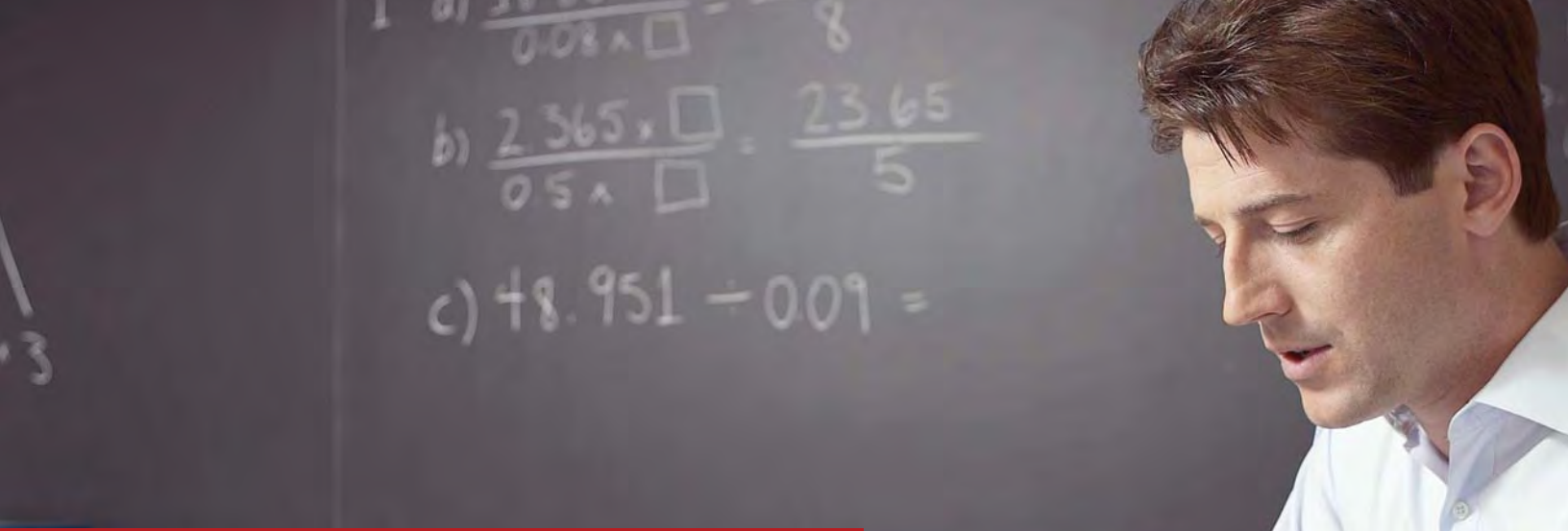

Teacher Compensation and Teacher Quality

A Statement by the Policy and Impact Committee of the Committee for Economic Development

CED

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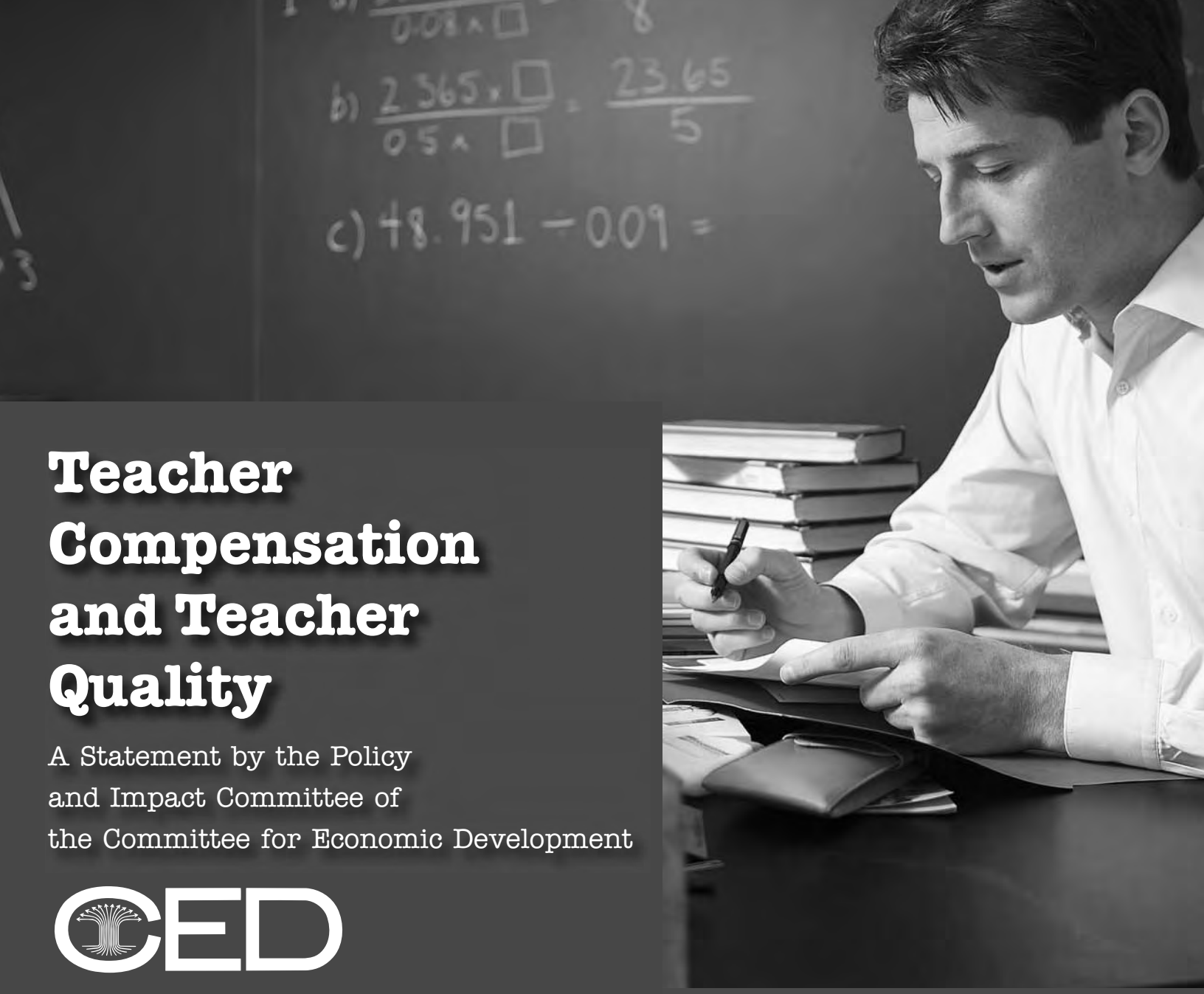

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Responsibility for CED Statements on National Policy

The Committee for Economic Development is an independent research and policy organization of over 200 business leaders and educators. CED is non-profit, non-partisan, and non-political. Its purpose is to propose policies that bring about steady economic growth at high employment and reasonably stable prices, increased productivity and living standards, greater and more equal opportunity for every citizen, and an improved quality of life for all.

All CED policy recommendations must have the approval of trustees on the Policy and Impact Committee. This committee is directed under the bylaws, which emphasize that "all research is to be thoroughly objective in character, and the approach in each instance is to be from the standpoint of the general welfare and not from that of any special political or economic group." The committee is aided by a Research Advisory Board of leading social scientists and by a small permanent professional staff.

The Policy and Impact Committee does not attempt to pass judgment on any pending specific legislative proposals; its purpose is to urge careful consideration of the objectives set forth in this statement and of the best means of accomplishing those objectives.

Each statement is preceded by extensive discussions, meetings, and exchange of memoranda. The research is undertaken by a subcommittee, assisted by advisors chosen for their competence in the field under study.

The full Policy and Impact Committee participates in the drafting of recommendations. Likewise, the trustees on the drafting subcommittee vote to approve or disapprove a policy statement, and they share with the Policy and Impact Committee the privilege of submitting individual comments for publication.

The recommendations presented herein are those of the trustee members of the Policy and Impact Committee and the responsible subcommittee. They are not necessarily endorsed by other trustees or by non-trustee subcommittee members, advisors, contributors, staff members, or others associated with CED.

Purpose of this Statement

There is no more important task facing the United States than providing a high-quality education for all children. The nation's economic future depends on employers' ability to find qualified workers to fill the increasingly demanding jobs that offer good wages in a global 21st century marketplace. So, too, the quality of our civic and social life rests on equipping every individual with the knowledge and skills to be an informed and engaged participant.

This challenge is increasingly being recognized as a *human capital* challenge: recruiting, developing, and retaining highly effective teachers who can help all students learn. Until recently, education reformers have given insufficient attention to the policies that affect how teaching talent is acquired, increased, and sustained and of the need for these policies to be managed strategically in support of educational objectives. Mounting evidence demonstrates that high-quality teaching is crucial for raising student achievement levels. Staffing the nation's schools with high-quality teachers means that traditional human capital policies need to change.

CED Trustees were drawn to the subject of human capital policy in K-12 education because we knew from our own experiences leading businesses and postsecondary institutions how crucial talented employees are to the success of our enterprises. We also recognized that human capital policies (including, in public education, such things as pre-service training, hiring, assignments, mentoring, professional development, compensation, working conditions, and retention/dismissal policies) are interconnected and must be addressed in a systemic way in order to align them effectively with an organization's goals.

We strongly support efforts aimed at achieving coordinated reforms across the human capital landscape. For our part, we have chosen in our current study to investigate in depth the compensation component. We have done so for several reasons:

- Compensation, both current (salaries, one-time incentive payments, etc.) and deferred (primarily pensions), is a major expense for school districts.
- Compensation policies affect who chooses to enter and stay in teaching.
- The so-called "single salary schedule" which structures how most teachers are paid is too rigid, resulting in perennial shortages of teachers in some subjects. It rewards teacher characteristics (years of experience and academic credentials) that are not strongly linked to student learning, and it ignores measures of teacher effectiveness in the classroom. Recent research documents how teacher resources are misallocated across schools (to the detriment of the most at-risk students), a misallocation that results in part from the lack of monetary incentives for teachers to take on the toughest assignments.
- New research shows that long-standing teacher pension policies serve long-serving individuals well but impose significant financial penalties on mobile and short-term teachers. Moreover, these policies incorporate features that are inefficient from a personnel management perspective.
- Despite their shortcomings, compensation policies have proven remarkably resistant to change. Two conditions are necessary for reforms to take hold: (1) good ideas about how compensation policies could be improved and (2) the political will to overcome the natural resistance to change on the part of beneficiaries of the current system, resistance which has often proven to be formidable. Moreover, whereas school districts alone can choose to address many of their human capital

challenges, compensation is unusual in the extent to which it is embedded in both district and state policy. Even districts that might want to move in the direction of aligning compensation with their educational objectives can often find themselves limited by state policies that impose one-size-fits-all solutions.

Thus, we believe that we can most effectively contribute to the human capital agenda by issuing **a call to arms to our fellow business leaders and others interested in the quality of public schools to become (1) informed about current compensation policies and options for improvement and (2) active proponents of change at all levels of government.**

Because public education is a state and local responsibility in the United States, meaningful reform will have to come about in 50 state capitals and over 14,000 school districts. This will require a lot of hard and sustained work. The dual focus is essential, however, since one-size-fits-all solutions imposed by state policy makers (even if they were inclined to do so) will often be inappropriate for local conditions and are likely to engender opposition if key stakeholders, including teachers themselves, are not part of the discussion.

Some might question the wisdom of urging compensation reform at a time when states and districts are suffering from severe budget pressures and when administrators are preoccupied with avoiding layoffs and trying to minimize the damage to their educational programs from funding shortfalls. Our belief is that these immediate problems must not completely divert attention from longer-run needs. Our report will show that, while the problems with current compensation plans are fairly obvious, there is still a lot to learn about how to improve them. Effective compensation reforms take time to develop, implement, evaluate, and revise. Even if policy makers are not in a position to adopt large-scale changes immediately, the spadework to support future reforms needs to be underway now. Moreover, today's economic crisis reinforces the importance of ensuring that whatever resources are available to support public education are used as effectively and as efficiently as possible.

Thus we hope this report spurs wider engagement with the important topic of teacher compensation and serves as a catalyst for discussion of compensation policies that are better aligned with the nation's educational needs.

Acknowledgments

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Teacher Compensation and Teacher Quality

Summary

America's elementary and secondary schools must attract and retain a large number of high-quality teachers if the nation is to reach its goals of raising the academic achievement of all students. Traditional compensation policies for teachers (salary schedules that reward only longevity and academic credentials and pension policies that penalize mobile teachers and those who do not spend a lifetime career in teaching) are not structured to encourage talented individuals to enter the teaching profession and reward them for strong performance. Promising examples of compensation reform are beginning to appear in states and districts around the country. They should serve as models for and provide lessons to the many states and districts that still cling to outmoded approaches to teacher salaries and pensions.

Pay and pension policies that now characterize most state and local teacher compensation systems were designed in an era when (1) schools had access to a labor force including many talented women and minorities with few other professional opportunities and (2) policy makers wanted to encourage and reward teachers who stayed on the job for thirty or more years.

The labor force of the 21st century has changed. Teaching must now compete with the whole array of employers eager to hire the best applicants regardless of gender or race. Workers, especially younger ones, are less interested in staying in one place or in one type of job for their entire careers than were the teachers who entered the profession several decades ago. Younger workers do not shy away from jobs where performance is evaluated and rewarded.

The pool of people eligible to teach is limited to those who have at least an undergraduate college degree, about a third of the civilian labor force. Of all college-educated individuals, the nation's elementary and secondary schools (public and private) employed 9 percent as teachers in 2008. Since teaching continues to attract more women than men by a three to one margin, about 14 percent of college-educated women in the civilian labor force in 2008 worked as teachers (compared to about 4 percent of college-educated men).

Thus at any one time schools need to attract a large proportion of the available talent pool to their classrooms. Competition from other professions has diminished education's ability to entice the best. High-aptitude women as measured by high school class rank are now noticeably less likely to become teachers than they were in the 1960s.

Given a more mobile labor force and the array of professional opportunities now open to all, it is unrealistic to expect that education can hold onto almost a tenth of the "best and brightest" college graduates for 30 or more years. And evidence suggests the most effective teachers do not need to spend a great many years in the classroom to reach their peak performance. In fact, research indicates that teacher quality as measured by student learning rises for the first few years of a teacher's career and then largely levels out.

Thus, compensation policies that aim to create as highly qualified a talent pool as possible to staff the nation's schools would emphasize not only attracting and retaining individuals who envision a full career in teaching but also highly qualified individuals who view teaching as only one of several career stops. Such policies would reward effective teaching and provide opportunities for good teachers to receive professional recognition and promotion while remaining in the classroom. They would also address the need to recruit talented teachers to all subject areas and schools, including those that have a hard time attracting qualified staff.

Most current pay and pension policies do not have these characteristics. New approaches to teacher compensation are needed.

Pay

Pay for most teachers is determined by a pay scale commonly referred to as a "single salary schedule." This grid-like schedule sets pay according to "steps" that measure years of experience and "lanes" that reflect academic degrees and credentials. The entire schedule itself is typically revised upward each year as school boards approve cost-of-living adjustments which are applied to each cell in the schedule. Sometimes these adjustments are applied across the board. In other cases (for example, as part of a deliberate strategy to raise the relative pay of beginning teachers) year-to-year adjustments to the specific cells in the salary schedule may be variable.

Traditional single salary schedules suffer from a number of shortcomings:

- They ignore teacher performance as a criterion for teacher pay. Recent research shows that longevity after the first few years in the classroom and academic credits are not strong indicators of whether a teacher is successful in raising student achievement. Rewarding effective teaching requires a more direct link between teacher pay and measures of student learning.
- Salary schedules contribute to persistent teacher shortages in certain subjects and schools. Without some kind of differential pay, educational administrators cannot effectively compete for teachers of subjects like math and science who have many, often more-lucrative opportunities in the private sector labor market. They also have trouble attracting teachers to especially demanding jobs, such as those in schools serving high numbers of at-risk students. These schools are often staffed by less-qualified teachers who turn over rapidly.
- Salary schedules create no incentives for instructionally effective professional development. Teachers can raise their salaries by accumulating additional academic credits and degrees. Often teachers make independent decisions about what kinds of advanced study to pursue. They do not have incentives to participate in professional development programs that are targeted to their own or their school's specific needs.

These shortcomings have been widely discussed for a long time. In recent years some encouraging initiatives to reform teacher pay have been launched, although they are still too fragmented and tentative to suggest that single salary schedules are on their way out. The ProComp program jointly developed by Denver Public Schools and the Denver Classroom Teachers Association demonstrates that it is possible to replace the single salary schedule with a wholly-new framework for teacher pay that provides permanent salary increases and one-time bonuses on the basis of (1) teacher knowledge and skills; (2) professional evaluation; (3) student academic growth, measured both for individual teachers and for whole schools; and (4) market incentives for service in hard-to-serve schools and hard-to-staff subjects. More limited reforms in a number of states and districts (in some cases funded through federal incentive grants) are beginning to accumulate valuable lessons about how to design and implement desirable elements of a redesigned teacher pay system such as performance-based pay, pay linked to career paths, and labor-market-based pay.

Performance-Based Pay

Linking some part of teacher pay to effectiveness on the job is a necessary reform that would put teachers on a similar footing with other working professionals. We believe that winning public support for higher salaries (which teachers and their representatives strongly advocate) requires pay systems that reflect teachers' success in improving student outcomes.

Performance-based pay is the most sensitive issue in debates over compensation, in part because the "merit-pay" movement of the 1980s was singularly unsuccessful and short-lived and engendered enduring skepticism among teachers. It is imperative that current efforts give sufficient attention to the challenges of design and implementation and that policy makers and administrators work with teachers who are interested in being constructive partners in finding acceptable ways to link pay and performance.

Performance-pay plans require careful attention to design to ensure that desired behavior is fairly measured and rewarded and that unintended consequences are avoided. Combining group awards (for example, to

all the staff of a high-performing school or department) with individual awards to teachers whose students show exceptional academic improvement is one way of encouraging teacher cooperation and collaboration while avoiding the "free-rider" problem that can occur if teachers who are not carrying their weight are rewarded anyway based on a whole group's effort.

The methodological issues in measuring student learning (whether for pay calculations or for other accountability purposes) are substantial. Measuring only absolute levels of student achievement, rather than the growth in achievement, can result in teachers being rewarded because they teach students from more advantaged backgrounds (since test scores are highly related to family background and socio-economic advantage) rather than teachers who are the most successful in raising student achievement. States and districts are addressing this concern by developing "value-added" measures of student learning. At present, such measures appear most useful for making group awards and for measuring the effectiveness of individual teachers over several years. Single-year measures are less reliable for determining on an annual basis which individual teachers are successful in improving student learning.

Performance-pay initiatives such as those in Houston, Florida, Minnesota, Texas and elsewhere are beginning to show how performance pay can be designed and implemented in ways that avoid the problems encountered by earlier "merit-pay" plans. Important lessons are emerging, such as the importance of communication, of balancing transparency and complexity in developing understandable and fair award formulas, and of making clear how performance pay fits as part of a larger effort to improve teacher quality.

CED Trustees, based on their experiences leading business and academic organizations, also believe that qualitative as well as quantitative evaluations of individual performance have a place in a performance-pay system. Qualitative evaluations, whether conducted by principals or by other administrators or teachers, have the advantage of being able to take into account a broader range of teacher performance and educational objectives than test-score performance alone. Teachers often have valid concerns that qualitative judgments could reflect bias and favoritism, but such concerns should not be used to block the development of fair qualitative evaluation systems.

Successfully linking pay to performance in education must still be understood as a work in progress that requires more experimentation with alternative pay design, careful evaluation, and an implementation process compatible with adaptation and continuous improvement of performance-pay plans. The effort is worth it, as the limited research available to date supports the idea that performance pay can lead to better learning outcomes for students.

Pay Linked to Career Paths

The structure of a typical teacher's career is "flat." Regardless of how long an individual has been on the job or how effective he or she is, a teacher generally cannot receive formal recognition and pay for professional advancement without leaving the classroom for an administrative position. Developing career paths along which teachers could progress based on both qualitative and quantitative measures of their performance over time is a promising way to address both the flat-career problem and the limitations of one-year test scores as measures of teacher effectiveness. Career paths could be a means of significantly raising pay for high-performing teachers while not resorting to inefficient and expensive (but all too often used) across-the-board pay increases.

Like "merit pay," so-called career ladders had a brief and largely unsuccessful run in the 1980s. Insufficient funding and inadequate appraisal systems doomed many efforts. Several recent initiatives incorporate multiple career paths that recognize teachers' differing career aspirations and/or link compensation levels to teacher positions that are awarded through a competitive, performance-based process. A somewhat different approach to teacher pathways embraces full-year jobs for teachers who want and qualify for them.

Opportunities for promotion within teaching and for year-round employment are important approaches worth trying. A desirable teacher compensation system is not just one that appeals to individuals currently attracted to teaching, but one that will draw in other talented individuals who may now shun the profession because of its limited opportunities for advancement and for pay commensurate with full-year responsibilities.

Labor-Market-Based Pay

There are differences in the supply of and demand for teachers by subject area. Moreover, teachers demonstrate differential preferences for where they teach. The effects of differences in supply and demand in teacher labor markets cannot be wished away. If pay policies do not take them into account, labor market realities will be reflected in other ways, most likely by reducing the quality of teachers available for different assignments. Though teachers often argue that they are all underpaid and that across-the-board raises are needed, our assessment of the evidence is that there is not a uniform, pervasive mismatch between the supply of and demand for teachers. Instead, shortages are more localized in nature and disproportionately characterize some schools and some subject areas.

A number of districts are trying out ways of using financial incentives to attract the teachers they require and place them in the schools that most need them. The latest available data indicate, however, that many fewer districts are using labor-market-based pay than report difficulties in hiring teachers for all fields of study and all classrooms.

Current efforts are also sometimes poorly targeted, may not involve enough extra pay to change teacher behavior, and may be not sufficiently coordinated with other improvements, especially in working conditions that have been shown to matter to teachers.

