TENNESSEE CONSORTIUM ON RESEARCH, EVALUATION & DEVELOPMENT

EVALUATION OF TENNESSEE'S STRATEGIC COMPENSATION PROGRAMS: INTERIM FINDINGS ON DESIGN, IMPLEMENTATION, AND IMPACT IN YEAR 2 (2012-13).

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TABLE OF CONTENTS

List of Figures

List of Tables

EXECUTIVE SUMMARY

Although select local education agencies (LEAs) in Tennessee have been using educator compensation systems other than the traditional single salary schedule since the mid-1980s, the influx of federal grant dollars starting in 2010 from a $500 million Race to the Top grant and a $36 million federal Teacher Incentive Fund (TIF) grant initiated the state's most aggressive push for systematic compensation reform to date. Beginning in the 2010-11 school year, Tennessee implemented three distinct strategic compensation initiatives – the Competitive Supplemental Fund (CSF), the Innovation Acceleration Fund (IAF), and the Tennessee Teacher Incentive Fund (TN TIF) – each funded by federal dollars. Collectively, these three initiatives involve 14 LEAs and nearly 200 Tennessee schools. In total, the programs commit $49.5 million to the development and implementation of strategic compensation through the 2014-15 school year.

This report presents findings from the second year of a multi-year evaluation of Tennessee's strategic compensation programs.[1] An overview of key evaluation findings is presented below.

DESIGN FEATURES

- Performance-based bonus award models used in district include both input- and output-focused measures and multiple units of accountability (e.g., individual teachers, grade level/subject teams, schools, districts) to determine bonuses.
- Bonus amounts offered to participants differ substantially between administrators, teachers in tested grades/subjects, and teachers in untested grades/subjects.
- Alternative salary schedules use an educator's level of education and years of experience to determine starting salary and an educator's summative evaluation score to determine base salary increases.

PAYOUTS TO EDUCATORS FOR 2011-12 PERFORMANCE

- Payouts ranged from less than $40 to more than $8,600. The average recipient received $1,665.
- Payouts were slightly larger in districts with both alternative salary schedules and performance-based bonuses than in bonus-only districts.
- Classroom teachers received the largest percentage of payouts (88 percent). Another five percent of recipients were either principals or assistant principals. The remaining recipients held a variety of positions (e.g., instructional coaches).
- The dispersion of payouts to classroom teachers varied considerably between districts.
- Teacher characteristics – such as experience, having a TVAAS score, and grade-level assignment – influenced payouts across districts.

IMPLEMENTATION EXPERIENCES AND CHALLENGES

- The majority of officials in participating districts felt that compensation reforms had improved teacher practices through a greater focus on professional development, instructional coaching, and student data.
- Ten of the 14 participating districts made revisions to compensation models due to issues, many related to attendance and eligibility requirements, raised during the first year of implementation.
- District officials cited payout data collection, communication of awards, conflict resolution, and timing of payouts as positive aspects of award distribution.
- Eight of the 14 participating districts reported concerns over sustainability.

EDUCATOR PERCEPTIONS OF STRATEGIC COMPENSATION

- More than 80 percent of respondents were aware of the strategic compensation programs and had an accurate understanding that bonus awards were part of the programs. There remained notable confusion about alternative salary schedules in the three districts that utilized them.
- The majority of respondents believed bonus awards and alternative salary schedules were fair, and more than 75 percent believed that performance criteria for both bonus and alternative salary components were worthy of extra pay.
- The majority of respondents in both types of programs believed the performance-based payouts were personally motivating. However, only one-quarter felt they would need to change their professional practice to earn either type of award.
- Approximately 50 percent of respondents felt positively when asked about their overall satisfaction with program implementation and their feelings about adequacy of support. Perceptions of implementation improved slightly from 2011-12 to 2012-13.
- Respondents' views of program impact improved from 2011-12 across most dimensions but remained split in 2012-13. However, beliefs about the program impact on teacher satisfaction and retention remained mixed as in the previous year.
- Respondents held mixed views about the impact of performance-based pay on teaching, learning, school culture, and teacher satisfaction. More than half felt that teachers indicated they would feel more valued as professionals and satisfied with their jobs if paid for performance, while a similar percentage felt that teachers would be more likely to leave the profession and resent the way they are compensated.

IMPACT OF STRATEGIC COMPENSATION ON TEACHER TURNOVER AND RETENTION

- There is no evidence that the existence of strategic compensation programs reduced teacher turnover in participating schools, had any effect on the probability that a teacher would leave the public education system, or had any effect on the retention of teachers eligible for a service retirement.
- Among teachers with TVAAS scores, there is no evidence that strategic compensation programs changed the relationship between teacher turnover and the TVAAS scores of individual teachers. Within all Tennessee schools, turnover was highest among teachers with low TVAAS scores.
- Teachers who did not receive a payout had a sharply elevated probability of turnover, while the probability of turnover among teachers who received a substantial award was sharply reduced.

STRATEGIC COMPENSATION AND STUDENT PERFORMANCE IN 2012-13

- Average TCAP proficiency rates for reading and math were lower in program schools than in non-program schools during the implementation period. This was also true prior to implementation for grades 5-8 in reading, and for all grades in math.
- TCAP reading and math proficiency rates generally increased in program schools between 2009-10 and 2012-13. The gap in proficiency rates between program and non-program schools remained generally constant over this period. This indicates that program schools were not catching up with performance in non-program schools with respect to this measure of student performance.
- Relative to the year prior to program implementation, students at program schools had higher standardized achievement gains on TCAP reading tests and lower standardized achievement gains on TCAP math tests over the first two program years.
- There is strong evidence to suggest that it will continue to be difficult to identify the program impact on reading gain scores, due to the variability in reading gain scores among program schools even in years prior to the initiation of the program. This variability confounds efforts to identify the impact of the program initiation in the 2011-2012 school year.
- With respect to results on TCAP reading tests, there is little evidence indicating a statistically or substantively significant impact of program participation on student performance.
- For math, the overall program participation impact is also small and statistically insignificant. Although the point estimate of the impact of adopting an alternative salary structure is large, this result is based on only three districts and a small number of students, and fails to attain statistical significance at conventional levels.

INTRODUCTION

Since 2010, Tennessee has invested significant funding and effort in education reform initiatives aimed at improving the quality of teaching and learning in its K-12 public schools. Starting with the 2010-11 school year, Tennessee implemented three distinct federally-funded initiatives adding up to a total commitment of $49.5 million for the development and implementation of strategic compensation programs for educators through the 2014-15 school year. Collectively, these initiatives involve 14 local education agencies (LEAs) and nearly 200 of Tennessee's K-12 public schools.

Tennessee was one of the first states to earn a federal Race to the Top grant in 2010, allocating more than $500 million to reform education across the state. The state's efforts target five broad areas of reform, with the development and retention of great teachers and leaders being a cornerstone of the state's application. While not inclusive of all the state's Race to the Top initiatives, Table I highlights some of key initiatives.

Table I: Tennessee's Race to the Top Initiatives at a Glance

Reform Area	Reform Initiatives
Teachers and Leaders	Tennessee Educator Acceleration Model (TEAM) evaluation model for all certified educators with 50 percent of the total evaluation score based on performance outcomes and 50 percent based on in-class observations.
	Teacher residency programs and expedited/alternative teacher licensure pathways to enhance teacher training and preparation. Initiatives like the state's Electronic Learning Center to provide expanded supports for educators.
	IAF and CSF grants to develop and implement performance-based strategic compensation for educators.
Data	Expanding current and pre-service educator access to and understanding of the Tennessee Value-Added Assessment System (TVAAS) data.
	Professional development on using balanced assessment to inform instruction.
	Enhancing data systems to improve data access (e.g., data dashboard, state longitudinal data system).
Standards and Assessment	Common Core State Standards adopted.
	Participation in the Partnership for Assessment of Readiness for College and Careers (PARCC), a consortium planning for a new system of online assessments by 2014-15 aligned with the Common Core.

Source: Review of Tennessee's Race to the Top application (2010) and Tennessee's Race to the Top website at http://www.tn.gov/firsttothetop/index.html, accessed June 2012.

Table I continued on page 6

Table I continued from page 5

Table I: Tennessee's Race to the Top Initiatives at a Glance (continued)

Reform Area	Reform Initiatives
School Turnaround	Improving chronically low-performing schools through the Achievement School District.
STEM Education	Expanding STEM education opportunities through STEM Innovation Network, a public-private collaborative to enhance teaching and learning around science, technology, engineering, and math (STEM).

Source: Review of Tennessee's Race to the Top application (2010) and Tennessee's Race to the Top website at http://www.tn.gov/firsttothetop/index.html, accessed June 2012.

The state's leaders believed that an educator compensation program focused on performance should be a key component of the Race to the Top grant. Therefore, the state's proposal outlined two competitive compensation initiatives for LEAs to reward teachers and principals for increasing student achievement: the Competitive Supplemental Fund (CSF), to support planning of compensation models, and the Innovation Acceleration Fund (IAF), to support LEA adoption and implementation of alternative salary schedules.

Concurrent with Tennessee's Race to the Top award, the state earned a $36 million federal Teacher Incentive Fund (TIF) grant from the U.S. Department of Education. The federal TIF initiative supports the development and implementation of performance-based compensation programs for teachers and principals in high-need schools over a five year period.[2] The Tennessee Department of Education (TDOE) administers the funds from the federal TIF grant to districts across the state for the development and implementation of bonus awards and alternative salary schedules for teachers and principals.

The goals of the federal TIF grant include (ED, 2010):

- Improving student achievement by increasing teacher and principal effectiveness,
- Reforming teacher and principal compensation programs so that educators are rewarded for increases in student achievement,
- Increasing the number and improving retention of effective educators serving minority, and economically disadvantaged students in hard-to-staff subjects, and
- Creating sustainable performance-based compensation programs.

Both the Race to the Top and TIF grants include a commitment to having state initiatives independently evaluated. The Tennessee Consortium on Research, Evaluation, and Development (the Consortium) is responsible for carrying out a program evaluation of the strategic compensation programs being implemented across the state as part of the CSF, IAF, and TN TIF initiatives. As much as possible, evaluators examine these strategic compensation initiatives concurrently since they share similar expectations for implementation and outcomes. The research questions guiding the program evaluation are listed below.

