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# Reforming Educator Compensation

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If a rational system of teacher compensation, aimed at recruiting and retaining high-quality teachers, were designed from scratch, it is unlikely it would bear any resemblance to the system that is currently in place. This paper examines the current dysfunctional teacher compensation system: how it evolved, what it rewards, and the unintended consequences it introduces. It also presents key principles to guide educator compensation reform.

## INTRODUCTION

During the 2008-09 school year, the most current year for which national data are available, U.S. public schools spent \$214 billion for salaries and \$71 billion for benefits for instructional personnel. These compensation payments accounted for 55 percent of K-12 current expenditures and 90 percent of instructional expenditures (U.S. Department of Education, 2011). As large as these expenditures are, they do not fully capture the resources committed to K-12 compensation, since they do not include billions of dollars of unfunded liabilities of pension funds and retiree health insurance for teachers and administrators (Pew Center on the States, 2010, 2012). If productivity doubles for an input accounting for one percent of total cost, the overall social gain will be modest. However, given the large share of K-12 costs that arise from educator compensation, even small gains in efficiency can yield large social dividends.

There is ample reason to believe that large efficiency gains can be found. Educator compensation “systems” are not rationally planned nor are they integrated in any systematic or strategic way. In a well-run organization, the total compensation package – salaries, current and deferred benefits – would be structured with an eye toward overall firm performance (Lazear and Gibbs, 2009). Trade-offs between different types of salary and benefits would be carefully scrutinized. Not only the level, but the structure of salaries would take account of labor market benchmarks, as well as performance effects.

In public education, however, overall teacher compensation arises not out of a rational planning process, but rather emerges as an amalgam of different components or “silos,” reflecting pressures from different constituencies, legislative mandates, legacies from earlier vintages of collective bargaining agreements, and other institutional and political factors, with little or no consideration for overall efficiency.

Neither starting nor senior salaries are market-based. To the contrary, teacher pay is largely set by salary schedules that have evolved over decades of collective bargaining agreements or, in many non-bargaining states, legislative fiat. Base pay is augmented by various types of district or state-wide salary supplements (e.g., coaching, career ladder). Deferred compensation in the form of retirement pay inhabits another silo altogether, with policy set by statewide pension boards often dominated by senior educators and administrators. Teacher compensation is the sum of all of these parts (plus fringe benefits such as health insurance, typically negotiated at the district level). This paper identifies some key inefficiencies of the teacher compensation system and principles for reform.

## TEACHER QUANTITY TRUMPS TEACHER QUALITY

One common response to discussions of rationalizing teacher compensation is that the *level* rather than the *structure* of pay is the problem. In this view, teachers as a group are “underpaid” and that is the primary problem to be fixed. Proponents of this view usually point to salaries in other occupations (rather than private school salaries) in making this case (e.g., Allegreto, Corcoran, and Mishel, 2004).

However, comparisons of public school teacher pay to non-teacher pay are fraught with difficulties, the most obvious one being the shorter work day and work year in teaching. Teachers also have a larger share of pay in the form of benefits, in particular very generous health insurance and retirement benefits. The most careful study to date comparing public school teachers to non-teachers finds that that the generous retirement benefit package for teachers (which we will discuss further below), readily trumps salary differentials for comparably educated private sector workers. The result is that public school teachers as a group enjoy a total level of salary and benefits significantly above comparably educated private sector employees (Richwine and Biggs, 2011).

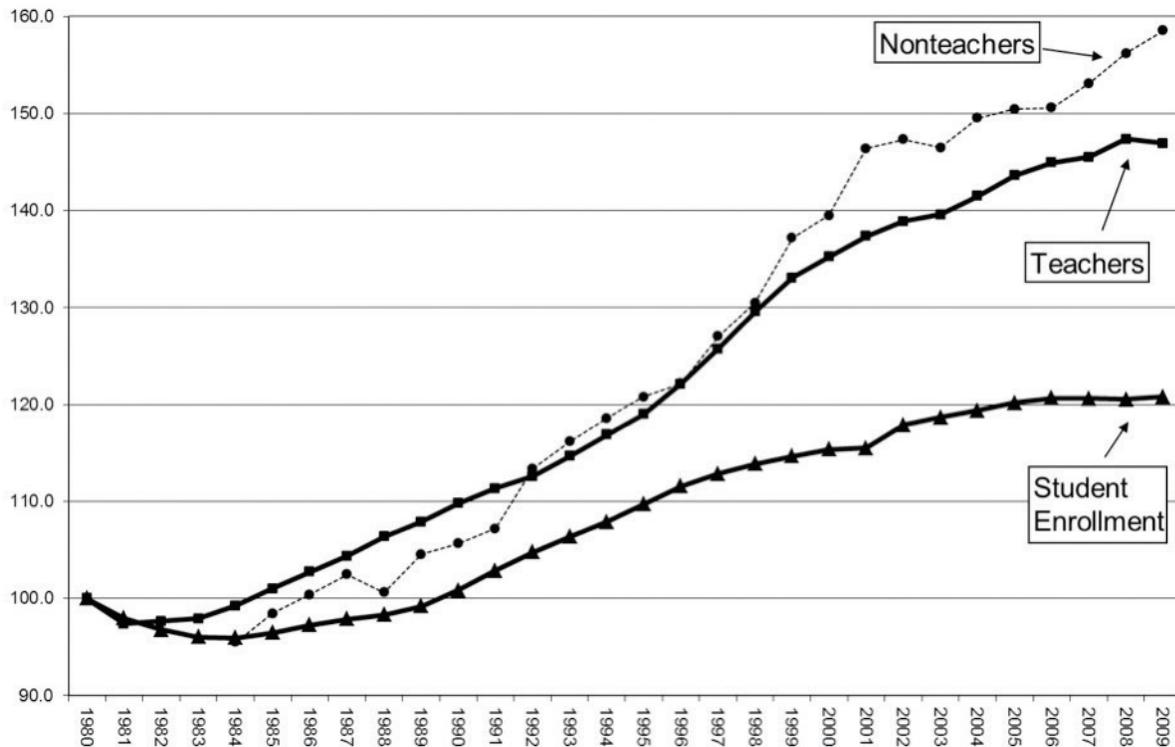
The “teachers are underpaid” issue will not be re-litigated here. The focus of this paper is on the structure of teacher compensation. Nonetheless, it is important to note that over the last several decades, in spite of nearly continuous public professions of concern over “teacher quality,” school districts, through their staffing decisions, have passed up the opportunity for substantial increases in teacher compensation and implicitly favored a quantity over quality strategy.

