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Do Pension Enhancements Improve Teacher Retention?

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Policy Brief

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Summary

- In 1999, St. Louis Public Schools (SLPS) made a substantial, retroactive improvement to the pension benefit formula for public school teachers.
- The retroactive benefit improvement was expensive – in a recent paper we estimate that the implementation cost, in present value, was roughly $166 million for the single cohort of SLPS teachers working at the time, or $52,000 on average per teacher (dollar figures are in 2013 dollars). The enhancement also committed SLPS to providing pension benefits under the improved formula, which is still in place today, for new hires.
- A policy rationale for the enhancement is that it increased teachers' retention incentives. However, we do not find any evidence that teachers' retention out comes responded to the changes in their pension incentives.
- The proportion of SLPS's budget devoted to paying pension benefits for its teachers has been rising in recent years. Although it would be irresponsible to claim that SLPS's pension-cost issues stem solely from the 1999 pension enhancement covered in this brief, it would be equally irresponsible to deny that the enhancement has played an important role.

Policy Context

Unlike their private-sector professional counterparts, public workers – including public school teachers – receive a significant fraction of their compensation in the form of a defined-benefit (DB) pension. For St. Louis teachers, who are the focus of this policy brief, current pension costs are over 20 percent of earnings (with 5 percent coming directly from teachers and the remainder being paid by SLPS). These costs are only to cover pension benefits and do not cover other benefits, like health insurance.

By design, benefit payments in DB plans are not directly tied to contributions at the individual level; rather, they are defined by a formula that depends on the employee's years of service and salary. The SLPS annual benefit formula – which has the same structure as other public pension plans nationally – is as follows:

$$B = F * YOS * FAS$$

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In the equation, B represents the annual benefit, F is the formula factor, YOS indicates years of service in the system, and FAS is the teacher's final average salary, calculated as the average of the highest three years of earnings. F*YOS is commonly referred to as the "replacement rate." Prior to the SLPS enhancement, the formula factor in St. Louis was 0.0125, which means that a teacher with 30 years of service would receive an annual pension that replaces 37.5 percent (30 x 1.25) of her final average salary upon retirement. SLPS teachers are also enrolled in Social Security, so Social Security payments would be added to the pension payments (upon attaining Social Security collection eligibility, of course). Munnell and Soto (2005) report that the median Social Security replacement rate is approximately 40 percent of career-average earnings.

In 1999, SLPS implemented a pension enhancement that increased the formula factor in the above equation, F, from 0.0125 to 0.0200. The improved formula factor was implemented retroactively, which means that individuals who retired under the enhanced rules had the higher formula factor applied to all service years. Thus, the enhancement resulted in an immediate, across-the-board 60 percent increase in pension wealth for all workers. It was enacted for teachers retiring on or after June 30, 1999. Individuals who began collecting benefits after the 1998-1999 school year received their pensions based on the improved formula; individuals who began collecting their pensions prior to the conclusion of the 1998-1999 school year received a less remunerative stream of pension payments based on the original formula.

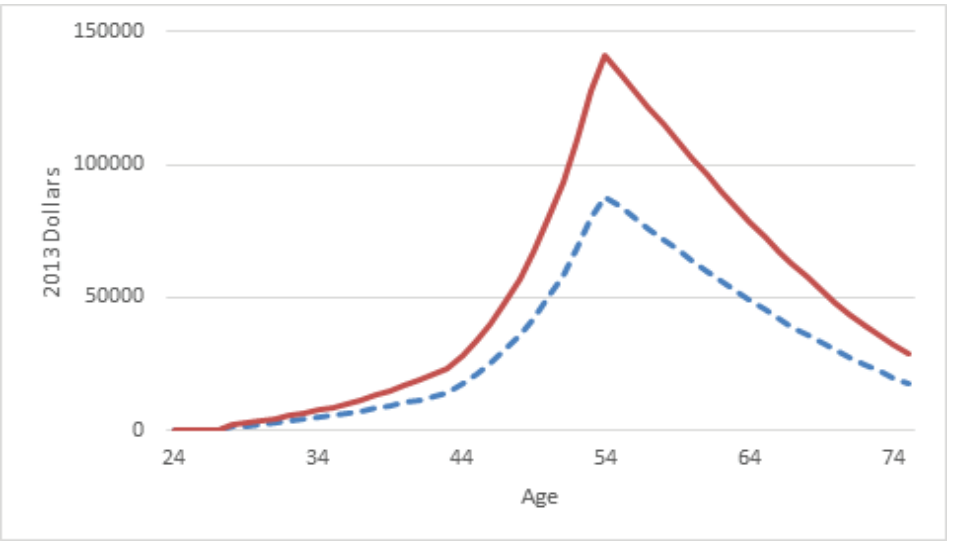
A Potential Policy Rationale for the Enhancement