1. What has been the process of planning for and developing the new compensation programs in LEAs?
2. What are the key design features of the new compensation models developed by LEAs?
3. What are stakeholders' perceptions about compensation design, the development and implementation process, and program impact in their schools?
4. How do the new compensation programs influence educators' professional practices?
5. What is the actual financial impact of the new compensation programs on educators' compensation?
6. What is the impact of the new compensation programs on educator turnover and retention?
7. What is the impact of the new compensation programs on student achievement gains?
8. How does program design influence the ways in which the new compensation programs ultimately impact teaching and learning in schools?

This report focuses specifically on design, implementation and outcomes of strategic compensation programs throughout the second year of implementation (2012-13). It follows the first year evaluation of program implementation during the 2011-12 school year which focused on understanding the process for developing compensation programs, the design of compensation models, and educator perceptions of the programs. Overall, both evaluations reveal that LEAs developed a variety of strategic compensation programs with involvement from multiple stakeholders at the local level. These programs focus on rewarding educators for their contributions to student learning and are inclusive of building-level administrators and teachers who teach in state-tested assignments and those not in state-tested assignments.

Over the first two years of program implementation, educators participating in strategic compensation programs expressed a mix of positive feedback and lingering concerns. During the 2011-12 school year, district officials felt positively about the ways in which compensation models were developed and communicated among stakeholders. However, they held concerns about upcoming payouts for educators during the fall of 2012 and the long-term sustainability of the strategic compensation programs. When these topics were revisited with district officials during the 2012-13 school year, their reflections on the first payout process were more favorable than expected, but concerns about sustainability remained.

Educator attitudes and experiences with strategic compensation programs have generally improved over the first two years of program implementation. In both years, educators felt informed about the programs. Survey

results reflected a good understanding of bonus awards, but there was some confusion surrounding the nature of alternative salary schedules.[3] In both years, educators expressed mixed views about the motivational influences of performance-based compensation. Finally, while educators' feelings about program impacts on teaching and learning were split in 2012-13, those responses represented a more favorable view than in the year prior.

The second-year program evaluation also focuses on several topics that were not part of the first year of program implementation. The first round of performance-based payouts began in the fall of 2012, and an examination of their distribution to educators across LEAs is included in this second-year program evaluation report. This evaluation report also provides an analysis of program impact on teacher turnover and student achievement gains. These outcome analyses will continue to be addressed in future evaluation reports.

In the remaining pages of this report, complete findings from the second year program evaluation are organized in chapters that address specific topics. The findings are preceded by an overview of the current landscape of compensation reform in public education both in Tennessee and nationally. The program evaluation findings follow, beginning with Chapter 2, which summarizes the design features of LEAs' strategic compensation models. The distribution of performance-based compensation payouts to educators is discussed in Chapter 3. Educator experiences with and perceptions about the development, implementation, and outcomes of the strategic compensation programs are presented in both Chapters 4 and 5. Finally, the impact of strategic compensation programs on teacher turnover and student achievement can be found in Chapters 6 and 7, respectively.

I. EDUCATOR COMPENSATION REFORM IN TENNESSEE AND ACROSS THE NATION

OVERVIEW OF TENNESSEE'S CURRENT COMPENSATION REFORM INITIATIVES

While Tennessee's three compensation reform initiatives for educators – CSF, IAF, and TN TIF – all focus LEA efforts on aligning educator pay more closely to performance outcomes (e.g., student test score gains, educator evaluation scores), each grant also has distinct features. The TN TIF cohort that began its work in 2010 focuses primarily on performance-based bonuses for educators, while IAF supports LEA efforts to implement alternative salary schedules as well. CSF grants focus solely on planning for compensation or turning around low-performing schools.

In total, 14 LEAs received CSF, IAF, and/or TN TIF grants in the fall of 2010. They spent the spring and summer of 2011 focused on planning and development before submitting their strategic compensation models and readiness plans to TDOE for approval in mid-June 2011. Following the TDOE's review process, LEAs implemented strategic compensation models beginning with the 2011-12 school year. Educator performance during the 2011-12 school year then determined what they were paid in the first round of performance-based payouts beginning in the fall of 2012. Figure 1.1 summarizes the timeline for the 2010 cohort of IAF and TN TIF grantees.

Figure 1.1: Timeline for IAF and TN TIF Grantees, 2010 Cohort

	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
IAF	Fall: Cohort Grants awarded Spring/Summer: planning, development, and approval	Year 1 implementation	Year 2 implementation Fall: 1st payouts District begins local funding contribution	Year 3 implementation Fall: 2nd payouts Final year of IAF programs	Final IAF payouts	
CSF	Cohort awarded $375,000 one time planning grant to be spent by 2014					
TN TIF	Fall: Cohort Grants awarded Spring/Summer: planning, development, and approval	Year 1 implementation	Year 2 implementation Fall: 1st payouts District begins local funding contribution	Year 3 implementation Fall: 2nd payouts	Year 4 implementation Final year for TN TIF programs	Final TN TIF payouts

Further details about each grant initiative are provided below including

COMPETITIVE SUPPLEMENTAL FUND

According to Tennessee's Race to the Top application, CSF committed $1.5 million over a four-year period (2010-11 to 2013-14) and was funded through the state's Race to the Top grant. CSF grants were awarded annually and targeted the 20 percent of districts that received the smallest share of federal Race to the Top dollars. Twenty-eight districts were eligible for CSF's first-year competition. Selected districts received a collective total of $375,000 in one-time awards through a competitive application process.

In 2010, the grant competition focused on two priorities: (1) developing strategic compensation models for teachers and principals in order to increase educator effectiveness and student achievement, as well as (2) using innovative strategies or interventions to turn around low-performing schools and increase student academic proficiency. A maximum of $300,000 was allotted for districts pursuing the first of the two priorities. In September 2010, six districts earned a one-time award of $50,000 each to develop a strategic compensation model during the 2010-11 school year. Those awards focused on development, not implementation, over a one-year period, and strategic compensation models were submitted to TDOE in June 2011. With the exception of one LEA, each CSF grantee also received additional funds through IAF or TN TIF to implement its strategic compensation model at the beginning of the 2011-12 school year.[4]

INNOVATION ACCELERATION FUND

IAF committed $12 million over a four-year period (2010-11 to 2013-14), with $3 million dedicated annually to fund strategic compensation programs. As with CSF, IAF was funded through the state's federal Race to the Top grant. Four districts received IAF grants at the end of 2010 through a competitive application process. These districts used the remainder of the 2010-11 school year as a planning and development phase. Implementation began during the 2011-12 school year and continued through the 2013-14 school year.

TDOE provided IAF grantees with a set of five broad parameters to guide the design of their programs. Accordingly, compensation programs funded by IAF must include:

- An alternative salary schedule that rewards factors other than those in the state salary schedule (i.e., other than level of education or years of experience).[5]
- Differentiated performance-based pay for effective teachers and principals, with awards ranging from $1,500 to $10,000 based on individual and/or group (i.e., school or team) performance.
- Financial and working conditions recruitment and retention incentives to hire and retain teachers in hard-to-staff subjects and schools.

- The use of data and evaluations to inform decisions related to professional development, retention, and tenure.
- A sustainability plan demonstrating an increasing reliance on non-IAF dollars by the second year of implementation (2012-13) (Innovation Acceleration Fund application, 2010).

TENNESSEE TEACHER INCENTIVE FUND (2010 COHORT)

The allocation of funds for the TN TIF initiative began as part of a five-year, $36 million federal TIF grant in the fall of 2010. The federal TIF program supports projects that develop and implement performance-based compensation systems for teachers and principals in high-need schools (i.e., schools at which 50 percent or more of enrolled students are from low-income families).[6] TN TIF includes 106 high-need schools in 12 districts, all of which developed their strategic compensation programs during the 2010-11 year. Implementation began in the 2011-12 school year and will continue through the 2014-15 school year when the grant concludes. Federal and state-specific TIF priorities are detailed below in Table 1.1.

Table 1.1: Federal and State Priorities for TN TIF Districts' Strategic Compensation Programs

Performance criteria	Federal priority (Absolute)	Include differentiated levels of compensation for effective teachers and principals, placing significant weight on student growth and including observation-based assessments of teachers.
	Federal priority (Competitive)	Use value-added measures to determine performance-based bonus awards.
	State priority	Bonus awards to be determined by a combination of individual and group performance.
	State priority	Bonus awards to be determined, at least in part, by scores on state's new educator evaluation system.
Size of bonus awards	Federal priority (Absolute)	Provide bonus awards of substantial size.
	State priority	Bonus awards ranging from $1,500 to $10,000.
System alignment	Federal priority (Absolute)	Align with policies and practices related to data use, data-based decision making, educator evaluation, professional development, retention and tenure.
	Federal priority (Competitive)	Focus on increasing recruitment and retention of teachers to serve high-need schools in hard-to-staff areas.
Sustainability	Federal priority (Absolute)	Commit to fiscal sustainability, including effective estimates of costs, increasing contribution of local funds, and continuation of program after grant funds end.
	State priority	Commit to sustaining bonus awards beyond grant, starting with an increasing share of non-TIF dollars during second year of program implementation (2012-13).

Source: Tennessee's Teacher Incentive Fund application (2010) and Teacher Incentive Fund, Notice of Final Priorities (2010).

CHARACTERISTICS OF PARTICIPATING LEAS AND SCHOOLS

This section provides a summary of the districts participating in Tennessee's 2010 TIF, CSF, and IAF grants, with a more detailed discussion in Appendix A. Characteristics of participating LEAs and schools are based on data from the 2012-13 school year. The discussion also provides a better understanding of how districts and schools participating in these three strategic compensation initiatives fit within the broader Tennessee public school environment.

As noted previously, there are 14 LEAs participating in the 2010 cohort of TN TIF, IAF, and CSF. Within those LEAs, 192 schools – with a total enrollment of 122,570 students – participated in strategic compensation initiatives during the 2012-13 school year. Nearly 10 percent of all LEAs across the state of Tennessee, 11 percent of public schools, and 12 percent of public school students are involved in these three grant initiatives.