Successful Pay Reform

Denver's ProComp complete pay restructuring and modifications in other districts of the single salary schedule point the way to making teacher compensation a more effective tool for attracting and keeping high quality teachers. It should be remembered, however, that districts operate in different labor markets and have different needs, which should be reflected in local pay plans. Furthermore, a key lesson from both past and current efforts to implement new kinds of compensation is that reforms are unlikely to work if they are imposed from the outside rather than developed locally and jointly by the various stakeholders who will have to support and sustain them over time. This lesson is especially important for state and federal policy makers interested in how they can effectively incentivize and support pay reform efforts.

Pensions

The structure of most current pension plans for teachers works at cross purposes with the objective of raising teacher quality by enlarging the pool of talented individuals who are willing to teach. It discourages teachers from moving from place to place (even though some states have teacher surpluses while others have shortages) and from teaching for less than a full career.

Pension benefits for teachers, as for most state and local employees, are provided almost universally through defined benefit (DB) plans. Teacher plans are largely state-based and promise retirement income based on years of service and the final average salary earned in the last years of teaching. The continuing reliance of public employers on this form of pension plan, which is far less prevalent in the private sector, is frequently justified on the grounds that it is desirable to have a long-term, stable public work force to serve community needs and that it is important to ensure loyal career employees that they will have a secure source of income once they retire. The back-loaded benefits embedded in the final-average-salary DB formula are designed to meet these objectives for long-serving teachers.

Effects on Retirement Age, Mobility, and Short-Term Teachers

The retirement-benefit component of teachers' compensation packages creates incentives for long-serving teachers to retire at relatively young ages and penalizes mobile teachers (particularly those who cross state lines), thus making it harder for administrators who may be grappling with teacher shortages. Pension policies create financial disincentives for talented individuals who might be willing to devote part of their working lives to teaching but who do not want to make teaching a lifetime career.

Financial penalties for mobile or short-term teachers are primarily the result of the way final-average-salary DB plans backload their benefits. Pension wealth* for participants in these DB plans grows very slowly for 20 or so years and then rises rapidly. Recent research

* Pension wealth is a measure of the present value of a stream of payments or the market value of an equivalent annuity.

on six states has shown that a mobile teacher who splits a 30-year career evenly between jobs in two states can lose from 40 to nearly 75 percent of the pension wealth he or she could have accumulated by staying in the first job for the full 30 years. Mobile teachers may also suffer financial penalties because vesting periods (i.e., the years of service required to qualify to receive a pension someday) are long in teacher plans compared to the private sector. In nine states, teachers have to work for 10 years before becoming vested in the pension plan.

Teacher pension plans also effectively redistribute pension wealth from short-term teachers to those who serve for many years. Recent research on six states compared the pension wealth accumulated by teachers under existing plans who enter the profession at age 25 with the pension wealth they would have had if pension contributions had been invested instead in a fiscally-neutral plan. Sixty-five to 80 percent of teachers (comparative short-terms who on average separate from service when they are in their 30s) have lower accumulated pension wealth than they would have had under the fiscally neutral plan. Twenty to 35 percent (the long-term teachers, on average separating in their 50s) would have more pension wealth under the traditional DB plan. In effect, short-term teachers earn a lower rate of deferred compensation than do long-term teachers.

Rethinking Pension Policy and Practice

A few states have adopted plans or plan provisions that provide better treatment than traditional plans for mobile and short-term teachers. Some give participants the option of selecting a defined contribution (DC) plan, where individuals own their own accounts and are entitled to the contributions to and investment returns on them, as their primary pension plan. A few states have hybrid DB/DC plans. South Dakota has created a "portable retirement option" within its traditional DB plan. Alaska recently made a DC plan the primary pension plan for all new workers.

Discussions of public pension reform often take the form of debates over the virtues of final-average-salary DB versus DC plans, but this oversimplifies the issue. Teachers in 13 states do not participate in Social Security, so without DB pensions they do not have access to guaranteed, inflation-adjusted retirement income as other workers do. The recent turmoil in financial markets has also heightened sensitivity to the investment risks that DC plans pose to employees, risks that employers bear in DB plans.

There are a number of reforms to defined benefit plans that could reduce or eliminate some of their problematic features while still providing teachers with the advantages of participating in a defined benefit plan. These include hybrid plans and portability options such as those already described. They also include a type of defined benefit plan called a cash balance plan, which measures accumulated benefits in terms of a stated account balance as DC plans do, and promises fixed investment returns. Private employers who continue to sponsor defined benefit pensions have moved nearly a quarter of their workers into cash balance plans. In the public sector, only Nebraska uses a cash balance plan as the primary plan for state and local employees, but the state's teachers remain in a separate traditional DB plan.

Treating mobile and short-term teachers more fairly will have at least short-term costs unless these costs are offset by some decrease in the generous benefits that teacher pensions typically promise. These include eligibility for normal retirement with full benefits at young ages (often in the 50s) and other early retirement benefits, annual cost of living adjustments for retirees who have begun drawing their annuities, and retiree health benefits.

Many public pension plans are already under fiscal pressure, both from large losses due to the ongoing economic recession and from longer-term policies that have led many plans to be under-funded relative to the obligations they will eventually have to meet. Employer pension contributions are already substantial, and they are growing relative to the retirement contributions made on behalf of private-sector professionals by employers. To the extent that current contributions and investment earnings are insufficient to pay pension promises, dollars that might go for other education purposes such as compensation reforms designed to enlarge the teacher talent pool will have to be directed toward commitments incurred under current pension arrangements.

Public sector pensions operate under a complex set of state-based constitutional and statutory provisions

that vary across the country and that appear to make it difficult to alter pension benefits for workers already on the job, even for workers who are many years away from retirement. There may be more flexibility than generally believed to consider pension changes, but this will require careful state-by-state analysis. Policy makers in each state need to review carefully the legal limitations on their pension plans and consider whether statutory (or even constitutional) changes would provide appropriate flexibility to alter pension arrangements to address changing circumstances while offering appropriate protections to current and future plan participants.

Enabling Conditions

Successfully reforming teacher compensation systems will require attention to "enabling conditions:" the tools, policies, and practices without which new compensation policies will be less effective than they should be at encouraging genuine instructional improvement and increased student learning. These conditions include:

- **Improved teacher evaluation and professional development systems.** Teacher evaluation is notorious for its "drive-by" nature, with evaluators (frequently administrators, often untrained) making a fleeting classroom visit using a checklist of classroom conditions and teacher behaviors that have little to do with the quality of instruction. Professional development, which should have among its purposes helping poorly performing teachers overcome their weaknesses, often takes the form of fragmentary one-day workshops that are insufficiently intense and that do not focus on meaningful instructional improvement. Some good practices in teacher evaluation and professional development have been identified. More need to be developed, and all need to become the norm rather than the exception in the nation's schools.
- **Improved student and teacher data systems.** Using student performance to help determine teacher compensation, whether that performance is measured quantitatively or qualitatively, will require much better data systems than currently exist in many states and school districts.
- **Sustainable funding.** Reforming teacher compensation will almost certainly require additional funding, at least in the short to medium term. Too often in the past, efforts to reform compensation have faltered in part because funding was not available to sustain new pay arrangements. Reforms often attract initial funding from outside groups on a one-time basis, but states and districts will need to be prepared to pick up the costs once the outside funding disappears. In the long term, there should be savings from a more efficient compensation system that could help sustain reforms. Savings could come, for example, by capturing the large amount of money currently spent under the single salary schedule to reward teachers for advanced academic credentials that have not proven to be related to student learning. Savings might also be found through pension changes that reduce early retirement incentives, raise normal retirement ages, and limit employer investment risks through something like a cash balance plan.
- **Supportive state and federal policies.** States and the federal government can encourage teacher compensation reforms by providing financial incentives and technical assistance in support of new forms of pay and removing obstacles to revising and adequately funding pay plans.
- **Wide stakeholder involvement.** A clear lesson that emerges from both successful and unsuccessful efforts to reform teacher compensation is the importance of engaging a wide group of stakeholders, including teachers themselves, in the design and implementation of new compensation plans.

How Business Leaders Can Encourage Compensation Reform

Business, as employers of the products of public schools and as organizations with a strong stake in the country's economic and social well-being, needs to be one of the active stakeholder groups at the table when compensation policies are decided. Business leaders can make the case to the public that current policies are inadequate. They can be forceful and knowledgeable "critical friends" in insisting that states and districts undertake vigorous efforts to design, implement, evaluate, and refine new approaches.

There are no one-size-fits-all compensation policies ready to be disseminated throughout our vast education "non-system." The nation has fairly limited experience with alternatives to the single salary schedule and the final-average-salary pension plan. Evidence about exactly which alternatives will be most effective in attracting and keeping the teachers we want is not yet robust. Moreover, public education is provided through 50 states and over 14,000 school districts which vary in their capacity and needs. Teacher pensions are generally the product of political negotiations at the state level, unlike salaries which are often collectively bargained by teacher unions and local school authorities. Local pay structures, however, must comply with provisions of the state education code which may mandate single salary schedules, minimum salaries, and the like.

Thus business leaders interested in compensation reform will need to encourage both state and district policy makers to take appropriate steps to align compensation policies with the goal of improving teacher quality. CED's study provides specific examples of promising reforms. In addition, we have distilled from our analysis the following principles that business leaders can use to guide deliberations toward a "continuous improvement" approach to teacher compensation policies.

- *Teachers should be evaluated for compensation purposes in part on the basis of on-the-job performance as demonstrated by student learning. Quantitative measures of learning, where available, and qualitative assessments of teachers' skills, knowledge, and classroom effectiveness should be utilized.*
- *Compensation policies should treat teachers equitably whether they stay on the job for 20 to 30 years or work in teaching for a more limited time. These policies should not penalize teachers interested in being in the classroom for less than a full career, such as second-career teachers and those who want to pursue another career after a period in the classroom. They should not penalize teachers who move to a different district or state.*
- *Career paths with significant opportunities for promotion and increased compensation should be created for teachers. Teachers should not have to leave the classroom for administrative positions in order to raise their salaries significantly. They should have options for full-time, full-year employment, as administrators do.*
- *New compensation policies should reflect the fact that teachers in some fields are harder to recruit and retain because they have more numerous employment opportunities outside of education. Compensation for teachers should reflect these labor market realities, as does compensation for college professors, doctors, and virtually all other professionals.*
- *New compensation policies should create incentives for teachers to take jobs in schools facing the biggest performance challenges. Without such incentives, teaching talent will continue to be very inequitably distributed, to the disadvantage of the most at-risk students.*
- *Policy makers should support the "enabling conditions" that are necessary for designing and implementing new compensation systems that encourage genuine instructional improvement and increased student learning. These include (1) more effective teacher evaluation and professional development systems, (2) better student and teacher data systems, (3) sustainable funding, (4) state and federal policies that incentivize districts to create new forms of pay and remove obstacles to their doing so, and (5) wide stakeholder involvement in the process of compensation reform.*

CHAPTER 1: Introduction

Common sense suggests and research increasingly confirms that teachers are a critical influence on student learning. Classrooms that are led by effective teachers are key to improving American education. Teachers cannot be expected to raise student achievement on their own; the entire elementary and secondary system must be oriented toward high performance.* Genuine education improvement, however, will not be accomplished without teachers who can help all students reach high academic standards.

Effective Teachers for All Students

Reforming compensation policies is one part of the answer to attracting high-quality teachers. A new concept taking hold among researchers and foundations is "strategic human capital management." As the Annenberg Institute for School Reform puts it,

> …*human capital management* refers to how an organization tries to acquire, increase, and sustain [the talent level of its employees] over time. More specifically, it refers to the entire continuum of activities and policies that affect teachers over their work life at a given school district. These activities range from recruitment and selection, to hiring and induction, to deployment and redeployment of training and support, to evaluation, career advancement, compensation, and the termination of ineffective teachers…[1]

Not only are the various elements of the human capital agenda receiving increased attention, but it is also becoming more widely recognized (as, for example, by the Strategic Management of Human Capital project at the University of Wisconsin, described in Figure 1) that **the various human resource elements need to be strategically aligned with the key objective of schools: improving student learning.**

The emphasis on academic achievement as the primary criterion for judging the effectiveness of a teacher is in

Figure 1—Strategic Management of Human Capital (SMHC) project

SMHC seeks to improve student achievement in the nation's 100 largest public school districts by helping them attract top talent and manage this talent in ways that support the strategic directions of each district. The five-year project, which is based at the University of Wisconsin-Madison, brings together policy makers and researchers to 1) define strategic management of human capital in public education, 2) create a network of leaders actively reengineering human capital management systems in public education, 3) document the nature and impact of leading-edge human capital management systems in several districts and states, 4) establish SMHC as a prominent issue on the nation's education reform agenda, and 5) advance local and state policies to support widespread adoption of SMHC in public education. Key practices and initiatives being examined include:

- Instructional improvement strategies
- Uses of student data that help improve classroom instruction
- Recruitment strategies
- Selection processes
- Placement strategies
- Induction/mentoring programs
- Performance management including evaluation of teachers and principals
- Professional development practices
- Strategic use of compensation for teachers and principals

Information about the project can be found at http://www.smhc-cpre.org.

* See Memorandum, p. 56.

keeping with CED's long-standing focus on "putting learning first."[2] We said in a 1994 report by that name and have repeated since that

> The primary mission of the public schools should be learning and achievement. Schools should solidly ground all students in language and mathematical skills and provide them with a broad base of knowledge in subjects such as literature, science, foreign languages, history, social sciences, and the arts. Students should be able to use and apply this knowledge. Academic course work for all students should be rigorous and substantial.

We recognized in that report that schools have other essential missions as well, such as socializing youngsters and preparing future citizens. These missions must continue to be important considerations in evaluating our schools and the success of the people who staff them. But student learning is the primary job of schools, and policies without this objective at their core are inadequate.

Ensuring that all students have effective teachers is a major challenge, not least because the nation needs a lot of people to staff its schools. In 2008, just over 4 million teachers were employed full- or part-time in elementary and secondary schools.*[3] This does not include many other individuals, including principals and assistant principals, instructional coordinators, curriculum developers, and others, whose jobs also directly affect the quality of instruction.The core of the challenge is that, at any given time, the nation needs a remarkably high proportion of its college graduates to be teachers (and even more to be working in positions related to teaching). In 2008 the civilian labor force age 25 and over with bachelor's degrees or higher numbered just over 45 million, so teachers accounted for about 9 percent of such individuals who held or were seeking jobs. Other professions that draw mostly on college-educated talent employ many fewer workers: in 2008, the United States had, for example, 553,690 lawyers, 110,900 architects, 605,110 social workers, 568,400 doctors, 1.3 million postsecondary teachers, 1.5 million engineers, and 2.5 million registered nurses.[4]

Exacerbating the challenge is the fact that teaching has historically been more attractive to women than to men. Women currently hold about three-quarters of the teaching jobs in elementary and secondary schools. This means that about 14 percent of the college-educated women in the labor force are working as teachers. Only about 4 percent of college-educated men are teaching in elementary and secondary schools.

With schools needing so many college graduates to staff their classrooms, **can teaching jobs as currently designed attract enough talented individuals to the profession so the nation can accomplish its educational goals? We think not.**

Making teaching more attractive to talented college graduates has many dimensions, but one central concern relates to pay. Existing compensation policies, for both current pay and deferred pay in the form of pension benefits, were created for a model of teaching that treated all teachers and teaching jobs as the same, rewarded teachers solely based on years of experience and academic credentials, and sought to retain teachers in the profession for a working lifetime. This model, which an Aspen Institute paper dubbed the "factory model,"[5] is increasingly out of step with the way workers view their careers and inconsistent with the evidence on how teaching experience is related to instructional effectiveness. Twenty-first-century workers expect to be mobile, both geographically and among occupations. Employers and many workers, too, believe that strong performance on the job should be rewarded. Researchers provide growing evidence that years on the job and academic credentials beyond the bachelor's degree are weak indicators of which teachers are most effective in improving student learning.

The nation needs new approaches to teacher compensation. We do not believe schools can attract enough promising individuals to teaching and to the classrooms where they are most needed if we expect 9 percent of college graduates to devote themselves to teaching for a lifetime and impose financial penalties on those who do not, if we fail to reward good teaching with better pay and promotion opportunities, if we continue to employ most teachers on less than a year-round basis and pay them accordingly, and if we pay teachers the same no matter what or

* This figure comes from the Bureau of Labor Statistics at the U.S. Department of Labor. The U.S. Department of Education's National Center for Education Statistics reports a widely-cited figure of 3.2 million public school teachers (plus an additional half-million private school teachers) for 2007, but these figures have been calculated as full-time-equivalent positions. The BLS data report the number of individuals in teaching in 2008.

where they teach. We focus on teachers in this report because of their numbers, but many of the same arguments can be made in support of new pay structures for principals and other education administrators.

Undoubtedly some individuals who are or who would be outstanding teachers like the existing arrangements, such as school-year schedules that are "family friendly." It is desirable to keep some existing policies as options for those people who like the current approach to compensation. We will provide evidence, however, suggesting that maintaining or improving teacher quality will become increasingly difficult without new policies designed to make teaching attractive to promising people who are willing to spend part but not a whole career in education. We will show that current compensation policies are inefficient in terms of attracting teachers and encouraging them to teach where they are most needed.

We are mindful of the challenges in identifying effective teachers. Research is increasingly providing evidence that some teachers are clearly more effective than others in raising student achievement.[6] To date, though, scholars have been less successful at identifying the particular characteristics of teachers that seem to predict their effectiveness. Moreover, the qualities that may make a teacher effective with one group of students (e.g., affluent high school physics students) may be quite different from the qualities that make a teacher effective with another group (e.g., disadvantaged inner-city elementary school students). Many aspects of learning are not adequately reflected in existing measures of student achievement, which tend to emphasize standardized tests in a limited number of subjects. For this reason and for technical reasons relating to the validity and reliability of testing, it may be difficult or impossible to make the connection between individual teachers and student learning outcomes, especially on an annual basis. Therefore, **we believe that qualitative as well as quantitative measures of teacher effectiveness should be employed in determining how well teachers are performing.** We believe that there is a role for indirect measures such as whether teachers have the knowledge and skills that can reasonably be expected to influence student learning.

How Labor Market Changes Have Affected Teacher Quality

Since the 1960s, job opportunities for women have increased dramatically. No longer are women largely relegated to the "female" professions of teaching, nursing, librarianship, and social work. At the same time, the relative salaries of teachers compared to other professions have declined. These developments have raised widespread fears that the quality of teachers has also declined. There is some evidence that this is true, but the decline was not as serious as might have been expected in part because the proportion of women obtaining college degrees also grew. Looking ahead, however, we cannot expect to see this same increase in the numbers of college-educated women to mitigate the effects of other labor market changes. This strengthens our belief that **schools will have a harder time competing for talent in the future unless they have compensation policies that are in step with the needs and preferences of 21st century workers.**

Both the expansion of employment opportunities for women and the growth in the number of female college graduates in the latter half of the 20th century were remarkable. One study[7] showed that the fraction of young females age 25-34 with at least a four-year college degree grew from 8.9 percent to 27.8 percent between 1964 and 2000. Over that same time period and for the same age group, the proportion of women who participated in the labor force grew from 37.2 percent to 80 percent. The authors of this study also developed an "index of gender representation" based on the proportion of females in selected occupations divided by the female share of the labor force, with a value of less than one suggesting that women were underrepresented in the occupation. Between 1964 and 2000, the index for physicians went from 0.33 to .89 and index for lawyers from 0.08 to 0.87. These numbers are one indication of how public schools now have to compete for college graduates who were once a largely captive labor pool.

As opportunities for women outside teaching were increasing, teacher salaries were declining relative to other professions. For women in the 1940s and 1950s, teaching was a relatively well-paying career. In 1940, for example, nearly 70 percent of college-educated female non-teachers earned less than the average teacher. This percentage fell steadily until, by 2000,

only about 45 percent of college-educated female non-teachers earned less than the average teacher. Among young women (age 20-29), in 2000 the percentage of non-teachers earning less than the average teacher was slightly over 35 percent. Among men, the percentage of non-teachers earning less than the average teacher was noticeably lower throughout the 1940-2000 period. Male teachers also suffered a decline in relative pay, but instead of dropping throughout the period, male teachers' relative pay fell between 1940 and 1960 and then remained roughly constant.[8]

Economic theory suggests that the combination of more labor market opportunities for women and declining relative salaries would have a negative effect on the quality of the individuals entering teaching. We have already noted that the issue of what constitutes a quality teacher is a complicated one and that, for the most part, "input" measures have not proven to be very good indicators of teachers' impacts on student achievement. The exception to this general rule is that, of the teacher "input" characteristics that can be measured, cognitive skills as determined by tests of verbal and mathematical skills have been shown consistently to be positively related to student outcomes.[9] Thus the question of whether teacher quality has declined has generally been examined by asking whether the verbal and mathematical skills of teachers have decreased relative to other test-takers.*

This indicator provides a mixed picture of changes in teacher quality. Based on data about the careers of women who graduated from high school at various point between 1957 and 1992, researchers found that the average rank of new teachers relative to non-teachers remained about the same: On average teachers had test scores above those of the average high school graduate in their cohorts but below the average college graduate. But the propensity of the highest-scoring high school graduates to teach has changed dramatically. In the 1960s 15-17 percent of women in the top 10 percent of their high school classes could be predicted to become teachers. In the 1990s this fell to 6-8 percent. The same pattern was apparent among women in the top 10-30 percent. High-aptitude men, on the other hand, were more likely to become teachers in the 1990s than in the 1960s, though this result has to be interpreted cautiously since sample sizes of male teachers and the number of male teachers are small.[10]

Although higher-ability women did desert the classroom in significant numbers, the large increase in female college graduates during the latter part of the 20th century appears to have protected teaching from a decline in the *average* cognitive ability of those entering the profession. It is unreasonable to expect another big jump in the pool of college-educated women, so competitive pressures may well have more negative effects on schools in the future than they did in the past. This emphasizes the importance of human capital policies to address the ongoing need for a large proportion of college-educated workers to be willing to teach.

