Is It Time To Rethink Teacher Pensions In Maryland?

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Contents

Executive Summary

The 2006 legislative session in Maryland witnessed a major debate about the adequacy of teacher pensions. Advocates of increases in teacher pensions argued that the state's defined benefit plan was the "worst in the nation" and was hampering the recruitment and retention of teachers. They also argued that Maryland was losing experienced teachers to Pennsylvania, which purportedly had a more generous pension plan.

Such debates are not unique to Maryland. Many states are struggling to finance under-funded teacher pension systems as well as recruit and retain a high-quality teaching workforce. Thus a careful examination of the Maryland debate holds lessons for other states.

This paper compares Maryland's former (prior to Spring, 2006) teacher pension system to those in Pennsylvania and several other states. On the basis of simple replacement rates, the former Maryland state plan was the lowest in the nation. However, such a simple comparison ignores other important facets of state plans:

- Maryland teachers are in the federal Social Security system, while teachers in many other states are not. When Social Security benefits are included, Maryland's total retirement benefits compare much more favorably to those in other states.
- The teacher contribution rate in Maryland was very low relative to other states', including Pennsylvania, which may be attractive for many young teachers.
- The cost-of-living adjustment in Maryland is more generous and reliable than in many other states, including Pennsylvania.
- Compared to other states, the Maryland system provided more income up front and less in later years. When the lifetime flow of income for a hypothetical teacher in five states is computed using standard financial methods, lifetime earnings in Maryland were not obviously out of line with lifetime earnings in other states.

As importantly, evidence from teacher labor market data does not suggest that teacher retention or quality is worse in Maryland than in Pennsylvania.

Increased state spending on defined benefit pension plans like Maryland's is unlikely to be a cost-efficient way to staff classrooms with qualified teachers. Given the high mobility of public school teachers, education policy makers should consider providing teachers with a defined contribution alternative to the current system – a plan that would "travel with" mobile teachers. Defined contribution plans predominate in professional labor markets in the private sector and in higher education.

"With school systems in much of the state facing teacher shortages, the pension enhancements will be a recruitment and retention tool, [MSTA President Foerster] said.

'I believe that the human resource offices around the state have been waiting for this improvement and you can be sure that they are going to be out there using this as a factor when they are trying to recruit.'"

Montgomery Gazette, April 7, 2006

"'We have a very poor teacher pension system, and it does affect our ability to retain and attract good teachers,' said Del. Murray D. Levy (D. Charles)"

Washington Post, December 18, 2005

"Their message arrives in more than 20,000 e-mails, in 60-second radio spots airing statewide and in the busloads of educators who come to lobby in Annapolis: Maryland teachers want better retirement benefits, and they want to make a deal this election year, when the state's wallet is fat."

Washington Post, January 23, 2006

Introduction

School districts are under growing pressure to raise student achievement and narrow achievement gaps. In addition, the federal No Child Left Behind (NCLB) Act requires "highly qualified" teachers in core academic subjects in every public classroom. School districts that employ uncertified or emergency certified teachers may lose significant federal funds. At the same time, school districts must cope with significant increases in employee benefit costs. The sharp rise in health insurance costs is well documented. Less well known are the large unfunded liabilities for teacher pension plans. Almost all public school teachers in the United States are covered by traditional defined benefit pension plans, and states are under growing fiscal pressure to keep these traditional pension systems afloat. Unfunded liabilities and demands for expanded retiree benefits are crowding out other spending for public schools.[1] States and school districts must determine how their limited compensation dollars can yield the highest educational returns.

The 2006 Maryland legislative session illustrated the legislative challenges in this area. Legislators faced strong pressures from teacher unions and other education employee organizations to increase spending on the teacher pension system. Legislators were told that the Maryland teacher pension system was the "worst in the nation," hampering teacher recruitment. Unfavorable comparisons were made to Pennsylvania, where benefit rates were purportedly much higher. As a result of strong lobbying pressures, the legislature allocated an additional $120 million to fund pension benefit increases, retroactively raising benefit levels for recent retirees, and substantially increasing teacher contribution rates – in effect payroll tax increases – for school districts and current teachers.

In this paper, I examine claims regarding the former Maryland pension plan, in particular its "competitiveness" and evidence on its effect on teacher recruitment and retention. While I focus on a system that has been replaced, the questions that confronted legislators in Maryland in 2006 are similar to those faced by legislators in many other states. The 2006 Maryland debate represents the tip of a larger public policy iceberg.[2]

How Defined Benefit and Defined Contribution Teacher Pensions Work

Public school teachers are almost universally covered by traditional "defined benefit" (DB) pension systems. Such plans were the norm in both the public and private sector until recent decades, but the private sector has largely moved to defined contribution (DC) plans, particularly for professionals. In a DB system, the employer has an obligation to provide a regular retirement check to employees who have retired. Employee and employer contributions go into a fund that is supposed to be actuarially sound: at any point in time there is supposed to be enough money in the fund to pay for all current and future liabilities, although this is rarely the case. Most states' teacher pension systems have large unfunded liabilities (NASRA, 2006).