During the last three decades, inflation-adjusted spending per student rose at an average annual pace of 2.1 percent. When spending per student rises by a given amount, say five percent, other things being equal, school administrators can raise teacher pay by five percent and hold staffing ratios constant, hold teacher pay constant and lower staffing ratios by five percent, or any combination of the two that adds up to five percent. Figure 6.1 presents data for staff and enrollments in public schools, indexed to Fall 1980 levels. It clearly shows the dip in enrollments in the mid-80’s and the subsequent rise as the baby boom echo entered the school system. By 2009 enrollments had grown by 21 percent. The upper two lines show the level of teacher and non-teacher employment.

Clearly the growth in staff far outstripped the growth in enrollments. Teacher employment grew by 47 percent, non-teacher employment grew by 58 percent, and the student-teacher ratio fell from 18.7 to 15.4 over the period. If the staffing ratio had been held constant and all of the increases in real spending per student had gone into teacher pay, real salaries could have grown 85 percent over this same period. That would have produced an average 2009 teacher salary of \$79,876. In fact, real teacher salaries grew by a much smaller 25 percent over this period, yielding an average teacher salary of \$55,502.<sup>1</sup> School districts passed up the opportunity to raise teacher pay by 60 percent.

<sup>1</sup> The choice of 1980 as a benchmark is benign. Hanushek (1986, Table 3 ) shows that the trend toward declining student teacher ratio was underway at least several decades earlier – falling from 25.8 in 1960 to 19.0 by 1980.

Fig. 6.I. Student Enrollment, Teacher and Non-Teacher Employment in U.S. Public Schools: Fall, 1980 to Fall, 2009



Source: U.S. Department of Education. National Center on Education Statistics. Digest of Education Statistics. Various Years.

There are a variety of competing scholarly hypotheses about why school administrators made this choice. Some have argued that this reflects consumer preferences for smaller classes (Flyer and Rosen, 1997), or perhaps a more general belief that smaller class sizes are a cost efficient way to improve student achievement. Others point to union preferences for overstaffing (Ehrenberg and Smith, 1991). The opportunity cost of this strategy, as pointed out by current research on teacher value-added, is that many teachers of low classroom effectiveness have been drawn into public school classrooms. If schools shed the least effective teachers and modestly increased class size, it would be possible to raise the pay of the remaining teachers and increase overall workforce effectiveness (Hanushek, 2009). This essay is focused on teacher compensation policy, and not the overall human resource strategy of schools. However, this seeming bias toward adding staff may be another indication of the dysfunctional nature of HR policy in public schools.

## WHAT SCHOOLS REWARD: THE SINGLE SALARY SCHEDULE AND ITS CONSEQUENCES

Whether the average teacher salary is \$58,000 or \$80,000 the question arises – what factors are rewarded in entry level salaries and over a teaching career? The answer is that both entry and career salaries are driven by rigid salary schedules that are not market-based. These salary schedules – usually referred to as “single salary schedules” – are a nearly universal feature of public school districts. Pay for teachers (and principals) in public school districts is largely determined by these schedules.

In large school districts the pay of thousands of teachers in hundreds of schools – from kindergarten up to secondary teachers in math and science – is set by a single district schedule. Its use is nearly universal in public school districts. U.S. Department of Education data find that ninety-six percent of public school districts accounting for nearly one hundred percent of teachers report use of a salary schedule (Podgursky, 2007). Comparable survey data are not available for principals, but even a casual inspection of school district web sites suggests that it is ubiquitous for school leaders as well.<sup>2</sup>

Table 1 provides an example of a salary schedule, in this case for Columbus, Ohio public school teachers. The rows and columns refer to years of experience and levels of teacher education, respectively. The pay increases associated with higher levels of education may be for training not associated with a teacher’s actual classroom assignments.

For example, it is common for teachers to earn remuneration for graduate credits and degrees in education administration while they are still employed full-time as classroom teachers. There is nothing special about the Columbus salary schedule. The website of the National Council on Teacher Quality maintains a database with collective bargaining agreements and salary schedules for the 50 largest school districts in the country (<http://www.nctq.org/tr3/home.jsp>). While districts vary in the number of steps and columns, and rewards associated with them, the structure of these schedules is broadly similar across large districts.