Tackling the Challenges of Compensation Reform

Pay and pension policies are important elements of the human capital agenda for improving teacher quality. Although designing new approaches to teacher compensation poses challenges, it is important to undertake the task. In our study we uncovered numerous ways in which existing teacher compensation systems are misaligned with the important goal of obtaining the highest quality teachers possible for America's classrooms at the most efficient cost to the taxpayer. We also discovered that, **despite the challenges, there are practical reforms that can make compensation a more effective strategic tool for meeting our schools' human resource needs.**

Business leaders need to become more knowledgeable about and engaged in discussion about the compensation aspect of education's human capital challenge. Salaries and benefits for staff engaged directly in instruction represent the largest expenditures schools make: during the 2004-05 school year they were 90 percent of expenditures on instruction and 55 percent of all current expenditures (excluding capital outlays).[11] The current approach to teacher compensation is deeply embedded in both district and

* Because of the limitations on the available measures of teachers' cognitive ability, researchers are limited to asking how teacher quality defined by this ability has changed relative to non-teachers. The available measures do not permit analysis of how absolute levels of cognitive ability have changed over time. If overall levels of cognitive skill are increasing, then it is possible that the cognitive ability of individuals entering teaching is increasing even if their test scores *relative to non-teachers* have declined.

state education policies and practices. Few members of the public beyond the immediate beneficiaries of compensation policies are knowledgeable enough about them to be effective change agents. Yet all of us have a strong stake in whether these policies are designed to attract and reward teachers who can help the nation reach the high learning goals it has for all students.

Business leaders have been ahead of their education colleagues in recognizing the importance of adapting their human resource policies to attract and retain talent in a more competitive and mobile labor market. They also have a large stake in the success of American schools. This report aims to help them and others understand current teacher compensation policies and their shortcomings, assess possible reforms and the issues and tradeoffs involved, and become informed participants in the 50 states and 14,000 school districts where these policies are ultimately debated and decided.

CHAPTER 2: Pay

Despite the fragmented and decentralized nature of American public education, there is a striking similarity in the way states and districts pay their teachers. Virtually all rely on the so-called single salary schedule for current compensation, despite long-standing complaints about its problems. Although many states and districts in recent years have made changes on the margins to address some of the single salary schedule's shortcomings, only a handful of districts have actually replaced the schedule. Denver is the most prominent example, having adopted a fundamentally different pay structure for all new teachers, as well as for current teachers who choose to opt into the system.

This chapter describes what the traditional single salary schedule is and what the major objections to it are. We describe the Denver plan as evidence that a completely new pay structure for teachers, as opposed to adding bells and whistles to the current pay structure, is feasible. We explain why we recommend that teacher performance (as measured by student learning), which is virtually ignored by the single salary schedule, should be an important component of teacher pay and what recent experience with pay-for-performance plans suggests about how to approach designing and implementing such plans. We explore the possibility of redesigning the teaching job itself (through more explicit career tracks and through full-year employment options). These redesigned jobs could be accompanied by targeted pay raises to reward teachers who prove their effectiveness over time with additional responsibilities and opportunities for professional growth. We also suggest ways in which the current salary structure can be modified to deal with staff shortages and other problems caused by the single salary schedule's unresponsiveness to labor market realities. We conclude with the caution that, for pay redesign to be successful, local jurisdictions must work through their own processes of developing alternative pay plans, rather than adopting a pre-existing plan from elsewhere or having one imposed on them.

The Single Salary Schedule and its Shortcomings

In the United States **virtually all teachers are paid according to a pay scale commonly referred to as a "single salary schedule."** In such schedules, which resemble traditional civil service pay schedules in other parts of the public sector, pay is determined exclusively by (1) years of experience and (2) academic credits and diplomas earned. These schedules are often referred to as having "steps and lanes." A typical salary schedule for teachers, in this case the schedule used by Denver for teachers who are not required and have not chosen to participate in the district's new pay plan, is illustrated in Table 1.

Denver calls the longevity factor "steps"; in many districts the rows directly reflect years of experience. A teacher moves from row to row down the salary schedule as he or she gains more years of experience and can also move across the rows ("lanes") as he or she obtains additional educational degrees and credentials. The entire schedule itself is typically revised upward each year as school boards approve cost-of-living adjustments which are applied to each cell in the schedule. Sometimes these adjustments are applied across the board. In other cases, year-to-year adjustments to the specific cells in the salary schedule may be variable. This might occur, for example, as part of a deliberate strategy to raise the relative pay of beginning teachers.

Some districts adopted single salary schedules early in the 20th century as a way of removing unfair discrimination (e.g., on the basis of sex or race) and political favoritism from the process of paying teachers. By mid-century (before the spread of teacher unionism, it should be noted) virtually all districts paid their teachers using a single salary schedule.[12] Unions came to defend the single salary schedule as the fairest way to set teacher pay.[13] Some states embed teacher salary schedules in state law, establishing minimum, though not necessarily maximum, pay levels for each position.

Table 1—Denver Public Schools – salary schedule effective 9/1/08

	BA	BA+30 credits	BA+60 credits or MA	MA+30 credits	MA+60 credits	Doctorate
Step 1	$36,635	$36,904	$37,172	$40,201	$40,949	$43,522
Step 2	$36,910	$37,257	$37,603	$40,555	$42,920	$45,609
Step 3	$37,013	$37,494	$39,099	$41,876	$44,666	$47,477
Step 4	$37,201	$37,697	$40,559	$43,471	$46,383	$49,308
Step 5	$37,539	$39,262	$42,283	$45,301	$48,339	$51,391
Step 6	$37,765	$40,930	$44,080	$47,216	$50,378	$53,578
Step 7	$39,357	$42,666	$45,930	$49,240	$52,509	$55,879
Step 8	$41,015	$44,437	$47,875	$51,331	$54,750	$58,276
Step 9	$42,731	$46,344	$49,916	$53,516	$57,146	$60,781
Step 10	$44,546	$48,313	$52,068	$55,830	$59,578	$63,398
Step 11	$46,427	$50,335	$54,271	$58,176	$62,136	$66,135
Step 12	$48,408	$52,486	$56,605	$60,732	$64,816	$68,981
Step 13	$50,882	$55,173	$59,610	$63,755	$68,068	$72,408

Source: Denver Public Schools, 2008-2009 DCTA Salary Schedule, http://hr.dpsk12.org/pay/dcta.shtml (accessed May 21, 2009).

Typically districts adopt pay scales that are higher than the state minima. The amount of time that it takes a teacher to reach the top level on the scale depends on state and district policy, though it can amount to 20 or more years. Once at the top of the scale, long-serving teachers may be limited to only cost-of-living increases.

Although some districts have adapted the single salary schedule for teachers in various ways (e.g., to pay recruitment bonuses or to reward service in certain schools and subjects; to recognize exceptional performance; to compensate for additional duties performed), these modifications have occurred unsystematically and represent only marginal changes to teacher pay plans.

The persistence of single salary schedules complicates the task of improving America's schools.

- **There is a "disconnect" between teacher pay and performance.** As school reform has increasingly focused on student learning outcomes rather than on educational inputs, there is growing criticism of the single salary schedule because it ignores teacher performance as a criterion for teacher pay. Recent research has demonstrated that longevity and academic credits are not strong indicators of a teacher's success in raising student achievement.[14] New studies also show that there are real and identifiable differences in the impact that individual teachers have on student performance.[15] Individuals who believe they are or could be highly effective teachers are faced with a salary structure that promises them no rewards for that effectiveness. Instead, the only way to reach the higher levels of pay is to accumulate many years of experience.
- **The single salary schedule contributes to persistent teacher shortages in certain subjects and schools.** For decades schools have had a hard time filling teaching positions in certain subjects, particularly in the sciences, mathematics, and special education. Uniform salary schedules have long been held partially responsible, because individuals qualified to take these positions have many, often more lucrative, opportunities in the private-sector labor market.[16] Educational administrators cannot compete with these outside opportunities

by offering differential pay. More recently it has become apparent that a uniform approach to pay also helps account for numerous findings that at-risk students in the most troubled schools and neighborhoods are usually taught by the least experienced and qualified teachers.[17] Without the ability to offer extra pay to attract individuals to the hardest-to-serve schools, teachers exercise their seniority rights and select schools with higher ability students in education settings they find more appealing.[18]

- **The salary schedule has no incentives for instructionally effective professional development.** Although the single salary schedule rewards teachers for obtaining academic credits and degrees beyond the bachelor's degree, most studies of the issue have not found evidence that these credits and advanced degrees contribute to raising student achievement, with the possible exception of high school math and science teachers.[19] As they currently operate, salary policies create no incentives for teachers to participate in professional development programs that are targeted to their own or their school's specific needs. In most places, teachers make independent decisions about what kinds of advanced study to pursue and are rewarded whether or not their choices are likely to make them more effective in the classroom. Not infrequently, for example, teachers receive pay raises for obtaining graduate degrees in administration, which may help qualify them for a career move out of the classroom but do nothing to boost their performance while they are still teaching.

- **The salary schedule rewards years of experience that do not translate into improved student learning.** Along with advanced credentials, the other factor that moves teachers into higher-paying cells on the salary schedule is years of experience in a district's schools. Research on the connection between teacher experience and effectiveness, however, suggests that experience leads to better student achievement only in the early years of a teacher's career. Just how much experience matters is unclear: Most researchers find that teacher effectiveness does not improve significantly after the first three to five years, while a few have found experience effects for a longer period, though not effects as large as in the first few years of teaching.[20] Salary schedules, however, generally reward experience for many years, as can be seen in the illustrative salary schedule in Table 1.

Some argue that the problem with teacher pay is not that pay is based on a single salary schedule but rather that teacher pay is too low. They call for across-the-board increases in pay. We believe that such increases are neither an efficient nor an effective way to address the shortcomings of the current teacher pay system. Raising pay for all teachers would be quite expensive and would be as likely to encourage ineffective teachers as effective ones to remain in the classroom.

Instead of across-the-board salary increases, we support paying selected teachers more in ways that directly address the problems with existing policies. We favor linking some part of pay to how effective a teacher is in raising measured student performance. As a later section shows, however, performance pay is a complicated issue and reform must be approached in a nuanced way that reflects the fact that much is still to be learned about how to design good plans. In addition to performance-based pay, effective teachers can also be rewarded through initiatives that redesign jobs to offer more defined career tracks, and year-round employment opportunities for individuals who want them. Pay that reflects different labor market demands for individuals with different areas of expertise would also be a clear improvement over current arrangements. *

A Comprehensive New Pay Structure: Denver ProComp

The only sizeable school district that to date has replaced, rather than supplemented, the single salary schedule for all new teachers (and for those veterans who opt in) is Denver. The district's new pay plan, Professional Compensation for Teachers (ProComp), therefore provides the best available evidence that pay reform is possible, even in a unionized setting. Denver also provides one example of how differential pay for various aspects of teacher practice and performance can be combined in a new salary structure.[21]

Although ProComp has its origins in union/district discord—a 1999 impasse during collective bargaining

* See Memorandum, p. 56.

over linking teacher pay to student achievement—it became a model of how teachers and administrators could work together to achieve meaningful compensation reform. The outcome of the 1999 negotiations was an agreement between Denver Public Schools (DPS) and the Denver Classroom Teachers Association (DCTA—a National Education Association affiliate) to pursue a four-year Pay-for-Performance Pilot. The pilot was led by a design team composed of two teachers and two administrators. The team arranged with the Community Training Assistance Center of Boston to evaluate the pilot. Based on the experiences of the design team and findings from the evaluation, DPS and DCTA concluded that compensation linked to student performance was feasible and acceptable to teachers but that a new teacher compensation agreement could not be based on student outcomes alone.

In 2001 DPS and DCTA formed a Joint Task Force on Teacher Compensation to design an equitable and affordable salary system for teachers based in part on student achievement. The task force had representation from a variety of stakeholders: teachers, principals, central office administrators and community members. The task force made draft recommendations in the spring of 2003, which were extensively discussed with teachers and others. Final recommendations were submitted to the DPS Board of Education and DCTA in early 2004 and a final plan was accepted in March. The next step was to win community support for a $25 million tax levy from voters to support the program. That step was also carried out through vigorous community interaction and engaged city leaders such as the mayor as well as school officials. Voters approved the levy in November 2005, and ProComp became mandatory for all teachers hired in 2006 and beyond. Teachers already in the Denver system had several windows during which they could choose to leave the traditional salary structure and opt into ProComp.

ProComp replaces the traditional schedule (which was shown in Table 1) with a new structure (see Table 2) that builds teachers' salaries off of a base index amount that increases over time as negotiated between DPS and DCTA. The base amount for individual teachers is originally established by human resources teams. Teachers can earn salary increases (i.e., permanent increases in their base amounts) and one-time bonuses through nine elements falling under four general headings:

- Knowledge and skills
- Professional evaluation
- Student growth, measured both for individual teachers and for whole schools
- Market incentives, for service in hard-to serve schools and hard-to-staff subjects

Denver demonstrates not only the careful and collaborative process that most experts think is necessary for salary reform to work but also that redesigning pay systems should be regarded as a process, not a one-time event. Denver was briefly in the news in the summer of 2008 when DPS and DCTA appeared to be heading to an impasse over changes to ProComp. District administrators wanted, in effect, to change the weighting of some of ProComp's elements, providing higher salaries for beginning teachers and increasing the amount of the market-based incentives. The union objected to changes before an evaluation report due in 2009 and also preferred that any increases be allocated to more teachers. Agreement was finally reached, but the episode showed how **new pay structures designed to mesh more closely with educational objectives will inevitably need to evolve and change as those objectives change.**

Denver's deliberate approach to reform provided ample opportunity to address the challenges that accompany efforts to design new forms of pay.

Performance-Based Pay*

Of the various new elements that might be included in a reformed teacher salary structure, creating a link between some part of teacher pay to improved outcomes for students is the most sensitive. CED has supported such a link for some time; in our 2004 report *Investing in Learning*, we said:

> CED believes that teachers (and other educators), like virtually all other professionals, should be evaluated on how well they perform on the

* By "performance-based pay" or "performance pay" we mean teacher pay that is linked to measures of student outcomes. Learning is the most important of these outcomes; related measures sometimes include attendance and graduation rates. "Performance pay" is sometimes used by others to refer to links between pay and teacher practice as measured by things like taking on additional responsibilities and working in hard-to-staff schools. We refer to this practice-related pay as pay linked to career paths, and labor-market-based pay, respectively.

Table 2 – 2008-2009 Denver ProComp payment opportunities

Component of Index $36,635	Knowledge and skills			Professional Evaluation		Market Incentives		Student Growth			
Element	Professional Development Unit	Advanced Degree and License	Tuition and Student Loan Reimbursement	Probationary	Non-Probationary	Hard to Serve School	Hard to Staff Assignment	Student Growth Objectives	Exceeds CSAP Expectations	Top Performing Schools	High Growth School
Description of Element	Providing ongoing professional development – tied to the needs of our students – is a central strategy to help you expand your skills, improve student performance, and advance your career with the district	Compensation for Graduate Degree or Advanced Licenses or Certificates	Reimbursement for tuition or for outstanding student loans	Increases for new teachers based on a satisfactory evaluation	Increases based on a satisfactory evaluation	Designed to attract teachers to schools with a high free and reduced lunch percentage	Designed to attract teachers to roles with high vacancy rate and high turnover	Incentive paid for meeting student growth objectives	Teachers whose assigned student's growth in CSAP scores exceed district expectations	Teachers in schools designated as a "Top Performing School" based on the DPS School Performance Framework	Teachers in schools designated as a "High Growth School" on the DPS School Performance Framework
Eligibility and Payout	Base building for 1st PDU earned in '08-'09 and any PDUs banked prior to 9/1/08. 2nd PDU earned in '08-'09 is paid as non-base building. See footnote for rules for banked PDUs and PDUs year	Paid upon receipt of documentation that the license or certification is active and current	Paid upon receipt of evidence of payment for and satisfactory completion of coursework; $4,000 lifetime account; no more than $1,000 per year	Requires satisfactory evaluation: If unsatisfactory, ineligible for CPE increase	Effective 2009-10 school year, element payable only to teachers who have a formal evaluation during service credit years 1-14	Teachers currently serving in schools designated "Hard-to-Serve"	Teachers currently serving in designated "Hard-to-Staff" positions	Base building when 2 SGOs are met, non-base building when only 1 SGO is met during prior school year	Paid based on assigned student CSAP growth percentiles. Paid based on results from prior school year	Paid based on performance during the prior school year	Paid based on performance during the prior school year
Affect on Base Salary	Base Building	Base Building	Non-Base Building	Base Building	Base Building	Non-Base Building	Non-Base Building	Base Building	Non-Base Building	Non-Base Building	Non-Base Building
Percent of Index	2%	9% per degree or license. Eligible once every 3 years	N/A	1% every year	3% every three years	6.4%	6.4%	1%	6.4%	6.4%	6.4%
Dollar Amount	$733	$3,297	Actual expense up to $1000/yr, $4000 lifetime	$366	$1,099	$2345 $195.39/ month	$2345 ($195.39 per month) x (# of assignments held)	$366	$2,344.64	$2,344.64	$2,344.64
Builds pension and highest average salary	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Payment Type and Frequency	Monthly installments upon submission of proper documents	Monthly installments upon submission of proper documents	Up to $1000 per year upon submission of proper documents	Prorated over 12 months. If unsatisfactory delayed at least 1 year	Prorated over 12 months. If unsatisfactory delayed at least 1 year	Monthly installment upon completion of service each month	Monthly installment upon completion of service each month	1 objective: Paid lump sum. 2 objectives: Paid in monthly installments	Paid lump sum in the year following assessment	Paid lump sum in the year following assessment	Paid lump sum in the year following assessment

Source: Denver Public Schools, Teacher ProComp Payment Table 2009, http://static.dpsk12.org/gems/newprocomp/ProCompPaymentTable2009Jan21.xls (accessed April 15, 2009).

> job. Some part of their pay should reflect this performance. Good teachers should be rewarded financially; ineffective teachers who are unable to improve should not only see poor performance reflected in their pay but ultimately should be removed from the classroom. We think that linking pay and performance is potentially one of the most important tools available to policy makers for encouraging strong candidates to enter teaching (knowing that effort and effectiveness will be rewarded) and effective teachers to remain in the classroom.[22]

We also noted, however, that previous attempts to implement performance pay in education, notably the "merit-pay" movement of the 1980s, were singularly unsuccessful and that the performance-pay policies which are widely used in the private sector are not immune to problems. We urged that performance pay in education "be approached with honest acknowledgement of the real challenges in implementing it."[23]

Events in the intervening five years give us **cause for hope that performance pay can become a constructive element in teacher compensation. Reformers must be careful, however, to avoid letting the idea's new-found political popularity get ahead of our technical knowledge about how to design and implement performance-pay designs.**

In this section we describe performance pay, report on a number of new efforts to incorporate performance pay into teacher compensation, note some encouraging ways in which these new efforts differ from earlier failed merit pay initiatives, offer some cautionary tales about how well-meaning performance-pay initiatives can go awry, and indicate how we believe schools and districts should approach performance pay going forward.

An Overview of Performance Pay

By performance pay we mean pay that rewards teachers' effectiveness as measured by improvements in student learning.

Table 3 outlines a number of ways that such rewards can be structured. Some indicators of performance are based on group measures and some on individual accomplishments. The performance reward strategies are not mutually exclusive and in fact are most likely to be effective when combined. While we believe that *student outcomes* should be the key element in teacher rewards, the table reflects the fact that various kinds of performance award programs have used an assortment of performance measures, including quantitative measures (e.g., student test scores, measures of attendance) as well as qualitative measures such as those resulting from classroom evaluations by supervisors or by peers as well as supervisors.

Table 3 also begins to suggest some of the potential pitfalls in fairly and accurately measuring teacher effectiveness. In fact, **measuring performance for the purpose of providing financial rewards raises many concerns about intended and unintended consequences.** Group awards (for example, to all the teachers in a school that is successful in raising student performance, or to all the teachers in a field of study where student performance improves) have the advantage of encouraging teachers to collaborate with one another. On the other hand, group awards are vulnerable to what economists call the "free-rider" problem; some teachers may not carry their weight but will be rewarded anyway if the group performs well. Individual rewards avoid this problem; but if the number of awards is limited, they can foster an undesirable competition among teachers and discourage individuals from helping each other to improve instruction. All performance measures based on student test scores raise questions about whether the reward system will encourage teachers to focus too narrowly on tested subjects and give short shrift to subject areas where standardized tests are not routinely given. Since many subject areas are not routinely tested (the federal No Child Left Behind law, for example, requires testing only in reading, mathematics, and science), test-based reward systems that do not reward an entire school have to address the question of how teachers in non-tested subjects can earn performance rewards.

Beyond these challenges, **the methodological issues in measuring student performance, whether for pay calculations or for other accountability purposes, are substantial**. It is widely acknowledged that simply measuring the level of student performance (e.g., how many students pass a test; what the average test score is) does not reflect teacher performance. Student performance is related to many factors besides what a teacher does. Test scores are highly correlated, for example, with family background variables that indicate relative socio-economic advantage and disadvantage.

Table 3—Illustrative ways of rewarding teacher performance

Performance Reward Strategy	Target: Individual Or Group	Illustrative Performance Measures	Possible Form of Reward	Strengths	Weaknesses
Whole-School Reward	Group	Student test scores Student attendance Teacher attendance Other?	Annual bonus	Reinforce collaborative effort	Limited empirical measures could result in narrowing of curriculum Free rider problem
Specialists/Teaching-Team Reward (e.g., All math teachers in a school, a district, a region, or a state)	Group	Student test scores Student attendance Teacher attendance Other?	Annual bonus	Reinforces collaborative effort Reduces free-rider problem	Limited empirical measures could result in narrowing of curriculum The larger the group, the more likely there is a free rider issue
Teacher Value-Added Reward	Individual	Student test scores	Annual bonus Base pay addition	Possibly enhances instructor motivation Ties reward directly to teacher impact on student achievement	Limited empirical measures could result in narrowing of curriculum Could foster dysfunctional competition
Teacher Appraisal-Based Reward	Individual	Peer or peer and superior appraisals of teacher performance	Bonus Base pay addition	Diminishes dysfunctional consequences of test score reliance	Few empirically validated appraisal dimensions Fear of favoritism and cronyism
Teacher Career Ladder	Individual	Peer or peer and superior appraisals of teacher performance Student test scores Student attendance Teacher attendance Knowledge and skills	Bonus Base pay addition	Rewards instruction Keeps strong teachers in the classroom by providing opportunities for promotion	Limited success in practice

Source: Adapted from Janet S. Hansen, "Measuring Teacher Effectiveness," presentation to the Research to Action Forum sponsored by the Regional Education Laboratory Midwest (January 24, 2007).

