$ 8,403
38	13	$ 10,058	$ 43,783	$ 53,840	$ 43,783	$ 10,058
39	14	$ 11,890	$ 49,032	$ 60,923	$ 49,032	$ 11,890
40	15	$ 13,904	$ 54,554	$ 68,457	$ 54,554	$ 13,904
41	16	$ 16,096	$ 60,360	$ 76,457	$ 60,360	$ 16,096
42	17	$ 18,464	$ 66,467	$ 84,931	$ 66,467	$ 18,464
43	18	$ 21,110	$ 72,890	$ 94,000	$ 72,890	$ 21,110
44	19	$ 24,064	$ 79,645	$ 103,709	$ 79,645	$ 24,064
45	20	$ 27,361	$ 86,749	$ 114,110	$ 86,749	$ 27,361
46	21	$ 31,038	$ 94,221	$ 125,258	$ 94,221	$ 31,038
47	22	$ 35,135	$ 102,078	$ 137,214	$ 102,078	$ 35,135
48	23	$ 39,700	$ 110,343	$ 150,042	$ 110,343	$ 39,700
49	24	$ 44,781	$ 119,034	$ 163,815	$ 119,034	$ 44,781
50	25	$ 50,436	$ 128,175	$ 178,611	$ 128,175	$ 50,436

Pension wealth, contributions, and net pension wealth for a female teacher who begins teaching at age 25. Ex: After her fifth year of service, her pension benefits are worth $11,609 (A+B) and her cumulative contributions are worth $11,609 (C). Her net pension wealth accrued at this point is $0, which is her pension wealth minus her cumulative contributions (A+B-C). All values are adjusted for inflation.

ENDNOTES

[1] "Contributions" here and throughout refer to the value of a teacher's total contributions—the amount she contributes, grown by each system's assumed rate of return.

[2] In reality, investment returns to retirement savings accounts over time will experience both gains and losses, as determined by market performance. To simplify the analysis, we assume a constant and positive rate of return, which equals the system's own assumed rate of return.

[3] Pension benefits typically accrue more rapidly in later years. (See R. Costrell and M. Podgursky, "Peaks, Cliffs, and Valleys: The Peculiar Incentives in Teacher Retirement Systems and their Consequences for School Staffing," *Education Finance and Policy* 4, no. 2 (2009), 175–211).

[4] Results are based on the retirement plan's rules as they apply to new hires who began in FY13. Provisions for state-covered plans were obtained from the National Council on Teacher Quality pension database (http://www.nctq.org/statePolicy/2015/nationalFindings.do?policyIssueId=4&masterGoalId=22).

[5] A vested teacher who leaves a DB pension plan *before* reaching retirement eligibility faces a choice: She can leave her contributions in the pension fund and wait until she reaches retirement age to receive benefits. Or she can "cash out" and immediately receive a refund of what she has contributed up to that point, sometimes with interest. In rare cases, refunds may also include some or all of the employer contributions, potentially with interest, depending on the terms of the plan and whether the teacher is vested. There are also exceptions where a refund benefit is actually less than what the teacher put in. For instance, Illinois keeps 1 percent of earnings for survivor benefits (see https://trs.illinois.gov/members/pubs/tier2guide/Refunds.pdf).

[6] Pension wealth is the total expected value of a teacher's yearly stream of pension payments over her lifetime, discounted back to the present and accounting for life expectancy, conditional on the age of separation. See *Appendix B*.

[7] The value of a teacher's contribution is the employee's required payment into the retirement system, grown by each system's assumed rate of return.

[8] Retirement age depends on years of service; see the "Technical Matters" section for more.

[9] S. Provasnik and S. Dorfman, *Mobility in the Teacher Workforce* (Washington, D.C.: NCES, 2005), http://nces.ed.gov/pubs2005/2005114.pdf.

[10] NCES, *Digest of Education Statistics*, Table 209.10, http://nces.ed.gov/programs/digest/d14/tables/dt14_209.10.asp.

[11] According to the *Beginning Teacher Longitudinal Study,* 80 percent of beginning teachers had a bachelor's degree. See NCES, *Beginning Teacher Longitudinal Study*, http://nces.ed.gov/surveys/btls/cohort.asp (accessed October 30, 2016. Additionally, given that about 55 percent of the current teaching workforce has a master's degree or higher, but approximately 21 percent of current teachers have five or fewer years of teaching, the analysis assumes that a teacher who remains five years will have a master's degree by that point.

[12] "Professional growth" credits are not included in salary calculations. First, they cannot be applied uniformly across districts: one district may give teachers a salary increase when they earn, for example, 10 credits, while another may specify a salary increase at 20 credits. Second, there are no data available as to the rate at which teachers earn salary credits throughout their career. As others have demonstrated, however, the provisions governing public pension plans will be the primary determinants of benefit accrual patterns (see R. Costrell and M. Podgursky, "Peaks, Cliffs, and Valleys: The Peculiar Incentives in Teacher Retirement Systems and their Consequences for School Staffing," *Education Finance and Policy* 4, no. 2 (2009), 175–211). Variation in a teacher's earnings path, such as that just described, will likely have limited impact on pension wealth accrual patterns or the timing of the crossover point.

[13] E. Arias, "United States Life Tables, 2007," *National Vital Statistics Reports* 59, no. 9 (Hyattsville, MD: National Center for Health Statistics, September 2011).

[14] For example, some districts specify longevity payments in the contract instead of in the salary schedule.

[15] NCTQ, "2015 Pension Flexibility," http://www.nctq.org/statePolicy/2015/nationalFindings.do?policyIssueId=4&masterGoalId=22. Some plan parameters were also independently verified using the Urban Institute's State and Local Employee Pension Plan Database (http://apps.urban.org/features/SLEPP/data.html).