The term, “single salary schedule,” reflects its historical development as a merger of elementary and secondary school pay grids (Kershaw and McKean, 1962). Since elementary school teachers were nearly all women whereas high school teachers were largely male, early struggles for a single salary schedule were seen by some commentators as an important part of feminist struggles for pay equity (Murphy, 1990). Eventually, the unification of schedules for elementary and secondary school teachers was embraced by the National Education Association as well as the American Federation of Teachers and embedded in collective bargaining agreements and, in some cases, state legislation.

These salary schedules for teachers contrast with the situation in most other professions. In medicine, pay of doctors and nurses varies by specialty. Even within the same hospital or HMO, pay will differ by specialty field. In higher education there are large differences in pay between faculty by teaching fields. Faculty pay structures in most higher education institutions are flexible. Starting pay is usually market-driven, and institutions will often match counter-offers for more senior faculty whom they wish to retain. Merit or performance-based pay is commonplace. Ballou and Podgursky (1997) and Ballou (2001) report generally similar findings for private K-12 education. Even when private schools report that they use a salary schedule for teacher pay, payments “off schedule” are commonplace.

<sup>2</sup> Some states that have statewide schedules for teachers also have schedules for principals. The statewide (minimum) salary schedule for principals in North Carolina may be found here: <http://www.ncpublicschools.org/docs/fbs/finance/salary/schedules/2010-11schedules.pdf>.

Table 1: 2007-08 Salary Schedule for Columbus, Ohio Public School Teachers

Years Experience	Pre-License Bachelor's Degree	Bachelor's Degree	150 Hours and Bachelor's Degree	Master's Degree	Master's Degree Plus 30 Semester Hours
0	29,313	36,779	37,844	40,788	44,220
1	30,490	38,251	39,353	42,406	43,252
2	31,703	39,795	40,935	44,098	44,981
3	32,991	41,376	42,553	45,863	46,746
4	34,278	43,031	44,282	47,702	48,622
5	35,676	44,760	46,047	49,615	50,571
6		46,525	47,886	51,601	52,594
7		48,401	49,799	53,661	54,727
8		50,350	51,785	55,794	56,897
9		52,337	53,844	58,037	59,177
10		54,433	56,014	60,354	61,531
11		56,640	58,258	62,782	63,995
12		58,883	60,575	65,283	66,570
13		61,237	63,002	67,894	69,218
14		63,701	65,540	70,616	72,013

Source: [http://www.ceaoio.org/staticDocs/CEA\\_Master\\_Agreement\\_071121.pdf](http://www.ceaoio.org/staticDocs/CEA_Master_Agreement_071121.pdf)

Rigid salary schedules might have some efficiency rationale if the factors rewarded – teacher experience and graduate education – were strong predictors of teacher productivity. However, surveys of the education production literature find no support for a positive effect of teacher graduate degrees. Hanushek (2003) reports that, of 41 “value-added” estimates of the effect of education levels on teacher effectiveness (primarily Master’s degrees), not a single study found a statistically significant positive effect. In fact, ten of the studies found negative relationships. Furthermore, teacher experience has little effect beyond the first few years (Hanushek and Rivkin, 2004). These salary steps and MA bonuses add substantially to instructional costs. Roza (2007) estimates that 12 percent of per pupil spending is absorbed by salary schedule payments for experience and MA degrees.

There is a popular aphorism in economics – “You can’t repeal the law of supply and demand.” By this economists mean that if price is not allowed to clear a market something else will. In our context, if teacher salaries are not allowed to clear the labor market, then the market will clear in other ways. We now consider several of the consequences of rigid salary schedules for school staffing.

First, the single salary schedule suppresses pay differentials by teaching field. All teachers in a district with the same experience or education level earn the same base pay. Thus, a second grade teacher will earn the same pay as a high school chemistry teacher. Given the major differences in human capital investments by teaching field (e.g., elementary education versus secondary physical science) it is almost certainly the case that non-teaching opportunity earnings differ greatly as well.

National data on teacher recruiting in Table 2 point to substantial differences in market conditions by teaching field. These data are from the 1999-00 and 2007-08 Schools and Staffing Surveys (SASS), a nationally representative survey of teachers and school administrators conducted regularly by the U.S. Department of Education. These data are assessments of market conditions by school administrators who have recently recruited teachers in these fields.

Respondents were asked to rate how difficult or easy it was to fill a vacancy in the field. In 2007-08, 74 percent of school administrators reported that it was “easy” to fill vacancies in elementary education, with just four percent reporting it “very difficult” or that they could not fill the position. The situation changes dramatically when we turn to math, science, and special education, where a large share of districts reported it was “very difficult” or they were unable to fill a vacancy.

These patterns also prevailed in high poverty schools. While high poverty schools typically reported more recruiting difficulties in any field, nonetheless 63 percent of high poverty schools reported it “easy” to fill vacancies in elementary education (Podgursky, 2010). Further evidence on this point may be found by examining the non-teaching earnings of former teachers after they have left the profession. Former elementary school teachers on average earned less than secondary school teachers in their non-teaching pursuits, and among former secondary teachers, those who taught in technical fields earned more than those in non-technical fields (Goldhaber and Player, 2005).

