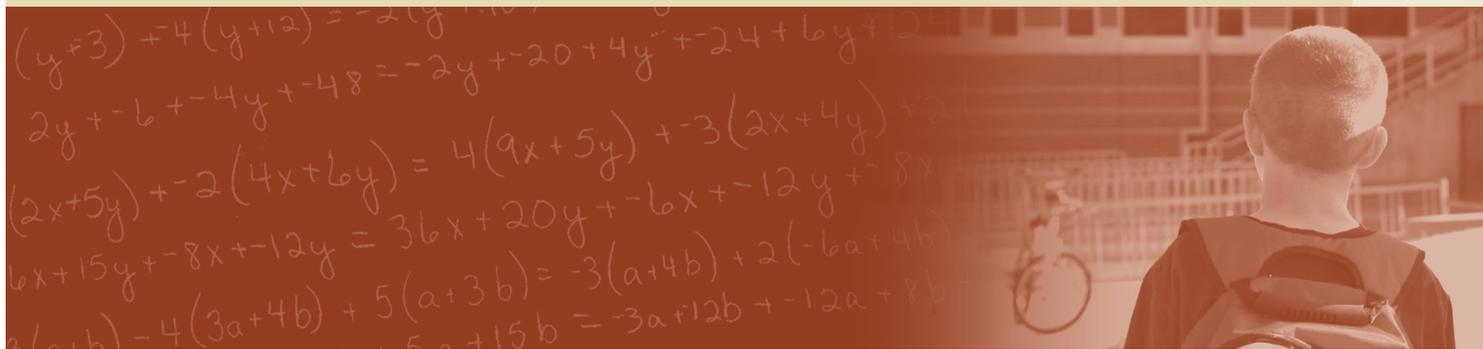


School Finance Redesign Project

center on **reinventing** public education



A LEAP OF FAITH:

REDESIGNING TEACHER COMPENSATION

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A report from the
School Finance Redesign Project

Center on Reinventing Public Education
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The School Finance Redesign Project

The School Finance Redesign Project (SFRP) encompasses research, policy analysis, and public engagement activities that examine how K-12 finance can be redesigned to better support student performance. The project addresses the basic question, “How can resources help schools achieve the higher levels of student performance that state and national education standards now demand?”

Check in with us periodically to see what we are learning and how that information may reshape education finance to make money matter for America’s schools. You can find us at www.schoolfinanceredesign.org.

Jacob Adams, Principal Investigator

Foreword

From the early 1990s through today, controversies about public spending on elementary and secondary education have grown as states have adopted performance standards pledging that every child will learn enough to become an independent productive citizen and as No Child Left Behind has put teeth in these expectations. Some educators say that meeting higher standards requires more money. Others claim that existing resources are sufficient to pay for higher performance, if only funds were used more productively. While plaintiffs have asked courts to determine what amount of spending is adequate to get students to standards, analysts of various stripes have argued that greater expenditures alone will not lead to better results. Moreover, critics of demands for more money point to cases in states and cities where major spending increases were misspent, with little or no impact on student learning. Though no one seriously argues that more spending could never lead to school improvement, there is compelling evidence that without changes in the way resources are distributed, used, and accounted for, Americans could end up with a more expensive, but not necessarily more effective, public education system.

In this environment, governors and state legislators particularly have asked two questions: How much money will it take for all students to meet standards? And how should the money be spent to ensure that result? The Bill & Melinda Gates Foundation asked the Center on Reinventing Public Education (CRPE) to create a School Finance Redesign Project (SFRP) to help elected officials, practitioners, and the public better understand how education finance systems now work and to identify new options for deploying K-12 resources to support state and national educational goals. Initiated in 2003, the project has grown to include more than 30 separate analyses.

SFRP was designed to address five questions:

- Are public education funds now focused on student learning? If not, what stands in the way?
- Are there good ideas about potentially more focused and effective uses of funds to promote student learning?
- Are there good ideas about better ways to spend money to attract and reward quality educators?
- Do we know enough now to say exactly how much money is needed to bring all children up to standards and to say how money should be spent?

- What can policymakers do to ensure that the “right amount” of money is distributed equitably, used productively, and accounted for meaningfully?

This paper by Michael DeArmond and Dan Goldhaber addresses the third question by summarizing their SFRP work on teacher compensation. As they note, there is no shortage of ideas for introducing new financial incentives into the way teachers are paid. Some advocates hope that offering performance incentives will motivate teachers to focus on increasing student achievement. Others hope bonuses for math and science teachers, or for those who work in disadvantaged schools, will more effectively attract talented teachers.