Typically, a DB teacher pension plan requires contributions from both teachers and employers. During the 2005-06 school year, Maryland teachers contributed 2 percent of their pay, and school districts paid 9.35 percent, for a total of 11.35 percent.

GLOSSARY

Defined Benefit Pension Plan. A plan that guarantees a fixed payment upon retirement based on a formula combining years of service with salary prior to retirement. At any point in time, teacher pension plans are supposed to have sufficient assets to cover the payments of current retirees as well as accrued liabilities for current employees.

Defined Contribution Pension Plan. In this plan the employer does not guarantee the employee a fixed payment upon retirement. Rather, the employer agrees to contribute a fixed payment into an individual retirement fund for the employee while he is employed. The employee has some choice as to how these funds are invested. If she quits before retirement age, the fund is portable and travels with the employee.

Teachers become eligible for a full pension based on a combination of age and years of service. In both Maryland and Pennsylvania, teachers are eligible for full pension if they reach the age of 62 or have 35 years of service at any age. In fact, under nearly all state teacher pension systems, teachers can retire at any age – often in their mid-fifties – if they have put in the requisite years of service (usually 30-35).[3] In the Social Security system, by contrast, employees face reduced payments if they retire before age 65.

Benefits at retirement are usually determined by a formula of the following sort:

Annual Benefit = (years of service) x (final average salary) x M,

where final average salary is the average of the last several years of salary and M is a proportion. Under the old formula, Maryland teachers earned 1.4 percent for each year of teaching service.[4] Thus, a teacher with 30 years experience would have received the following annual pension:

Annual Benefit = 30 x $60,000 x .014 = $25,200.

The Maryland multiplier of 1.4 percent was quite a bit below Pennsylvania's (2.5 percent) – a point emphasized by the Maryland teacher unions in their lobbying campaign.

In a defined contribution (DC) plan – now the norm in the private sector (EBRI, 2006) – the employer merely agrees to contribute a fixed amount annually to a retirement account for an employee. For example, a common arrangement is for the employer to contribute 5 percent of an employee's salary and match employee contributions up to an additional 5 percent. These contributions go into a retirement account solely for that employee. If the employee quits, the fund goes with her. The employer is under no obligation to provide a specific payment to the employee at the time of retirement.

DC plans are particularly attractive for professionals who tend to change employers frequently or who go into self-employment and back. Not surprisingly, given their relatively high rates of professional mobility, DC plans (predominately TIAA-CREF) tend to be the norm in public and private higher education institutions.

Comparing Teacher Pension Plans

Given the formulas described in the previous section, one obvious way to rank the generosity of teacher pension programs is by comparing their multipliers. On that basis, in 2006 the Maryland state system had the nation's lowest multiplier. By this criterion, Maryland's plan was indeed the "worst" (NEA, 2004). However, teacher pension plans are complicated and economic comparisons across states must involve more than just a simple comparison of multipliers. To get a sense of the variation across states in these other factors, but in a tractable way, we have selected five states for comparison: Maryland, three large neighboring states (Ohio, Virginia, and Pennsylvania, which figured so prominently in the recent Maryland policy debate), and Missouri, a representative Midwestern state.[5] Table 1 provides an overview of the teacher pension plans in these states.

Table 1
Parameters of Selected State Teacher Pension Funds

	Maryland	Pennsylvania	Ohio	Missouri	Virginia
Coverage	Except Baltimore	All	All	Except St.L and KC	All
In Social Security?	Yes	Yes	No	No	Yes
Benefit Multiplier	1.4%	2.5%	2.2%	2.5%	1.7%
Employee Contribution	2%	7.5%	10%	10.5%	5%
Cost-of-Living Adjustments?	CPI up to 3% annually	Ad hoc, generally every five years	CPI up to 3% annually	CPI up to 5%	CPI up to 3%, .5 CPI 3% -5%, 5% max

Sources: NEA (2004), pension web sites.

Figure 1 shows the effect of the multipliers in Table 1 on actual pensions. For each state, the left bar shows the pension for a teacher with a final average salary of $60,000 and 30 years' teaching experience. Consistent with its "worst in the nation" label, Maryland ranked last among the five states, with a pension ($25,200) well below the other states'.