Table 2: Recruitment Difficulties by Teaching Field

How easy was it to fill the vacancy?				
1999-00	Easy	Somewhat Difficult	Very Difficult	Could Not Fill
Elementary	67.6%	26.2%	5.5%	0.7%
Social Studies	70.0	24.7	4.7	0.6
ELA	56.5	33.2	9.5	0.8
Math	29.0	34.8	33.3	2.8
Biological Sci.	34.0	38.5	26.2	1.3
Phys. Sci.	31.7	35.7	30.2	2.4
Special Ed	25.5	35.8	32.8	5.8
2007-08	Easy	Somewhat Difficult	Very Difficult	Could Not Fill
Elementary	74.3	21.7	3.7	0.3
Social Studies	68.2	26.3	5.1	0.5
ELA	58.7	31.7	8.1	1.6
Math	35.0	34.1	28.5	2.4
Biological Sci	30.1	39.0	28.6	2.4
Phys. Sci.	28.8	40.0	28.9	2.3
Special Ed.	32.6	38.2	25.9	3.3

Source: Schools and Staffing Surveys, Various Years.

In a market with flexible wages, earnings of elementary teachers would fall relative to science, math, and special education teachers. However, district salary schedules do not permit this relative wage adjustment to occur. Thus, the market “clears” in terms of quality rather than price. Numerous reports have documented the extent of “teaching out of field,” or teachers practicing with substandard licenses in the fields of science, math, and special education, while over 95 percent of elementary school teachers are fully licensed in elementary education (U.S. Department of Education, 2004b).

The ubiquitous salary schedule reflects a deeper problem of personnel policy in public schools. Policy makers, as well as many researchers, tend to treat K-12 teachers as a single occupation. From a labor market or HR perspective, this is not a useful aggregation. For example, in most policy contexts it would make little sense to talk about the labor market for “college professors.” This market varies dramatically by field (as reflected in starting pay, for example). The market for finance professors is very different than for English professors. This homogenization of public school teachers is encouraged by the collective bargaining process, which puts all teachers in a school district, regardless of the level of school or teaching field, into a single “bargaining unit” with uniform pay schedules as well as other personnel rules. However, we should not overstate the collective bargaining effect, since single salary schedules are the norm even in states and locales that do not engage in collective bargaining.

A second problem with the single salary schedule is that it suppresses differentials by schools within districts. In larger urban districts dozens or even hundreds of schools are covered by the same salary schedule. The working environments for teachers often vary greatly between these schools. Some may even be dangerous places to work, whereas other schools are more pleasant and attractive worksites. Often teachers in the less desirable schools are able to use their seniority to transfer to a more pleasant school, or they may simply quit at a higher rate. In either case, the result is that students in high poverty schools on average have less experienced (and less educated) teachers. Because the salary schedule assigns lower pay to teachers with less experience within a school district, an unintended consequence of a district-wide salary schedule is lower spending per student in high-poverty schools (Roza, et.al, 2007; Iatarola and Stiefel, 2003).

Given their high rates of staff turnover, high poverty schools will also have relatively more novice or inexperienced teachers. One fairly consistent finding in the “teacher effects” literature is that students taught by novice or inexperienced teachers have lower achievement gains than students with more experienced teachers (e.g., Hanushek, Kain, O’Brien, and 2005; Aaronson, Barrow, and Sander, 2007; Boyd, et.al., 2006). Lankford, Loeb, and Wyckoff (2002) examine the allocation of teachers in New York City and find that children in high poverty schools are more likely to be exposed to novice teachers. Again, this is an intra-NYC allocation problem – one that is clearly exacerbated by a uniform salary schedule across all schools. Podgursky (2008) examines an administrative data set with the universe of public elementary schools in Missouri. He finds that children in high poverty schools are more likely to be exposed to novice teachers, but this is entirely due to the intradistrict allocation of teachers. To return to our market-clearing thesis, if the attractiveness of working conditions varies among schools within a district, then equalizing teacher pay disequalizes teacher quality. In order to equalize teacher quality, school administrators need to disequalize teacher pay.

A final consequence of single salary schedules is the equalization of pay regardless of teacher effectiveness. A consistent finding in the teacher value-added literature is that there is a very large variation in teacher effectiveness (e.g., Rivkin, Hanushek, and Kain, 2005; Aaronson, Barrow, and Sander, 2007). Even within the same school building, some fourth grade teachers are much more effective at raising student achievement than other fourth grade teachers. Some teachers are harder working and elicit greater effort from students than others. Other teachers may be “burnt out” and simply putting in time until retirement (more on pension system incentives below). The single salary schedule suppresses differences between more effective and less effective teachers (however defined).

Paying more effective teachers more will raise workforce quality in two ways. The first is a motivation effect. Incumbent teachers have an incentive to work harder to improve whatever performance measure is rewarded. Second, over the longer term, performance pay has a selection effect. It draws teachers into the workforce who are relatively more effective at meeting the performance targets and helps retain such teachers as well (Podgursky and Springer, 2007). Economic theory thus predicts that over the longer term, equalizing teacher pay among teachers of different effectiveness tends to lower overall effectiveness. To paraphrase: you don’t get what you don’t pay for.