Arguments on all sides of the issue exceed our knowledge about when and how redesigning teacher compensation might work. If the problems associated with today’s teacher pay systems are clear, the possibilities of tomorrow’s solutions are not. DeArmond and Goldhaber draw on a diverse set of data to shed light on the issue. Their analysis of an original survey of teachers in Washington State calls into question the conventional wisdom that all teachers are opposed to pay reform. Their findings, especially those about how opinions vary among teachers, have important implications for where and how policymakers might launch reform efforts. For policymakers interested in how large incentives would need to be, the authors offer two analyses of national data. The results of these analyses highlight the dysfunction of the current system and its disregard for differences among both teachers and jobs, but they also show how difficult it is to predict the specific incentives needed to draw more teachers into high-poverty schools or to attract high-quality candidates with technical expertise into teaching. The only way to really determine how to spend money better to attract and reward quality teachers is to try something different—to take a leap of faith—and do our best to learn from it.

Paul Hill
Center on Reinventing Public Education

Introduction

There is a growing chorus in education policy for rewarding teachers for things such as raising student achievement, taking on difficult teaching assignments, and having special skills (e.g., a mathematics degree). Advocates of these reforms hope that financial incentives will motivate teachers to focus on performance and draw more talented teachers into the classrooms where they are most needed.

These ideas are not new, but they have a special urgency today as performance-based accountability ups the ante in the push for school improvement and as social scientists remind everyone how important teachers are to student achievement, especially for poor and minority students. At the same time, these ideas raise difficult questions: *Where and how could these reforms work? How should pay incentives be structured? How will teachers respond?* Despite a profusion of arguments in all directions, little empirical evidence exists about the answers to these and other important questions about redesigning teacher compensation.

This School Finance Redesign Project (SFRP) report briefly summarizes three SFRP teacher compensation studies that begin to help build the evidence base for reform.¹ The first study, *Teacher Attitudes About Compensation Reform: Implications for Reform Implementation*, looks at teacher attitudes about pay reforms and provides a sense of what teachers think about particular incentive proposals. The second and third papers, *Returns to Skill and Teacher Wage Premiums: What Can We Learn By Comparing the Teacher and Private Sector Labor Markets?* and *Teacher Labor Markets and the Perils of Using Hedonics to Estimate Compensating Differentials in the Public Sector*, look at how high incentives would have to be to attract people with technical skills to teaching and to make working in high-needs schools more attractive. Together, these papers underscore both the importance and the difficulty of redesigning teacher pay incentives in public education. In the end, they suggest that the most promising redesign efforts will depend on carefully defined experiments and the leaps of faith they require.

1. Dan Goldhaber, Michael DeArmond, and Scott DeBurgomaster, *Teacher Attitudes About Compensation Reform: Implications for Reform Implementation*, SFRP Working Paper 20; Dan Goldhaber, Michael DeArmond, Albert Liu, and Dan Player, *Returns to Skill and Teacher Wage Premiums: What Can We Learn By Comparing the Teacher and Private Sector Labor Markets?* SFRP Working Paper 8; Dan Goldhaber, Kate Destler, and Dan Player, *Teacher Labor Markets and the Perils of Using Hedonics to Estimate Compensating Differentials in the Public Sector*, SFRP Working Paper 17. All from the School Finance Redesign Project at the Center on Reinventing Public Education. Available at www.crpe.org.

What Do Teachers Think About Pay Reform?

Individual teachers and their attitudes matter, especially when it comes to implementing reforms. Depending on their views, teachers might take action to support, to subvert, or even to stop experiments with alternative compensation systems as they unfold. To better understand which reform proposals have the most support among individual teachers and to identify promising areas for experimentation, we surveyed teachers in Washington State in the spring of 2006. We asked teachers about their attitudes toward several reforms, including merit pay, subject-area pay (i.e., incentives for math and science teachers), and so-called “combat pay” (i.e., incentives for working in a high-needs school).²