If just the level of student performance is considered, teachers who have more advantaged students in their classes would appear to be the most effective, when in fact a teacher with lower-performing students may have had more success in raising his or her students' achievement.

For such reasons, it is generally agreed that measuring gains in, rather than levels of, student performance is a fairer way of assessing the impact of teachers. The most desirable measure identifies the portion of that gain (the "value added") due to the teacher rather than to other influences.

But measuring value added involves additional methodological challenges. For one thing, teachers are not randomly assigned to schools or to classrooms within schools. Instead, the students in a teacher's classroom may reflect things like teacher preferences to teach in schools with lots of high-performing students or parents of higher achieving students successfully influencing schools to assign their children to certain teachers. In addition, it is technically and conceptually difficult to separate the effects of individual teachers from the effects of other inputs to the educational process, including the background characteristics of students and their families. Finally, there are serious problems of statistical measurement error that can make estimates of teacher effects, especially over a short period such as just one year, imprecise.[24] Measurement error, which can result in rewarding the "wrong" teachers, is a concern in both individual and group award plans.

Education is not alone in facing challenges when attempting to use quantitative measures to reward employee performance. Richard Rothstein has identified numerous instances (in health care, job training, and Soviet-era economic planning, to name a few) when financial incentives rewarding certain behaviors distorted program goals and sometimes led to corruption. He provides many examples of the operation of Donald T. Campbell's "law" of performance measurement:

> The more any quantitative social indicator is used for social decision-making, the more subject it will be to corruption pressures and the more apt it will be to distort and corrupt the social processes it is intended to monitor.[25]

In the private sector, Beer and Cannon note a widespread and growing use of pay-for-performance plans but also tell the story of one company, Hewlett-Packard, that tried and then abandoned such plans in the 1990s for reasons not unique to that organization.[26] Others have also commented on difficulties in implementing private-sector performance-pay schemes.[27]

A number of initiatives are underway around the country that can provide evidence we currently lack about how to design pay plans that reward teachers for genuine effectiveness and in which teachers will have confidence.

Current Performance-Pay Initiatives

A handful of states and districts have had performance-pay plans in place for a number of years. Dallas, Texas, initiated an accountability and incentive system in the 1991-1992 school year that ranked schools annually based on improvements in students' test performance (as well as some non-test measures such as attendance) and provided financial bonuses for all the staff in the highest performing schools. North Carolina's "ABCs of Public Education" program, launched in school year 1996-97, included among its features pay bonuses for staff in schools that exceeded expectations for the performance of their students.

The last several years, however, have seen a surge of interest in such plans, especially notable among state and federal policy makers. In addition to the performance-pay component of Denver ProComp, some other prominent examples of initiatives that focus on or include performance pay include:

Houston Independent School District ASPIRE program. Houston operates the nation's largest district-level performance-pay program. Launched in 2006 and now part of a larger comprehensive education initiative called ASPIRE (Accelerating Student Progress, Increasing Results & Expectations), the ASPIRE Award Program rewards teachers based on improvements in student test scores. All teachers and support staff are eligible for awards. The program includes both individual teacher and school-wide bonuses. Nine different "sections" or types of teachers and staff are identified, based on responsibilities; individuals in each section are eligible for one or more "strands" of awards. So, for example, teachers of core

subjects who lead self-contained classrooms in grades 3-6 are eligible for all strands of awards (including both individual and school-wide bonuses), while non-core teachers (for example, those who teach elective subjects) are only eligible for school-wide bonuses. For results in school year 2008-09, a teacher eligible for all award strands could receive as much as $10,300. Funds for the bonuses come from local, state, federal, and foundation sources.[28]

Florida Merit Award Program. In its latest effort to create performance pay for teachers (more on this history below), Florida established the Merit Award Program (MAP) in 2007. Districts who choose to participate and meet program guidelines can receive funds from the state for teacher bonuses. All instructional staff and school-based administrators are eligible for awards that must be based primarily on student performance as measured by standardized tests. Principal evaluations can also be considered. Districts can reward teacher teams as well as individual teachers, and districts can determine student performance using both learning gains and proficiency levels (that is, student achievement at one point in time). Bonuses can amount to 5 to 10 percent of the average teacher salary in each district, which means that less-experienced teachers with lower salaries can earn proportionately higher awards. Interestingly, Florida districts are subject to a previous state law requiring them to base a portion of teacher pay on teacher performance, whether or not the district participates in MAP. Nonparticipating districts do not receive state funding for performance pay.[29]

Minnesota Quality Compensation for Teachers (Q-Comp) program. Approved by the Minnesota Legislature in 2005, QComp is a voluntary program that allows school districts and teachers to receive state funds to implement locally designed and collectively bargained compensation plans that include five state-mandated components. These components are (1) career ladders/advancement options; (2) job-embedded professional development; (3) teacher evaluation; (4) performance pay based in part on student academic achievement; and (5) an alternative salary schedule. The state provides $169 per student to each participating district to implement QComp; the district has the option of providing up to $91 per student more by implementing a special levy. As of March 2009 44 out of 339 school districts and 27 charter schools had received state approval to implement the program, according to a Minnesota Department of Education press release.[30]

Texas Governor's Educator Excellence Award Program. Texas's governor launched the state's current performance-pay initiative in 2005 with an Executive Order committing at least $10 million annually from federal education dollars allotted to Texas to a three-year grant program (Governor's Educator Excellence Grant—GEEG) providing performance pay for teachers in eligible schools. The latter were high-performing schools serving high percentages of economically disadvantaged students. Of 100 eligible schools, 99 participated in the program, which ended in 2007-09. Meanwhile, the Legislature approved a similar, larger program (Texas Educator Excellence Grant—TEEG) to provide state awards to eligible schools, and a district-oriented program (District Awards for Teacher Excellence—DATE) in which all districts in the state may participate. Both TEEG and DATE require that a majority of program funds be used for teacher bonuses based on student achievement. Schools and districts develop their own plans following state guidelines. Participating DATE districts (203 of 1031 in 2008-09) are responsible for a 15 percent match in funds or in kind. Through GEEG, TEEG, and DATE, the state has as of 2009 provided approximately $247 million for schools and districts to develop performance-pay plans, making Texas's statewide performance-pay efforts the largest in the nation.[31]

Federal Teacher Incentive Fund Program. In 2006, the federal government established the Teacher Incentive Fund (TIF) program to support the development and implementation of performance-based teacher and principal compensation systems in high-needs schools (based on measures of student poverty). States, school districts, charter schools, and partnerships including states and/or districts and one or more non-profit groups may apply. Grants can be made for up to five years. Grant recipients develop their own compensation systems, but performance-based compensation must be based primarily on student achievement. Over the period of the grant, grantees are expected to pick up an increasing share of the costs of differential compensation. As of March 2009 34 TIF grants have been made, some to large districts amounting to over $20 million for five years. The fiscal stimulus bill approved by Congress in February 2009

includes a sizeable increase in TIF funding. In addition to providing TIF grants, the federal Department of Education also created the Center for Educator Compensation Reform to provide technical assistance to TIF grantees and an online repository of information and tools to help in the design and implementation of compensation reform programs and practices.*

Why Performance Pay Could be More Successful this Time Around

One of the obstacles to widespread adoption of performance pay in education is the fact that there are still a lot of people who remember the singularly unsuccessful efforts to implement "merit pay" in the 1980s. The 1983 federal report *A Nation at Risk* condemned the quality of American schools in strong language and called, among other things, for performance-based pay.[32] In its wake, a number of districts adopted some form of merit pay. Most of these initiatives were short-lived. The few that survived tended to evolve into rewards for teachers who took on extra work rather than those who performed best. Merit pay developed a terrible reputation among teachers. The plans suffered from problems establishing criteria for teacher effectiveness; a belief that awards were made on unfair and arbitrary grounds; fears that pay bonuses, which were often restricted to a small proportion of teachers, would lead to competition rather than teamwork; and unstable and unreliable funding, which bred cynicism about how important pay for performance programs really were to the administrators and policy makers who adopted them.[33]

Researchers at Vanderbilt University who are studying the new round of performance pay initiatives believe that there are a number of differences between the 1980s merit pay programs and more recent initiatives that could increase the chances that the new plans will have a permanent effect on the structure of teacher pay. Table 4 captures these differences.

Several points in this table are noteworthy. The 1980s efforts were fragmentary, involving a small number of districts, while current initiatives have garnered more widespread interest. Significantly, progress has been made since the 1980s on developing both quantitative and qualitative measures of student learning, although more remains to be done. The absence of measures that teachers perceived as fair and objective was a key weakness of the "merit-pay" era. In recent years, some teacher union affiliates at the local level have been willing to work collaboratively with district officials on performance-pay designs, sometimes in the face of opposition from national union leaders.[34] Growing numbers of teachers, especially younger ones, appear to be favorably inclined toward performance pay. When asked about "merit pay" in a 2003 Public Agenda survey, for example, younger teachers were less concerned than their older peers that such pay would result in principals playing favorites or school climates that were more competitive than collaborative. Younger teachers were also noticeably more receptive to merit pay based on principal evaluations, though they shared with older teachers a distaste for financial incentives for teachers whose students routinely scored higher than similar students on standardized tests.[35]

Cautionary Tales About Performance-Pay Initiatives

Nevertheless, it is no sure thing that attempts to make teacher pay more reflective of teacher effectiveness will ultimately be more successful this time. **Poorly designed and/or poorly implemented performance-pay plans may squander support for reforms and cause them to go the way of "merit pay."** Evidence from two of the high-profile performance-pay efforts described earlier highlights the danger and demonstrates the need to design performance-pay plans carefully and collaboratively and to be open to mid-course corrections when initial designs prove problematic.

The Houston Independent School District's new pay plan had a rocky beginning.[36] It was planned over a relatively short one-year period, largely within the HISD research department. Although teacher input was solicited, teacher representatives did not view their involvement as authentic and perceived the district as taking a unilateral, top-down approach to development. Within the district administration itself, the development process did not involve meaningful communication or collaboration among central office departments, so there was little sense of shared ownership of the new initiative.

* The center's extensive array of information on educator compensation is online at http://www.cecr.ed.gov.

Awards were initially made on the basis of complex, internally-derived value-added calculations of student achievement with apparently little effort during the design phase to ensure that teachers understood how the bonuses were determined. The first set of awards in January 2007 engendered a great deal of bad publicity and bad feeling. Teachers, especially those who did not get awards or who were ineligible for individual awards, viewed the new plan as divisive and unfair. Teachers with little quantitative background did not understand the award formula. Teachers could not get access to the data that formed the basis for award decisions, even though some who did not get awards compiled evidence from sources that seemed to show their students had performed better than those of some award winners. A local newspaper took advantage of open records laws and posted individual awards by name on its website, sometimes even before individual teachers had been notified. Due to a computational error, some part-time teachers were mistakenly awarded bonuses, part of which they later had to repay.

Houston has moved in subsequent years to address many of these issues. Communication efforts were stepped up. The superintendent clarified that teachers could opt out of the program if they wished. The district formed an advisory panel of teachers to work with district officials and national experts to improve the performance-pay design. The district replaced its own value-added calculation with the nationally-known Educational Value-Added Assessment System (EVAAS) developed by Dr. William Sanders. A revamped performance-pay program, the ASPIRE Award Program, was adopted by the school board in September 2007. It moved away from its predecessor's individual award emphasis to include group awards as well, which widened the pool of eligible bonus winners to include teachers and other instructional staff for whom individual student achievement scores were not available. The district sought foundation funding to help to develop and manage the student achievement data for determining awards, to develop better information and communication channels, and to train teachers and administrators on how to use performance data to inform planning and instruction.

Houston's experience launching a performance-pay plan gave the district important insights into **the**

Table 4—Merit pay and performance pay comparisons

Characteristics of Reform Effort	1980s Merit Pay	2000s Performance Pay/Strategic Compensation
Locus of Initiative	Local School District Administration	Local, State, Federal Policy and Foundation Agendas
Inducements	Rhetorical/Bully Pulpit	State, Federal, and Philanthropic Cost Sharing
Politics	Local	High Politics (Executive, Legislative, and Party)
Performance Measurement	Idiosyncratic/Subjective	Generally Objective (e.g., State Standards/ State Assessments)
Union Posture	Strongly Opposed	Mixed
Reward Target	Individual Educators	Individuals and Groups
Reward Amount	Often Trivial	Trivial to Quite Significant
Magnitude	100 Local Districts	20+States/1,500+ Local Districts
Public Visibility	Low	Moderate and Increasing

Source: James W. Guthrie, Patrick J. Shuermann, and Peter J. Witham, "Strategic Compensation: A National Perspective," presented to the District Award for Teacher Excellence Grantees Conference, Austin, TX (November 2-3, 2008).

importance of communication, of balancing transparency and complexity in developing understandable and fair award formulas, and of making clear how performance pay fits as part of a larger effort to improve teacher quality.

Florida's recent history offers another cautionary tale about the perils of creating performance-pay plans that appear hastily designed and that garner little support from teachers and administrators.[37]

State legislators passed laws in the late 1990s that required districts to evaluate teachers annually and to use evaluations based primarily on student learning gains to award bonuses. Districts were given substantial flexibility in designing their programs, but they had to provide bonuses worth 5 percent of a teacher's individual salary. Bonus money had to come from existing district personnel funds; no state dollars were provided for the extra pay.

In February 2006 the state education commissioner, unhappy about district resistance to meeting the statutory requirement for teacher bonuses, presented a plan called E-Comp to the state Board of Education, spelling out how districts should implement the existing performance-pay requirement. The board adopted E-Comp as an administrative rule. E-Comp called for identifying outstanding teachers based solely on student learning gains using where possible the Florida Comprehensive Achievement Test (FCAT). Districts had to award bonuses worth 5 percent of pay to at least 10 percent of teachers. The commissioner planned to ask the state for $55 million to implement the program but stated that districts would have to fund the program themselves if state funding was not forthcoming.

E-Comp was never implemented. A number of objections immediately arose. Teachers complained about the lack of stakeholder involvement in designing the program and about its reliance on the FCAT. They also objected to the arbitrariness of the decision to reward 10 percent of teachers. Administrators noted that the program rules gave them only about four months to develop a local plan, negotiate it with the teachers union (under collective bargaining requirements), and seek and receive state approval.

By May 2006 the legislature had acted to replace E-Comp with the Special Teachers Are Rewarded (STAR) program. STAR reduced the reliance on the FCAT by giving a greater role to principal evaluations and extended the timeline for districts to develop and negotiate local plans. STAR increased the proportion of teachers to be rewarded from 10 to 25 percent, although it kept the mandate that bonuses be worth 5 percent of salary. The legislature appropriated $147.5 million for STAR awards in the 2006-07 state budget, although funding to districts was contingent on having a state-approved plan.

By the time initial district plans were due to the state in March 2007, one-third of the state's 67 districts had rejected the program and another 15-20 had submitted plans that their teachers had rejected in order to qualify for state funds. Since STAR required districts to base at least 50 percent of teacher performance evaluations on student learning gains, districts had to figure out how to determine performance for teachers of courses where FCAT or other readily-available standardized tests were unavailable. This meant developing many new tests (FCAT applied to only about half the teachers in the state) and quickly evaluating test validity and reliability, which created problems for many districts. Teachers and their unions objected to what they saw as an ever heavier reliance on testing and worried that STAR would encourage competition and discourage collaboration among teachers. Some districts felt that the revisions included in STAR still failed to give them sufficient discretion to design local plans.

Even as the state was allocating the first STAR funding to districts with approved plans in March 2007, the lack of support for the new program led the legislature to pass the Merit Award Program to replace STAR. Districts were given the option to participate in MAP, although they would not receive state funding for performance pay if they did not. MAP also gave districts more flexibility in deciding on the size of bonuses and the proportion of teachers to be awarded and allowed them to reward teacher teams as well as individual teachers. While some additional flexibility was included in terms of how test performance would be measured, the proportion of a teacher's bonus that would be based on student achievement was raised to 60 percent.

Despite the changes from STAR to MAP, performance pay has continued to be unpopular with many Florida teachers; and districts have continued to struggle with

implementation and uncertainties over state funding. A recent study commissioned by the state Board of Education to help it cope with the current fiscal crisis reported that in February 2009 only 5 of 67 public school districts, along with 218 of 358 charter schools, had submitted compliant plans to the state.[38] The report recommended that the legislature consider further alterations to the program, including providing state bonuses directly to teachers as opposed to making bonuses contingent on districts' ability to negotiate performance-pay arrangements with their unions. The authors also recommended allowing districts to replace state bonuses with awards of their own design if they could reach acceptable agreements with their local teachers.

While progress toward performance pay in Florida has been slow, it is worth noting that all Florida districts remain under a requirement to include consideration of performance in their teacher pay plans. Several large districts (e.g., Hillsborough County, including Tampa, and Duval County, including Jacksonville) have MAP-approved plans, and others have performance-pay arrangements but do not participate in MAP.

These kinds of experiences cause us and many others[39] to believe that **successfully linking pay to performance in education must still be understood as a work in progress that requires much more experimentation with alternative pay design, careful evaluation, and an implementation process compatible with adaptation and continuous improvement of performance-pay plans. The effort is worth it, as the limited research available to date supports the idea that performance pay can lead to better learning outcomes for students.**[40]

Moving Forward with Teacher Performance Pay

Despite some stumbles, recent experience provides encouraging evidence that some states and districts are finding ways to make student learning a factor in determining teacher pay. Modified or alternative salary structures are still, however, the exception rather than the rule. In the 2003-04 school year, only 8 percent of districts reported using incentives to reward excellence in teaching.[41] The number is certainly higher now, but **many districts still need to move away from their narrow focus on years of experience and academic credentials in determining teacher pay.**

As they do so, they can learn from the experiences of states and districts already implementing performance pay, both in terms of program design and in terms of political lessons such as the importance of working with teachers from the beginning in developing new pay arrangements.

We are struck in particular by an important finding from the academic research on the use of value-added test scores for determining teacher pay. As noted earlier, this research indicates that **student test scores are "noisy"* and therefore are unstable measures of individual teacher effectiveness when considered over a short period like a year. This raises questions about the desirability of basing individual teacher pay on single-year measures of student performance. Over several years, however, test scores become more stable and reliable indicators of which teachers are successful in improving student achievement.**

We also note that our own experience in business and academia, where qualitative as well as quantitative evaluations of individual performance are common, aligns with research findings that the most and the least effective teachers as verified by student test scores can be identified through more subjective principal evaluations.[42] Such evaluations, whether conducted by principals or by other administrators or teachers, have the added advantage of being able to take into account a broader range of teacher performance and educational objectives than test-score performance alone. The narrowness of test scores is a major reason why teachers often object to performance-based pay.

These findings suggest that **multi-year assessments of teacher performance based on both student achievement results and qualitative evaluations could be more effective (and less controversial) methods of rewarding individual teacher performance than programs that rely solely on year-to-year changes in student test scores**. We propose in the next section one approach to building such elements into a new pay structure designed around more explicit teacher career paths.

* Statisticians refer to data as noisy when the data are characterized by a large amount of random error rather than systematic relationships among the variables being studied.

Pay Linked to Career Paths

One long-standing observation about the career of teaching is that it is flat—"a teacher is a teacher." **Regardless of how long an individual has been on the job or how effective he or she is, a teacher generally cannot receive formal recognition and pay for professional advancement without leaving the classroom for an administrative position.** While individual teachers may be able to qualify for supplementary payments for taking on extra responsibilities such as mentoring new teachers, an individual entering the profession has no clear pathway to advancement if he or she wants to remain in the classroom.

In the private sector, white-collar workers often are rewarded for strong performance by being promoted, rather than through annual performance-pay increments tied to specific quantitative measures of results.[43] **Developing career paths along which teachers could progress based in part on both qualitative and quantitative measures of their performance over time is a promising way to address both the flat-career problem and the limitations of one-year test scores as measures of how effective a teacher is in improving student learning. This could be a means of significantly raising pay for high-performing teachers while not resorting to inefficient and expensive, but all too often used, across-the-board pay increases.**

A reform with some of the characteristics of what we are proposing was undertaken in a number of states in the mid-1980s under the label "career ladder." At least six states* launched programs that created career steps for teachers based in part on evaluations of their teaching.

For the most part, these programs either failed to survive or did not become significant alternatives to the single salary schedule. State unwillingness to provide sufficient funding for all the steps was one reason. In addition, teachers were often skeptical of the appraisal systems being used. North Carolina and Texas never fully funded their programs and had ended them by 1994. Tennessee's program was gone by the late 1990s and never succeeded in its intention of including student achievement in the evaluation of teachers.[44] Missouri's program continues, but it does not replace the single salary schedule for participating teachers. Rather it operates more as a vehicle for giving teachers supplementary pay for extra work or for participation in career development activities. Although the program appears linked to performance in that teachers are evaluated for promotion up the ladder, which qualifies them to take on additional responsibilities at higher rates of pay, in fact almost all the career-ladder teachers are given supplemental pay based on their performance evaluations.[45] Arizona's ongoing career ladder program does replace the traditional salary schedule for participating teachers and requires student achievement to be a factor in teacher promotion. Only 28 of more than 200 school districts participate, however. Apparently at least in part for funding reasons, no new districts have been allowed into the program since school year 1993-94.

Lessons can be learned from the career ladder movement about how to design more effective and sustainable career path programs for teachers. The well-known Teacher Advancement Program (TAP), while not replacing the traditional salary structure, uses career paths as one component of its school reform model designed to "attract, retain, develop, and motivate talented people to the teaching profession." TAP schools currently serve over 70,000 students and 6,000 teachers (See Figure 2).[46]

Interest in developing career paths for teachers is also growing internationally. Singapore has proceeded further than most in developing a system of career tracks as part of a more comprehensive approach to attracting, recognizing, and rewarding high-performing classroom teachers (See Figure 3).