Figure 1
Teacher Pension Benefits in Five States
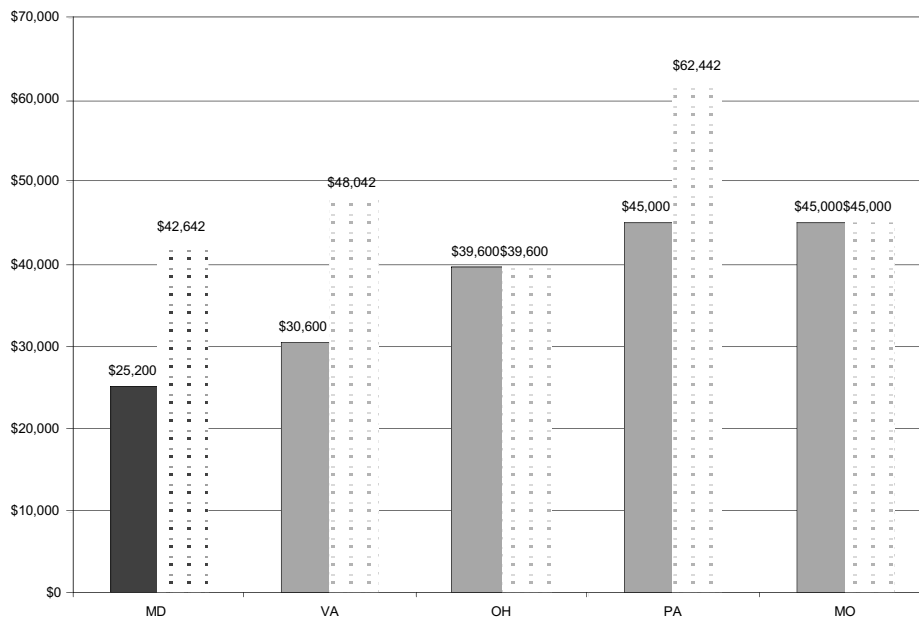
Source: Calculations by author based on NEA (2004). Annual benefit for a teacher with final average salary of $60,000 and 30 years of teaching experience. Left (solid) bars are state pensions only. Right (striped) bars include Social Security benefits.

However, ranking programs solely on the basis of their multipliers does not tell us the whole story about how the systems compare. There are several other variables that must be considered in judging the attractiveness of a state teacher retirement system. These include Social Security coverage, teacher contributions, and cost of living adjustments.

Social Security Coverage

Maryland teachers are covered by the federal Social Security system along with the state pension plan. Public school teachers in many other states are not. State and local employees were originally excluded from the Social Security system when it was set up in 1935. Congress amended the Act in 1950 to permit states to arrange voluntary entry of some or all state and local employees to enroll in the system. Some states and districts chose to do so and some did not. (Mitchell et al., 2001). The result is a complicated mosaic. In fourteen states few or none of the public school teachers are covered by the federal Social Security system. For example, in Missouri, the teachers in the Kansas City and St. Louis school districts are in the Social Security system and have their own separate pension funds. Teachers in the remaining 520 school districts, roughly 90 percent of public school teachers in the state, are in a state pension fund and are not covered by Social Security. In Ohio no public school teachers are covered by Social Security.[6] In Pennsylvania and Maryland, all teachers are in the Social Security system.

Obviously, as compared to teachers who are not in the Social Security system, teachers in the federal system do not require as large a payment from a state or district pension plan to attain a given level of income upon retirement. Not surprisingly, then, the benefit formulas of pension plans in which teachers are in the Social Security system are generally lower than those for teachers who are not in the system. The two states that do not participate in Social Security, Missouri and Ohio, have the highest multipliers (2.2 and 2.5 percent respectively). Two states in Social Security, Virginia and Maryland, have lower multipliers (1.7 and 1.4 percent). Pennsylvania is an outlier in this regard with both a high multiplier and Social Security coverage.

The second, striped set of bars in Figure 1 combines the state teacher pension with an estimate of Social Security benefits in our five states. Here we have computed the Social Security benefit for a teacher retiring with 30 years' experience and a $60,000 salary (under a reasonable set of assumptions about salary growth over her career) and added it to the state pension benefit. Of course, the height of the two bars is identical for Missouri and Ohio. Clearly, adding Social Security benefits substantially improves the comparison between Maryland and the other states. Maryland is now ahead of Ohio and has approximate parity with Missouri. Since the dollar value of the Social Security benefit is the same in all states, the proportionate gap between Maryland and Pennsylvania and Virginia is narrowed as well.
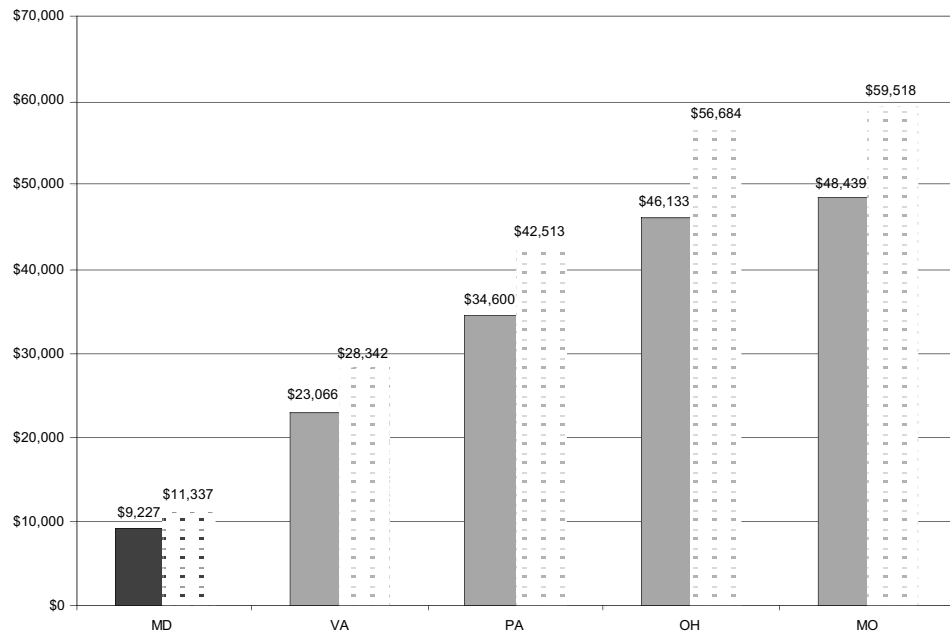
Teacher Contribution Rates