## **CONFOUNDING FACTORS: TENURE AND THE SIZE OF WAGE-SETTING UNITS**

The costs associated with rigid teacher salary schedules are amplified by two other features of K-12 human resource policy: tenure and the size of wage-setting units (i.e., districts). Let's begin with teacher tenure. Even if experience per se does not raise a teacher's effectiveness, in principle a seniority-based wage structure might be efficient if less effective teachers are weeded out over time through contract non-renewal.

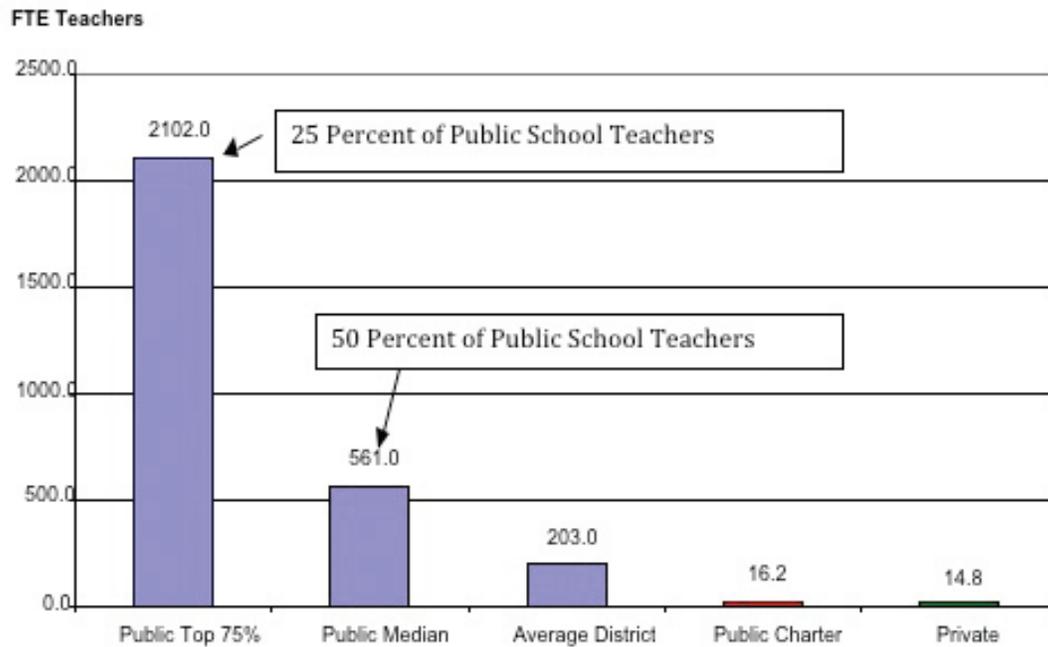
Unfortunately, personnel policies in traditional public schools preclude such an effect. Teachers in traditional public school districts receive automatic contract renewal (tenure) after two to five years on the job. After receiving tenure, it is very difficult to dismiss a teacher for poor job performance (Bridges, 1992; Hess and West, 2006). Thus, the presence of teacher tenure laws and related collective bargaining language, which further hampers dismissal of low-performing teachers, makes the economic costs associated with single salary schedules even greater.

Another factor that increases the cost of rigid district salary schedules is the size of wage-setting units. Other things equal, the larger the size of the unit, the greater the economic cost of rigid salary schedules. The wage-setting unit in private and charter schools is typically the school, whereas in traditional public schools wage-setting is at the district level. In fact, most personnel policy concerning teachers – the level and structure of teacher pay, benefits, and recruiting – is centralized at the district level in traditional public schools.

This policy has two effects. First, it makes the market for teachers less flexible and competitive. Consider a district with one hundred schools. Rather than let ten "sub-districts" set pay for ten schools, a single employer sets pay for all one hundred schools. In a more decentralized structure the ten smaller districts could compete with one another and adjust their salary schedules to best meet their own internal circumstances.

A second, and related, consequence of large wage setting-units is that the wage-setting process becomes more bureaucratic and less amenable to merit or market adjustments. Figure 6.2 illustrates the dramatic differences in the size of the wage and personnel units in traditional public and private schools. There are approximately 15,000 public school districts in the U.S. However, the size distribution of these districts in terms of teacher employment is highly skewed. As a consequence, most teachers are employed in large school districts. One quarter of teachers in traditional public schools are employed in districts with at least 2100 full-time equivalent (FTE) teachers, and half of traditional public school teachers are in districts with at least 561 FTE teachers. Thus, the typical teacher finds herself in a large organization with standardized, bureaucratic wage-setting. By contrast, the average charter school – an independent employer – employs just 16 FTE teachers, barely larger than the average private school (15 FTE's). The latter are teams rather than bureaucracies, thus making work effort of every team member much more visible to management (and to other team members). This makes performance-based management and compensation easier to implement (Alchian and Demsetz, 1972).

