

ALPINE SCHOOL DISTRICT (UTAH)

SUMMARY

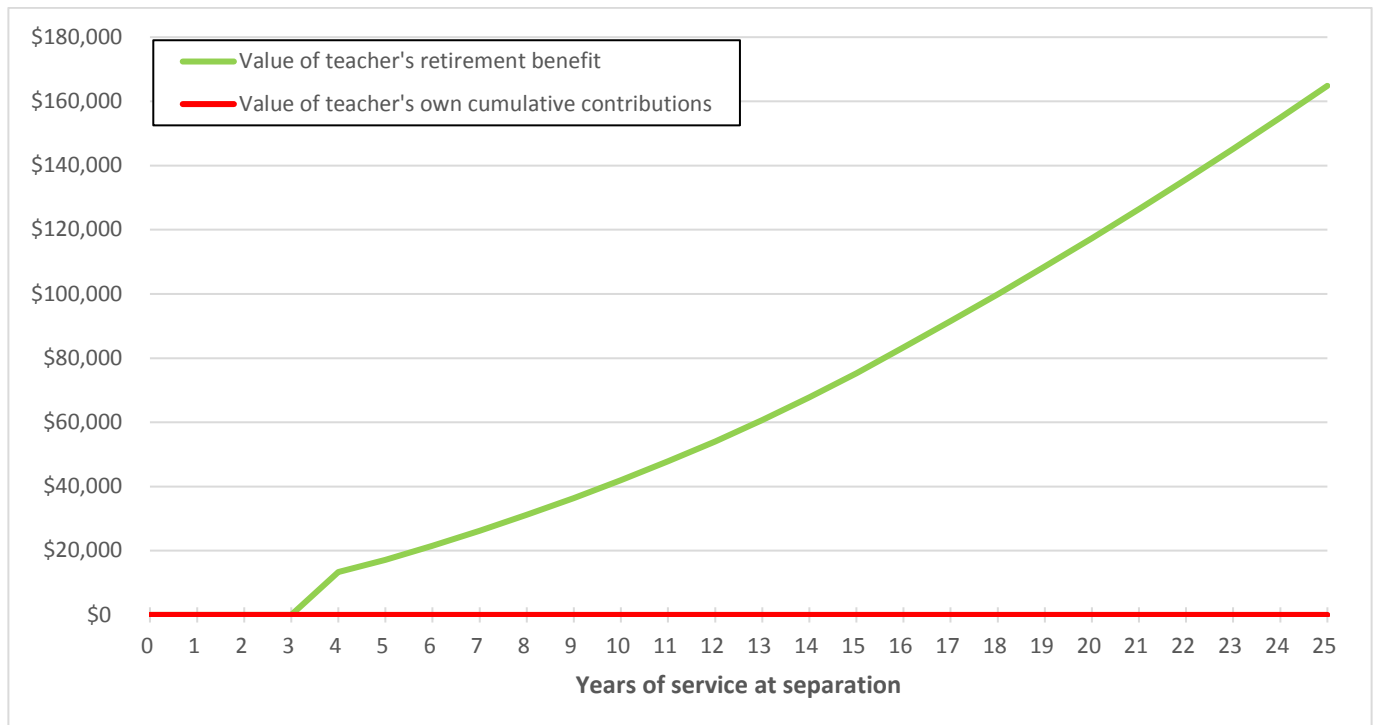
Alpine School District teachers can enroll in Utah Retirement Systems' Tier 2 Defined Contribution Plan. There is no crossover point for this plan because, under a defined contribution plan, benefits are solely based on an individual teacher's retirement account balance, equal to her and her employer's contributions plus interest and investment earnings. A teacher's benefit is worth more than her cumulative contributions, and her net benefit is positive and grows the longer she stays.¹ At the same time, she bears no penalty for separating with only a few years of service and moving her investment elsewhere. (Alpine teachers may choose the Tier 2 Hybrid Retirement System rather than the DC plan.)