Wealth accrual in most public DB plans, including the St. Louis plan, is heavily backloaded. This means that early in the career, teachers accrue little pension wealth, but late in the career wealth accrues rapidly. The backloading is illustrated in Figure 1 for a representative, age-24 entrant into the SLPS plan. At each point in the potential career looking forward, the figure shows the present discounted value of pension wealth accrued up to that point, with and without the pension enhancement.[1] To get a sense of the degree of backloading in the SLPS plan, one can compare pension-wealth accrual during the first two-thirds of the career (ending around age 44) with accrual during the last one-third of the career (age-44 until full benefit-collection eligibility, which occurs at the "peak" of the curve) in Figure 1. Most of the teacher's pension-based compensation clearly accrues toward the very end of the career. This aspect of the SLPS pension plan – and other similar plans nationwide – incentivizes teachers to remain in pension-covered employment.

Figure 1 illustrates a potential rationale for the SLPS pension enhancement that might justify it as a policy designed to improve teacher retention. Notice that the slope of pension accrual curve steepens with the enactment of the enhancement, indicating higher financial returns to remaining in the workforce after the enhancement was enacted. That is, the pension enhancement strengthened the pre-existing retention incentives in the SLPS plan.

1 Social Security wealth accrual is not shown in the figure for brevity and ease of presentation, but can be seen in Koedel and Xiang (forthcoming).

Figure 1. Pension Wealth Accrual For A Representative SLPS Entrant Under The Original And Enhanced Pension Formula.



Notes: These accrual curves are taken from Figure 1 in Koedel and Xiang (forthcoming). The dashed line represents accrual under the original plan rules and the solid line is accrual under the post-enhancement rules.

Did the SLPS Pension Enhancement Increase Teacher Retention?

In Koedel and Xiang (forthcoming), we design and estimate statistical models to test whether SLPS teachers responded to the enhanced pension formula by remaining in SLPS at a higher rate. Our models leverage the fact that although all teachers received an immediate 60-percent increase in pension wealth due to the enhancement, the pre-existing backloading of retirement compensation in the system was such that the dollar value of the increase, along with the change in the incentive to remain in covered employment, varied considerably across teachers. For example, a teacher very close to retirement eligibility at the time when the enhancement was retroactively implemented stood to gain much more in terms of annual pension compensation than a young teacher. This can be seen to some extent by the curves illustrated in Figure 1; in fact, the true difference in the incentive change between more and less experienced teachers was even more pronounced than is implied by the figure because of discounting (as we discuss in more detail in the full academic article – see Koedel and Xiang, forthcoming).

What did we find? In short, not very much. Despite large differences across teachers in the changes to their retention incentives, we do not see statistical evidence to suggest that teachers whose incentives increased by the most were more likely to be retained at a higher rate as a result of the enhancement. A limitation of the findings from our preferred model in the academic article is that they are estimated somewhat imprecisely. Therefore, we consider two upper-bound, best-case scenarios for the enhancement and perform cost-benefit analyses with the enhancement put in a (very) favorable light. Even in these scenarios, our calculations suggest the cost of the enhancement exceeded any benefits it may have had in terms of improving teacher retention.