Figure 6.2. Size of Wage-Setting Units in Traditional Public, Charter, and Private Schools



Source: Podgursky (2007)

In principle, public school districts need not be so bureaucratic. They could adopt more decentralized systems of personnel policy and give school principals more control over teacher recruitment and pay. The fact that one observes wage-setting in private schools, including Catholic dioceses, following a more decentralized model suggests that there are few efficiency gains to be had from centralization of salary-setting. However, this highlights an important difference between traditional public and charter or private schools. The percent of teachers covered by collective bargaining agreements in charter schools is far lower than in traditional public schools, and for private schools, it is virtually nil (Podgursky, 2007). The absence of a binding collective bargaining agreement is an important source of personnel flexibility in private and charter schools. Teacher unions in general have been opposed to more flexible market or performance-based pay systems, as well as relaxation of tenure-based restrictions on dismissal (Moe, 2011). In addition, collective bargaining laws, by treating the district as the “appropriate bargaining unit,” have tended to push personnel policy and wage-setting to the district level and lock them there.

## DEFERRED COMPENSATION: TEACHER PENSION INCENTIVES

Pensions have long been an important part of compensation for teachers in public schools. Traditionally, it has been argued, salaries have been relatively low, while pension benefits have been relatively high for teachers and others who spend their career in public service. This mix of current versus deferred income was rationalized by the contention that the public good was best served by the longevity of service that would be induced by these pension plans.<sup>3</sup> In recent decades, however, evidence has grown that many of these plans, both in the private and public sector, may actually have shortened rather than lengthened professional careers by encouraging early retirements (Costrell and Podgursky, 2010).

The cost side of teacher retirement benefits affects labor markets by driving a wedge between the payroll cost paid by employers and the take-home pay received by teachers. In Ohio, for example, the combined contributions of teachers and school districts for retirement benefits have risen steadily from 10 percent in 1945 to 24 percent today. But even this large wedge falls well short of what is needed, and pension officials are recommending a phased increase to 29 percent to shore up funding for pensions and retiree health benefits.

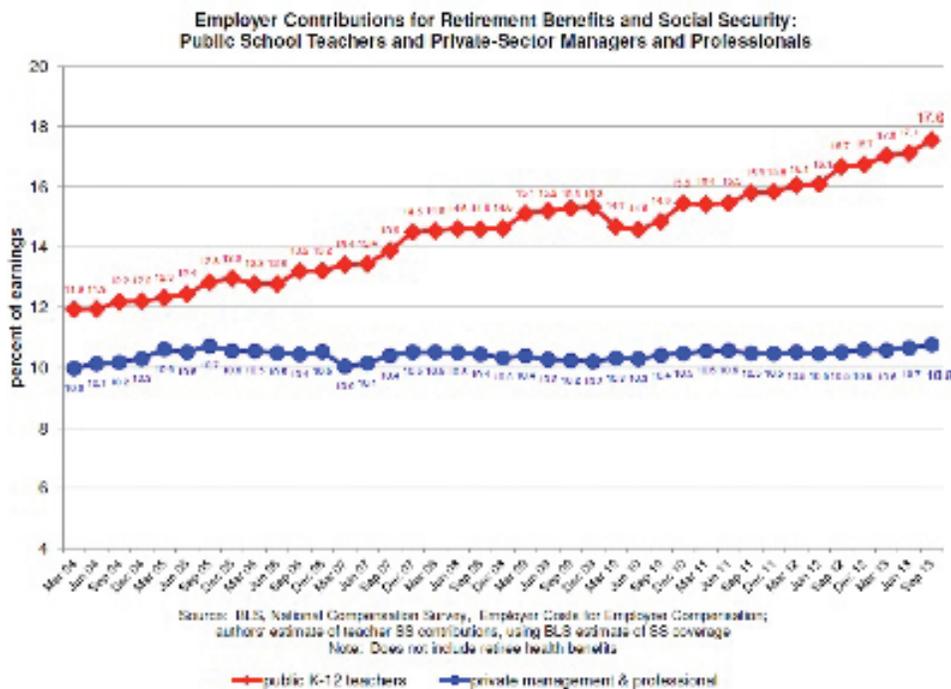
The costs of school retiree benefits (including “legacy” costs from unfunded benefits for previous retirees) consume a growing share of K-12 spending. Figure 6.3 reports employer costs for retirement and Social Security for teachers and private sector managers and professionals based on data collected by the U.S. Department of Labor. Retirement pension costs for professionals in private firms were relatively flat at about 11 percent of salaries since 2004. By contrast, the average teacher benefit cost rate for public school teachers has risen from 11.9 to 17.6 percent of salaries over the same period. As a result, the gap in retirement benefit costs as a percent of salaries widened from 1.9 to 6.8 percent of earnings over this period. This reflects the fact that in the defined contribution (DC) plans that predominate in the private sector, employers can control costs, whereas school districts locked into defined benefit (DB) plans, cannot.

In fact, Figure 6.3 understates the actual gap in retirement benefit costs for two reasons. First, the BLS data do not include employer contributions for retiree health insurance, which are substantial in many states and districts, but have all but disappeared in the private sector. While these vary by state and district, Richwine and Biggs (2011) estimate these costs to be roughly eight percent of earnings. Second, a comparison of school district or state contributions toward retirement benefits significantly understates the actual value of pension benefits accrued by teachers as compared to private sector professionals. Richwine and Biggs point out that the teacher contributions are implicitly guaranteed a much higher return (about 8 percent) than the risk free rate available to private sector professionals investing in individual retirement accounts (roughly 3 percent).