About the District	
Students	73,975
Teachers (FTE)	3,078

About the Retirement Plan	
Type	Defined contribution
Coverage	Public employees
Active members	40,550
Total members	40,550

Sources: Enrollment: NCES (2013–14). Retirement plan membership: [Utah Retirement Systems](#) (membership as of December, 2015; includes only members of the DC plan)

Figure 1: Once vested, a new teacher in the Alpine School District who chooses the DC plan realizes a positive net benefit that continues to grow over time.



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.² (In this case, only the employer is required to contribute to Utah’s DC plan, so the teacher’s cumulative contributions always equal zero.)³ The green line is the value of her lump-sum retirement benefit should she separate from the system at a given time. Said another way, her benefit is equal to the balance of her retirement account at the time she separates: all of her contributions, the portion of the employer contributions in which she is currently vested, and the earnings on those contributions (interest and increased investment value). Where the green line jumps quickly away from \$0 is the time at which she vests. Because we assume a constant 5 percent return on investment, the balance of her retirement account accrues in a fairly smooth manner over time.

For an Alpine teacher who selects the defined contribution plan, there is no crossover point—the value of her retirement benefit (green line) is never less than the value of her cumulative contributions (red line), and her “net benefit” (the difference between the two) is never negative. She does not have to work a specified number of years in order to receive the balance of her retirement account in which she is vested, or to transfer it to another system. Said another way, she can separate from the system at any time without incurring a financial penalty. 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

An Alpine teacher who selects the DC plan is always eligible to receive her contributions plus investment earnings on those contributions, should she choose to make any. If she leaves after three years of service (or at any point before the vesting point of four years), she is not eligible to receive retirement benefits at all, because she has not vested into the employer contribution and she is not required to make a contribution herself (Table 1). After four years, she is now vested into the employer contribution and her benefit is equal to the balance of her retirement account (\$13,381). The net benefit (benefit minus contributions) is also \$13,381, since her own contribution is zero.

Table 1. At key points in a teacher’s career, what is the value of her retirement benefit? What is the value of her contribution? And what is the difference between the two?

Age	Years of Service	Value of teacher’s pension benefit (A)	Value of teacher’s cumulative contributions to date (B)	Net benefit (A-B)
28	3	\$ 0	\$ 0	\$ 0
29	4	\$ 13,381	\$ 0	\$13,381
40	15	\$ 75,315	\$ 0	\$ 75,315
50	25	\$ 164,848	\$ 0	\$ 164,848

MID-CAREER

Although there is no financial penalty for leaving the system early—under the DC plan, an Alpine teacher’s net benefit is never negative—her net benefit increases the longer she stays. Say she separates from the system after 15 years—the average experience of a teacher who leaves the profession.⁸ At this point her retirement benefit is worth \$75,315.

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.⁹ Should an Alpine teacher who selects the DC plan stay 25 years, the balance of her retirement account (and her net benefit) has had even more time to grow. The account is now worth \$164,848.

Bottom line: In this defined contribution plan, there is no penalty for leaving early, nor an incentive to quit earlier or stay longer than a teacher desires. An Alpine teacher who opts for the state’s defined contribution plan can separate from the system at any point without financial penalty, and once vested she is free to transfer the balance of her retirement account to another system. The DC plan is portable and offers a chance for Utah teachers to save toward a secure retirement and choose the plan that fits their own life circumstances, career goals, and preferences.

TECHNICAL MATTERS

Retirement System

Teachers working in the Alpine School District teachers can opt for the Utah Retirement Systems' Tier 2 Defined Contribution Plan. Under this defined contribution plan, a teacher's retirement benefit is equal to her account balance when she separates from the system. (Alpine teachers may choose the Tier 2 Hybrid Retirement System rather than the DC plan.)

Plan Provisions by the Numbers

Eligibility for retirement benefits

- Vesting requirement: Four years
- Retirement eligibility: No age or years of service requirements.