A total of 1,818 administrators and 17,406 teachers were employed in strategic compensation program districts during the 2012-13 school year, representing approximately 37 percent and 27 percent, respectively, of all administrators and teachers in the state's public schools. Educators participating in strategic compensation programs represent 25 percent of Tennessee educators who hold a bachelor's degree and 30 percent of educators who hold a Master's degree.[7]

During the 2012-13 school year, student demographics in strategic compensation program schools were similar to all Tennessee public schools with the exception of economically disadvantaged. Specific comparisons are detailed below in Table 1.2.

Table 1.2: Student Demographic Comparison Program Schools vs. All Tennessee Public Schools

	Strategic Compensation Program Schools	All Tennessee Public Schools
% Minority[8]	33%	34%
% Economically Disadvantaged[9]	66%	59%
% With Disabilities	15%	14%

COMPENSATION REFORM IN TENNESSEE

Although the CSF, IAF, and TN TIF programs may be the state's most aggressive push for systemic educator compensation reform to date, these current initiatives are not the first time the state encouraged districts to think beyond the sole use of the single salary schedule. Tennessee implemented the Career Ladder program from 1984 to 1997 as part of then-Governor Lamar Alexander's Better Schools Program. The Career Ladder was a voluntary program in which teachers could earn stipends of increasing value (up to $3,000) as they moved up the ladder. Promotion up the ladder was based on years of experience and meeting specified performance expectations, as measured by classroom observations, portfolio development, and teacher performance on a test. The state legislature ended the program in 1997.

From 2006 to 2009, Tennessee conducted the nation's first randomized experiment to test whether paying teachers for improved test scores would cause student test scores to rise (Springer, Ballou, et al, 2010). The Project on Incentives in Teaching (POINT) was a three-year, randomized pay-for-performance experiment conducted by the National Center on Performance Incentives in Metropolitan Nashville Public Schools. POINT was targeted at middle school math teachers who were eligible for bonuses of up to $15,000 per year based on student gains on the state standardized assessment.

In 2007, the state legislature passed Public Chapter 376 requiring districts to establish a differentiated pay plan and submit it to TDOE prior to the 2008-09 school year. The legislature did not, however, appropriate additional funds for these plans, leading many districts to forego implementation (Cour, 2009). However, in the summer of 2013, the legislature passed a new state minimum salary schedule that places less emphasis on experience and advanced degrees. The new schedule increased base pay for teachers (1.5 percent increases for teachers entering with a bachelor's degree and no years of experience) and limited step raises to the sixth and 11th years.

In addition to the changes to the state minimum salary schedule, starting in the 2014-15 school year, TDOE began enforcing the law adopted by the General Assembly in 2007. The flexibility provided by the new salary schedule will assist districts in meeting this requirement.[10]

Finally, TDOE was the recipient of the most recent TIF grant in 2012. The $18.4 million grant supports implementation of strategic compensation systems in three rural districts. All three districts will implement alternate salary schedules, develop educator evaluation systems, provide leadership opportunities for teachers, and offer targeted professional development.[11] Districts used the 2012-13 school year as an initial planning year and began implementation during the 2013-14 school year.

THE NATIONAL CONTEXT OF EDUCATOR COMPENSATION REFORM

Tennessee's past and present initiatives tied to educator compensation reform are not unlike other undertakings in K-12 public schools across the nation. Federal grants such as the Teacher Incentive Fund have served as an impetus for states and districts to create more strategic human capital management systems. Performance-based educator compensation programs have been a part of this effort. This section provides highlights of compensation reform efforts nationally, including findings from programs that have been evaluated along the way.

At the turn of the 21st century, a single salary schedule dictated the pay of most of the nation's K-12 public school teachers. Under a traditional step and lane system, a teacher's level of education and years of experience determined a teacher's pay (Podgursky, 2009). Despite the near universality of the single salary schedule, research has raised questions on whether experience and advanced degrees have a significant positive impact on student learning (Hanushek & Rivkin, 2004; Leigh & Mead, 2005). This research, coupled with other factors including an increased focus on accountability in education, the performance of U.S. students on international exams, advancements in the availability of performance data, and increasing bipartisan political support for compensation reform, spurred the growth of alternative compensation policies and programs across the country.[12]

It is difficult to determine how many or even what portion of public school districts have altered how they pay teachers, but some evidence indicates a rise in compensation reform efforts. A review of recent years of the Schools and Staffing Survey (SASS)[13] reveals movement away from the exclusive use of traditional teacher pay via the single salary schedule. First, the share of districts reporting the use of no incentive awards for teachers decreased by 17 percentage points between 1999 and 2008. Additionally, during the 2003-04 school year, just under eight percent of public school districts reported the use of pay incentives for teachers to reward excellence in teaching. By the 2011-12 school year, the share of districts using such pay incentives rose to over 11 percent. Further, the proportion of districts using incentives to recruit and retain teachers in shortage fields, in less desirable locations, and reward teachers who have attained National Board for Professional Teacher Standards Certification increased by 1.6, 1, and 6.1 percentage points between 2004 and 2012, respectively.[14]

The national policy landscape includes several recent and notable national, state, and district-level compensation reform initiatives. Three national programs, the Teacher Incentive Fund (TIF), Race to the Top, and the Teacher Advancement Program (TAP) have incited growth in alternatives to traditional pay for educators.

The **Teacher Incentive Fund (TIF)** was first proposed under the George W. Bush administration and is a competitive five-year grant administered by the U.S. Department of Education. TIF provides funds to state education agencies, local school districts, and public charter schools for the development and implementation of performance-based compensation for teachers and principals in high-need schools. As of fall 2012, there have been four rounds of TIF grantees. In 2006, the first cohort included 16 grantees in 12 states. In 2007, 18 grantees in 13 states were awarded TIF grants. The third cohort of 62 grantees, representing 27 states, was awarded in 2010 with $300 million from Congress and $137 million from the American Recovery and Reinvestment Act (ARRA).[15] The fourth cohort of 35 grantees, representing 17 states, was selected in fall 2012. Over time, federal TIF guidelines have placed greater emphasis on the need for systemic reform at grantee sites. For example, among the absolute priorities for the current 2012 TIF grant competition was that applicants must have a district-wide human capital management system centered on educator evaluation. Educator evaluations must inform human capital decisions, such as recruitment, retention, compensation, professional development, tenure and promotion. Evaluations of TIF programs at the state-level, such as in Ohio, and at the national level are providing significant additions to the growing body of research related to performance-based pay for educators.[16]

In 2010, the Obama administration announced **Race to the Top (RTTT),** a new competitive education reform grant for states. Funded through ARRA at $4.35 billion, the program includes four core reform areas: standards and assessments, data systems to support instruction, turning around the lowest-achieving schools, and great teachers and leaders. To date, 18 states and the District of Columbia have been awarded grants through three phases of the main Race to the Top competition. One of RTTT's leading priorities is a focus on great teachers and leaders. Grantees have proposed and implemented multiple strategies to address this priority, including the use of additional pay for highly effective teachers and principals (Rose, 2010), as evidenced by Tennessee's CSF and IAF initiatives. The Race to the Top Fund also includes several other related grant competitions: the Race to the Top Assessment Program, the Race to the Top – Early Learning Challenge, and the Race to the Top District program.[17]

The **Teacher Advancement Program (TAP)** - now referred to the System for Teacher and Student Achievement - is part of the National Institute for Excellence in Teaching (NIET) and has been in operation since its launch in 1999 by the Milken Family Foundation. TAP provides a model for systemic teacher quality reform and includes a focus on performance-based pay. As of the 2011-12 school year, TAP was in districts and schools serving more than 2,000 teachers and 200,000 students as well as in partnership through NIET with several states and a university who are authorized providers of the TAP system. The TAP system is organized around four components: multiple career paths, ongoing applied professional growth, instructionally focused accountability, and performance-based compensation. The model includes opportunities for extra pay based on teachers' performance, knowledge and skills, and the assumption of additional roles and responsibilities. Mathematica Policy Research conducted a five-year impact evaluation of TAP in Chicago Public Schools that was completed in March of 2012 and marked the first random assignment evaluation study to assess the impact of TAP on student achievement.[18]

Beyond these national initiatives, several state educator compensation initiatives have received notable attention over the last several years. Currently, six states (Florida, Hawaii, Indiana, Louisiana, Michigan, and Utah) require performance to be factored into salary determinations for all teachers, and two others (Nebraska and South Carolina) plan to offer performance-based bonuses to all teachers. Another 17 states have shown support for some form of performance-based pay in certain districts and schools (National Council on Teacher Quality, 2014). Past and present state efforts in North Carolina, Florida, Minnesota, and Texas are summarized below.

- North Carolina introduced the ABC (Accountability, teaching the Basics, and emphasis on local Control) incentive pay program in 1996. In order to avoid contentious issues related to using individual value-added scores or achievement scores, teachers in the ABC program received bonuses based on school-wide performance, specifically meeting "expected" or "exemplary" year-to-year growth scores. Teachers in schools reaching "expected" levels of student growth received $750 while teachers in schools meeting "exemplary" (later re-named "high") levels received $1,500. The program continued through the 2011-12 school year.[19]

- Florida introduced compensation reform initiatives in the late 1990s. Legislation in 2006 created statewide performance pay plans, including the Special Teachers Are Rewarded (STAR) program and then the Merit Award Program (MAP), both based on teacher bonus models. However, these programs were discontinued in 2010 when Florida passed legislation requiring school districts to adopt a performance salary schedule for certain teachers beginning in 2014-15.[20] Florida is also one of the states with the most TIF grantees; six districts were awarded grants in 2010 and 2012.

- Minnesota's State Legislature approved Q-Comp, a performance-related pay program for teachers, in July 2005. Q-Comp is a voluntary program which allows local districts and teacher representatives to design and collectively bargain a plan that meets five required components: (1) Career Ladder/Advancement Options, (2) Job-embedded Professional Development, (3) Teacher Evaluation, (4) Performance Pay, and (5) an Alternative Salary Schedule. Participating districts receive up to $260 per student for the program, while charter schools, integration districts, intermediate districts, and the Perpich Center for the Arts receive approximately $243 per student.[21] Currently, 60 school districts and 62 charter schools have implemented Q-Comp programs, which employ approximately 19,587 Full-Time Equivalent licensed staff and serve 280,689 students.