When this differential is applied to contributions and compounded over a work life it produces a huge differential in pension wealth at retirement favoring teachers. Taking this differential return into account, Biggs and Richwine estimate that the pension wealth generated by one percent of salary for public school teachers would require nearly three percent of salary for private sector professionals. This implicit guarantee of a high yield to employer and employee contributions plays an important role in Richwine and Biggs’s finding that, on average, the total compensation of public school teachers exceeds that of private sector professionals.

3 NEA, 1995, p. 3. As the NEA report points out, however, this purpose has “been lost for many in the mists of time,” and “many pension administrators would be hard-pressed to give an account of why their systems are structured as is except to say that ‘the Legislature did it’ or ‘It is a result of bargaining.’”

Figure 6.3. Employer Contribution to Public Teacher and Private Professional Retirement and Social Security as a Percent of Salary



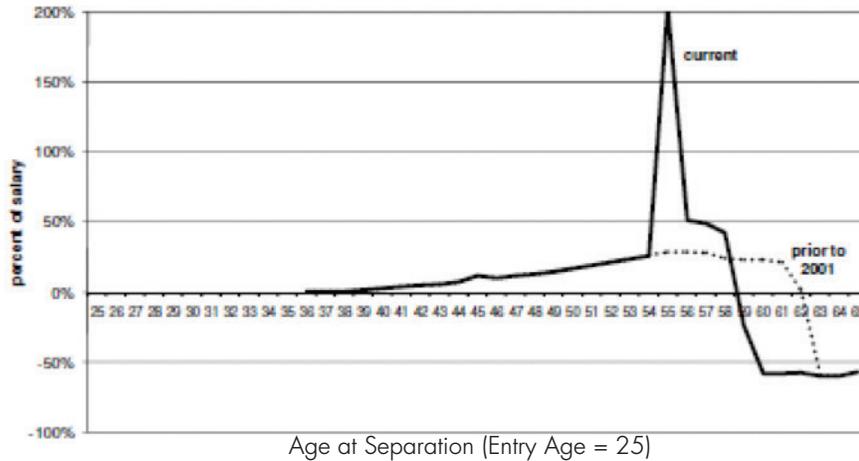
Source: Costrell and Podgursky (2009c), updated at <http://www.uaedreform.org/downloads/2013/12/quarterly-employer-contribution-chart-update.pdf>

An important policy question is the effect of these retirement benefits systems on the teaching workforce. While it's true that they are generous, are they a cost efficient way to staff schools with qualified teachers? An examination of the incentives built into these systems suggests otherwise. Costrell and Podgursky (2009a) analyze the “pull” and “push” incentives in teacher pension plans. They show that the pattern of pension wealth accrual in teacher defined benefit systems creates strong incentives to pull teachers to a given age and then push them out of the workforce afterward, with the push encouraging teachers to retire at relatively early ages by economy wide standards. Figure 6.4 illustrates this point for a hypothetical female teacher who enters the profession at age 25 and teaches continuously in California.<sup>4</sup> The employer contribution rate is 12.77 percent, yet for most of a teacher’s career, her annual accrual of pension wealth is below that. However, in certain years, the accrual of pension wealth has very sharp spikes. These are usually associated with earlier eligibility for regular benefits.

4 The teacher’s earnings rise along a typical California salary schedule (Sacramento). For other details, see Costrell and Podgursky (2009b).

For example, in the case of California, during her first 29 years on the job (up to age 54), on separation she would be unable to collect her pension until age 57. However, upon completion of her 30th year on the job (age 55) she can begin collecting the pension immediately. Thus, the spike in pension wealth largely reflects the discounted value of two additional years of pension annuities. There is nothing unique about California. Costrell and Podgursky (2009b) show that these spikes exist in other teacher DB plans.

Figure 6.4. Deferred Income Per Year as a Percent of Salary: California Public School Teachers (Addition to Pension Wealth from an Additional Year of Teaching)



Source: Costrell and Podgursky (2009a)

A consequence of these peculiar back loaded pension incentives is that they impose very large costs on mobile teachers. Costrell and Podgursky (2009a) consider the mobility costs of teacher pension systems in six state teacher pension systems. They show that teachers who work a full career in teaching but who transfer between systems (“movers”) suffer huge losses of pension wealth as compared to “stayers.” In their simulations, teachers who split a 30 year career evenly between two otherwise identical pension systems typically lose one half or more of their pension wealth as compared to an otherwise identical 30-year stayer.

It is difficult to see an efficiency rationale for these spikes in pension wealth accrual and large mobility penalties. The fairly massive backloading of benefits might be justified if there were evidence of large returns to experience and important job specific human capital investments. However, the majority of value-added econometric studies of teacher effectiveness find that novice teachers (e.g., teachers with less than three years of experience) on average are less effective than more senior teachers, but thereafter the returns to experience level off quickly. There is little evidence that a teacher with twenty years experience is any more effective in the classroom than a teacher with ten years experience. Ironically, the current pension system, by pushing many teachers into retirement at relatively young ages, actually raises the steady-state share of novice teachers in the workforce and thus lowers overall teacher effectiveness.

The empirical literature on this question is slim but growing. Koedel and Podgursky (2012) find no evidence that the “pull” of the back loaded pension benefits raises teacher quality. They find suggestive evidence that the “push” effect tends to induce more effective teachers to retire earlier than they otherwise would. Koedel, et. al. (2012) find strong evidence that pension borders stifle labor mobility for school leaders. They examine the market for school principals in Missouri, a state with three educator pension systems (Kansas City, Saint Louis, and rest of state). The two urban districts have lost state accreditation and are in various states of receivership with the state department of education. As schools are reconstituted these urban districts would benefit greatly by recruiting school leaders from accredited suburban districts. Unfortunately the huge losses in pension wealth from switching pension plans has all but shut down that option. The authors estimate that leadership flows would roughly double if the educators were in the same pension plan.