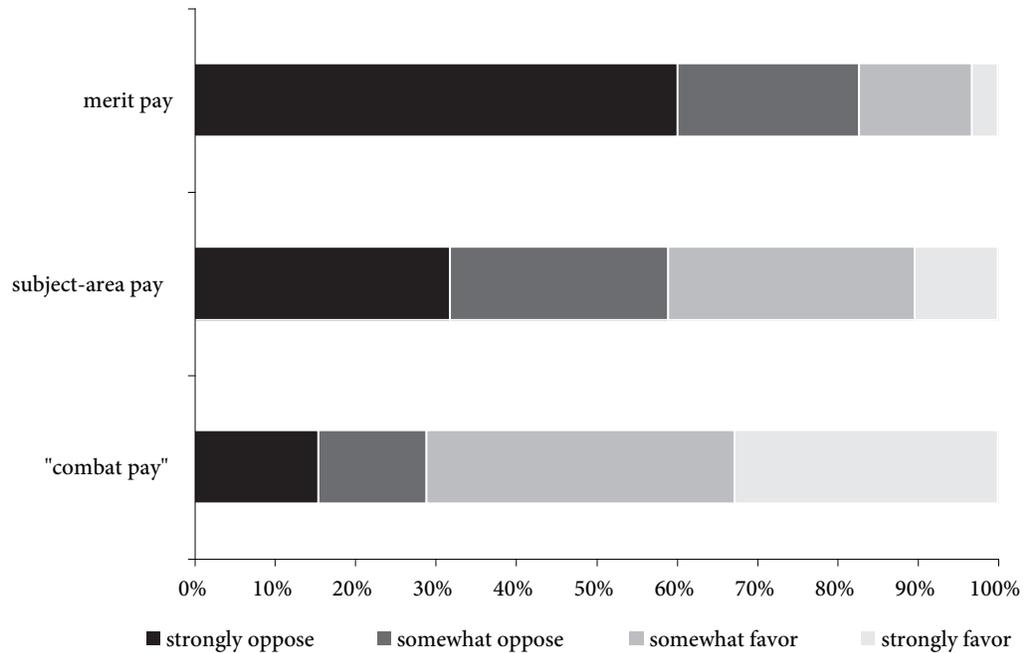
The survey’s results suggest that teachers view the three reforms very differently. Although a majority opposed merit pay (83 percent), a majority (72 percent) supported the idea of “combat pay” for teachers in high-needs schools. Around 41 percent supported incentives for subject-area expertise (e.g., more money for math teachers).³

To expand on these general results, we linked the survey responses to data on the teachers’ individual schools and districts to see how teacher attitudes vary across different contexts. This allowed us to explore if the opinions of a young teacher working in a low-performing, high-poverty school differed from those of a veteran working in an advantaged school. We found several systematic differences of opinion. Across all of the reform proposals, veteran teachers were less supportive than novice teachers. High school teachers were more supportive of merit and subject-area pay than elementary school teachers. And, interestingly, attitudes toward merit pay varied by how much teachers trusted their colleagues—the more trust, the *less* supportive they were.

2. The SFRP survey defined merit pay as giving extra pay to teachers “whose students make greater gains on standardized tests than similar students taught by other teachers.” Although not discussed here, the survey also asked about incentives for teachers who are certified by the National Board of Professional Teaching Standards.

3. Other national surveys have found similar results for “combat pay” and subject-area incentives, but higher support for merit pay (e.g., Ballou and Podgursky 1993, Farkas et al. 2003).

FIGURE 1. TEACHER SUPPORT/OPPOSITION FOR "COMBAT PAY," SUBJECT-AREA PAY, AND MERIT PAY



SOURCE: 2006 Washington State Teacher Compensation Survey

Together, these sub-group results underline an important point: policymakers should think carefully about where and how they place their bets when it comes to compensation reform. If they require all teachers to participate, resistance is likely, especially among veterans. Plans that require younger teachers to participate but allow veterans to opt-in (or -out) hold more promise than those that mandate everyone’s participation. Also promising are plans that ease teachers into the idea of differential pay through reforms that they support—such as so-called “combat pay”—rather than those that lead with merit pay and all of the opposition and controversy that comes with it.

Such advice rests on the assumption that teacher choices about whether or not to work and where to work are influenced by financial incentives. There is, however, a counter argument to be made—that teachers are not “in it for the money” and that their choices are more responsive to working conditions and school culture. Instead of offering teachers financial incentives, some argue that policymakers are better off trying to influence teacher choices by ensuring schools have effective school leaders and supportive and participatory work environments. While improvements in leadership and work environment are clearly desirable, they are difficult to affect directly by policy. In this research, we explore

trade-offs between financial rewards (\$5,000) and three roughly cost-equivalent working conditions that can be addressed directly by policy. As the results in table 1 show, teachers generally preferred the salary increases to the following workplace changes: having fewer students in their classes, a teacher’s aide to help them in the classroom, or more preparation time during their workweek.