Jack Dale, the Superintendent of the Fairfax County (VA) Public Schools, advocates a somewhat different and interesting approach to teacher pathways. In his district he has launched a pilot program that embraces **full-year jobs for teachers who want and qualify for them.** Dale argues:

> Teaching is a full-time profession and can no longer be viewed under an 'hourly' employment paradigm of so many hours per day and so many days per year… The new model I propose is based on teachers' *opting for and being selected into* one of many role options. The options include not only the current

* Arizona, Missouri, North Carolina, Tennessee, Texas, and Utah.

> set of teaching responsibilities—the traditional role—but also an additional set of role options that would form the core of the redesigned school system[47] (emphasis added).

In Dale's plan, there would be different work calendars for different roles, but all except the traditional role would make teaching a year-round occupation, with 11 months on duty and a month off. New roles include, in addition to normal teaching duties, such things as "school-improvement teacher leader" (sharing leadership responsibilities with the principal); "new-teacher trainer/mentor" (training new teachers before school starts and mentoring new staff during the school year); and "student-transition leader" (analyzing individual students' academic and social progress and coordinating support service for children needing extra help).

Dale sees these new roles flowing from a new view of school structure that emphasizes a shared-leadership rather than a traditional hierarchical model. The new model would give teachers more formal responsibilities as leaders and decision-makers within their schools. Dale believes that such **a wholesale restructuring of teacher work and compensation, rather than the typical piecemeal changes, are necessary for schools to operate effectively in today's high-stakes, high-standards-for-all environment.** He also argues that a reorganized school structure is needed "if we hope to compensate professional teachers for the full-time set of duties that are now part of the profession."

Opportunities for promotion within teaching and for year-round employment are important approaches worth trying. **A desirable teacher compensation system is not just one that appeals to individuals currently attracted to teaching, but one that will draw in other talented individuals who may now shun the profession because of its limited opportunities for advancement and for pay commensurate with full-year responsibilities.**

Figure 2—The Teacher Advancement Program (TAP)

TAP is "a multi-faceted strategy that *restructures* schools in order to improve the teaching profession." The program was created by Lowell Milken and the Milken Family Foundation in the late 1990s in response to a "teacher quality crisis" that promised to leave too many students without the talented teachers needed to provide a high-quality education to all children. TAP takes a comprehensive approach to improving the teaching workforce. Although participating schools adapt the program to their individual needs, TAP emphasizes four key elements:

- Multiple career paths
- Ongoing, applied professional growth
- Instructionally focused accountability
- Performance-based compensation

TAP teachers are classified as career, mentor, and master teachers. Mentor and master teachers are chosen through a competitive, performance-based process. They take on additional responsibilities and authority and are expected to work a longer school year. They are held to higher performance standards than are career teachers, which is reflected in higher compensation levels.

Source: Teacher Advancement Program website, http://www.talentedteachers.org (accessed March 31, 2009).

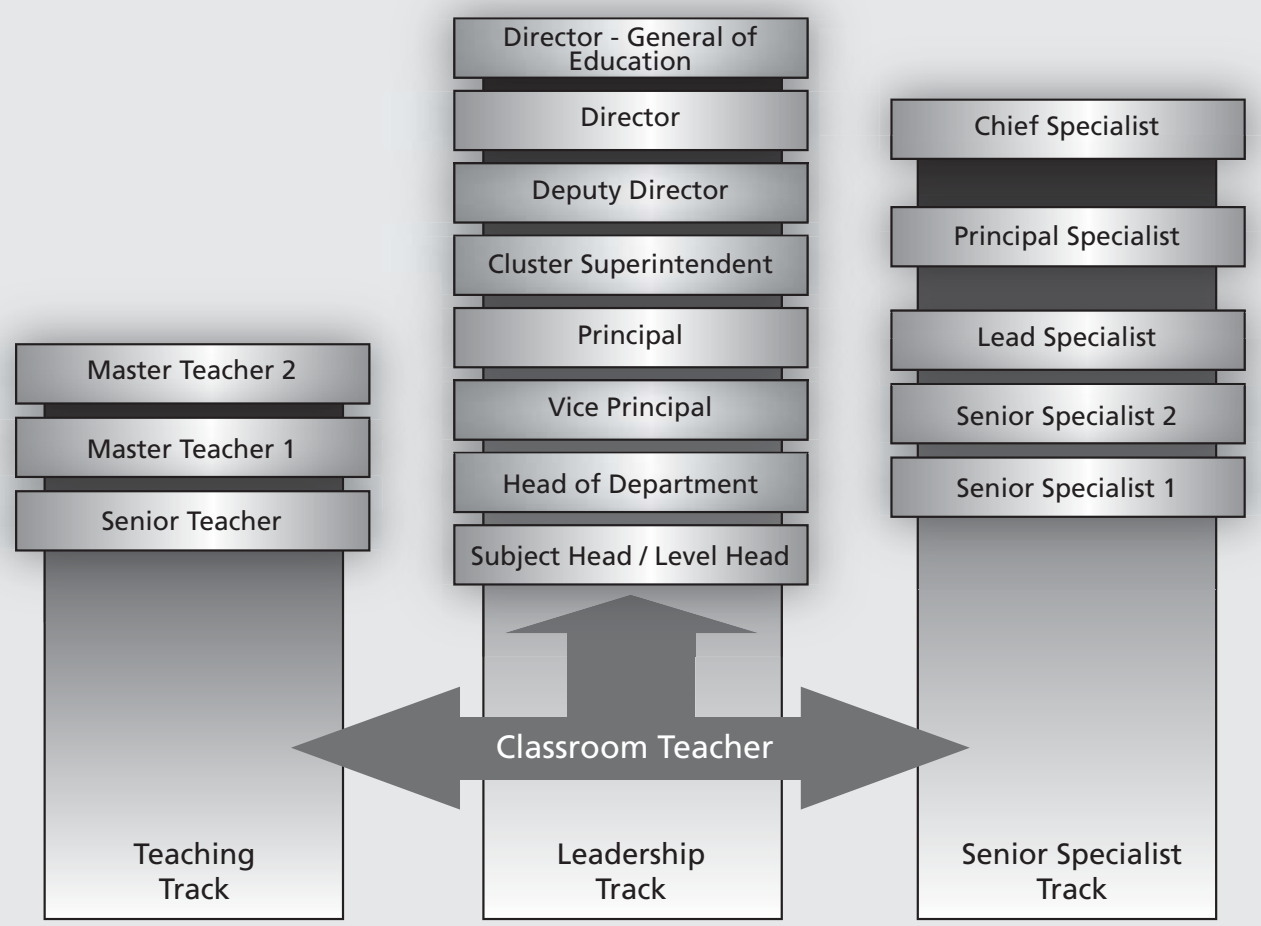
Labor-Market-Based Pay

By labor-market-based pay, we mean pay that is responsive to labor market realities such as differential demand for and supply of teachers by subject area and differential preferences by teachers for where they teach. As various observers have noted,[48] **the effects of differences in supply and demand in teacher labor markets cannot be wished away. If pay policies do not take them into account, labor market realities will be reflected in other ways, most likely by reducing the quality of teachers available for different assignments.** Though teachers often argue that they are all underpaid and that across-the-board raises are needed, our assessment of the available evidence is that there is not a uniform, pervasive mismatch between the supply of and demand for teachers. Instead, shortages are more localized in nature and disproportionately characterize some schools and some subject areas.[49]

A number of districts are trying out ways of using bonuses and incentives to attract the teachers they require and place them in the schools that most need

Figure 3—Career tracks in Singapore

The Singapore Ministry of Education has created three career tracks for teachers to recognize that they have different aspirations. Individuals who want to remain in the classroom can follow the teaching track and become senior or master teachers. The leadership track leads to positions within schools and the Ministry. The specialist track is designed for those interested in developing deep knowledge and skills in such areas as curriculum and instructional design or educational testing and measurement. Those in the Master Teacher 2 category can earn a salary equivalent to a school vice-principal. Individuals can move laterally across the career tracks if their interests change and they satisfy the criteria for the new position.



Sources: Singapore Ministry of Education website, http://www.moe.gov.sg/careers/teach/career-info/ (accessed March 31, 2009); Lynn Olson, *Teaching Policy to Improve Student Learning: Lessons from Abroad* (Washington, D.C.: Aspen Institute, February 2006), http://www.aspeninstitute.org/sites/default/files/content/docs/education%20and%20society%20program/Ed_Lessons_from_Abroad.pdf (accessed March 10, 2009)

them. Two districts in North Carolina illustrate some of the possibilities (see Figure 4).

More initiatives are needed, however. Current efforts are too few, are sometimes poorly targeted, may not involve enough extra pay to change teacher behavior, and may not be sufficiently well coordinated with other improvements, especially in working conditions, that have been shown to matter to teachers.

The Incidence of Market-Based Pay

The latest national data on the incidence of market-based pay comes from the federal Schools and Staffing Survey for school year 2003-04. At that time only 12 percent of public school districts reported that they used pay incentives to recruit or retain teachers to teach in fields of shortage (see Figure 5). Just 5 percent used pay incentives to recruit or retain teachers to teach in a less desirable location. This was true at the same time when a quarter or more of schools were reporting that they found it very difficult or impossible to fill vacancies in certain fields, including special education, mathematics, physical sciences, English as a Second Language, foreign languages, and vocational or technical education.[50]

This disparity suggests that **many more districts should be using market-based pay to obtain high quality teachers in all fields and classrooms.**

State as well as district policy makers can sponsor market-based incentives. According to the National Council on Teacher Quality, in 2008 22 states had differential pay programs for teachers in high-needs schools, and 20 states offered differential pay in shortage subject areas.[51] In California, for example, teachers who have won certification from the voluntary National Board for Professional Teaching Standards (NBPTS) can receive bonuses of $20,000, allocated over 4 years, for working in a teacher leadership position in a low-performing school. Under New York State's "Teachers for Tomorrow" program, districts that have low-performing schools or that are experiencing teacher shortages can apply for state grants for Master Teachers and/or Recruitment Incentives. Master Teachers must be NBPTS-certified and must agree to serve in a low-performing school for three years. They receive a $10,000 bonus annually. First-time teachers in a district who agree to teach in a shortage area can receive $3,400 per year, renewable for three additional years.

Targeting Labor Market Incentives

The fact that a number of states report that they are providing targeted incentives is encouraging, but **the financial incentives used to recruit and/or retain teachers are not always well focused on schools and subject areas with shortages.** North Carolina, for example, which provides pay supplements of 12 percent of salary to NBPTS teachers, does not require these teachers to undertake any special responsibilities. Researchers have found that schools in the state serving the most advantaged students have more than twice the percentage of board-certified teachers than do schools serving the highest-poverty schools. Thus the state salary supplement does nothing to encourage certified teachers to work in schools where effective instruction is most needed.[52]

Just as across-the-board pay hikes are unlikely to be efficient and effective ways of meeting teacher quality objectives, poorly targeted labor market incentives will consume public funds without improving the instruction students receive.

The Adequacy of Pay Incentives

Many incentives used by districts and states to address hiring difficulties in hard-to-fill subjects and in hard-to-staff schools may be too low to be effective. There are no reliable national data on the level of labor market incentives currently being offered, but in many cases they appear to amount to a few thousand dollars at best.

Research suggests that larger incentives may be required to change teacher behavior and/or to attract individuals into teaching who currently choose other occupations. According to one summary of the literature,[53] low salaries discourage many majors in so-called STEM subjects (science, technology, engineering, and math) from considering teaching careers. The difference between the private sector salaries and teaching salaries for math and science teachers is much greater than it is for teachers in other fields. Gaps grow as graduates are employed for longer periods of time. Whereas teachers with similar experience earn the same salaries no matter their field of expertise,

Figure 4—Incentive pay in two North Carolina districts

North Carolina prepares many fewer teachers in its teacher training institutions than it needs to hire each year, so the state must attract teacher candidates from elsewhere. Furthermore, most of its districts are geographically large, with multiple and diverse schools. These districts must be concerned about how to encourage teachers to work where they are most needed, which frequently means attracting them to the most educationally challenged environments.

Guilford County (which includes the cities of Greensboro and High Point as well as many rural areas) faced challenges in hiring staff for some schools and subjects. For example, in 2005-06 one middle school had no certified math teachers on its staff. The county launched its "Mission Possible" program as a three-year pilot in the fall of 2006. Mission Possible schools are identified on the basis of student poverty, high teacher turnover, and low school performance. Teachers at these schools can earn both recruitment and retention bonuses as well as performance incentives. The former range from $2,500 to $10,000 annually depending on the position. The highest recruitment/retention bonuses go to Algebra I teachers and high school principals. Performance incentives range from $2,500 to $5,000, depending on the position and how well students perform. Teachers are eligible for either $2,500 or $4,000 bonuses depending on whether their students show learning gains at or above the district means. Principals and curriculum facilitators earn bonuses if the school meets its Adequate Yearly Progress goals under the federal No Child Left Behind Act.

Charlotte-Mecklenburg Schools (CMS) has consolidated several performance-pay and bonus programs into a more comprehensive, performance-based incentive system called Leadership for Educator's Advanced Performance. LEAP focuses on high-needs schools where student performance is low and teacher and principal turnover is high. Teachers and principals at LEAP schools can earn merit-based salary supplements worth up to 10 percent of salary annually based on reaching student achievement goals. These goals are established by individual teachers, with school and district approval. Existing assessment instruments (including North Carolina's statewide standardized tests) and teacher-designed tools are used to measure student achievement. To win performance-based awards administrators and teachers are also evaluated using specified appraisal instruments. In addition to performance-based pay, teachers and principals can earn a $10,000 signing bonus for accepting positions in hard-to-staff, high-need schools; teachers who agree to teach hard-to-staff subjects can earn an $8,000 signing bonus. In addition, LEAP teachers and principals can earn incentive stipend pay of $115 per day for attending approved professional development activities or assuming leadership roles and extra duties related to improving student achievement.

CMS has partnered with the Community Training and Assistance Center (CTAC) in Boston in developing LEAP. CTAC brings expertise and guidance to the design process and conducts independent evaluation and assessment services for the project. CTAC evaluated the Denver performance-pay project that eventually led to the district-wide ProComp program.

Sources: Cortney Rowland, "Mission Possible: A Comprehensive Teacher Incentive Program in Guilford County, North Carolina," Center for Educator Compensation Reform (April 2008), http://www.cecr.ed.gov/guides/summaries/GuilfordCountyCaseSummary.pdf; "Community Training and Assistance Center and the Charlotte-Mecklenburg Schools Leadership for Educator's Advanced Performance" program description, Center for Educator Compensation Reform, http://www.cecr.ed.gov/initiatives/profiles/pdfs/CommunityTrainingandAssistanceCenter.pdf (both accessed April 15, 2009).

one researcher found that, in the private sector, 1994 graduates with technical majors earned about $11,000 annually more than graduates in other fields. Another researcher surveyed undergraduate majors and pre-majors in science, math, and technology and found that entry level teacher salaries would need to be 25 percent higher to attract 20 percent of the respondents to consider teaching.

Likewise, researchers who have looked at how large pay increases would need to be to overcome teacher reluctance to work in hard-to-staff schools suggest that the incentives would have to be sizeable. Some have proposed that the incentives would have to amount to 15 to 20 percent of pay; others have indicated that to attract teachers to schools with a high proportion of students who are academically very disadvantaged and either black or Hispanic might require as much as 50 percent more pay than for teachers in schools with predominantly white or Asian, academically well-prepared students.[54]

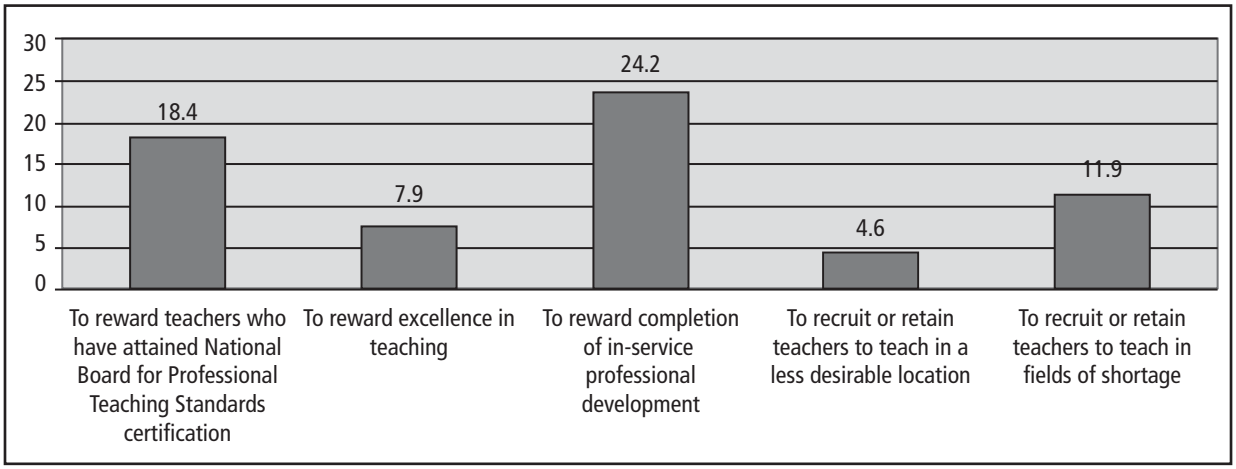
How pay incentives are structured is also likely to influence their effectiveness. Although some districts and states are beginning to offer sizeable incentives, as much as $10,000 to $15,000 for math and science teachers, these incentives are generally made available through one-time bonuses rather than regular additions to salary. Sometimes the bonuses require the teacher to remain in a designated assignment for three years.[55] Such programs may help alleviate shortages, but are unlikely to solve them.

Districts occasionally boost the salaries of teachers in shortage fields by initially placing them at a higher step on the salary schedule than the teacher's experience level would warrant. This is one way of providing a permanent boost in pay for selected teachers, although it does not amount to an increase as large as the research cited above suggests may be needed.

At this point, the research base is insufficient to indicate just how large pay increases would need to be to attract high quality teachers to hard-to-staff schools and in hard-to-fill subjects. The answer is likely to vary according to the specific circumstances of different school districts and labor markets.

We urge districts and states to be bolder in addressing differential pay and to evaluate carefully the

Figure 5 – Percentage of public school districts that used pay incentives for various reasons, 2003-04



Source: National Center for Education Statistics, Schools and Staffing Survey (SASS), 2003-2004 Public School Tables, Table 35, http://nces.ed.gov/surveys/sass/tables/state_2004_35.asp (accessed March 31, 2009).

effects of new pay incentives so that over time it will be possible to determine what levels of incentives are needed to meet staffing objectives. The non-education sector is a potential source of ideas, since, as one report says, "in civil service, the military, the medical field, and private industry, paying more for hard-to-staff positions, or 'market-pay,' is common practice." The authors say that organizations outside of education are providing much larger incentives than most schools and have experience calculating and adjusting the amounts needed to address their personnel shortages. In one particularly innovative approach, the Navy uses an auction system allowing sailors to bid on jobs by indicating the amount of pay they would require to accept the position. Evidence from other sectors also suggests that the effectiveness of labor market pay is enhanced when combined with performance pay.[56]

An Important Corollary: Improved Working Conditions

An important corollary to this discussion about the size and effectiveness of pay incentives is that **teachers respond to both pay and working conditions in schools. Research consistently finds that both matter to teachers.** Mentoring and induction programs, class sizes, the amount of autonomy granted teachers, and the amount of administrative support provided to them affects decisions about whether to stay in a school or not.[57]

Estimates of how much extra pay it would take to ameliorate teacher shortages generally assume that working conditions remain unchanged. Improving working conditions may reduce the pay differentials that are needed, particularly to attract teachers to hard-to-staff schools.

Conclusions

Denver Pro-Comp demonstrates that it is possible to replace the single salary schedule with a new structure of teacher pay. We are *not* recommending, however, that other districts merely copy Pro-Comp, although surely there are things to be learned from Denver's experience and from other pay reforms being launched around the country. Districts operate in different labor markets, however, and have different needs which should be reflected in local pay plans. Creative as it is, ProComp does not include all the features (such as career paths) that a local jurisdiction might want to include in a pay structure designed to attract high quality teachers. Perhaps most important, **a key lesson from both past and current efforts to implement new kinds of compensation is that reforms are unlikely to work if they are imposed from the outside rather than developed locally and jointly by the various stakeholders who will have to support and sustain them over time.** We shall see in Chapter 4, however, that state and federal policy makers have important roles to play in incentivizing and supporting local efforts.

CHAPTER 3: Pensions

Discussion of teacher compensation reform usually focuses on current pay. **Deferred pay in the form of pension benefits ought also to be re-assessed given the sizeable resources devoted to pension contributions and growing evidence that pension policies may work against other efforts to improve teacher quality.** They discourage entry by talented individuals who do not view teaching as a lifetime profession and penalize teachers who are geographically mobile.