- Texas also pursued large-scale, state-driven compensation reform. Since 2006, the state implemented three incentive pay programs: the Governor's Educator Excellence Grant (GEEG) and the Texas Educator Excellence Grant (TEEG), which provided grants to schools, and the District Awards for Teacher Excellence (DATE) which awarded grants to districts to design and implement performance pay programs. Through 2010-11, these three programs have dedicated $865.5 million and involved over 2,200 public schools in 315 districts in Texas, each accompanied by an external evaluation. Additionally, in 2010, the Texas Education Agency and seven other districts received TIF grants, and in 2012, three districts were awarded TIF grants as part of the fourth cohort.

District level compensation reform initiatives in Denver Public Schools (CO), Houston Independent School District (TX), New York City Public Schools (NY), District of Columbia Public Schools (DC), and Baltimore City Public Schools (MD) have also garnered attention for their innovation and the lessons learned from these programs.

- Denver's Professional Compensation System for Teachers (ProComp), initiated in 1999, is arguably the most recognized district-level teacher pay program in the nation. The program's strong reputation stems from long-term multi-stakeholder buy-in and its fiscal sustainability through local tax revenue and TIF grants. As of 2011, over 80 percent of the district's teachers participated in ProComp.

- The Accelerating Student Progress, Increasing Results and Expectations (ASPIRE) Award Program launched in Houston Independent School District (HISD) in the 2006-2007 school year. Funded by TIF Cycle 3 and 4 (2010 and 2012) grants, the Texas DATE grant, and local funds, ASPIRE awards employee excellence in raising student academic progress and achievement. The program was later adjusted to increase the size of the awards and raise the performance thresholds used in determining the bonuses following a 2011 evaluation by Shifrer et al. (2011). The model awards teachers/campus-based staff and school leaders with a maximum payout of up to $13,000 for eligible core foundation teachers and up to $15,000 for eligible principals. In the 2012-13 school year, HISD distributed $18.2 million in ASPIRE awards across 5,180 campus-based staff members.[22]

- Over the past decade, New York City Public Schools received several grants to implement teacher compensation reform. In 2007-08, the city implemented the School-Based Performance Bonus Pay Program in nearly 200 high-need public schools. The three-year program provided school-level bonus awards of up to $3,000 per full-time union member working at the school. Receipt of an individual award depended on overall school performance. This program ended following the 2010-11 school year, when findings from a program evaluation revealed the bonuses did not have a positive effect on either student performance or teacher attitudes (Marsh et al., 2011). The New York City Department of Education (NYC DoE) also received a TIF grant in 2010 to implement a new performance-based compensation program which rewards teachers in high-need schools for teacher evaluation scores. NYC DoE was also the recipient of a TIF grant in 2012 to implement a performance-based compensation system via a teacher career lattice in high-need middle schools.
- The District of Columbia Public Schools system launched its IMPACT evaluation system in partnership with the district's teacher's union in 2009. Any Washington Teacher's Union member who earns an IMPACT rating of Highly Effective is eligible for substantial one-time bonuses (up to $20,000) and increases to base compensation (up to $27,000) through the district's IMPACTplus performance-based compensation system.[23]
- Also in conjunction with the district's teacher union, in 2010, Baltimore City Public Schools replaced its traditional salary lane compensation schedule with the Professional Practices and Student Learning Program. Salary intervals are connected to a four-tiered career ladder, and teachers can also earn incremental compensation increases by accumulating "achievement units," which are awarded for annual evaluation, professional development, and professional activities linked to contributions to student learning, colleagues, or the school or district.[24]

Currently, 33 states have implemented some form of compensation reform, which has provided opportunities for research into best practices of implementation, effectiveness of differing award structures and program design, and impacts on teacher mobility and performance as well as student achievement. An overview of the outcomes of the state and district programs introduced earlier in this chapter is included below.[25]

Impacts on Teachers

Denver's ProComp and Texas' DATE and TEEG performance-based compensation programs have had positive effects on teacher retention and reducing turnover. Evaluations found no impact on teacher mobility, however, for a third Texas program (GEEG).[26] Similarly, DC's IMPACT program had no effect on retention of effective teachers but retention of the district's least effective teachers was reduced.[27] An analysis of the first three years of IMPACT also indicated that the program improved teacher performance for both "highly" and "minimally" effective educators.

Impacts on Students

Some studies have found that pay-for-performance programs (such as DATE) had positive effects on student achievement; evaluations of other models such as TEEG, GEEG, and NYC's School-Based Performance Bonus Pay Program have been inconclusive or shown no effect on academic outcomes In some cases, such as in Denver, if effects were found, they could not be attributed solely to the performance pay program due to other reforms being implemented simultaneously. Further, POINT, a three-year randomized experiment, found that sizeable bonuses had no effect on student achievement gains; that is, rewarding teachers with bonus pay in the absence of any other support did not raise student test scores.

Other analyses have also found differentiated effects on schools implementing compensation reforms. For example, a regression-discontinuity analysis found that North Carolina schools with test score gains just below the award threshold in one year showed significantly higher gains in the following year when compared to schools just above the award threshold.[28]

So far, research findings relating to impacts on student learning have been mixed. However, as compensation reform initiatives continue, so will the opportunities to learn from them. What has been evident is that impacts on teaching and learning are influenced by the ways in which compensation models are designed and implemented. That is, just as much care should be taken with the implementation as with the design on compensation models.[29] Evaluations of these initiatives should also be attentive to both design and implementation factors when examining reasons for teaching and learning outcomes.

II. DESIGN OF DISTRICT STRATEGIC COMPENSATION MODELS

The 2010 cohort of CSF, IAF, and TN TIF grantees developed strategic compensation models for implementation beginning in the 2011-12 school year. All models included performance-based bonus awards for certified school employees, and three models additionally incorporated a revised salary schedule that uses individual performance to determine base salary increases. A review of district compensation models—as described in applications submitted to TDOE in June 2011 and in interviews with district officials in 2012—goes further to identify key design features of each district's compensation model and revisions made prior to the second year of implementation (2012-13 school year). Understanding these features not only provides a better sense of how employees are paid but also informs analyses of program outcomes.

The "Glossary of Design Features" provides greater clarity about the design topics that will be discussed throughout this section.

Glossary of Design Features

Bonus refers to a performance-based award paid over and above what an employee earns from their annual base salary and extra duty pay.

Alternative salary schedules revise the way in which districts determine annual base salary. Traditionally, level of education and years of teaching experience establish a teacher's base salary. However, in an alternative salary schedule, factors more closely tied to performance outcomes play a role in determining teacher pay.

Participation groups result from the categorization of employees into groups treated distinctly for the purpose of calculating bonuses or salary increases. Job type and degree of responsibility for student learning often determine these groups. Within a group, similar types of data measure performance. In practice, districts draw distinctions between teachers of state-tested versus non-tested subjects, those who are part-time versus full-time employees, and classroom teachers versus those in school leadership positions (e.g., principals, department chairs).

Eligibility rules outline the prerequisites that an individual must meet in order to earn a bonus or salary increase. Eligibility rules consist of factors such as attendance and continuous employment throughout a school year, hire date, or whether an employee is credentialed in his/her position. An individual must meet all eligibility rules in order to be considered for a bonus or salary increase, which reflects more performance-oriented outcome measures.

Performance measures are the criteria used to determine whether an individual qualifies for a performance-based bonus or salary increase. Performance measures typically represent inputs (e.g., acquisition of new knowledge or skills), processes (e.g., instructional practice), or outputs (e.g., student test score gains).

Unit of accountability is typically an individual, team, school, or a combination of those entities whose performance on a measurable dimension determines a bonus or salary increase. An individual unit of accountability means that an individual's performance determines the receipt of a performance-based payment, whereas a team unit of accountability means that performance of a group of individuals (e.g., grade level, subject area) determines an individual's payment. Some compensation models use school- or district-wide performance to determine payment to individuals.

Award size and structure refer to dimensions of award payouts. The size is the amount of payout from a bonus or a salary increase. Award structure refers to how performance standards impact the way awards are paid out. Thresholds are typically structured as tiered or flat. A tiered threshold is when a performance measure is set up on a scale or continuum; the higher an individual's performance on that measure, the greater the payout. A flat threshold means that an individual must meet that standard of performance to get a payout; there is no higher payout for higher levels of performance above and beyond that single threshold.

DISTRICT APPROACHES TO STRATEGIC COMPENSATION

All 2010 CSF, IAF, and TN TIF grantees developed a compensation model that included performance-based bonuses. Three districts altered their salary schedules in addition to using bonuses, as indicated in Table 2.1.

Table 2.1: Scope and Funding of District Compensation Models CSF, IAF, and TN TIF, 2010 Cohort

District	CSF Grantee	IAF Grantee	TN TIF Grantee	Model Type	% of Program Schools in District	Funding for 2012-13 Compensation Model
Bradford Special School District (SSD)	X		X	Bonus	100%	$51,700
Hamilton County			X	Bonus	17%	$465,000
Hollow Rock-Bruceton SSD	X		X	Bonus	100%	$68,200
Johnson County			X	Bonus	100%	$198,000
Knox County		X	X	Bonus	100%	$4,550,000
Lebanon SSD			X	Bonus	40%	$71.50
Lexington City Schools	X	X	X	Salary & Bonus	100%	$332,274
McMinn County			X	Bonus	100%	$460,000
Metropolitan Nashville Public Schools (MNPS)			X	Bonus	16%	$1,870,000
Putnam County		X	X	Salary & Bonus	100%	$1,423,500
Shelby County			X	Bonus	27%	$935,000
South Carroll SSD	X			Bonus	100%	$50,000
Tipton County			X	Bonus	64%	$484,500
Trousdale County	X	X		Salary & Bonus	100%	$350,000

Note: South Carroll SSD received a 2010 CSF grant of $50,000 for planning and later received an additional $50,000 through a second-round CSF competition that enabled implementation of their strategic compensation model. The funding amounts listed were allocated specifically for implementation purposes.
Source: Review of districts' applications submitted to TDOE in June 2011.

Table 2.1 also provides information about the scope and funding of district compensation models during the 2012-13 school year. Nine of the 14 districts, including all three districts implementing alternative salary schedules, implemented their strategic compensation model district wide (i.e., in 100 percent of schools). Grant funding for implementation of the new compensation models was determined at a rate of $1,113 and $1,100 per teacher in participating schools in 2011-12 and 2012-13, respectively.[30]

DESIGN OF PERFORMANCE-BASED BONUS AWARD MODELS

All 14 districts developed strategic compensation models that include performance-based bonuses based on an educator's prior year performance.