In all of our five states, as in most other states, teachers must contribute to the pension fund. Teacher contribution rates vary widely between states, but are generally higher in states not covered by Social Security. For example, the teacher contribution rate is 10 percent in Ohio and 10.5 percent in Missouri. Newly hired teachers in Pennsylvania contribute 7.5 percent to their pension fund, whereas in the Maryland state system the contribution rate was just 2 percent – one of the lowest rates among the states. Of course, for teachers in the Social Security system, state pension contribution rates are in addition to the 6.2 percent federal payroll deduction.

This variation in contribution rates produces significant variation in take-home pay among teachers with identical salaries in different states. We ignore state and local taxes and imagine a teacher with starting pay of $35,000. Salaries grow relatively quickly in the early stages of a teacher's career for three reasons. First, teachers receive automatic increases for seniority in salary schedules. Second, these salary schedules reward Masters degrees, which teachers typically earn in their first decade on the job. Finally, annual across-the-board pay increases inflate salaries at all points of the salary grid. As a result of these three factors, it is not unreasonable to assume a 6 percent annual growth rate in a teacher's salary over her first ten years on the job.

Figure 2 shows total estimated state pension contributions by a teacher in her first decade on the job in our five states assuming a 6 percent annual growth rate in salary. That is, the figure shows how much income is deducted from the paychecks of these young teachers for their pensions. The left bar shows the simple sum of contributions over the first ten years of work. The right bar shows the same total, but with contributions earning a 5 percent return. Cumulated over the first decade of a teacher's career, differences between states are substantial. While retirement payments differ considerably between the states, so do contributions young teachers make to receive them. These are resources that might have been used to purchase a home or make other family investments.

Figure 2
**Value of Pension Contributions During First Ten Years of Employment**

Source: Calculations by author. Teacher contributions only. Assumes $35,000 starting pay and 6 percent nominal growth in salary over ten years. Left bar is the simple total. Right bar assumes compound growth at 5 percent annual interest.

Thus, Maryland teachers receive a smaller (future) pension but have more take-home pay in their early years on the job. Pennsylvania teachers have less take-home pay in early years and a larger pension at retirement. Other states fall in between.

In effect, Maryland and Pennsylvania offer teachers two different streams of payments – one front-loaded and the other back-loaded. Is there a summary way to compare the two? In economics and finance the standard way to compare a flow of payments over time is to compute a discounted present value (DPV). Given an assumed interest (discount) rate, DPV tells us how much money would be needed right now to yield a stream of future payments of the type observed. It reflects the fact that dollars in the future are worth less than dollars now. The interest or "discount rate" reflects the time preferences of the teacher. A teacher who strongly prefers "cash now" will have a high discount rate. For example, to be willing to part with $100 now, she might require $110 next year, implying a discount rate of 10 percent. A teacher who is more future-oriented will have a lower discount rate.[7]

Figure 3 shows the DPV of the earnings streams for our five states at two different discount rates, reflecting different rates of time preference. At a low discount rate (3 percent), the DPV of the MD payment stream ($1.17 million) is below that of all the other states. However, for teachers with a discount rate of 5 percent, the "cash up front" structure of the Maryland system looks more and more attractive. At a 5 percent discount rate, a Maryland teacher's total discounted earnings is slightly lower than in Pennsylvania, but is higher than in the other three states.

Figure 3
Discounted Present Value of Net Earnings and Pension Benefits
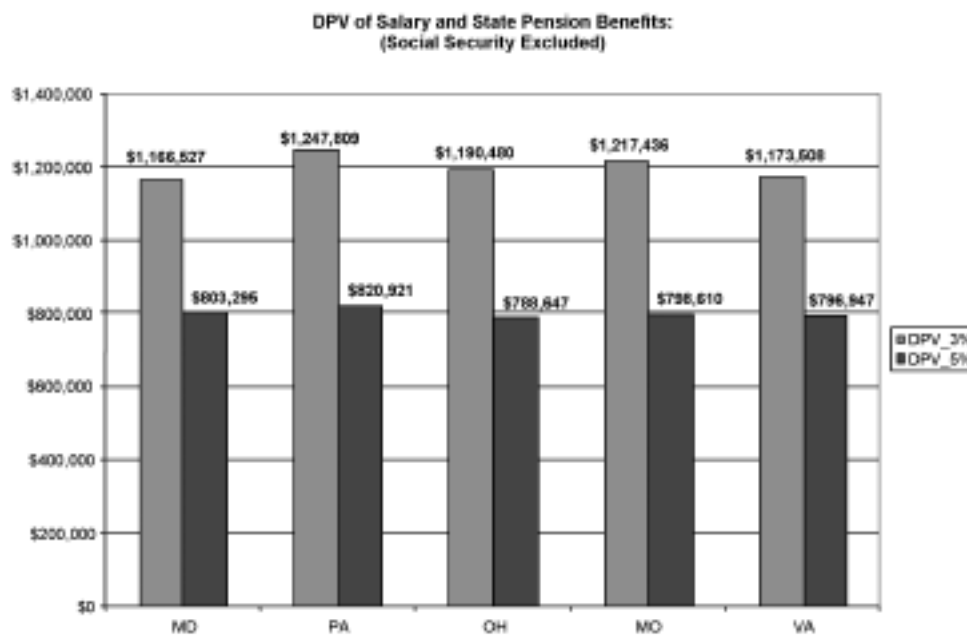
Source: Author's calculations. Simulation assumes a beginning teacher salary of $35,000 that rises by 2 percent each year. Zero inflation. Retirement after 35 years. Full pension payment until age 78.