Fitzpatrick (2011) casts further doubt on the efficiency of heavily back loaded teacher retirement benefits by analyzing data from an interesting policy experiment in Illinois in 1998. In this program, incumbent teachers were given the option of buying an upgrade of the return on prior service years at an extremely generous rate. She finds that teachers implicitly value a dollar of pension wealth at much less than one dollar of salary. Her point estimates suggest that a typical teacher would prefer twenty cents of salary over one dollar of pension wealth. This is evidence of inefficiency in structure of the teacher compensation package.

## CONCLUSION: SOME PRINCIPLES FOR REFORM

Human resource (HR) policy – the recruitment, retention, and motivation of employees – is increasingly recognized as a critical variable to the success of an organization. An integrated and coherent compensation policy is the central core of an efficient HR policy. In private and many public organizations, the compensation package is considered as a strategic whole and carefully designed to get the most HR return per dollar of compensation. By contrast, the compensation “system” in public K-12 education is fragmented and uncoordinated, with different pieces responding to pressures from particular constituencies or inherited from earlier collective bargaining agreements, but lacking overall rational assessment or planning.

Accountability pressures are forcing school districts to address the inefficiencies in this compensation system and rethink how they are spending roughly \$300 billion annually for compensation of instructional personnel. Federal programs in the U.S. such as the Teacher Incentive Fund are encouraging states to experiment with performance and market-based pay. States such as Minnesota, Florida, and Texas have implemented programs to encourage their districts to innovate in this area, although many of these programs have been suspended or curtailed as a result of the recent recession. A number of large urban districts, most notably Denver, have taken important steps in this direction. Performance and market-based incentives are much more common in charter schools and are expanding with the charter school base.

Rather than conclude this essay with a laundry list of possible reforms, we will focus instead on some general principles that should guide reform. In this regard, it is important to recognize that the information necessary to implement personnel policies in education is highly decentralized. In general, regulators in state education departments lack good information on teacher quality or performance. They can monitor teacher credentials but not the myriad localized information that adds up to effective individual teaching and productive contributions to team activities in a school. Moreover, it is likely that optimal compensation structures will vary from school to school, as organizational goals and local circumstances differ. This suggests two general principles that for state reforms.

### *1. Provide “regulatory space” for local experimentation.*

To the extent possible, school district administrators (and charter school leaders) should be provided with the opportunity to experiment with alternative compensation policies. This “space” must include the capacity to renegotiate collective bargaining agreements, to deviate from state-wide teacher salary schedules where they exist, and to implement alternative benefit packages. Governor Walker’s restriction of the scope of bargaining in Wisconsin provides an example of how changes in the scope of bargaining in collective bargaining law, and thus an expansion of management prerogatives, can help bring down fringe benefit costs (Costrell, 2012).

One of the most rigid and immobile components of educator compensation systems are statewide teacher pension systems. Some states have allowed charter schools to opt out of state teacher pension plans (Olberg and Podgursky, 2011). This flexibility should be extended to charters in all states. In addition, districts should be allowed to experiment with employment tracks that avoid the statewide plans entirely. For example, new teacher recruits should be able to choose between DB and DC plans as in Florida, Ohio, and Utah. (Most new faculty hired at Ohio State University, which is nominally part of the state teacher pension plan, routinely opt out in favor of TIAA-CREF or similar portable plans.)

## *2. Provide incentives for districts to experiment.*

As noted above, the federal TIF program provides competitive grants for districts to experiment with educator incentive plans. A few states have set up similar competitive grant programs. Examples include Procomp in Minnesota and DATE in Texas. Given the particular circumstances of school districts, regulators should avoid the temptation to micromanage. Efficient market-based compensation reforms for a rural Texas school district may be very different from the those for Dallas, Houston, or Plano.

Finally, it is commonplace, and somewhat self-serving, for those of us in the higher education industry to identify “more education” as the solution to any problem. That said, there is a disconcerting absence of, and aversion to, application of basic economic principles regarding resource allocation and personnel economics on the part of many education decision makers. This likely reflects the culture and training of the educational leadership programs that prepared them. Imagine a counterfactual. If states required an MBA rather than an education administration degree from an education school for an administrator license, the single salary schedule would likely have been discarded long ago.

Thus, long-term reform of compensation and human resource policy for educators requires better training and selection of school administrators. At a minimum, the training of future school leaders should include the basics of compensation design and personnel economics. Textbooks on personnel economics such as Lazear and Gibbs (2008) – used in selective MBA programs – should be part of the curriculum in educator administration programs as well. Unfortunately, the standards of the professional community in charge of training school leaders (National Policy Board for Education Administration, 2002) make no explicit mention of training in these areas.

Moreover, these same professional standards form the basis for NCATE accreditation of administrator preparation programs. If existing programs are unwilling to incorporate such training into their curriculum, provision should be made for “alternative route” education administrator programs that encourage entry of more entrepreneurial school leaders who are better trained in human resource policy.

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