Generally, districts used similar eligibility requirements for participants in the 2012-13 school year. Half of the strategic compensation models used summative evaluation scores from their teacher evaluation models.[31] Eleven of the models included attendance requirements that qualify participants for bonuses, and all districts had a cut-off date by which participants must be employed at a participating school in order to be eligible for a bonus.[32] Additionally, all but one district required participants to be "in good standing."[33] A full list of all eligibility requirements can be found in Appendix B.

With few exceptions, three categories of certified employees across all district grade levels were eligible to earn bonuses: school administrators (i.e., principals, assistant principals), teachers in state-tested positions, and teachers in non-tested positions.[34] These three categories of employees were almost always treated as distinct participation groups in district bonus models; that is, a unique set of design elements (i.e., performance measures, units of accountability, award size, and structure) determined bonuses for each group.

Performance measures

Bonus models for school administrators, teachers of tested grades and subjects, and teachers of non-tested grades and subjects focused on rewarding outcomes primarily tied to measures of student academic performance. Table 2.2 shows the specific breakdown of the average number of performance measures used for each participant group and the number based on student performance.

Table 2.2: Average Number of Performance Measures in Models and Average Number of Performance Measures Based on Student Performance

Participant Group	Average Number of Performance Measures	Average Number of Performance Measures Based on Student Performance
Administrators (i.e., assistant principals and principals)	2.6	1.9
Teachers in Tested Grades and Subjects	4.7	2.7
Teachers in Non-Tested Grades and Subjects	4.1	2.3

Source: Review of districts' applications submitted to TDOE in June 2011.

In 2012-13, compensation models employed one to seven performance measures to gauge administrator qualifications for bonuses. The number of performance measures used to determine whether teachers qualify for bonuses ranged from one to 13 and two to 11 for teachers in state-tested subjects and non-state tested subjects, respectively.

Models varied in number and in types of performance measures used to determine bonus awards. Performance measures typically reflected teacher inputs (i.e., acquisition of new knowledge or skills) or outputs (i.e., student test score gains). Table 2.3 is an overview of the types of performance measures used in each district. Five models used only output performance measures, while nine models used a combination of input and output performance measures.

Table 2.3: Number of Input and Output Performance Measures in District Award Models

Districts	Input-Focused Performance Measures	Output-Focused Performance Measures
Bradford SSD	0	8
Hamilton County	0	10
Hollow Rock-Bruceton SSD	0	5
Johnson County	0	2
Knox County	6	4
Lebanon SSD	3	2
Lexington City Schools	1	4
McMinn County	2	1
MNPS	1	6
Putnam County	4	10
Shelby County	1	8
South Carroll SSD	1	5
Tipton County	0	7
Trousdale County	3	10

Note: The performance measures are for all three participant groups (i.e., administrators, tested-teachers, and non-tested teachers).

In 2012-13, districts using output measures relied most often on measures related to value-added (TVAAS) data.[35] Nine models used individual TVAAS scores, and nine models used school-wide TVAAS scores. Districts used fewer input measures. The most widely used input measure was professional development; five districts included it in their models. A more detailed analysis of the performance measures included in each district model is available in Appendix B.

UNITS OF ACCOUNTABILITY IN DISTRICT COMPENSATION MODELS

Multiple units of accountability can determine whether a participant receives a bonus (e.g., individual, team, school, or district). Table 2.4 offers an overview of units of accountability in district compensation models. Six models used a combination of three or more units of accountability, while seven models included two units of accountability. One district relied solely on a team unit of accountability.

Bonus payouts for administrators were determined almost solely on the basis of school-wide performance. Bonuses for teachers of tested grades and subjects were often determined by school-wide or individual performance, while bonuses for teachers of non-tested grades and subjects were most commonly determined by school-wide performance.

Table 2.4: Overview of Units of Accountability Employed in District Compensation Models

Districts	Individual	Team	School	District
Bradford SSD	x	x	x	
Hamilton County	x	x	x	
Hollow Rock-Bruceton SSD	x		x	x
Johnson County	x		x	
Knox County	x		x	
Lebanon SSD	x		x	
Lexington City Schools		x		
McMinn County	x		x	
MNPS	x	x	x	
Putnam County	x	x	x	x
Shelby County	x		x	
South Carroll SSD	x			x
Tipton County	x		x	x
Trousdale County	x		x	

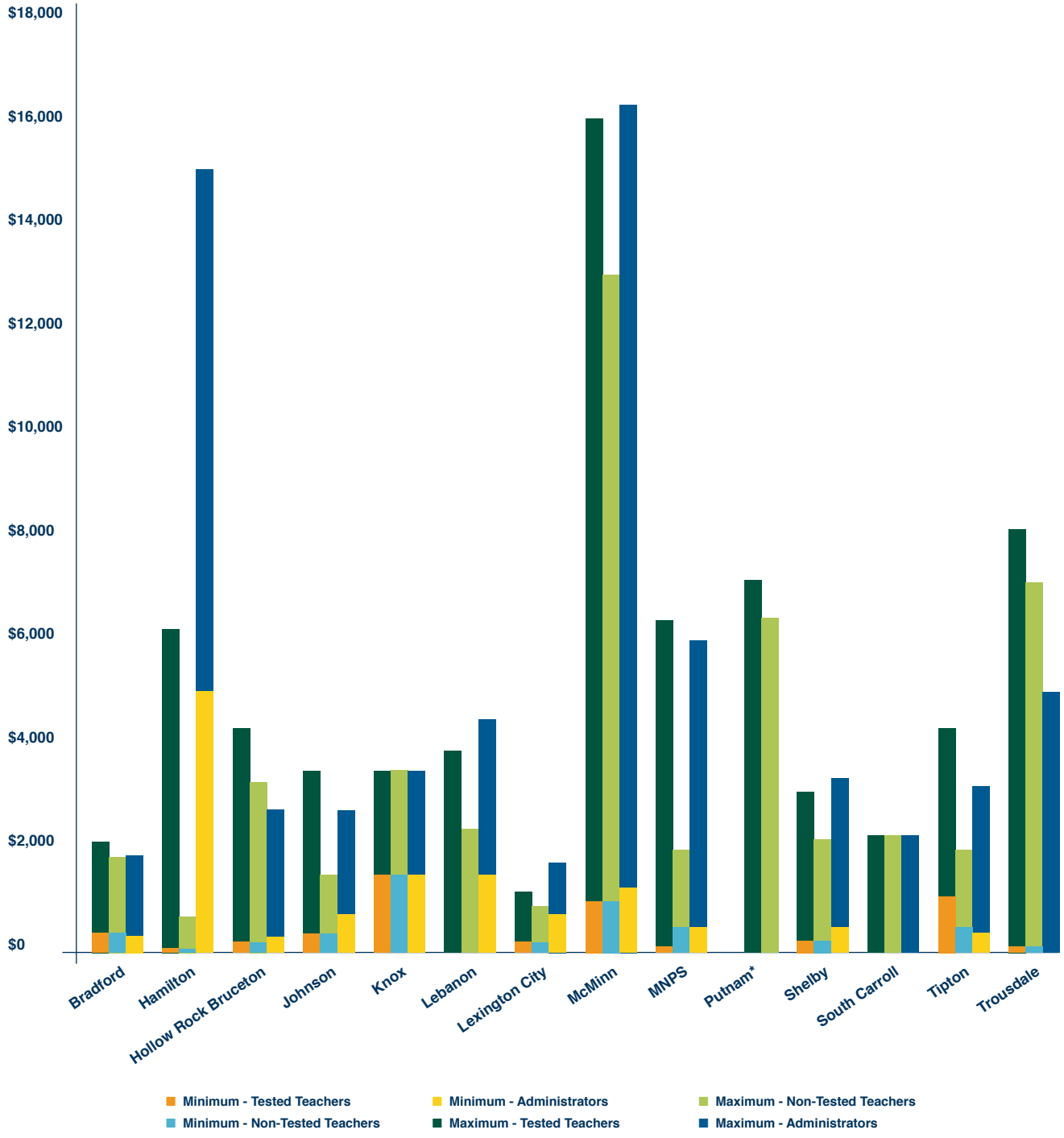
Source: Review of districts' applications submitted to TDOE in June 2011.

Bonus award structure and amounts for districts' compensation models

Bonus amounts are determined using flat, tiered, or hybrid structures which use a combination of flat and tiered performance thresholds. Ten districts used a hybrid structure. Two districts used only flat, and two districts used only tiered performance thresholds.

Figure 2.1 displays the minimum and maximum potential bonus award amounts in each of the 14 participating districts for the 2012-13 school year. With little exception, three categories of certified employees (teachers in tested grades and subject, teachers in non-tested grades and subjects, and administrators) were treated as distinct participation groups with different potential maximum and minimum award amounts. Each cluster of three vertical bars represents a district's award amounts for the three participation groups. The lower end of each bar is the minimum proposed bonus amount, while the upper end of the bar indicates the maximum proposed bonus amount. The minimum amount is the lowest amount greater than $0 that an employee could earn for meeting a single performance criterion at the lowest level of performance in a district's strategic compensation model. The maximum amount is the total that an employee could earn by meeting all performance criteria at the highest possible level of performance.

Figure 2.1 – District Minimum and Maximum Potential Award Amounts by Employee Group



*In Putnam County's strategic compensation model, administrators' bonus awards are calculated as a percentage of the average award received by teachers and, thus, are not included in this figure.

The distribution of potential bonus awards varied considerably both within and between districts and participation groups. Generally, potential award amounts for teachers in tested grades and subjects were higher than those of other teachers and administrators. The range of possible bonus award amounts was generally also larger for teachers of tested grades and subjects than any other participation group.

For teachers in tested grades and subjects, the average minimum award amount was $383 with a range of $25 to $1,500, and average maximum award amount was $4,766 with a range of $1,000 to $15,000. The range of minimum and maximum awards varied considerably; three districts had a $500 difference between its lowest and highest award amounts while one district had a range of $14,000 between minimum and maximum awards. In general, teachers in non-tested grades and subjects had lower potential minimum and maximum award amounts. The average minimum was $369 and the average maximum was $3,141, with a range of $25 to $12,000. The range of minimum and maximum awards for this participation group was $500 to $11,000.