These simulations assume that a teacher works for 35 years and then retires, all in one state. However, the turnover rate of teachers, particularly in their early years of teaching, is quite high. National survey data from the National Center for Education Statistics suggest that the exit rate from the profession is roughly 8 percent annually (although some of these are temporary exits, U.S. Department of Education, 2004). Thus, a more accurate estimate of the true value of these pensions to a young worker ought to take account of the high likelihood that a new teacher will exit the profession before she retires – a fairly complicated evaluation we have not

undertaken here. However, one thing is clear. As the probability of actually collecting a pension drops, the Maryland pay-pension package becomes relatively more attractive.

In sum, until 2006 Maryland provided a payment stream with more income up front and less in retirement. Pennsylvania provided one with less income up front and a more generous pension. How a young teacher values this depends upon her rate of time preference and how long she plans to remain in the profession. At even a modest discount rate or a conservative rate of exit, the gap in DPV between Maryland and other states is small.

Cost-of-Living Adjustment

The formulas described in the previous section fix teacher pensions as a fraction of a teacher's final average salary that retirees (and their surviving spouses) are eligible to receive for the rest of their lives. With inflation, of course, such defined benefit payments shrink in value over time. Since teachers retire young, are predominantly female, and on the whole tend to be healthier than the general workforce, they can expect to collect their pensions for many years. For example, a teacher retiring at age 55 (or her spouse) might expect to collect a pension payment for three decades or longer. Clearly, if the payment is fixed in dollars at the time of retirement, its real value may be substantially eroded by three decades of inflation.

Thus, cost-of-living (COL) adjustments are an important feature of defined benefit plans. In this regard, the Maryland scheme is attractive. Each year teachers automatically receive a COL adjustment of up to 3 percent (with a cumulative cap of 80 percent). Pennsylvania, by contrast, has no automatic COL adjustment. Indeed, the "Retiree's Handbook" on the Pennsylvania teacher pension fund's web site contains this sobering disclaimer:

> The most frequently asked question is, "When will I receive a cost-of-living increase?" PSERS does not determine when a COL adjustment should be granted, nor do we determine the amount or terms of the increase. The Pennsylvania Legislature determines all COL adjustment increases for PSERS retirees.
>
> On average, a COL adjustment is enacted every 4-5 years. While this is the average, it is no guarantee that it will always occur with this frequency.
>
> Pennsylvania State Employee's Retirement System. The Retired Member's Handbook. Publication 9775 (June, 2006). http://www.psers.state.pa.us/publications/rethb/rethb2006/COLA.htm

The DPV simulations in the previous section implicitly assumed that the pension payments were fully indexed against inflation. However, now there is an additional element that we need to consider in computing the value of these pension plans – uncertainty about the real value of the Pennsylvania pension.[8] This is a comparison that favors Maryland.

In addition, a four- or five-year COL adjustment, even if complete and certain, imposes considerable welfare loss as compared to an annual adjustment like Maryland's. Table 2 illustrates this point. Here we assume a 3 percent inflation rate and pensions starting at $30,000. Maryland adjusts its pension each year. Pennsylvania, by contrast, only adjusts every four years. As a result, as compared to Maryland retirees, the Pennsylvania retirees have uncompensated losses that cumulate during the intervening years. Over the nine-year cycle illustrated in Table 2, the Pennsylvania retirees suffer a cumulative loss of $10,283 in inflation-adjusted dollars as a result of the lagged COL adjustment.

Table 2
Real Income Losses Arising from Timing of COL
Adjustments in Maryland and Pennsylvania

| | COL | | | Real |
Year	Factor	Maryland	Pennsylvania	Loss
1	1.000	$30,000	$30,000	$0
2	1.030	$30,000	$29,126	-$874
3	1.061	$30,000	$28,278	-$1,722
4	1.093	$30,000	$27,454	-$2,546
1	1.000	$30,000	$30,000	$0
2	1.030	$30,000	$29,126	-$874
3	1.061	$30,000	$28,278	-$1,722
4	1.093	$30,000	$27,454	-$2,546
1	1.000	$30,000	$30,000	$0
			Cumulative Real Loss	-$10,283

Source: Author's calculations. Calculation assumes a 3 percent annual inflation rate. MD adjusts pensions each year whereas PA adjusts only every four years.