Teachers mostly participate in statewide retirement systems offering so-called defined benefit (DB) pensions, which guarantee that in retirement they will receive an annual payment based on final average salary and years of service. It is frequently argued that defined benefit plans are very important to teachers, providing them secure and relatively generous retirement income in return for a lifetime of public service at comparatively low pay.* The National Education Association, the nation's largest teacher union, has adopted a policy resolution stating that "the retirement security of all pre-K through 12 members of retirement systems can be assured only by participation in a state or local retirement system with a guaranteed and adequate defined benefit retirement plan."[58] The American Federation of Teachers says: "The traditional [defined benefit] public pension system is the best way to ensure taxpayers can reliably receive vital services. It's a cost-effective, proven and stable method to attract and retain qualified people to perform critical public sector work."[59]

This chapter will show, however, that the existing pension structure does not serve teachers as well as its advocates proclaim. While traditional defined benefit plans with their back-loaded benefits treat long-serving teachers well, they short-change individuals who do not work a full career in teaching or who move from state to state. A sizeable number of teachers follow career paths that end up penalizing them financially at retirement time. The financial penalties imposed on mobile and less-than-full-career teachers subsidize the benefits of long-term teachers who stay in one pension plan. These financial penalties are inconsistent with the objective of recruiting more highly talented individuals into teaching for substantial periods that are still less than a full career. **Employers also suffer from policies that discourage people from moving to schools where their skills and knowledge are most needed, or that encourage people to retire early even if they are still valued employees.**

Especially in light of the recent financial market turmoil, raising the possibility of rethinking teacher pension policies may appear very threatening to the retirement security of those who benefit from existing plans. Therefore, it is important to stress that **we are *not* making an argument that a shift away from defined benefit plans would be in the public interest.**

Defined benefit pensions in the private sector have largely been replaced by defined contribution plans, which are more neutral in their treatment of plan participants who follow different career patterns. We do not believe, however, that changes in the private sector are necessarily a reason for public policies to change, because the legal and economic context is substantially different for public and private sector pensions. Moreover, **there are a number of reforms to defined benefit plans, such as portability options and cash balance plans, that could reduce or eliminate many of the problematic consequences while still providing teachers with the advantages of participating in a defined benefit plan.** There are also opportunities for combining defined benefit and defined contribution plans, as a few states already do. Discussions of

* We do not necessarily endorse the view that teaching is a relatively underpaid profession. The issue is a complicated one and is much contested among researchers. We simply point out here that teacher advocates do believe that an important justification for current defined benefit plans is that they "make up" in some sense for lower wages.

pension reform should not, as often happens, define the debate as "defined benefit versus defined contribution" but instead should focus on **how to align teacher pension policies with other policies for attracting the best teachers possible to the nation's public schools.**[*]

Overview of Teacher Pensions

Although teacher salaries are determined to a large extent by local school boards, teacher pensions are primarily provided through state-wide pension plans operating under policies set by state legislators. The exception is a handful of big-city school districts that continue to operate stand-alone teacher pension plans. Reliance on state-wide plans means that **teacher pensions are the product of political negotiations at the state level, unlike salaries which are often collectively bargained by teacher unions and local school authorities.** Although pension benefits are not collectively bargained, public employees are much more likely to be represented by labor unions than are private sector workers;[60] and organized labor plays a prominent role in debates over government retirement benefits. In the state-wide teacher pension plans, pension policies are generally uniform for all the participants in the state, even though local districts may differ substantially in their ability to attract and keep enough effective instructors to staff all their schools and subjects.

In fiscal year 2005-06 state and local governments provided pension benefits through 221 state plans and 2,433 local ones, but most of these plans serve state and local employees other than teachers. Teachers participate in only about 60 of these plans. In this report when we refer to teacher pension plans, we are referring to 59 plans that cover teachers and that are included in the Public Fund Survey, a continuously updated online compendium of data on 101 public retirement systems that operate 125 plans covering more than 85 percent of the state and local public retirement system community.[61]

As of 2008, teachers in every state but Alaska had as their primary pension arrangement a defined benefit (DB) plan[†] (see Figure 6). DB plans were historically the type of pension coverage offered by both private and public sector employers who offered retirement benefits.

Unlike private employers, public employers such as school districts generally expect teachers to contribute directly from their salaries to their retirement plans. DB plans for teachers who also have Social Security coverage,[‡] and who thus pay Social Security tax of 6.2 percent of earnings, require on average an additional employee contribution of 4.5 percent. Pension plans for non-Social Security participants require on average a nearly 8 percent employee contribution. In some plans these figures rise as high as 9.5 percent and 12.5 percent, respectively. [62]

Employers also contribute to pension plans on behalf of their employees, at an average of 9 percent of salaries in plans for Social Security participants and 11.1 percent for non-participants. Again, in individual plans these contributions may rise as high as 25 percent and 21 percent, respectively.[63] For teachers covered by Social Security, these contributions are on top of the 6.2 percent of taxable earnings employers are required to pay into the federal retirement system.

Employer pension contributions are thus substantial. Furthermore, they are growing relative to the retirement contributions made on behalf of private-sector professionals by employers. Drawing on an employer

[*] See Memorandum, p. 56.

[†] Many teachers have the option of making voluntary contributions (without any employer assistance) to a separate DC plan for supplemental savings. These supplemental plans, like DB plans, are tax advantaged under the Internal Revenue Code (so that individuals do not incur a tax liability until they begin drawing retirement benefits), but we do not consider them in this report.

[‡] Teachers in 13 states for the most part do not participate in Social Security: Alaska, California, Colorado, Connecticut, Illinois, Kentucky, Louisiana, Massachusetts, Maine, Missouri, Nevada, Ohio, and Texas. Public employees were originally excluded from Social Security because of constitutional questions about whether the federal government could impose taxes on states and local governments. In the 1950s state and local government were given the option of enrolling some or all of their workers. In nonparticipating states, some school districts have chosen to participate in the program. Since 1986 almost all state and local government workers are required to participate in Medicare.

Figure 6—Pension plan types

Defined benefit (DB) pensions, which dominate in public sector retirement systems, guarantee employees a specified annual retirement benefit based on one of several kinds of formulas. Public sector jobs typically use a formula that bases benefits on average earnings during a specified number of years at the end of a participant's career. A teacher typically receives an initial annual pension payment that is determined by multiplying (1) years of service by (2) some measure of final salary (often a three-year final average) by (3) a multiplier or benefit factor ("M"). Thus:

Annual income in first year of retirement = service (years) X final annual salary X M.

For example, if a teacher retired with 30 years of service and a final average salary of $60,000 and his or her pension plan used an "M" of 2 percent, annual income in the first year of retirement would be $36,000. "M" may be a constant for every year of service or it may be higher for years of service above some threshold (such as 25 or 30 years).

Teachers' DB plans have several features that are common in public sector pensions but that are increasingly rare in the private sector. These include (1) cost-of-living adjustments (COLAs), which may be fixed or variable; (2) young ages for normal retirement with full benefits, often in their 50s for long-serving teachers; (3) early retirement benefits; and (4) retiree health benefits. The availability and form of the latter vary from state to state.

Defined contribution (DC) pensions require employers to contribute specified amounts (often a percentage of salary) to individual accounts established for participating employees. The benefit available to the employee at retirement depends on the amount contributed by the employer, any contribution by the employee, and the investment income earned on these contributions over the years. Usually the employee manages the investments in his or her individual account. The employer does not guarantee the employee any specific level of income in retirement.

Cash balance (CB) pensions are legally regulated as defined benefit plans, but they define benefits in ways that resemble defined-contribution plans. Each participant has a stated account balance. Participants' accounts are credited each year with an employer contribution and with an interest credit tied to an index such as the one-year Treasury bill rate. Plan benefits are determined by the balance that has been credited to the employee over the years. Cash balance plans usually offer payouts for retirees as either annuities or lump-sum payments. Those leaving the plan before retirement can roll their balances over into Individual Retirement Accounts or into the retirement plan of another employer, if the latter accepts rollovers.

survey conducted by the U.S. Department of Labor, Robert Costrell and Michael Podgursky calculate that the gap between employer retirement contributions for teachers and for private-sector professionals more than doubled, from 1.9 to 4.2 percent of earnings, over the 2004-2008 period for which data are available. Private employer contributions for professionals stayed at roughly the same percentage of earnings over that period, while employer contributions for teachers rose substantially.[64]

DB plans are increasingly rare in the private sector. In the 1980s and 1990s, private employers shifted strongly to defined contribution (DC) plans. In 2007, only 21 percent of private industry workers had access to a defined benefit plan, while 83 percent of state and local workers had access to such a plan. Conversely, 55 percent of private industry workers had access to a defined contribution plan, while only 29 percent of state and local workers did.[65] Furthermore, a quarter of private sector defined benefit plans were no longer of the traditional type; most of these were cash balance instead of average-salary type plans.[66]

While the traditional DB design continues to characterize almost all teacher pension plans, there are a

few exceptions. Several states have adopted "hybrid" plans as their primary plans for teachers. In Indiana, Oregon, and Washington State, some teachers (e.g., new hires after a specified date) participate in plans that have both a traditional final-average-salary DB and a DC component. Members of Washington's Teachers Plan 3, for example, are teachers who joined the plan after July 1, 1996 or who chose to transfer from an older plan. Employer contributions on teachers' behalf are made to the DB plan. Employees' own contributions are invested in individual DC plan accounts.[67] The "M" in the DB benefit formulas in these hybrid plans is lower than the "M" found in typical teacher DB programs, because part of a teacher's retirement income is expected to come from his/her individual DC account.

In Florida, Ohio, and South Carolina, teachers have the option of choosing a DC plan as their primary plan rather than participating in the DB plan.[68] This option is thought to be especially attractive to teachers who do not expect to spend a full career in teaching or in the same state or district, for reasons that will be discussed more extensively later.

DB plans typically pay out retiree benefits as a lifetime income stream that, as noted above, is frequently adjusted in some fashion to reflect cost-of-living increases during the retiree's post-employment years. For teachers in the thirteen states that do not participate in Social Security, this form of benefit is especially important. Social Security recipients have a guaranteed, inflation-adjusted retirement income to undergird whatever other pension and retirement savings they have. They are also eligible for Social Security death and disability benefits. In nonparticipating states, employees' state or local retirement plans must meet retirement needs that elsewhere are met jointly by Social Security and employer-sponsored pension plans. Teachers without Social Security coverage must also look to their employer-sponsored plan for disability and survivors' insurance if employees are to have access to such benefits.

State and local pension plans are exempt from most of the provisions of the federal Employee Retirement Income Security Act (ERISA) which governs private sector pensions, although subnational governments must abide by certain Internal Revenue Code requirements to protect pension plan members from incurring tax liabilities on their pension contributions and on their accumulating pension benefits before retirement. In general, however, regulation of state and local pension plans occurs through numerous state rules that are embedded in state constitutions, laws, and regulations. These are regarded as generally offering public employees even stronger protections than those enjoyed by private workers.

Effects on Retirement Age, Mobility, and Short-Term Teachers

Traditional DB pension plans, with their back-loaded benefits based on final average salaries, treat long-serving employees well but impose penalties on individuals who teach in various jurisdictions or spend less than a full career in the classroom. This fact has been generally understood by labor economists and others for a long time. Little evidence has been available, however, on how the size and allocation of pension benefits are affected by various features of teacher pension plans (e.g., the use of years of service than or in addition to age in benefit formulas; the availability of early retirement benefits) and on how much of a penalty teachers incur for job mobility or short careers.

New research by Costrell and Podgursky[69] is now filling in these blanks. Their findings, based on analysis of comprehensive administrative data on teachers from several states, are very disturbing from a human capital perspective. The findings illustrate how **plan features unrelated to school staffing needs create incentives for longer-serving teachers to hang onto their jobs until peak pension benefits are earned and then to retire, often at young ages compared to private-sector employees.** Their data show that actual teacher behavior is consistent with these incentives. Costrell and Podgursky also provide **results that quantify the pension penalties for job mobility and that show how current pension policies shift pension wealth from shorter -to- longer-term teachers.**

Pension Wealth Accumulation

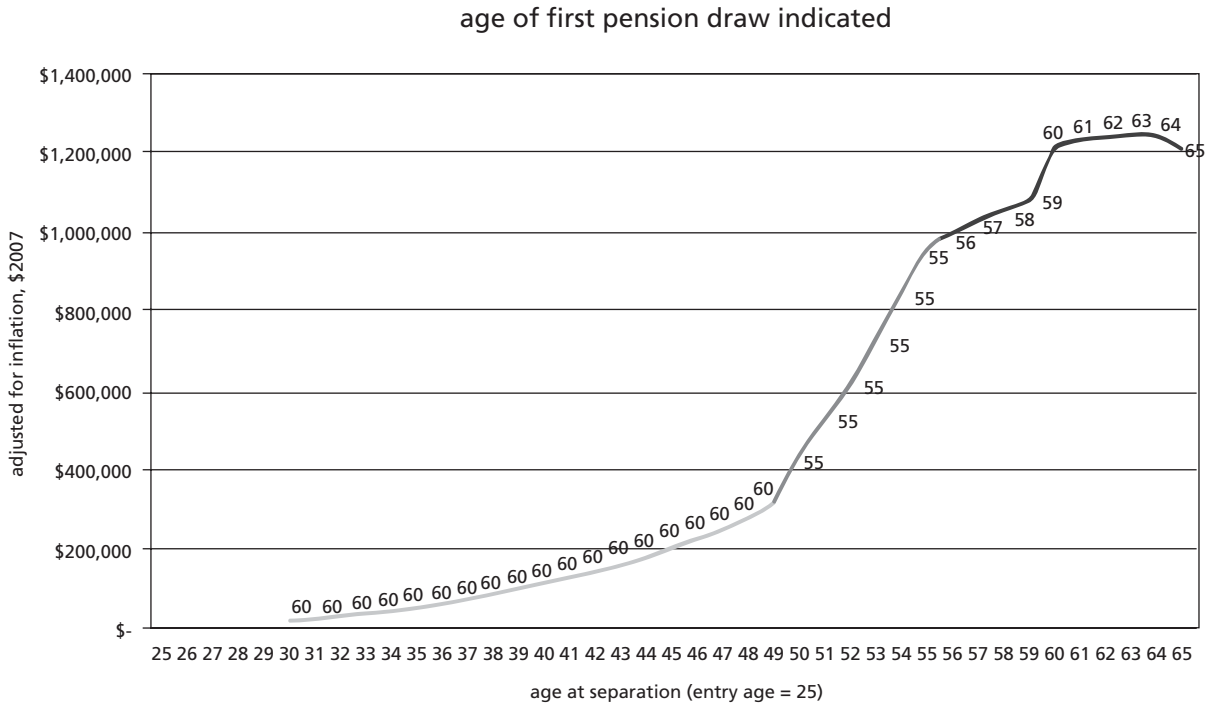
Key to identifying inequities and inefficiencies in current pension policies is calculating how pension benefits are affected by teacher choices and program details. Costrell and Podgursky begin this process

by determining the pension wealth that a teacher has earned at each year in her career. Pension wealth is a measure of the present value of a stream of pension payments or the market value of an equivalent annuity.

Participants in traditional final-average-salary defined benefit pension plans do not accrue pension wealth evenly over their careers. Costrell and Podgursky show this in Figure 7 for an illustrative teacher in the Ohio retirement system. In the example of the Ohio teacher, pension wealth accumulates very slowly for 20 or so years and then rises rapidly. Although the exact shape of the wealth curve reflects specific features of the Ohio plan, the overall shape is characteristic of traditional DB plans. The curve measuring accrued pension wealth takes a "spiky" shape because of normal and early retirement provisions. These create **incentives that encourage teachers to hang on to their jobs until a pension peak is reached and then to retire soon, whether or not their schools still need them.** In addition, accrued pension wealth can be used to calculate how much it costs teachers to move from one teaching job and pension plan to another, even if they work a full career in the profession.

Another way to look at pension wealth is to compare its annual growth to annual salary. Even though in the Ohio example total pension wealth rises throughout most of a long career, the annual increase in pension wealth net of the earnings on the previous year's wealth ("deferred compensation") changes in idiosyncratic ways compared to annual salary ("current compensation") late in a teacher's career. Costrell and Podgursky also show this phenomenon for the illustrative Ohio teacher in Figure 8. The "peaks and cliffs" portrayed in this figure occur because of the way early and normal retirement provisions operate. When a teacher reaches

Figure 7—Pension wealth in dollars



(Assumptions: 2006-2007 Columbus Public Schools Salary Schedule, all cells assumed to grow at 2.5% inflation, COLA = 3%, interest rate = 5%, unisex 2003 Mortality Table from IRS Revenue Ruling 2002-62 Appendix B.)

Source: Robert Costrell and Michael Podgursky, *Golden Peaks and Perilous Cliffs: Rethinking Ohio's Teacher Pension System* (Washington, DC: Thomas B. Fordham Institute, June 2007).

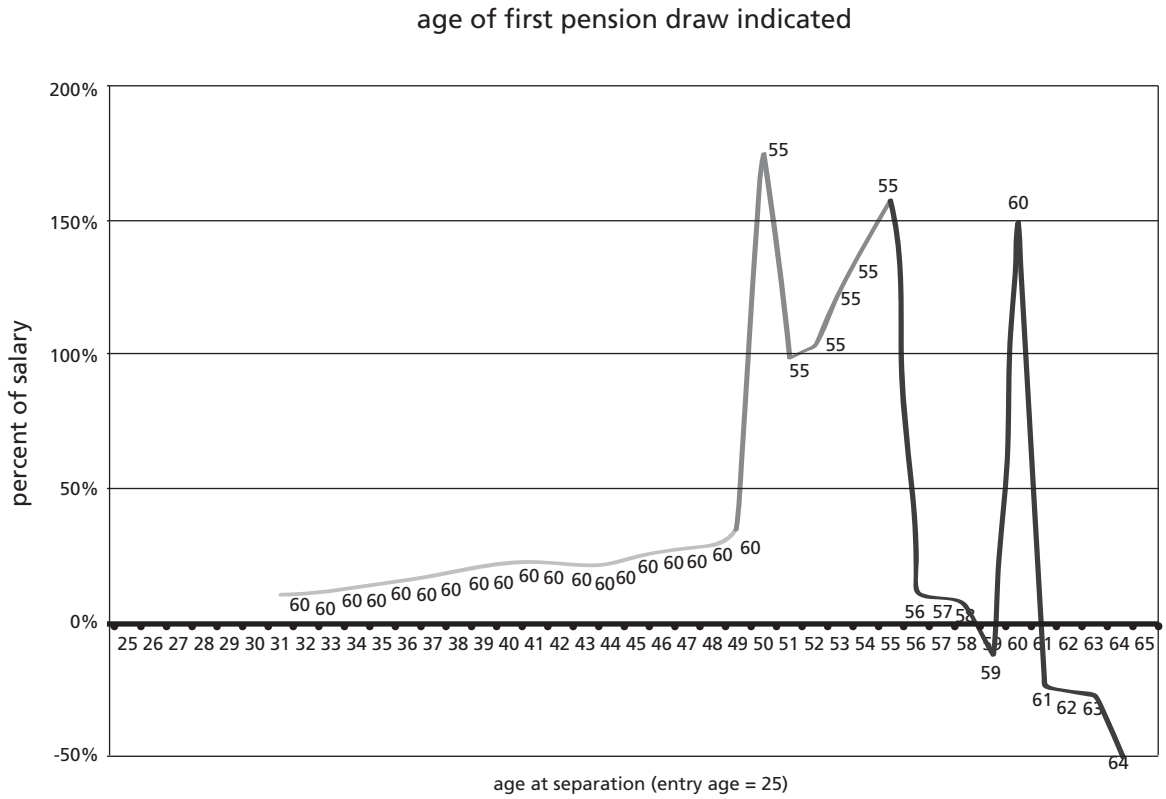
the year in which she become eligible for these benefits, there is a sharp increase in the present value of her pension because, if she retires then, she will receive retirement benefits for a longer period. If she continues to work, however, some of that extra benefit is lost; she will spend fewer years receiving pension income until she reaches another spike in the deferred compensation curve because of reaching another benefit threshold. Again, this particular pattern in Figure 8 describes Ohio's pensions, but Costrell and Podgursky have found similar peaks and cliffs in five other teacher pension plans they have studied.[70*] As discussed below, these peaks and cliffs create **retirement incentives and disincentives for individual teachers that are disconnected from their employers' interests in staffing schools or retaining particularly effective teachers.**

A third way of looking at pension wealth is to compare the present value of accumulated pension benefits when a teacher separates from service with the present value of all the income she had earned by the time she separates. This ratio is a cumulative, rather than annual, measure of deferred compensation. Costrell and Podgursky have developed these measures for six teacher pension plans and use them to calculate the amounts of pension wealth redistributed from shorter-term to longer-term teachers.

Pension Wealth and Teacher Mobility

In general the structure of the traditional DB plans serves teachers well if they work a full career in teaching. Those who do not, however, pay a high price in terms of pension wealth.

Figure 8—annual deferred income, as percentage of earnings



(Assumptions: 2006-2007 Columbus Public Schools Salary Schedule, all cells assumed to grow at 2.5% inflation, COLA = 3%, interest rate = 5%, unisex 2003 Mortality Table from IRS Revenue Ruling 2002-62 Appendix B.)

Source: Robert Costrell and Michael Podgursky, Golden Peaks and Perilous Cliffs: Rethinking Ohio's Teacher Pension System (Washington, DC: Thomas B. Fordham Institute, June 2007).

[*] Arkansas, California, Massachusetts, Missouri, and Texas.

A teacher who leaves his or her job short of a full career generally can (and sometimes must) remain in a DB plan as an "inactive" member and receive a pension later at retirement age. The pension formula used to calculate the retirement benefit, however, will reflect the final average salary at the time the teacher left the system. Since this could have been many years earlier, inflation will have taken a severe toll on the benefit level.

Costrell and Podgursky demonstrate (see Table 5) using actual data for six states that **"mobility losses" for teachers who work for 30 years in 2 jobs of 15 years each are large: ranging from 41 percent to 74 percent (depending on the state where the teacher had her first job) of the pension wealth of a 30-year teacher who has just one job.** They use conservative parameters in their model;[*] the actual mobility loss would likely be higher.

Some plans allow a departing teacher to cash-out the retirement benefit in some way. Seldom, however, will this teacher receive full credit for his or her own contributions, the employer contribution, and a market rate of return on these investments. Generally, a teacher withdrawing from a pension plan will lose all of the employer contributions made on his or her behalf.

A few states have modified their plans to be more generous to departing employees. In South Dakota, for example, teachers leaving after three years of credited service but before retirement can select a "portable retirement option" which allows them to take with them their accumulated contributions, including both employee and employer shares, and credited interest. Departing teachers also have the option of remaining members of the state pension plan; in this case their final average salaries are indexed to account for inflation in the years between their departure and their eligibility to receive an annuity. The Colorado Public Employees Retirement Association allows a departing teacher who leaves before retirement or age 65 to receive his or her own accumulated contributions (including interest at a 5 percent rate) plus a 50 percent "match" that gives the employee at least partial credit for the employer's contribution.

Table 5 – Pension losses from mobility
(25-year-old entrants, 15 years in first job)

State	Age 55 "separators" loss of pension wealth as percent of stayers' wealth
Missouri	65%
Arkansas	54%
Ohio	74%
California	41%
Texas (new hires)	73%
Massachusetts	58%

Source: Robert Costrell and Michael Podgursky, "Distribution of Benefits in Teacher Retirement Systems and Their Implications for Mobility," Conference Paper 2009-04 (Nashville, TN: National Center on Performance Incentives, Vanderbilt University, 2009).