Minimum award amounts for administrators were considerably higher than those for teachers. The average minimum award was $983 and minimum awards ranged from $25 to $5,000. Maximum awards for administrators were closer to those of teachers in tested grades and subjects with an average of $4,263 and a range of $1,000 to $15,000. The range of administrator awards was $250 to $13,750.

Overall, 2012-13 bonus models for school administrators, teachers in tested grades and subjects, and teachers in non-tested positions had several similarities. Most notably, the bonus models included multiple measures of performance and multiple units of accountability. Individual performance weighed more heavily for teachers than administrators, yet generally no single entity was responsible for whether an individual received a bonus. In contrast, bonus amounts for all three groups of school employees differed substantially. More often than not, school administrators and teachers in tested positions were eligible for larger bonus awards than teachers in non-tested positions.

While all districts included bonuses in their compensation models, three districts (all IAF grantees) also implemented an alternative salary schedule. A discussion follows on the main design features of alternative salary schedules.

DESIGN OF PERFORMANCE-BASED ALTERNATIVE SALARY SCHEDULES

The three alternative salary schedule components of district compensation models in 2012-13 were generally more similar in structure and administration than bonus components. In two districts, district-wide salary models were open to all certified school employees at all grade levels.[36] Additionally, all three districts used the same performance measure - summative evaluation score - for evaluating employee performance.[37] The same rules applied to teachers in tested grades and subjects, those in non-tested positions, and often to school administrators as well.

Participation in new salary schedules was mandatory for new school employees in each district but was optional for educators employed prior to strategic compensation implementation.[38] For new employees and those who opted into the program, increases to base salaries were based on performance outcomes, with incremental percentage raises corresponding to increasing performance levels.

Although similar in many of their components, the district salary schedules differed along three key dimensions: the base salary of participating employees; the potential incremental increases to base salary; and the salary schedule that applies to employees who have opted out of alternative salary schedules.

Starting base salary in alternative salary schedules

All three districts continued to use an educator's level of education (i.e., degree) and years of experience to determine starting salary but altered the number of tiers in the schedule structure. One district maintained separate starting salary tiers for four levels of education (i.e., bachelor's degree, master's degree, educational specialist, and doctorate) while reducing the number of tiers for years of experience from one per year to one every five years, with a terminal tier of 30+ years of experience. Two districts reduced the number of salary tiers for both education level and years of experience. One district removed all distinctions for level of education, paying all educators the same base salary regardless of degrees held. The other district created two groups of employees based on education level – one for educators with bachelor's degrees and one for educators with master's degrees and above. Additionally, both districts created three salary tiers based on years of experience – one for years one through five, one for years six through 10, and one for year 11 and beyond. Table 2.5 shows these structures and the corresponding salary amounts for each district.

Table 2.5: Starting Base Salary for Participating Employees, 2012-13

District	Starting Base Salary for Participating Employees				
Lexington City Schools	Years of Service	Bachelor's Degree	Master's Degree	Educational Specialist	Doctorate
	0-5 years	$33,397-35,664	$36,375-38,902	$39,101-41,649	$43,633-46,496
	6-10 years	$36,072-37,321	$39,346-41,426	$42,095-44,218	$46,996-49,382
	11-14 years	$38,332-39,544	$41,871-43,241	$44,705-46,027	$49,928-51,413
	15-19 years	$41,171	$45,002-45,136	$47,871	$53,485
	20-24 years	$41,475	$45,330	$48,219	$53,875
	25-29 years	$41,780	$45,658	$48,251	$54,265
	30+ years	$42,083	$45,986	$48,913	$54,655
Putnam County*	Years of Service	All Degree Levels			
	0-5 years	$35,800			
	6-10 years	$38,400			
	11+ years	$41,200			
Trousdale County*	Years of Service	Bachelor's Degree	Master's Degree or Above		
	0-5 years	$30,503	$33,580		
	6-10 years	$33,711	$37,601		
	11+ years	$37,240	$41,611		

*Applies only to new employees
Source: Review of districts' applications submitted to TDOE in June 2011 and revisions submitted to the Consortium in April 2013.

Increases to base salary

The models also differed in the salary increases awarded based on performance. No district awarded a salary increase for a summative evaluation score lower than 3 on a scale of 1 to 5; one district required a score of 3.5 to receive a base salary increase. Minimum salary increases in districts ranged from 1 to 1.45 percent. Maximum salary increases ranged from 2.2 percent to 3 percent. The complete schedule of base salary increases used in each of the four districts is depicted in Table 2.6.

Table 2.6: Increases to Base Salary Based on Summative Evaluation Scores

District	Summative Evaluation Score	Base Pay Increase
Lexington City Schools*	< 3.0	0%
	3-3.01	1%
	3.02-3.03	1.02%
	3.04-3.05	1.04%
	3.06-3.07	1.06%
	3.08-3.09	1.08%
Putnam County	< 3	0%
	3	1%
	3.5	1.50%
	4	2.00%
	4.5	2.50%
	5	3.00%
Trousdale County	< 3.49	0%
	3.5-3.99	1.45%
	4.0-4.49	1.70%
	4.5-4.99	1.95%
	5	2.20%

*This pattern in salary increases continues; base pay increases by .02 percentage points for each .02 increase to a teacher's summative evaluation score. The maximum increase to base salary is 3 percent for a summative evaluation score of 5.
Source: Interviews with districts April 2013

Base salary for employees opting out of the alternate salary schedule

Districts employed one of two approaches to determine base salaries for employees opting out of the alternate salary schedule. Two districts allowed those employees to remain on the state's salary schedule, receiving base salary increases per traditional steps and lanes. In the future, they will continue to benefit from any state-level salary schedule raises. The third district used a more restrictive plan. Employees opting out of the alternate salary schedule revert to the state's 2011-12 salary schedule and remain on it indefinitely.

Changes Made to the Strategic Compensation Models for Year Two

Eight districts revised their strategic compensation models between year one (2011-12 school year) and two (2012-13 school year) of implementation. The majority of changes made were to performance measures determining bonus awards. Table 2.7 lists the districts that made changes and the types of changes made.

Table 2.7: Changes Made to the Strategic Compensation Models for 2012-13

Districts	Type of Change Made to the Compensation Model			
	Eligibility Rules		Performance Measures	
	Additions	Removals	Additions	Removals
Bradford SSD			X	X
Johnson County				X
				(bonus)
Knox County			X	X
Lexington City Schools*			X	X
			(bonus)	(bonus)
McMinn County				X
MNPS	X	X	X	X
Putnam County	X	X	X	
	(bonus and salary)	(salary)	(bonus)	
Shelby County*	X			

*These districts additionally made changes to potential award amounts designated within compensation plans. For more detailed information about these and other revisions per district please see Appendix B of this report.
Source: Interviews with district officials April 2013.

III. PAYOUT ANALYSIS

Educator performance in the 2011-12 school year determined first-round performance-based payouts. These payouts were distributed to teachers and administrators between August 2012 and March 2013 (depending on the district). All 14 participating school districts provided researchers with administrative data on the individuals who received payouts and the amount of the individual bonus awards and/or salary increases.[39] This chapter presents findings from an analysis of those administrative records and addresses the following questions:

1. What was the distribution of performance-based payouts among individuals participating in the strategic compensation plans in the CSF, IAF, and TN TIF districts?

2. What are the characteristics of performance-based payout recipients?

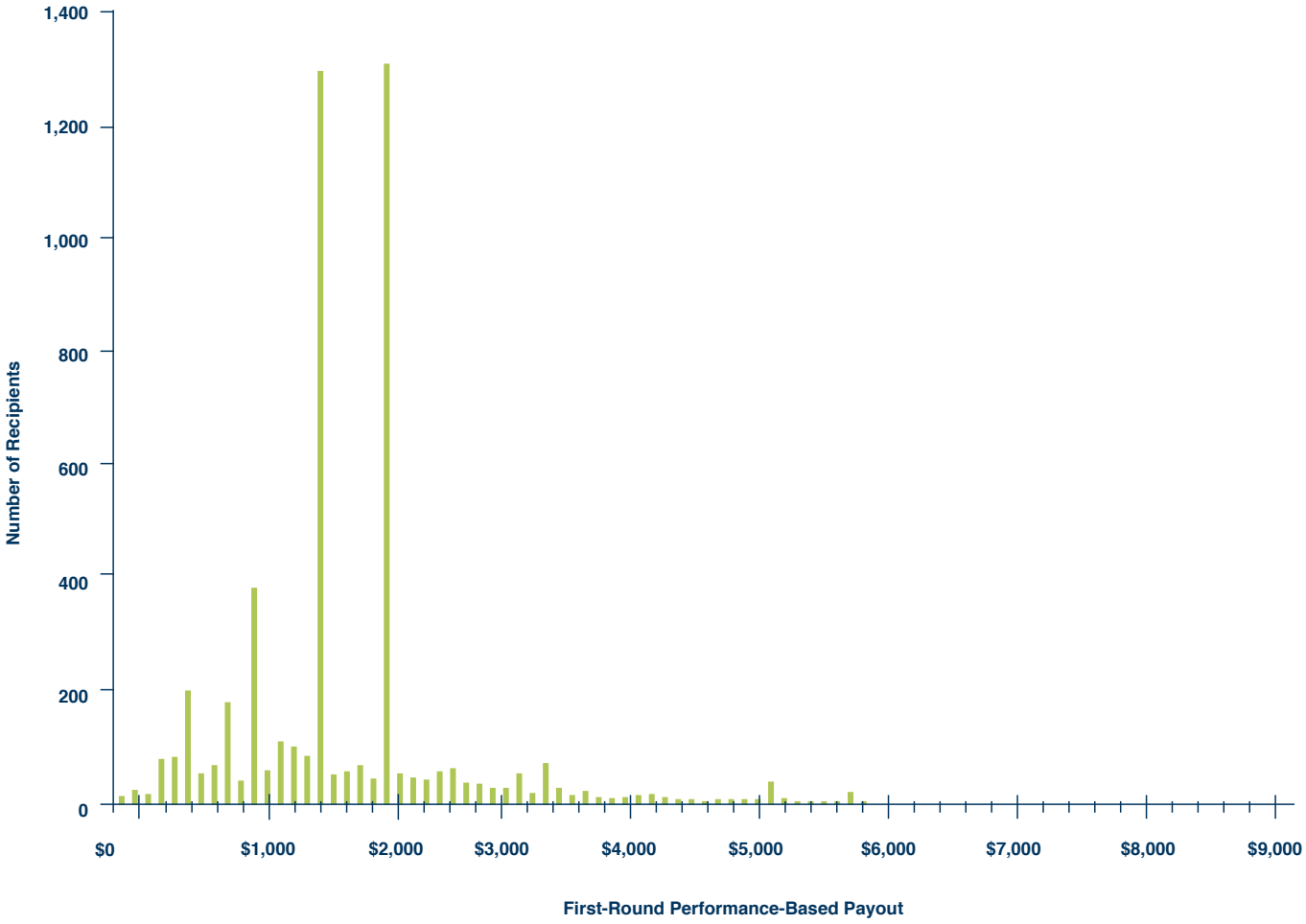
Key Findings from Payout Analysis:

- Payouts were generally small with 94 percent of recipients receiving less than $3,000 and 30 percent of recipients receiving less than $1,500.
- Classroom teachers received 88 percent of payouts.
- Statewide, 47 percent of the classroom teachers in participating schools received a payout.
- More experienced classroom teachers were more likely to receive a payout and received a larger average payout than less experienced classroom teachers.
- Teachers with TVAAS scores received roughly $500 larger payouts than other teachers.
- Special education teachers had a higher probability of a payout and received a larger payout, on average, than other classroom teachers.
- Elementary school teachers received larger average awards, on average, than classroom teachers with middle school or high school teachers.

THE DISTRIBUTION OF INDIVIDUAL PAYOUTS

Figure 3.1 illustrates the distribution of first-round performance-based payouts in the 2011-12 school year for the 4,866 individuals who received a payout. As the figure illustrates, total payouts for both bonuses and percentage increases to base salaries ranged from less than $40 to more than $8,600. By far, the most common payout amounts were $1,500 (which was received by 1,212 individuals) and $2,000 (which was received by 1,266 individuals). Most recipients (94 percent) received less than $3,000 and 30 percent of the recipients received less than $1,500. The average recipient received $1,665.

Figure 3.1: Distribution of First-Round Performance-Based Payouts in 2011-12



Source: Administrative Payout Files, 2011-12
Note: Total payouts include bonuses and percentage increases to base salary for districts with alternative salary schedules.

There were significant differences in the distribution of awards across school districts (Table 3.1). Minimum awards ranged from $37.50 in Shelby County to $1,500 in Lebanon Special School District (SSD). Maximum awards ranged from $1,800 in Bradford SSD to more than $8,600 in McMinn County. On average, awardees received:

- Less than $1,000 in one district (Johnson County)
- Between $1,000 and $1,500 in five districts (Bradford SSD, Hollow Rock-Bruceton SSD, Lexington City, Shelby County, and South Carroll County SSD)

- Between $1,500 and $2,000 in three districts (Knox County, MNPS, and Tipton County)
- More than $2,000 in the remaining five districts (Hamilton County, Lebanon SSD, McMinn County, Putnam County, and Trousdale County).

Table 3.1: First-Round Performance-Based Payouts in 2011-12, By District

	Average Payout	Minimum Payout	Maximum Payout
Bradford SSD	$1,075	$450	$1,800
Hamilton County	$2,652	$100	$5,500
Hollow Rock-Bruceton SSD	$1,319	$400	$3,500
Johnson County	$693	$384	$2,000
Knox County	$1,722	$375	$2,000
Lebanon SSD	$2,625	$1,500	$3,000
Lexington City Schools	$1,246	$396	$2,158
McMinn County	$2,625	$349	$8,617
MNPS	$1,599	$50	$4,000
Putnam County	$2,148	$50	$5,618
Shelby County	$1,160	$38	$2,850
South Carroll County SSD	$1,379	$300	$2,200
Tipton County	$1,675	$500	$3,200
Trousdale County	$2,645	$513	$5,146
Statewide	$1,665	$38	$8,617

Source: Administrative Payout Files, 2011-12
Note: Total payouts include bonuses and salary supplements for districts with alternative salary schedules (shaded).

Shaded rows in Table 3.1 indicate the three districts that implemented strategic compensation plans with alternative salary schedules, where, on average, payouts were larger (for those who received any payout). The average payout in alternative salary schedule districts was $2,109 whereas the average payout for bonus only districts was $1,613, a statistically significant difference of nearly $500.

Table 3.2 provides a distribution of salary increases paid by the three districts with alternative salary schedules. Most educators who earned an award received a salary increase under the alternative salary schedule. Nineteen percent of participants received a salary increase of between zero and 1 percent, 31 percent received an increase of between 1 percent and 2 percent, and 36 percent received a salary increase of between 2 percent and 3 percent. Only Putnam County paid salary increases greater than 2 percent.

Table 3.2: Distribution of Base Salary Percentage Increase in Alternative Salary Schedule Districts in 2011-12

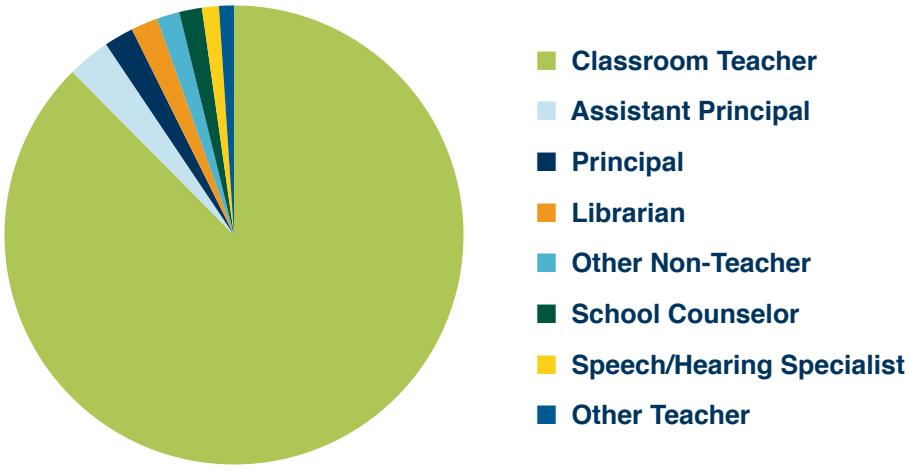
	Amount of Salary Increase	% of Participants	Number of Participants
All Alternative Salary Districts	No increase (i.e., 0%)	14.00%	64
	Up to 1%	19.20%	88
	Up to 2%	31.20%	143
	Up to 3%	35.60%	163
Lexington City	No increase (i.e., 0%)	25.60%	22
	Up to 1%	14.00%	12
	Up to 2%	60.50%	52
	Up to 3%	0%	0
Putnam County	No increase (i.e., 0%)	0%	0
	Up to 1%	12.70%	37
	Up to 2%	31.30%	91
	Up to 3%	56.00%	163
Trousdale County	No increase (i.e., 0%)	52%	42
	Up to 1%	48%	39
	Up to 2%	0%	0
	Up to 3%	0%	0

Source: Administrative Payout Files, 2011-12

THE CHARACTERISTICS OF FIRST-ROUND PAYOUT RECIPIENTS

As Figure 3.2 illustrates, 88 percent of payout recipients were classroom teachers.[40] Another 5 percent of recipients were either principals or assistant principals. At least 50 recipients were librarians, school counselors, speech/hearing specialists or other, non-classroom teachers. The remaining recipients held a variety of positions, including school social workers and school psychologists.[41]

Figure 3.2: Positions Held by First-Round Payout Recipients, 2011-12



Source: Administrative Payout Files, PIRS and EIS, 2011-12

Table 3.3 presents average payout amounts by position. Classroom teachers received an average payout of $1,647 and non-classroom teachers received an average payout of $2,518. On average, payouts to principals were significantly larger than payouts to classroom teachers, whereas payouts to assistant principals were insignificantly larger.[42] Average payouts to classroom teachers were not significantly higher than payouts to librarians, school counselors, or speech/hearing specialists.

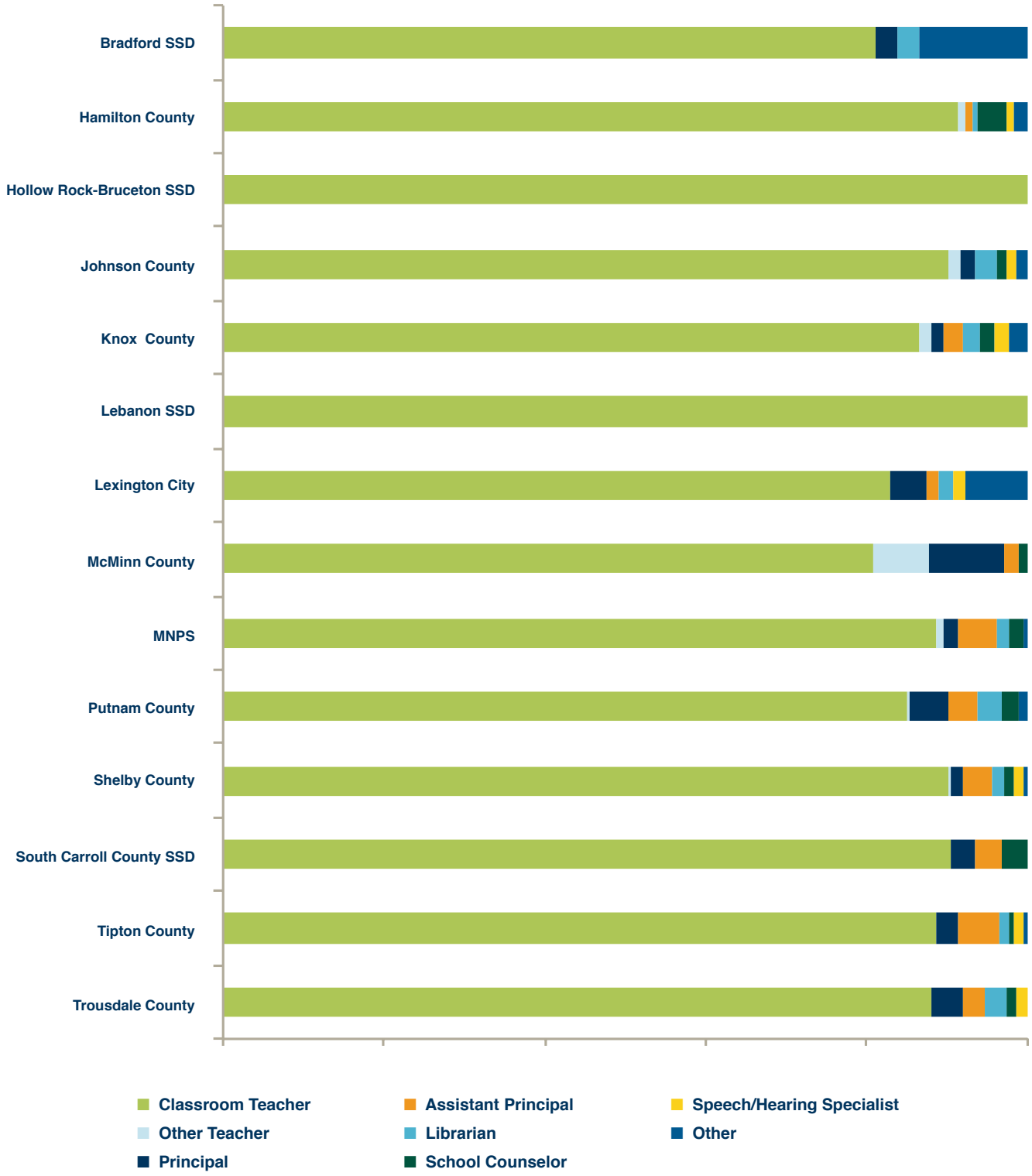
Table 3.3: First-Round Performance-Based Payouts by Position for 2011-12 Performance