Pension Plans, Teacher Retention, and Workforce Quality

An economic argument in favor of defined benefit pension systems is that they encourage workforce stability. While teacher pension contributions are "vested," typically after five years, teachers who quit before retirement are penalized. A teacher who works for fifteen years and then decides to quit teaching has two options. First, she can withdraw all of her contributions to the pension fund (with interest) and then either pay taxes on them or roll them over into an IRA. In either case, she will lose all of the state's contributions. Second, she can remain in the pension fund and collect her pension at the regular retirement age, typically 62 or 65 – with benefits based on her salary at the time she quit. Thus, if she quits at age 40 earning $45,000, her pension at age 65 will be based on that same salary. Clearly her real purchasing power will have been seriously eroded by 25 years of inflation.

There is some evidence in the research literature that defined benefit pension plans lower worker turnover (Ippolito, 1997). However this literature focuses on the presence or absence of a plan, not variations in the plans' characteristics. There is no evidence that variation in defined benefit plans affects teachers' turnover. Ironically, teachers have one of the most attractive defined benefit pension systems, yet teacher turnover remains very high, primarily due to high rates of turnover among young teachers. There are two sources of this high turnover. First, some novice teachers simply find that they prefer other work. At the margin, improved pension benefits thirty or so years in the future are very unlikely to influence these decision makers. A second group is temporary exiters, sometimes called "stop outs." These are women who leave temporarily, usually for family reasons, and then return. A typical example is a woman who has a baby, takes a period of leave for child rearing, and later returns. Again, the multiplier on a pension received in thirty years is not likely to affect her child-rearing plans.

While there is a literature on teacher mobility and quality that examines the effect of current earnings, we were unable to find any studies that examine the effect of teacher pensions.[9] Therefore we examined data on teacher mobility and teacher qualifications from the 1999-2000 Schools and Staffing Surveys (conducted by the U.S. Department of Education), the most recent data available.[10] We extracted the records of all teachers from public (non-charter) schools in Pennsylvania and Maryland.

The original sample of teachers was interviewed in spring 2000 and the survey provided extensive data on school and teacher characteristics. School administrators were then contacted in spring 2001 and asked about the status of the teachers

interviewed in spring 2000. In particular, teachers were classified as stayers (in the same school), movers (those who moved to another teaching job), and those who left teaching.

Data on teacher retention in Pennsylvania and Maryland are presented in the first three columns of Table 3 (statistical details are in Appendix A). The first column reports the simple difference between Maryland and Pennsylvania with no other controls. The statistic labeled "Maryland" in column (1) (.105) indicates that the simple retention rate was roughly 10 percent higher in Maryland than Pennsylvania. However, the low t-value also shows that the difference was not statistically significant. Thus, the SASS data overall indicate no significant statistical difference in teacher turnover between the two states.

A large literature shows that working conditions and pay have significant effects on teacher retention (e.g., Hanushek, Rivkin, and Kain, 2003; Podgursky, Monroe, and Watson, 2004). Our estimates in columns (2) and (3) control for pecuniary and non-pecuniary factors that may affect a teacher's decision to remain in the profession. When we do this the difference in turnover between the two states drops to approximately zero (-.011) and is statistically insignificant. We re-estimated the model for teachers 35 or younger (column 3). In this case the Maryland retention rate difference turned positive and statistically significant (weakly so, at 10 percent). Thus, there is no evidence that the Maryland pension system hampers teacher retention in Maryland. In fact, the retention of young teachers is somewhat higher in Maryland – perhaps a reflection of their higher take-home pay.

Table 3
Labor Effects of Teacher Pensions:
Maryland and Pennsylvania Teachers
(Absolute value of t-statistic in parenthesis)

	Dependent Variable = Teacher Retention (2000 to 2001)			Dependent Variable = Certified in Primary Teaching Field		
	(1)	(2)	(3)	(4)	(5)	(6)
	All Teachers	All Teachers	Teachers < 36	All Teachers	All Teachers	Teachers < 36
Maryland	.105 (1.02)	-.011 (.70)	.055* (1.77)	-.009 (.59)	-.016 (.80)	-.001 (.04)
Other Covariates	No	Yes	Yes	No	Yes	Yes
Sample Size	1406	1119	353	1406	1119	353

Source: 1999-2000 Schools and Staffing Surveys. Other covariates – retention - model 2: female, black, white, total experience up to cubic, annual school earnings, pct minority enrollment at school, pct FRL at school, urban, suburban; retention model 3 drops experience terms. Not Certified models 2 and 3 identical to retention except that experience^2 and experience^3 are excluded. Note that the sample includes all Maryland teachers, including Baltimore.

We then examined a simple measure of teacher quality available in SASS – whether the teacher is certified in her primary teaching area. Staffing classrooms with appropriately certified teachers is a challenge for many schools districts. If the Maryland pension system hampers teacher recruitment we would expect to see significantly lower rates of certified staffing than in Pennsylvania. The results in Table 3 show that there are no statistically significant differences in certified staffing rates between Maryland and Pennsylvania, either for the entire workforce or young teachers, controlling for pay and teacher and school characteristics.