Long vesting periods can further penalize a mobile teacher who may leave before becoming vested (i.e., entitled to receive benefits) in her pension plan. **Vesting periods in teacher pension plans are long compared to those in the private sector,** as Table 6 illustrates.

[*] Costrell and Podgursky calculate mobility losses by modeling what happens to an illustrative teacher who, after 15 years on the job in one state, takes a new job in another state. To estimate the "pure" mobility loss, they assume that the pension plan covering the second job uses the same pension formula as the old job. They also assume that the salary schedule in the new job is the same as the salary schedule in the old job and that the teacher is given credit on the schedule in the new job for all of her years of service (i.e., 15) in the old job. This latter assumption is highly unlikely to hold in practice. Many districts have limits on the number of years of service they will recognize for pay purposes when a teacher transfers in. In the model, the mobile teacher, after 30 years of service, is eligible for two pensions, one from the old job and one from the new. Compared to a "stayer" who remains in one pension system for all 30 years, the mobile teacher planning to retire after a 30-year career will be penalized because her final-average-salary determination from the first job is based on the salary when she left the system 15 years earlier, with no accounting for subsequent inflation. She also will have fewer years of retirement income than the "stayer." The latter is assumed to retire at age 55 and to be eligible to draw a full pension immediately. The mobile teacher, with only 15 years in each system, should defer her pension draw until age 60 to avoid costly early-retirement penalties.

Table 6 – Vesting requirements

No. of years to vest	No. of plans
None	4
1-4	9
5	35
6-9	2
10	9

Source: Public Fund Survey, 2009, http://www.publicfundsurvey.org (accessed April 15, 2009).

ERISA sets a maximum vesting period of six years for private sector employers. In nine states, teachers have to work for 10 years before becoming vested in the pension plan.

"Purchase of service credit" provisions exist in virtually all teacher pension plans and in theory compensate for some of disadvantages facing mobile teachers. The provisions are cumbersome and limited, however, and differ from plan to plan. A mobile teacher who cashes out of one plan without receiving full credit for all employer and employee contributions and interest will probably not have enough money to pay the price of purchasing credit in the new system. An individual who enters teaching in mid-career and whose prior service was not in teaching or public employment may not be allowed to purchase credits. This person may be doubly disadvantaged, because he or she may not be given much if any credit on the "salary scale" for work in another field, so the final pension benefit will reflect both a limited number of years of service and a lower salary than a long-term teacher of the same age would have. For all new entrants to a pension plan, the number of years of prior service credits that can be purchased is likely to be restricted.

To date there is limited data on the proportion of teachers who may suffer financial penalties from moving across state lines (or from having shorter working lives because they "stop out" for a while for family or other personal reasons). A cursory look at financial reports from several state pension plans suggests, however, that a significant minority of their current retirees left the workforce with fewer than the 20 to 25 years of service that would qualify them for the good benefits that a back-loaded DB system provides a long-serving individual. There is also no way to measure the extent to which teachers are locked into their current jobs because of the financial price they would pay if they left their current pension plan.

The Redistribution of Pension Wealth from Short-Termers to Career Teachers

Pension contribution rates for teachers and their employers do not vary depending on years of service; each year the same percentage of a teacher's earnings is directed to the pension plan. **In order to avoid penalizing individuals who want to teach for something less than a full career, the aggregate pension wealth accumulated from these contributions and the earnings on them should not involve a redistribution of wealth from short-termers to long-termers. Yet this kind of distribution in fact takes place.**

Costrell and Podgursky have modeled the magnitude of the redistribution by comparing pension wealth for teachers who enter the profession at age 25 but leave at various ages with the pension wealth they would have accumulated under a fiscally neutral pension plan such as a cash balance plan.[71] They calculate "gainers" and "losers" based on whether teachers who leave at various ages are better or worse off than they would have been if the same contributions had been directed to a fiscally neutral plan. For the six states for which they have teacher records, they determine that 20 to 35 percent of teachers, who on average separate in their 50s, are gainers, while 65 to 80 percent of teachers, who on average separate in their 30s, are losers (See Table 7).

Another way to view the inequity in final-average salary DB plans for teachers is to examine the cumulative pension wealth (net of their own contributions) a teacher has accrued based on when she leaves teaching compared to cumulative earnings accrued at the same point. As noted earlier, this is a cumulative measure

Table 7 – Redistribution of pension wealth

(Compared to a fiscally neutral plan for teachers entering at age 25)

	Gainers		Losers	
State	Share of entrants	Average age at separation	Share of entrants	Average age at separation
Missouri	35%	54.2	65%	36.6
Arkansas	34%	53.9	66%	37.1
Ohio	33%	56.4	67%	37.8
California	29%	57.8	71%	35.4
Texas (new hires)	35%	57.3	65%	34.8
Massachusetts	20%	57.1	80%	40.2

Source: Robert Costrell and Michael Podgursky, "Distribution of Benefits in Teacher Retirement Systems and Their Implications for Mobility," Conference Paper 2009-04 (Nashville, TN: National Center on Performance Incentives, Vanderbilt University, 2009).

of deferred compensation. Costrell and Podgursky show, using the Missouri pension system as an example, that teachers who enter at age 25 and separate at age 53 receive deferred compensation from their employer of 35.3 percent. A teacher who leaves at age 30, by contrast, receives no deferred compensation from her employer at all and in fact earns deferred compensation that is less than the percentage of income (12.5 percent) he or she had to contribute each year to the pension plan.[72]

More research is needed on the patterns of pension wealth accumulation of teachers who enter at later ages (such as second-career teachers) and on those who step out of the profession for a while, perhaps to raise children. **Given the desirability of making teaching attractive to as many talented individuals as possible, any financial penalties suffered by people who follow these less-than-full-career teaching paths work against the national interest in providing high-quality instruction for all students.**

Rethinking Pension Policy and Practice

Concerns over the fiscal condition of pension plans are receiving more public attention at present than are worries about how pension policies may distort the teacher labor market. **The fact that current economic conditions and big investment losses are putting pensions in the political spotlight may, however, offer an opportunity to consider reducing these distortions as various pension issues are debated.**

Unfortunately, in our view, the debate over possible public pension changes has frequently taken the form of an argument over whether defined benefit pensions should be replaced, as they largely have been in the

private sector, by defined contribution plans. Defining the options as "DB vs. DC" oversimplifies the issue. **There are a number of reforms to DB plans that could reduce or eliminate some of their problematic features while still providing teachers with the advantages of participating in a defined benefit plan.** These include hybrid plans, portability options, and cash balance plans, which are a type of defined benefit plan with a number of DC-like features.

States differ significantly in terms of the fiscal health of their current pension plans and in the legal framework that defines what pension changes are permissible. Thus specific pension reforms need to be considered in the context of the fiscal and legal environment of each state.

Redesigning Pensions

Thinking of pension redesign in "DB vs. DC" obscures several important points. First is that each type of plan has advantages and disadvantages for employers and employees. Second is that the two types of plans are not as distinctive as they may at first appear. Many features that might justify a switch to a DC plan can also be built into a DB plan, and some DB-type features can also be added to DC plans. Finally, **arguing in terms of the classic designs of traditional DB and DC plans fails to bring into the discussion new types of plans, such as the cash balance (CB) defined benefit plan. CB defined benefit plans can be designed with features that might address key interests of partisans on both sides of the DB/DC divide.** The CB defined benefit alternative, which has been adopted by a number of private sector employers, has been used infrequently in the public sector. It is thus relatively unfamiliar to participants in public sector pension debates.

In our opinion, teacher pension plans need to be modified to better balance the benefits to both employees and employers**. We think that a wholesale switch to DC plans, which would be hard-fought by teacher groups and would for legal reasons in some states only be possible for future employees, is unnecessary. Modifying the terms of traditional defined benefit pensions to better serve short-term and mobile workers is one option. Creating cash balance plans for new workers, plus current workers who might wish to participate, is another.** In all cases, there needs to be wide and ongoing discussion of the deferred compensation being promised to teachers through the pension system, the financial sustainability of those promises, and the desired balance between the salaries paid to teachers for their current efforts and the pensions provided for them in retirement.

Traditional final-average-salary DB plans can be redesigned to have some DC-type features. The Wisconsin Retirement System allows DB plan participants to put 50 percent of their and their employer's contributions into a Variable Trust Fund, giving them some control over investments but subjecting them to some investment risk. In some DB plans, beneficiaries are now offered the opportunity at retirement to take a lump-sum distribution rather than being required to take a life-time annuity. Teachers in Colorado's state pension plan, for example, are credited with a fixed interest rate, currently 5 percent compounded annually, on their own contributions. If an individual chooses to withdraw his or her account after retirement eligibility or age 65 rather than take an annuity, he or she receives the amount credited to the account along with a 100 percent match. This effectively accounts for the employer's contribution as well. We have already described South Dakota's Portable Retirement Option that removes barriers to mobility for the state's teachers.

States could also consider establishing an alternative form of defined benefit plan, the cash balance (CB) plan, which has seldom been adopted for public plans. Cash balance plans are legally treated as defined benefit programs. They have certain characteristics in common with DB programs, including guarantees about retirement income benefits; but they also have characteristics of DC programs. CB plans share many of the risks in pension plans between employers and employees. DB and DC plans, by contrast, place various kinds of risks exclusively on one or the other party.

Private employers who continue to sponsor defined benefit pensions have moved nearly a quarter of their workers into cash balance plans.[73] In the public sector, however, we could find only two such plans. California has a cash balance plan, administered by the California State Teachers Retirement system, for part-time teachers. Nebraska has implemented a CB plan for its state and local employees, though not for teachers. Nebraska's state and local employees were in a DC

plan from 1964 to 2003. Investment returns in the DC lagged those in the state's other DB programs over that period. About half of the DC participants were in the default investment fund, a low-risk but comparatively low-yield stable value fund. Partially because of this, DC participants were receiving significantly less replacement income in retirement than had been projected. Nebraska made a new cash balance plan the primary pension plan for state and local employees (but not for teachers, who remain in a separate DB plan) hired on or after January 1, 2003.[74]

One reason for the slow spread of cash balance plans into the public sector may be that, after an initial burst of interest in them in the private sector, legal questions arose that effectively stopped their implementation for a number of years. These issues appear to be largely resolved now. Furthermore, some early features that were unpopular with employees were made illegal in the Pension Protection Act of 2006. Implementation of CB plans by a number of private employers has shown that these plans can be structured in ways that benefit younger workers while not harming older workers who expect back-end-loaded benefits based on their long service.

CB plans do not penalize worker mobility yet do not force workers to take on the investment risk associated with managing their own investment accounts. CB plans do not remove all investment risk from employers, especially for plans that guarantee a fixed interest credit; but the risks are much less than with traditional DB plans. Costs become more predictable because the percentage of salary the employer is required to contribute is known and the rate of return the employer must credit to the employees' hypothetical accounts is tied to market rates. With CB plans, employers do not have to worry that employees will unwisely choose not to participate. They also find that employees understand CB plans better than they understand traditional DB plans and therefore give the employer more credit for providing the retirement benefit.[75] Employers, increasingly concerned about how to attract and/or retain older workers, also tend to appreciate the fact that CB plans do not penalize older employees who work beyond normal retirement age and do not create incentives for early retirement.[76]

Fiscal Considerations

Fiscal considerations must play a role in discussions of pension redesign because treating mobile and short-term teachers more equitably will have at least short-term costs unless offset by some decrease in the generous benefits that teacher pension plans typically promise long-term participants. These include eligibility for normal retirement with full benefits at young ages (often in the 50s) and other early retirement benefits, annual cost of living adjustments for retirees who have begun drawing their annuities, and retiree health benefits.

The capacity of a pension plan to treat mobile and short-term teachers more favorably without trading off some of the benefits promised to long-termers depends in part on the plan's current funding situation. Some are in good shape; others were underfunded even before the ongoing financial crisis.

When a plan's assets match its liabilities, the plan is said to be fully funded. If the ratio of assets to liabilities is less than 100 percent, the plan is described as under-funded.

Funding ratios in teacher pension plans vary widely. Table 8 summarizes the ratios found across the plans based on the latest available financial reports.* This point-in-time snapshot for our 59 teacher plans indicates that 26 fell below the 80 percent threshold that, according to the U.S. Government Accountability Office, is often used to determine whether a pension

*These actuarial funding ratios are useful indicators, but they must be interpreted with caution. They are statements at a particular time about how the assets in a pension plan compare to the present value of the benefits that plan members have accrued. Ratios do not indicate anything about whether a plan is moving in a healthy or unhealthy direction. If a plan is amortizing previous unfunded liabilities, for example, it may appear at a given point to have a large unfunded liability; but in fact its funding ratio might be on target with a planned schedule for achieving financial soundness. Since unfunded liabilities are typically amortized over 30 years, the key question for an underfunded plan is whether it is making progress in reducing its unfunded liabilities. Moreover, funding ratios are not strictly comparable from plan to plan. How a specific ratio is calculated depends on a variety of approaches used by actuaries to determine such things as the cost method, future investment returns, and the asset valuation method.

Table 8—Actuarial funding ratios for teacher pension plans

Funding	Number of plans
Plan funded at 100% or more	9
Plan funded at 90% – 99.9%	8
Plan funded at 80% to 89.9%	16
Plan funded at 70% to 79.9%	14
Plan funded at 60% - 69.9%	8
Plan funded below 60%	4

Source: Public Fund Survey, 2009, http://www.publicfundsurvey.org (accessed January 8, 2009). Most but not all data are for FY 2007.

system is healthy or not.[77] The data, it should be noted, were reported before the financial market turmoil that began in late 2007.

Calculations about a plan's financial strength can be quite sensitive to the assumptions made about the future rate of return on invested pension funds. This becomes increasingly true as a plan matures.* **Some observers believe that assumptions about future investment returns underlying currently reported pension liabilities are unduly rosy**. Investment assumptions have increased over time, in part because pension plans have increasingly included equities in their investment pools. Figure 9 indicates that the modal investment return assumption for teacher retirement plans is 8 percent.

If these rates of return are not achieved going forward, then contribution rates from employers and/or employees will have to increase or unfunded liabilities reported by pension plans will rise. The level of reported liabilities could also be affected by the outcome of a debate in the pension community about how financial liabilities are calculated. Financial economists argue that current liabilities are understated because actuaries use a "discount rate" to calculate the present value of future benefits that is too high. The Government Accounting Standards Board, which recommends accounting standards for public pensions, has recently established a project to study the possibility of adopting new accounting and financial reporting standards for pensions and other postretirement benefits.[78]

Legal Considerations

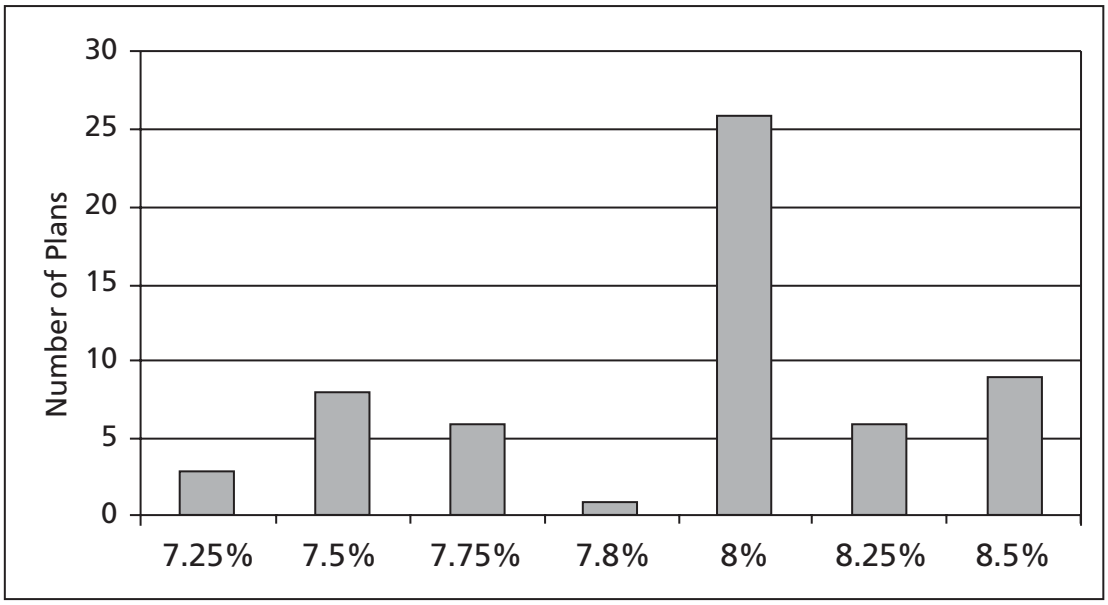
In addition to considering the fiscal strength of each state's pension plan, pension reformers will also need to take into account the legal protection offered to state and local government plans. This protection is so strong that it is sometimes claimed that, "[w]hile pension benefits can be restructured for future employees, it is virtually impossible to reduce them for existing workers."[79]

This commonly held view probably overstates the case, but it does reflect the fact that **revising pension plans can be difficult. Most states have, through state constitutions or statute or case law, defined pension plans as contracts between the state and plan participants.** "Where there is state constitutional protection specific to state pension plans, the courts must interpret what protection is granted by the state constitution and apply it. In states where a contract is created or implied by statute or common law, courts must analyze any proposed changes under the federal constitution's contract clause."[80] The latter provides that "no State shall…pass any…Law impairing the Obligation of Contracts."

The combination of state and federal protections for contracts has resulted in various legal interpretations around the country about when a contract is deemed to be created and what the contract is deemed to protect. In the most limiting case, the pension contract has been deemed to become effective on the date a teacher is hired or enters into the pension system, and the benefits promised by the pension plan on that date cannot

* The assets available to pay promised pension benefits to retirees consist of contributions from employers and employees (which are relatively predictable) plus investment returns on these assets minus plan expenses. As a pension plan matures, the proportion of its annual income that comes from investment returns becomes larger relative to the annual contributions made on behalf of plan members. Thus assumptions about investment returns have an increasing impact on calculations about the plan's ability to meet its obligations.

Figure 9—Assumed nominal rate of investment returns in teacher pension plans



Source: Public Fund Survey, 2009, http://www.publicfundsurvey.org (accessed January 8, 2009). The majority of plans reported these data as of 2007.

subsequently be reduced.* In some cases, state constitutional provisions on contracts have been interpreted to protect the benefits that a teacher has accrued, but not to prohibit changes going forward. (This is the standard that the federal government uses for its own employee pension plans.)

A few states cling to an older approach to pensions which views them as gratuities that the state can modify at any time. A handful of others take a property-rights rather than a contract approach to determining the legal protections for pensions, and one state operates under a court interpretation based on "promissory estoppel" rather than conventional contract analysis.

This complicated legal structure governing teacher pension plans is further explained in a path-breaking new analysis by law professor Amy Monahan.[81]

Legal restrictions explain why some states have approached pension plan reform by imposing higher required contribution levels or less-generous early retirement rules on employees hired after a certain date and allowing employees hired before that date to continue under the old arrangements. This has resulted either in public pension plans with "tiers" of contribution requirements and/or benefits, depending on when employees were hired, or in the existence of separate plans for earlier and later hires.

Some states have found it possible, both legally and politically, to make pension changes that affect current employees (while protecting accrued benefits).

Texas, one of the states still viewing pensions as gratuities, changed its teacher retirement system in 2005. Teachers who were already 50 years old, whose age and years of service equaled at least 70, or who had at least 25 years of service credit were grandfathered into the old rule. For other teachers, the number of years to be used in calculating final average salary was increased from three to five and subsidized early retirement was largely eliminated. Teachers who were hired after the effective date of the changes will have to be at least 60 years old and meet the "rule of 80" (i.e., age plus years of service) to be eligible for unreduced benefits.

* In some states, teachers may not become participants in the pension plan until they have been on the job for a specified period, e.g., one year. At this time they and their employer begin making pension contributions. The teacher is not eligible to receive benefits, however, until she has satisfied the plan's vesting requirement, which requires three to ten years of service.

In Rhode Island, where employers currently contribute almost 20 percent of salary and teachers 9.5 percent to the pension plan, *in addition to Social Security taxes*, a Special House Commission to Study All Aspects of the State Pension and Retirement System recommended a variety of pension changes to the full House of Representatives that would affect current workers. The Commission voted to establish age 65 as the normal retirement age for teachers and other state employees except those already eligible to retire, to reduce cost-of-living payments, and to use five rather than three years in calculating final average salaries. The commission also recommended placing new employees in a hybrid plan combining a DB and a DC component and establishing a Standing House Pension Committee to provide ongoing review of this important element in the state budget. The legislature did not adopt all the recommendations but did raise the retirement age (to a "target" of 62) and changed the calculation of final average salaries, among other things.

These examples suggest that **policy makers may have more flexibility than they generally believe to consider pension changes. We recommend that policy makers in each state review carefully the legal limitations on their pension plans and consider whether statutory or even constitutional changes would provide appropriate flexibility to alter pension arrangements to address changing circumstances while offering appropriate protections to plan participants.** Monahan has suggested that states would be well served by adopting the federal standard of guaranteeing only accrued benefits.

Conclusions

Retirement benefits for teachers are mostly provided through state-wide pension plans. These plans need to serve the interests of school districts facing diverse human capital challenges and of teachers whose careers might assume a variety of patterns.

The dominant pension structure, a final-average-salary defined benefit plan, is not well-designed to address the differing circumstances of employers and employees. These DB plans encourage early retirements and create incentives for retirement at specific career points that may be unconnected to school needs. They also provide incentives for a teacher to hold onto her job until various pension thresholds are reached, regardless of whether or not the teacher still enjoys her job and is effective at it. Final-average-salary plans penalize mobile teachers and those who might choose to work in teaching for less than a full career. In some states, the pension promises that have been made to teachers may be overly generous given both economic and political realities.

Current teacher pension plans reflect an approach to retirement benefits designed mainly to reward career workers for long service to the public. This approach appears increasingly inefficient for addressing the human capital challenges facing American schools in the 21st century. Stakeholders in each state need to assess their current pension plans and consider pension reforms with these challenges in mind.