Discussion and Conclusion

A natural question that arises from our study is the following: Why did such a large and expensive pension enhancement, which strengthened teachers' retention incentives by exacerbating compensation backloading in the SLPS pension plan, fail to generate a substantial behavioral response from teachers?

One issue is that the retroactive implementation of the benefit-formula improvement was problematic if the goal was to change behavior. The retroactive implementation resulted in a large fraction of the resources promised by the enhancement accruing to late-career teachers. A particularly well-situated group that we discuss in detail in our academic article included retirement- eligible teachers who were still working at the time of the enhancement, who made up roughly 15 percent of the SLPS teaching workforce. These teachers essentially received a pure windfall from the enhancement because they were already at or past the peak of the pension accrual curve and could begin collecting benefits at any time. We calculate that the enhancement increased the value of these teachers' pensions, on average, by over $100,000 per teacher in present value (note that unlike in Figure 1, where pension wealth values are discounted to the point of entry for a new teacher, pension payments are very near for late-career teachers and thus much less devalued by discounting).

In addition to the windfall to teachers who were already retirement eligible, teachers near retirement disproportionately benefited from the enhancement. Transferring such a large fraction of resources to late-career teachers is problematic in a cost-benefit framework because late-career teachers – like other late-career workers – tend to be more inertial in their careers. Thus, although late-career teachers received significant resources as a result of the pension enhancement, their scope for a behavioral response was modest. This suggests that the SLPS enhancement, which like enhancements to other state and municipal plans around the same time period was structured to strengthen retention incentives for senior workers the most, was poorly designed if an objective was to improve employee retention.

Still, if the decision makers who approved the enhancement had been asked at the time to identify its likely benefits to SLPS students, it is hard to imagine a more compelling policy rationale than improving teacher retention. Perhaps a competing rationale would be to improve recruitment, but if improving recruitment were truly the objective, then the funds devoted to support the enhancement could have been targeted much more effectively toward new entrants.

Another explanation for our findings is that teachers simply do not value their pension benefits at the cost of providing them. This could be due to some combination of teachers being oversaturated with retirement compensation (Fitzpatrick, 2015) and their lack of knowledge about the full value of their pensions (Brown et al., 2013; Chan and Stevens, 2008; Gustman and Steinmeier, 2005).

Regardless of the reason, if teachers do not value their pension benefits at their full cost, it is unreasonable to expect pension incentives to drive behavioral changes commensurate with their implementation costs.

Alternative, non-policy-based explanations for the why the enhancement was approved in the first place also merit brief mention, particularly in light of our findings. A prominent alternative explanation is that the SLPS enhancement is an example of opportunistic resource extraction by politically powerful groups; in this case, senior teachers and school administrators. In earlier work with colleagues Shawn Ni and Michael Podgursky (Koedel, Ni and Podgursky, 2013, 2014) I discuss some of these issues in the Missouri context. Glaeser and Ponzetto (2014) develop a general theoretical framework for thinking about political gaming in state and local pension plans nationally, and the SLPS enhancement is broadly consistent with their study.

So why does a pension enhancement that was enacted over 15 years ago, and failed to generate educational benefits commensurate with its costs, matter today? One reason is that the SLPS enhancement provides important context for understanding the contemporary fiscal challenges that SLPS faces with its pension plan. These challenges did not develop overnight. More so than many other policies, pension policies influence outcomes in the future, and we are now living in the post-enhancement SLPS world. In recent years, actuarially required contribution rates to the SLPS pension plan have risen dramatically, straining SLPS finances . While it would be irresponsible to argue that recent pension-cost problems in SLPS are entirely the result of the retroactive enhancement that was enacted in 1999, it would be equally irresponsible to dismiss the role of the enhancement out of hand. When the enhancement was enacted, SLPS made an irreversible commitment to greatly increase pension benefits for plan members, many of whom had paid into the system for a large fraction of their careers to fund a much less remunerative stream of pension payments than they ended up receiving. The SLPS pension plan would undoubtedly be in better fiscal condition today if the enhancement was not implemented.

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