In sum, in spite of the lower pension benefits, or perhaps because of them, the retention rate for young teachers is somewhat higher in Maryland than in Pennsylvania. There is no detectable difference in the two states' ability to recruit and retain certified teachers.

Conclusion and Issues for Further Research

The 2006 Maryland legislative session witnessed a major debate about the competitiveness of the state teacher pension system. Proponents of an increase in pension benefits argued that the state plan was the "worst in the nation" and that it was hampering the recruitment and retention of teachers. This paper provided an economic analysis of defined benefit teacher plans and compared the former Maryland state system to teachers' pensions in several other states.

On the basis of a simple replacement rates, the former Maryland state plan was the lowest in the nation. However, such a simple comparison ignores other important facets of state plans. Maryland teachers are in the federal Social Security system and teachers in many other states are not. When Social Security and the state pension are combined a retiree's income easily matches that in states where teachers are not covered by Social Security. In addition, the teacher contribution rate in Maryland was very low relative to other states' (including Pennsylvania), which means that teachers in Maryland had more take-home pay in the early years of their teaching career. This may appeal to teachers who do not expect to remain in the profession until retirement, or who prefer more of their pay "up front." Evidence from teacher labor market survey data does not suggest that teacher retention or quality is worse in Maryland than in Pennsylvania.

The unfunded liabilities of state and local teacher pension systems are substantial. In 2005 these were estimated at $1.5 billion in the Maryland state teacher plan.[11] The new, more generous payments are likely to increase those liabilities. Our evidence suggests that these back-loaded benefits may do little to help schools recruit a high quality teaching workforce.

However, our analysis is preliminary and further research would be most useful. In particular, the following questions might be addressed in future research:

- What Maryland and Pennsylvania data are available from state agencies that would permit analysis of teacher mobility between the states? Is Maryland on net losing teachers to Pennsylvania? Have changes in the pension system affected these net migration rates?

- What are the costs of teacher retiree pensions and retiree health insurance in Maryland and how do these compare to costs in other states? How are these expected to grow in coming years?

- How has the Maryland teacher retirement benefit package above affected teacher recruitment and retention? Is this the most efficient compensation package to staff public schools with qualified teachers, or would alternatives be more cost-effective?

Finally, Maryland education policy-makers should consider alternative pension options for their new teachers. Over the past several decades, private sector employers have shifted dramatically toward defined contribution systems, particularly for their mobile professional employees. Currently, defined-contribution plans predominate in the private sector. For decades, TIAA-CREF has operated defined contribution funds for higher education.[12] Although systematic data are not available, defined contribution plans also seem commonplace in independent private k-12 schools.

Education decision makers should consider phasing in defined contribution options for new public school teachers. A defined contribution system is ideally suited for young mobile teachers. The current defined benefit system hampers teacher mobility across states or pension systems. It also penalizes teachers who leave the workforce for family reasons. Since state pensions typically have five-year vesting provisions (in some states it is even ten years), young teachers who teach for a few years and move to other professions lose all state contributions toward retirement. The recent report of the Governor's Commission on Quality Education took note of these portability problems and called for pension system reform:

> For new teachers and veteran teachers interested in making the shift, Maryland should supply a competitive and completely portable pension plan, giving educators the option of "taking their retirement with them" (Maryland Office of the Governor, 2005, p. 19).

It is also possible to restructure defined benefit pension plans in ways that reduce or eliminate the penalties for teachers who quit before traditional retirement age. For example, along with a defined contribution option for new teachers, the Ohio teacher pension system has implemented a "cash balance" option for its defined benefit plan teachers who leave the system short of retirement age.

One way or another, states will need to bail out their under-funded pension systems in coming years. As they also struggle to raise student achievement and meet NCLB staffing requirements for "highly qualified teachers," reform of these costly pension systems deserves careful scrutiny.

About the Author

Michael Podgursky is Professor of Economics at the University of Missouri – Columbia. He has published numerous articles and reports on education policy and teacher quality. The primary focus of recent work has been on personnel policies in schools and their effects on teacher quality. His work on education has been supported by the federal and state agencies as well as various private foundations. He serves on the board of editors of *Education Finance and Policy*, and technical advisory boards for numerous education organizations, including the National Center for Education Statistics, the National Research Council, the National Center for Teacher Quality, American Board of Certification of Teacher Excellence, the National Center for Education Accountability, and Mathematica Policy Research. Dr. Podgursky is a co-investigator at the National Center for Performance Incentives at Vanderbilt University and the Center for Analysis of Longitudinal Data in Education Research at the Urban Institute. He is on the Board of Directors of the Missouri Show Me Institute, a public policy think-tank.

The Maryland Public Policy Institute

Founded in 2001, the Maryland Public Policy Institute is a nonpartisan public policy research and education organization – a think tank - that focuses on state policy issues. Its goal is to provide accurate and timely research analysis of Maryland policy issues and market these findings to key primary audiences.