TABLE 1. TEACHER PREFERENCES FOR ANNUAL PAY INCREASES VERSUS WORKPLACE CHANGES

	Percent who preferred a \$5,000 salary increase instead	N
Two fewer students in all of the classes you teach	83%	3066
A new full-time teacher’s aide who splits time between your class and four other teachers at your school	88%	3057
3.5 more hours of prep time each week	69%	3056

Nobody doubts that working conditions make jobs more or less attractive. At the same time, when we asked teachers to make a choice, it appears that money, although not everything, is far from irrelevant.

How Much Incentive Is Enough?

To explore how high incentives have to be to attract people with technical degrees and strong academic backgrounds to teaching and to attract teachers to work in high-needs schools, we compared the structure of compensation in the teacher labor market to the structure of compensation in other labor markets.

Returns to Skill

Analysts have long argued that salary schedules in public education have pernicious effects on who ends up teaching. By paying teachers based only on experience and coursework, salary schedules make teaching relatively unattractive for people with technical skills or strong academic backgrounds. They can earn higher salaries outside of teaching. As a result, the “brightest” college students avoid teaching, and math and science teachers are perennially in short supply. States have responded by experimenting with incentives ranging from \$2,000 to \$20,000 for “high quality candidates” and teachers with technical skills.

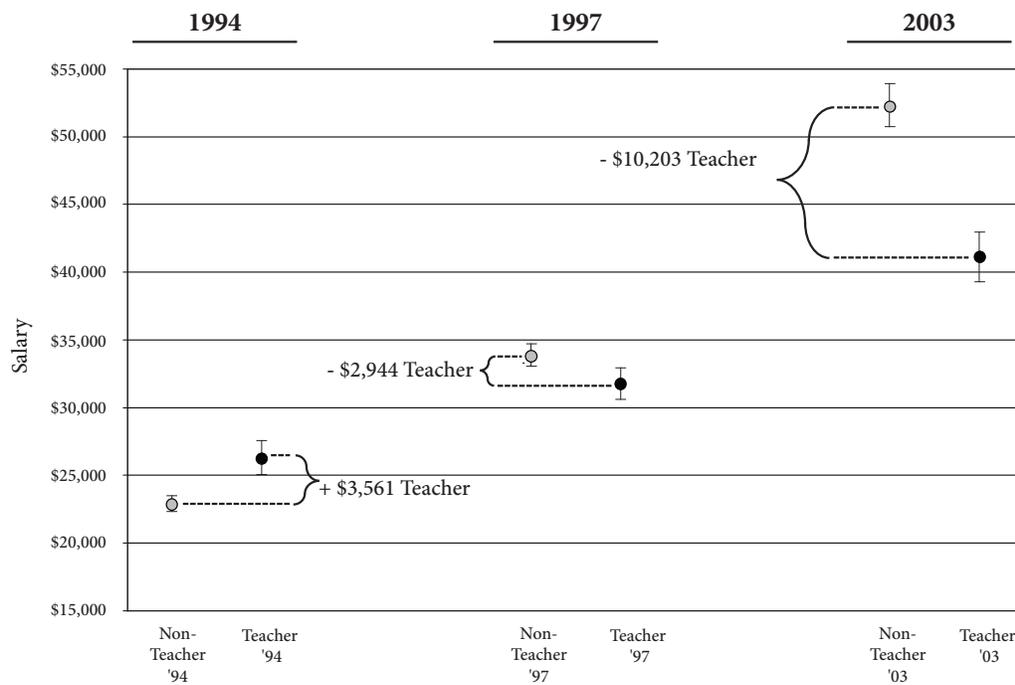
To find out how these amounts compare to what might actually be needed to make teaching more attractive to people with technical skills and strong academic backgrounds, we looked at data from the U.S. Department of Education’s Baccalaureate and Beyond Longitudinal Study (B&B:93/03). The B&B data follow students from college graduation through their early careers. Because some of the students became teachers and some did not, the data allow us to compare compensation both inside and outside of the teacher labor market and to see how the two sectors differ when it comes to rewarding technical degrees and graduation from selective colleges.⁴

Figure 2 illustrates some of the results by simulating what a single white woman with a technical degree from a selective college would earn inside and outside of teaching at three points in her early career. Starting from the left, the first two dots represent what she would earn in and out of teaching in 1994 (the year the B&B cohort graduated from college). The middle two dots show her earnings in 1997. On the far right are her earnings in 2003, a

4. As we point out, these comparisons run the risk of confounding the fact that people self-select into occupations with the value assigned to their degree or academic aptitude. Although we did not directly account for this potential bias, we indirectly attempted to assess it and found little that changes the overall comparisons presented here.

decade after graduation. The dots represent predicted salaries; the “whiskers” represent 90 percent confidence intervals.