Employer and employee contributions

- Employee contribution rate: none required
- Employer contribution rate: 10 percent of salary

Summary of Plan Provisions

Upon leaving the retirement system, an Alpine teacher receives the balance of her personal retirement account: her own contributions plus investment earnings (should she make any contributions), and all of the employer contributions plus investment earnings in which she is vested. After entering service, a teacher immediately vests in (or is eligible to receive) her own contributions, although these contributions are not required. She vests in the employer contribution after four years. There are no age or years of service requirements for retirement.

The employer contribution rate is set at 10 percent of earnings. There is no required employee contribution.

Alpine teachers do pay into Social Security.

Assumptions for Computing Retirement Benefit

Note: For DC plans, retirement benefit is equal to the balance of the teacher's retirement account

- Entry age: 25 years old
- Gender: female
- Teacher has bachelor's degree for first five years; master's degree for the remainder¹⁰
- Teacher salary schedule for 2012–13 school year¹¹
- 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.¹² 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.¹³

Table 2: Benefits, contributions, and net benefit for a representative new teacher in the Alpine School District

Age	Years of Service	Value of teacher's retirement benefit (A)	Value of teacher's cumulative contributions to date (B)	Net benefit (A-B)
25	0	\$ 0	\$ 0	\$ 0
26	1	\$ 0	\$ 0	\$ 0
27	2	\$ 0	\$ 0	\$ 0
28	3	\$ 0	\$ 0	\$ 0
29	4	\$ 13,381	\$ 0	\$ 13,381
30	5	\$ 17,164	\$ 0	\$ 17,164
31	6	\$ 21,543	\$ 0	\$ 21,543
32	7	\$ 26,204	\$ 0	\$ 26,204
33	8	\$ 31,155	\$ 0	\$ 31,155
34	9	\$ 36,403	\$ 0	\$ 36,403
35	10	\$ 41,955	\$ 0	\$ 41,955
36	11	\$ 47,819	\$ 0	\$ 47,819
37	12	\$ 54,077	\$ 0	\$ 54,077
38	13	\$ 60,739	\$ 0	\$ 60,739
39	14	\$ 67,815	\$ 0	\$ 67,815
40	15	\$ 75,315	\$ 0	\$ 75,315
41	16	\$ 83,329	\$ 0	\$ 83,329
42	17	\$ 91,538	\$ 0	\$ 91,538
43	18	\$ 99,948	\$ 0	\$ 99,948
44	19	\$ 108,563	\$ 0	\$ 108,563
45	20	\$ 117,388	\$ 0	\$ 117,388
46	21	\$ 126,428	\$ 0	\$ 126,428
47	22	\$ 135,688	\$ 0	\$ 135,688
48	23	\$ 145,175	\$ 0	\$ 145,175
49	24	\$ 154,893	\$ 0	\$ 154,893
50	25	\$ 164,848	\$ 0	\$ 164,848

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 \$17,164 (A) and her cumulative contributions are worth \$0 (B). Her net pension wealth accrued at this point is \$17,164, which is her pension wealth minus her cumulative contributions (A-B). All values are adjusted for inflation.

ENDNOTES

- ¹ In practice, it is possible that investment returns over some period of time are sufficiently negative such that a teacher's net benefit could also be negative. However, in the long run, net benefit is likely to be positive (especially if it factors in employer contributions). For this description, we assume a positive long-term net benefit.
- ² "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.
- ³ There is no required employee contribution. In this study, the contribution rate for teachers in DC plans equals the minimum amount required.
- 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 S. Provasnik and S. Dorfman, *Mobility in the Teacher Workforce* (Washington, D.C.: NCES, 2005), <http://nces.ed.gov/pubs2005/2005114.pdf>.
- ⁹ NCES, *Digest of Education Statistics*, Table 209.10, http://nces.ed.gov/programs/digest/d14/tables/dt14_209.10.asp.
- ¹⁰ 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.
- ¹¹ "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.
- ¹² For example, some districts specify longevity payments in the contract instead of in the salary schedule.
- ¹³ 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>).