The mission of the Maryland Public Policy Institute is formulate and promote public policies at all levels of government based on the principles of free enterprise, limited government, and civil society. MPPI achieves its mission through research and publications and outreach to the media and public policymakers. In order to maintain objectivity and independence, the Institute accepts no government funding and does not perform contract research.

The Maryland Public Policy Institute can be found online at mdpolicy.org

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Endnotes

1. The fiscal problems of these state pension system are beginning to attract public attention. For example, see USA Today, Walsh (2006). For good overview of the fiscal problems of these state systems along with strategies for reform see Passantino and Summers (2005), and Deloitte Research (2006).

2. One reviewer asked whether these legislative decisions can be reversed. The answer with respect to teacher pensions seems to be "only partly." It might be possible for a subsequent legislative session to take back what the 2006 session gave, but it would certainly face strong legal challenge. Pension benefits can be reduced for new employees. They cannot be reduced for retired employees. Whether they can be reduced for current employees is unclear. For a discussion of this point see Deloitte Research (2006, p. 9).

3. State pension plans often use a formula that combines years of service and age. For example, if age + years of service equal 85 or more then the employee is eligible for full benefits.

4. This formula applied to teachers hired after June 1998. For teachers hired before this date, years of service prior to June 1998 had a lower multiplier. One can think of the example in the text as a "forward looking" formula, describing the benefit system for new hires.

5. A more complete list of state and district pension funds is found in NEA (2004).

6. Of course, if Missouri or Ohio teachers "moonlight" after school or during the summer in a private sector job covered by Social Security they will qualify for pension benefits based on their earnings in the second job.

7. To take a simple example, the discounted present value of $20,000 paid 20 years from now at a 5 percent rate of discount is $7,915. That is, if I took $7,915 and put it in the bank today earning a 5 percent annual return, in twenty years I would have $20,000. At a 10 percent discount this future payment would be worth only $3,270 today. This shows that additional pension benefits (e.g., from teaching in Pennsylvania versus Maryland) payable in the distant future are worth relatively little to young workers with high discount rates.

8. Apparently, the Pennsylvania COL adjustments are also ad hoc in that they are incomplete. "The last COLA was passed in 1998 and was equal to 1.86 percent per year, or roughly half the rate of inflation since the previous COLA." (Furgeson, Strauss, and Vogt, 2006, p. 324).

9. The only econometric study we were able to identify was Furgeson et al. (2006), who examine the effect of a retirement incentive on teacher retirement behavior in Pennsylvania. They found that teachers' retirement decisions were highly responsive to changes in the years of service required for full retirement benefits. However, they did not examine effects on recruitment or retention of younger teachers.

10. A more recent survey of SASS was conducted in 2003-04, but these data have not yet been released to researchers. A description of the SASS survey methods is found at http://nces.ed.gov/surveys/sass/methods.asp

11. Maryland's unfunded liabilities are modest compared to those of some other districts and states: Chicago ($2.8 billion), California ($24.2 billion), Missouri ($ 4.8 billion), and Ohio ($20.1 billion). See NASRA (2006).

12. Data from a 2005 faculty survey conducted by TIAA-CREF show that 75 percent of public and 89 percent of private college professors report that their institution sponsors a defined contribution retirement plan. Tabulations were provided by TIAA-CREF to the author.

Appendix A

Regression Analysis of Teacher Turnover

To examine whether the Maryland pension system hampered teacher recruitment and retention, we estimated a simple model of teacher turnover that compares teacher turnover in Maryland and Pennsylvania holding constant pay, teacher characteristics, and school and community variables that have been found to affect teacher turnover.

The dependent variable in our model is whether a teacher remained in the teaching profession between spring 2000 and spring 2001 (1 = yes). We estimated a simple linear probability model:

$$\text{Pr (remained in teaching)} = B_0 + B_1 \text{ current salary} + B_2 \text{ teacher characteristics} + B_3 \text{ school characteristics} + B_4 \text{ MD teacher.} \quad (1)$$

If low pension benefits in Maryland hamper teacher retention, then we would expect that, controlling for current salary and other working conditions, $B_4 < 0$. However, if we estimate equation (1) for young teachers and the typical young teacher significantly discounts future pension benefits, we might expect $B_4 > 0$. This is because the higher pension benefits in PA are financed in part by higher payroll deductions. While we are controlling for gross pay, net pay will be higher in MD.

School districts must recruit appropriately certified teachers for their classrooms. If the less remunerative Maryland pension system hampered recruitment of teachers, we would expect that, other things being equal, Maryland schools would have relatively more uncertified teachers than Pennsylvania. To test this hypothesis, we estimated the following model:

$$\text{Pr (certified in primary teaching area)} = C_0 + C_1 \text{ current salary} + C_2 \text{ teacher characteristics} + C_3 \text{ school characteristics} + C_4 \text{ MD teacher.} \quad (2)$$

The dependent variable takes the value 1 if the teacher is appropriately certified (0 otherwise). As with retention, we control for current salary and other teacher and school variables that may be related to recruitment. If the Maryland pension system hampered recruitment of qualified teachers we would expect to find $C_4 < 0$.

OLS estimates of B_4 and C_4 are reported in Table 3.