FIGURE 2. SIMULATED EARLY-CAREER EARNINGS OF A WOMAN WITH A TECHNICAL DEGREE FROM A SELECTIVE COLLEGE INSIDE AND OUTSIDE OF TEACHING



SOURCE: Author’s simulation based on analysis of Baccalaureate and Beyond Longitudinal Study

Although she earns more as a teacher at the beginning of her career in 1994, after around 10 years of labor market experience, the gap favoring non-teaching is just over \$10,000. Teaching is less financially attractive than other job alternatives, suggesting that incentives to attract skilled women with labor market experience to teaching may need to be considerable. This pattern is a problem not only for women with technical degrees from selective colleges. We also found that *regardless of college major or college selectivity*, the longer a person teaches, the more his or her wages fall behind.

The magnitude of these differentials is startling, and the way they grow over time highlights how misleading comparisons of starting salaries alone can be. Above all, these differentials underscore the opportunities now available in the broader labor market, especially to those

with strong academic backgrounds and technical skills. Public education may still be able to attract enough teachers to the classroom by paying them in the same way teachers have been paid for the past 40 years. However, given changes in the broader labor market, this approach is unlikely to attract into teaching large numbers of people with strong academic or technical skills.

Incentives for Working in High-Needs Schools

As we noted above, “combat pay” was the most popular reform proposal among teachers in the Washington State survey. It also turns out to be an extremely difficult type of incentive for researchers to model.

In general, the standard way to calculate differentials associated with working conditions is to decompose wages into their constituent part, using regression analysis, and assign weights to the factors that determine an individual’s salary. This allows the researcher to give a salary weight or value to differences in working conditions. Although this method is common outside of education, it does not work very well for teaching: it assumes that market forces set wages to reflect the “value” of employee skills and working conditions, something that is not true in public education where salaries are set by district-wide policy.⁵

In search of better estimates, we looked at the private school market, where salary setting is less constrained. Again, we relied on data from the U.S. Department of Education, this time the 1999-2000 Schools and Staffing Survey, a national survey of both public and private schools that collects information about teacher compensation, school demographics, and working conditions, as well as data from the U.S. Census.

The results show that, consistent with theory, private schools pay wage premiums for teaching in higher-poverty schools. The models suggest, for instance, that if a private school teacher moved from a low-poverty to a high-poverty school, his or her pay would increase by around \$1,800. This difference in pay can be interpreted as an incentive offered by high-poverty schools to attract teachers.

5. The fact that teacher quality is so hard to measure is a further complication that makes this method a bad match for public education.

We cannot say whether or not an \$1,800 incentive would be enough to encourage public school teachers to shift from low- to high-poverty schools. Indeed, our study suggests that there is no easy, mechanical way to estimate the right amount. Instead, figuring out how much to pay teachers to attract them to more difficult assignments will require experimentation with different levels of incentive for different types of schools.

A Necessary Leap

The notion that we ought to use financial incentives in education is controversial. But our research suggests that incentives are at play, whether we like it or not. Public education tends to ignore differences between teachers and their jobs, yet these differences remain, and public schools are not immune from their effects. Teachers recognize this: they think that teachers in tough assignments, for example, deserve extra rewards; they say that marginal improvements in their salaries matter as much or more than marginal improvements in their working conditions.

At the same time, our findings strongly suggest that the “right” incentives will only be developed through actual experience and close attention to teachers’ responses. In the end, effective incentives can be found if policymakers and teachers are willing to take small and reversible leaps of faith, and if policymakers ensure that we pay close attention and carefully evaluate the results.

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The Center on Reinventing Public Education at the University of Washington engages in research and analysis aimed at developing focused, effective, and accountable schools and the systems that support them. The Center, established in 1993, seeks to inform community leaders, policymakers, school and school system leaders, and the research community.

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