CHAPTER 4: Enabling Conditions

For teacher compensation reforms to take root and grow, it is crucial that policy makers pay attention to what we call "enabling conditions." These are the tools, policies, and practices without which new compensation policies will be less effective than they should be at encouraging genuine instructional improvement and increased student learning.

Improved Teacher Evaluation and Professional Development Systems

Moving away from the single salary system to reward teachers more directly for the quality of their instruction and the achievement of their students depends crucially on the availability of effective evaluation and professional development systems. There is widespread agreement that both are currently inadequate.

Teacher Evaluations

One recent report on teacher evaluation described systems in use throughout public education "that are superficial, capricious, and often don't even directly address the quality of instruction, much less measure students' learning."[82] **Teacher evaluation is notorious for its "drive-by" nature, with evaluators, frequently administrators who are often untrained, making a fleeting classroom visit using a checklist of classroom conditions and teacher behaviors that have little to do with the quality of instruction.** Evaluators seldom rate teachers as "unsatisfactory" and often do not discuss their findings with teachers.

Teachers know that the typical evaluation system is not a meaningful measure of their performance. Their skepticism about evaluation results helps explain the failure of "merit-pay" plans in the 1980s, which depended heavily on qualitative indicators. Veteran teachers, in particular, continue to oppose using evaluations for high-stakes purposes.

Perhaps reflecting the fact that evaluations are generally pro-forma rather than meaningful exercises, evaluations are undertaken fairly infrequently. This is particularly true for tenured teachers, who in 43 states receive this guarantee of employment security after three or fewer years on the job.[83] A report on state teacher evaluation requirements in 38 states in 2005 found that just 17 states required tenured teachers to be evaluated at least once a year, with three states requiring biennial evaluations and five requiring triennial evaluations.[84] Most of the remaining 13 states had no policy on evaluations. Districts may or may not have local policies that call for more frequent reviews.

The poor quality of teacher evaluation systems has been an obstacle to some current efforts to reform compensation. In 2008 the state school superintendent and the governor of Idaho tried to create a performance-pay plan. It failed in the legislature in part because of concerns that districts did not have a consistent basis for evaluating effective teaching. Subsequently the state set up a task force to make recommendations about standards to be used in district-based evaluation plans.[85]

Fortunately, attention to the problem of poor teacher evaluation is growing. Charlotte Danielson has developed a comprehensive "Framework for Teaching," which has been adopted as the basis for comprehensive evaluation systems for initiatives such as the Teacher Advancement Program and some local programs. Researchers at the University of Virginia have developed the Classroom Assessment Scoring System (CLASS) for evaluating teachers of early grades. The National Board for Professional Teaching Standards confers certification of teachers from anywhere in the country who choose to be evaluated in accordance with the Board's standards in individual subject areas. Connecticut's Beginning Educator Support and Training Program (BEST) and the Peer Assistance and Review (PAR) program, created jointly by Toledo schools and the teacher union and now used in several Ohio districts, provide models for evaluating teachers early in their careers.[86]

Technical assistance centers such as the Center for Educator Compensation Reform and the National Comprehensive Center on Teacher Quality draw on the knowledge being gained from these pioneering efforts to help states and districts improve teacher evaluation. Standards are emerging to help guide the development of effective evaluation systems, as shown in Figure 10. Such standards can help address teachers' legitimate concerns about the potential for bias and favoritism in poorly designed evaluations.

Professional Development

It would be unfair to hold teachers accountable for their performance without providing them with the tools to make necessary improvements. So-called "professional development" represents the chief instrument that school districts have for supporting on-the-job improvement. Almost all teachers report that they spend time in any given school year on professional development activities. States and school districts either require participation or create incentives for teachers to participate.

Nevertheless, the author of a synthesis of research on professional development describes it as "a hodgepodge of providers, formats, philosophies, and content."[87] **Too much of it takes the form of fragmentary one-day workshops that are insufficiently intense or focused on meaningful instructional improvement.**

Districts are estimated to devote between 1 and 6 percent of their expenditures on teacher professional development, with many in the 3 percent range.[88] This money needs to be better spent.

Research has shown that professional development can affect what teachers know and do. Studies have shown that professional development can be effective when:

- It engages teachers intensively; one-day workshops are in most cases "unhelpful" but two-to-four week summer institutes make a difference.
- It "focuses on subject-matter-specific instruction and student learning"…that is, "teachers' learning opportunities should be grounded in the work they do in classrooms."
- It is "aligned with and support[s] the instructional goals, school improvement efforts, and curriculum materials in teachers' schools."
- It emphasizes "collective participation of entire schools and 'active' learning, such as reviewing student work, giving presentations, and planning lessons."[89]

Professional development must become more effective across the board rather than in just a few exemplary schools or districts. Materials intended for wide use need to be developed and rigorously evaluated on the

Figure 10—Recommendations for evaluation system designers

The Center for Educator Compensation Reform recommends the following practices for designers of teacher evaluation systems that involve observations of classroom performance as a basis for educator compensation.

- Use relatively detailed rating scales ("rubrics") that define a set of levels for each performance dimension.
- Specify what counts as evidence for performance and how it is to be collected, in a performance measurement handbook or manual.
- Use an analytic assessment process that separates observation, interpretation, and judgment. Use multiple evaluators.
- Train evaluators for consistency.
- Monitor evaluators' performance and hold evaluators accountable for doing a good job.

Source: Anthony T. Milanowski, Cynthia D. Prince, and Julia Koppich, *Observations of Teachers' Classroom Performance* (Washington DC: Center for Educator Compensation Reform, U.S. Department of Education, Office of Elementary and Secondary Education, 2007), p. 5-10.

basis of whether student learning improves, something that seldom happens now. Districts can make more extensive use of so-called "formative assessment" of students as well as the "summative assessment" used in accountability programs. Formative assessment, which gauges student knowledge throughout the year, is intended to inform teachers about whether students are making progress in developing the skills and knowledge that will be measured on "the tests that count." Students failing to make sufficient progress can be identified for further assistance. Formative assessment data can also be used to help teachers shore up their skills in areas where their instruction appears ineffective.

Improved Student and Teacher Data Systems

Using student performance to help determine teacher compensation, whether that performance is measured quantitatively or qualitatively, will require much better data systems than currently exist in many states and school districts.

In their work with school districts attempting to implement performance-pay systems linked to teachers' success in improving student outcomes, Daniel McCaffrey and his colleagues have discovered that the initial step, creating accurate data bases that can link information on students and teachers, involves challenges that are often overlooked and underestimated. **Administrative data, historically collected to satisfy reporting requirements, need much processing before they can be used to generate student performance measures.** Teacher data and student data have to be linked. The teachers for whom student outcome measures are available have to be identified. Accurate decisions have to be made about which students to count (just those in a teacher's classroom for a certain number of months?) and about how to deal with students who have multiple teachers in the same subject. Teachers who teach multiple subjects or grades have to be appropriately classified.[90] Real-time feedback, especially on formative assessments, is essential to enabling teachers to adapt their instruction to their students' academic strengths and weaknesses.

Administrative data systems, even good ones, are not set up to easily make these distinctions and linkages or to provide the kind of accurate statistics needed when compensation is at stake. Typically, student information systems, human resource systems (including payroll), and assessment systems have existed in independent data silos. There has often been limited interoperability among these silos. Frequently the data in them are inconsistent. Many school districts still lack the underlying electronic records or record-linking capability and the technical staff to tackle these challenges.

Statewide data systems can ease some of the burden on local districts, by, for example, providing districts with student test records that can be matched from year to year using a statewide student identifier. Since 2005 the Data Quality Campaign[91] has worked to encourage the development of statewide longitudinal data systems that can track student progress over time. The DQC reports "remarkable progress" between 2005 and 2008, with six states (as opposed to none in 2005) having all ten of the "essential elements" that a system must have to build a highly effective longitudinal system. Forty-eight states now have five or more of the elements.[92] Developing longitudinal data on teachers is progressing more slowly, however. Fewer than half the states have teacher identifier systems with the ability to match teachers to students. Such matching is actively resisted in some states. The California Teachers Association long opposed the creation of a statewide teacher data base and the linkage of student and teacher data. It backed away from this only when it was able to get language added to the authorizing statute for the California Longitudinal Teacher Integrated Data Education System that forbids the use of the teacher data for evaluation or pay purposes.[93]

Committing fiscal and human resources to data base development is often a "hard sell" politically, especially in hard economic times. **The progress that has been made so far in building good state and local data systems must, however, be sustained and accelerated.** This will be necessary not only to enable compensation reforms but to foster the development of many types of information (e.g., identifying effective school curricula and teacher training programs) that are essential to improving student learning.

Sustainable Funding

Reforming teacher compensation will almost certainly require additional funding, at least in the short-to-medium term. Business leaders who support reform

must be prepared to become advocates for that funding. **Too often in the past, efforts to reform compensation have faltered in part because funding was not available to sustain new pay arrangements.** This was a major problem with the "merit pay" plans in the 1980s and continues to be an issue with more recent efforts.

Even if the single salary schedule is replaced (as in Denver) by a plan that doesn't base teacher pay rigidly on years of service and formal credentials, it will not be feasible to pay for new forms of compensation by reducing pay for existing teachers. So pay for performance, pay for new career pathways, and labor-market-based pay require new resources.

Often compensation reforms are funded initially by outside groups on a one-time basis. Many current compensation initiatives are being paid for with significant support from the federal government (through the Department of Education's Teacher Incentive Fund program—TIF), from state governments through grant programs, and from foundations. In many cases it is clear that the outside funding will disappear after a few years (TIF grants, for example, are five-year grants) and that school districts will have to pick up the costs after that time. Q-Comp in Minnesota is structured as a so-called categorical program within the state general revenue budget for education, not as a grant program, with the intention that it would be a permanent state commitment.* Denver sought and won a special tax levy to support ProComp after the pilot period was over. Such attention to sustainability is unusual, however.

The financial challenge is not only one of finding permanent funding but also of estimating accurately what the cost of reforms will be. An implementation guide on sustaining pay reform from the Center for Educator Compensation Reform points out that

> …states and districts too often fail to estimate costs accurately, or they skip this crucial step altogether. School systems that underestimate potential personnel costs or miscalculate fiscal exposure risk serious financial losses, and possibly legal action and penalties, as well as loss of credibility among teachers and the public.[94]

The guide notes that performance pay in particular is challenging, because at least until some experience is gained it can be difficult to estimate how many teachers and schools will quality for awards. Finding the funds for performance awards in education if performance is better than predicted is not as simple as in the private sector, where the improved performance underlying personnel awards also presumably generates more revenue for the firm. States and districts have sometimes responded to the challenge of better-than-expected performance by increasing the performance-pay budget, but too often they have instead reduced the award levels to stretch the original budget or changed the qualification requirement so that fewer teachers or schools qualify. In one particularly egregious example, a Florida school district in the now-discontinued STAR program found that it had insufficient state funds to pay promised awards because some teachers had tied for rewards. The district resorted to a lottery to decide which teachers who tied would receive the award, essentially reducing performance pay to a game of chance for these teachers.

The costs of bonus and incentive payments are not the only financial commitments districts must be prepared to meet as they consider compensation reform. We have already noted the need for improved evaluation, professional development, and data systems. New pay systems may also entail higher employer contributions to teacher pension plans and higher employment taxes. Districts sometimes forget to factor these payments into their new pay plans.

In the long term there should be savings from a more efficient compensation system that could help sustain reforms. A great deal of money is currently spent under the single-salary schedule to reward teachers for advanced academic credentials that have not proven to be related to student learning. Clearly this money can be better spent. Correcting the distortions and inequities in pension plans would over time be easier if early retirement incentives were reduced, normal retirement ages were raised, and employer investment risks were circumscribed through something like a cash-balance plan.

* Of course, current legislators cannot bind their successors, and programs can always be amended or eliminated.

Supportive State and Federal Policies

States and the federal government have important roles to play in encouraging teacher compensation reforms. These range from providing financial incentives and technical assistance in support of new forms of pay to removing obstacles to revising and adequately funding pay plans.

Encouraging New Forms of Pay

We have already cited a number of instances where state governments have acted to encourage districts to adopt pay reforms. Mostly these have related to performance- and labor-market-based pay. The National Center for Teacher Quality's 2008 *State Teacher Policy Yearbook* says that 22 states provide incentives in the form of differential pay for teachers who teach in high-needs schools, and 20 support differential pay for shortage subject areas. A number of states supplement the pay of teachers who earn National Board for Professional Teaching Standards certification. It appears to be the exception rather than the rule, however, that these supplements are directed toward teachers who also agree to teach in high-needs schools.[95]

In addition to providing financial incentives to encourage new forms of pay, states may be able to make it easier for districts to innovate by giving districts explicit authority to create differential pay plans. In the 40-some states where teachers have collective bargaining rights, wages are generally subject to mandatory bargaining at the local level. It is not always clear, given differences in state laws, whether certain kinds of differential pay such as bonuses and incentive payments are to be considered wages or not. States could provide districts with explicit authorization to establish differential pay without resort to collective bargaining; without such authorization each district must decide for itself whether a local decision to establish a differential pay plan must be negotiated with the union. Except in Florida and Hawaii, where the state constitution requires collective bargaining, states are free to modify statutes about the issues subject to mandatory negotiation.[96] For reasons to be discussed in the next section, districts are likely to want teachers involved in developing new pay plans, so policy makers in each state will want to consider whether the extra grant of authority is needed or not to enable pay reforms to take place.

Florida has been the pacesetter for states working to develop longitudinal student and teacher data bases to support both accountability and instructional improvement. Over 30 years the state has developed a comprehensive kindergarten-through-graduate-school data system that can follow students through public schools, community colleges, career and technical education, adult education, and the state university system and can even follow some into the workforce. Longitudinal information from separate data systems are increasingly linked through an education data warehouse, and data analyses likely to be of wide interest are made available through data marts. The data warehouse is student-centric but links student information to information on students, staff, educational institutions, curriculum, courses taken, facilities, and finance. Through a partnership with the Microsoft Corporation, Florida is currently developing Sunshine Connections, composed of resources and tools aimed at teachers. All teachers are to be provided with desktop, immediate access to classroom management tools, student performance data, instructional strategies, tools for collaboration and communication with other teachers, curricular materials, and personalized professional development opportunities. A public area on the Sunshine Connections website gives all users a series of free tools organized by area of interest. A restricted area provides teachers with confidential tools and information specific to their own students.

The federal government is helping states and districts develop better data systems and try new forms of pay. The Department of Education has several initiatives underway, including:

- **The Teacher Incentive Fund (TIF).** Under TIF, school districts, charter schools that have the status of school districts within their state, and state education agencies, either alone or in partnership with nonprofit organizations, can apply for funds to develop and implement performance-based teacher and principal compensation systems in high-need schools. Thirty-four awards for multi-year funding were made in 2007, and more will be coming. The department also funded the Center for Educator Compensation Reform to provide technical assistance to TIF sites.

- **Research and technical assistance centers.** Under its National Research and Development Centers program, the department awarded a five-year, $10 million grant to Vanderbilt University to study performance incentives systems and to establish pay-for-performance experiments. As noted earlier, the department also supports technical assistance through the National Comprehensive Center on Teacher Quality.
- **State Longitudinal Data Systems Grant Program.** Beginning with 14 initial grantees in 2005, the department has now awarded grants to all but six states* to help them develop data systems to inform decisions and research aimed at improving student learning.
- **Teacher Education Assistance for College and Higher Education (TEACH).** Awarded for the first time for school year 2008-09, TEACH grants of up to $4,000 per year are available to college students who agree to teach for at least four academic years in public or private schools serving low-income families. If a grant recipient fails to fulfill the teaching commitment, the grant is converted to a loan.

The economic stimulus bill passed by Congress in early 2009 will help states and districts address several of the "enabling conditions" outlined in this chapter. Among the priorities the Department of Education has outlined for the nearly $100 billion allocated for K-12 education over two years are fair and reliable teacher-evaluation systems based on objective measures of student progress and multiple teacher observations and training for educators to use data to improve student instruction.[97]

State and federal encouragement of pay reforms will be more effective the more policy makers recognize that redesigning teacher compensation is very much a work in progress, with a great deal still to be learned. They can support the continuous improvement process by encouraging experimentation, evaluation, and program modifications as more experience is gained and more evidence accumulated about what works and what doesn't.

Removing Obstacles

Financial incentives and technical assistance will not be enough to foster significant changes in teacher compensation systems unless states also rid their often-voluminous education codes of laws and policies that protect existing pay arrangements or that stand in the way of responsible fiscal administration of teacher pension plans.

A few examples will suggest some of the policy provisions that currently obstruct reform. Moving away from reliance on the single salary schedule may be difficult for districts in the 17 states that have minimum salary schedules for teachers. Even though the salary levels in the schedules may be lower that those actually used in most or all of the districts in the state, the existence of a statewide requirement and the way that it is specified may force districts to adhere to a "steps and lanes" structure for current pay. Rhode Island does not have a state salary schedule but requires local districts to have salary schedules that are based on years of service, experience and training. Rhode Island and 17 other states require districts to pay more to teachers who have earned advanced degrees.[98] The NEA affiliate in Missouri won a court order in 2004 blocking bonuses a local district wanted to offer to some teachers who agreed to sign two-year instead of annual contracts. The court ruled that the bonuses violated the Missouri Teacher Tenure Act that required a school board to approve a salary schedule for all teachers.[99]

We have already noted California's statutory prohibition against using teacher data from its statewide teacher longitudinal data base for purposes of teacher pay or evaluation. New York teacher unions were successful in 2008 in persuading the legislature to impose a ban for at least two years on using student performance as a criterion in awarding teacher tenure. (These provisions may be changed as states work to meet the eligibility requirements for new federal funding under the economic stimulus program.)

State requirements can also interfere with fiscal responsibility in pension plans. According to the Center for Retirement Research at Boston College, in 2006 19

* Alabama, New Mexico, Oklahoma, South Dakota, West Virginia, and Wyoming.

teacher pension plans operated under statutory constraints on employer contributions that prevented them from making their Actuarial Required Contributions (ARC). Employers in Illinois made only 36 percent of the ARC; 11 other teacher plans received less than 80 percent of their ARCs from employers.[100]

Wide Stakeholder Involvement

Finally, but by no means least important, **a clear lesson that emerges from both successful and unsuccessful efforts to reform teacher compensation is the importance of engaging a wide group of stakeholders in the design and implementation of new compensation plans.**

Teachers are essential partners for both legal and practical reasons. In many states that authorize teacher collective bargaining, wages are subject to negotiation between school boards and unions. Even where they are not, teachers who oppose pay reforms may well have enough political clout to defeat them by voting against school board supporters. Plans imposed on teachers without their input may not have the desired effects on teacher behavior. Despite this fairly obvious point about teacher engagement, we saw in Chapter 2 some examples (and there are numerous others) of how compensation reform efforts went astray in part because state or district policy makers failed to involve teachers in design and implementation.

Other stakeholders ought to be at the table as well, however. The interests of teachers (often represented by unions that are heavily influenced by their longest-serving members) are not necessarily the same as those of other policy makers and taxpayers, for reasons presented throughout in this study. These other stakeholders represent important viewpoints in a public system that ought also to be heard.

Moreover, the support of many people will be needed for new approaches to compensation to work. Administrators will have to revise their systems for such things as evaluation and payroll. School boards and/or state legislatures can provide crucial funding and can alter existing policies and practices that may pose roadblocks to new pay arrangements. Mayors and governors can spur policy design and rally support for change. Business leaders can contribute their experience with various approaches to compensation design in the private sector. Foundations are often needed to help fund the design, initial implementation, and evaluation of new pay initiatives.

Public education in the United States operates in a messy and fragmented political environment. It can be frustrating to take the time to engage with all the constituencies that legitimately have a voice in education policy. There is a danger that procedures for appropriate consultation and wide engagement can be used by supporters of the status quo to keep on with business as usual. **Informed, forceful supporters of reform must continue to press for improvements in teacher compensation systems, while ensuring that important perspectives and concerns receive appropriate consideration as new approaches are designed and implemented.**

Page 9, Landon H. Rowland

We must also consider the following additional "demographic" aspects of life in any urban school environment:

1. The steady expansion and prevalence of students receiving free and reduced-priced lunches—the principal marker for indigence.
2. The increase in the number of languages and language dialects spoken by families of children in urban districts (for example, the third largest language group in one district is Somali).
3. High turnover of students from the beginning of the school year to the following spring—sometimes exceeding half of the student body.
4. The increase and prevalence of homeless families (and homeless children in junior high and high school).

The persistence of these demographic conditions frustrates the best teachers and principals and prevents the best education reforms from being effective. People in high office adopt solutions involving money and bold pronouncements but often do nothing to address these demographic conditions and their effects on good teaching and good learning.

Page 17, Josh Weston

The length of the typical teacher's work day should be associated with advocacy for higher pay levels, in order to attract more upper quartile college graduates into teaching careers, while also enhancing student outcomes.

The KIPP charter schools are especially acclaimed for their superior outcomes, which are partially attributable to their longer school hours. Most public schools adjourn by 3 p.m., with fewer than six teaching hours per day. Adding an hour to the teaching day, accompanied by 10-15 percent higher pay levels, would be a win-win outcome for students, teachers, and parents.

Page 36, Howard Fluhr

The section on pensions is well-balanced and thorough. Because confusion about DB and DC plans is rife, I hope that readers will give careful attention to all the material in this CED report. Superficial or selective attention to the analysis could potentially result in CED's findings being misused and/or misinterpreted. Only a full reading of the pension discussion can provide an adequate understanding of the elements of choice involved in pension plan design and of how the pros and cons depend on the specific circumstances of individual states and cities.

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CEAL	Consejo Empresario de America Latina Buenos Aires, Argentina
CEDA	Committee for Economic Development of Australia Sydney, Australia
CIRD	China Institute for Reform and Development Hainan, People's Republic of China
EVA	Centre for Finnish Business and Policy Studies Helsinki, Finland
FAE	Forum de Administradores de Empresas Lisbon, Portugal
IDEP	Institut de l'Entreprise Paris, France
経済同友会	Keizai Doyukai Tokyo, Japan
NBI	National Business Initiative Johannesburg, South Africa
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