	Number of Recipients	Average Payout	Minimum Payout	Maximum Payout
Classroom Teacher	4,261	$1,647	$50	$8,000
Assistant Principal	147	$1,748	$121	$4,315
Principal	101	$2,215	$162	$8,617
Librarian	92	$1,631	$100	$3,094
School Counselor	78	$1,527	$419	$3,544
Speech/Hearing Specialist	58	$1,376	$38	$2,000
Other Teacher	51	$2,518	$497	$8,000
Other	78	$1,607	$250	$4,888
Total	4,866	$1,665	$38	$8,617

Source: Administrative Payout Files, PIRS and EIS, 2011-12

Figure 3.3 illustrates the distribution of payouts, by position, for each school district. Classroom teachers were the only recipients in two special school districts—Hollow Rock-Bruceton SSD and Lebanon SSD. School administrators (either principals or assistant principals) received more than 10 percent of payouts in McMinn County, and more than 5 percent of payouts in the Lexington City, Metropolitan Nashville (MNPS), Putnam County, Shelby County, South Carroll County, Tipton County, and Trousdale County school districts.

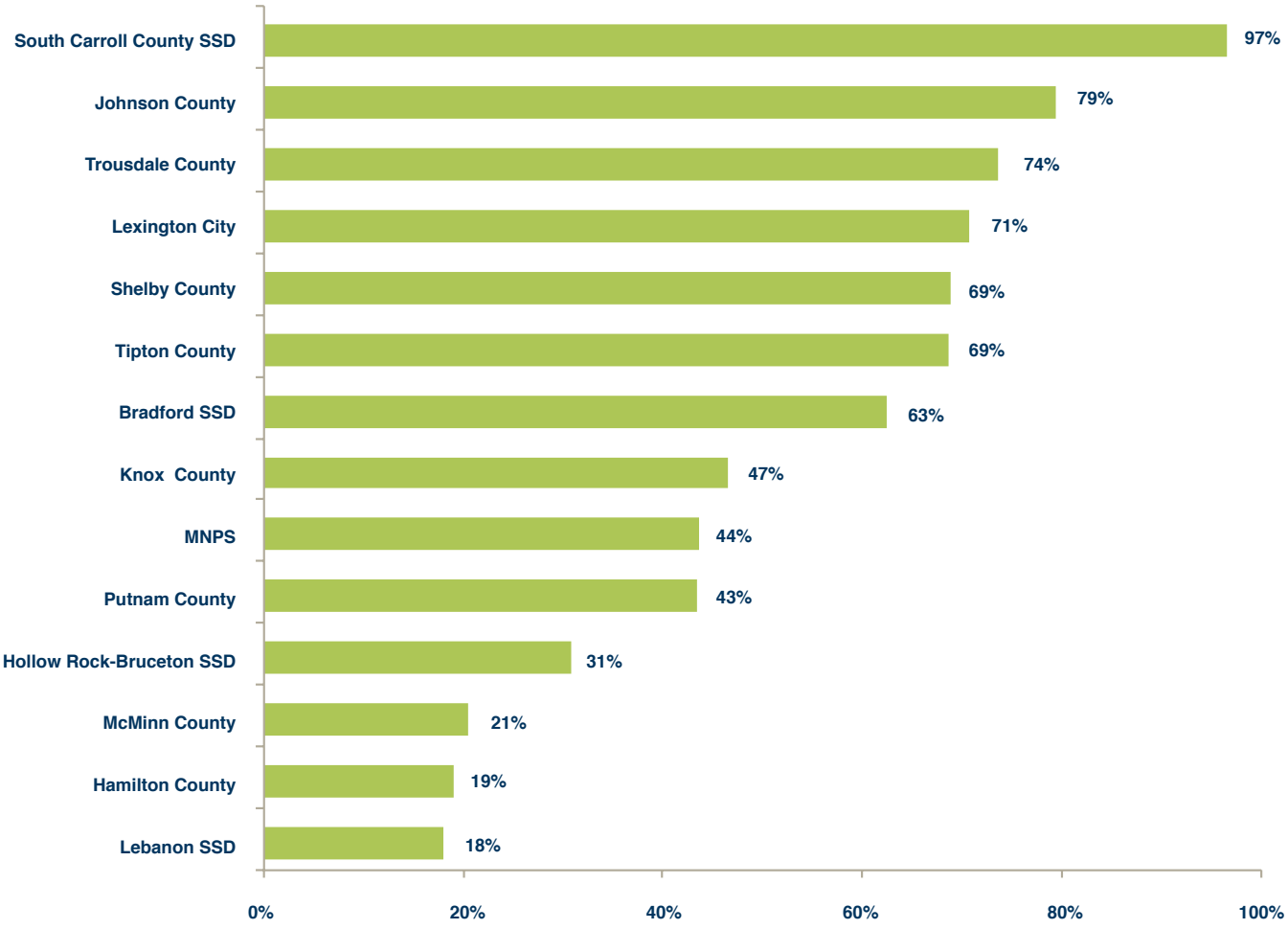
Figure 3.3: Positions Held by First-Round Payout Recipients, by District, 2011-12



Source: Administrative Payout Files, PIRS and EIS, 2011-12

Figure 3.4 presents the shares of classroom teachers in program schools who received a payout, by district.[43] Less than a quarter of classroom teachers in program schools received a payout in Lebanon SSD, Hamilton County, and McMinn County. In contrast, more than three quarters of classroom teachers in program schools received a payout in Johnson County and South Carroll SSD. Across all strategic compensation districts, 47 percent of classroom teachers in program schools received a payout.

Figure 3.4: The Percentage of Classroom Teachers in Program Schools Who Received a First-Round Payout, by District 2011-12



Source: Administrative Payout Files, PIRS and EIS.

Next, we identify relationships between payouts and specific teacher characteristics using regression analysis.[44] The first two columns of Table 3.4 present two analyses on the probability that a classroom teacher received a first-round payout. The table reports marginal effects, so the coefficient estimate of 0.11 indicates that classroom

teachers with a special education assignment were 11 percentage points more likely to receive a payout than teachers without such assignments, all else being equal.

Table 3.4: Predictors of First-Round Performance-Based Payouts

	Payout Probability	Payout Probability	Payout Amount	Payout Amount
Advanced degree (MA or PhD)	0.012	0.013	66.141	70.701
	-0.016	-0.016	-52.248	-51.375
Educational attainment unknown	-0.308	-0.306	-1,179.39	-1,154.83
	(0.047)**	(0.047)**	(334.365)**	(337.020)**
Alternative Salary Schedule District* Advanced Degree	0.096	0.097	488.809	491.271
	(0.046)*	(0.046)*	(191.367)*	(191.320)*
Years of experience	0.015	0.015	69.739	71.067
	(0.002)**	(0.002)**	(8.824)**	(8.787)**
Years of experience, squared	0	0	-1.735	-1.721
	(0.000)**	(0.000)**	(0.237)**	(0.237)**
Years of experience, unknown	-0.256	-0.253	-18.405	9.22
	(0.073)**	(0.074)**	-391.488	-390.017
Alternative Salary Schedule District* Years of Experience	0.004	0.004	18.559	17.835
	-0.002	-0.002	-9.966	-10.054
Physical education endorsement	-0.023	-0.007	-177.076	-74.098
	-0.021	-0.022	(89.545)*	-90.261
Math endorsement	0.056	0.028	368.887	202.389
	-0.03	-0.031	(138.872)**	-139.192
Science endorsement	0.02	0.007	91.134	22.308
	-0.023	-0.022	-105.246	-102.118

Source: Administrative Payout Files, PIRS, EIS and author's calculations
Note: The payout probabilities models were estimated using probit regression. The payout amounts models were estimated using Tobit regression and includes school district fixed effects. In both cases, the robust standard errors (in parentheses) were clustered by school.
*significant at 5 percent;
** significant at 1 percent.

Table 3.4 Continued on page 43

Table 3.4: Predictors of First-Round Performance-Based Payouts (continued from page 42)

	Payout Probability	Payout Probability	Payout Amount	Payout Amount
English endorsement	0.056	0.032	246.701	99.637
	(0.022)*	-0.022	(97.300)*	-95.884
History endorsement	0.058	0.05	192.698	145.314
	(0.022)**	(0.022)*	(90.139)*	-90.418
World languages endorsement	-0.027	-0.009	-127.854	-21.574
	-0.032	-0.032	-138.526	-135.388
Elementary fine arts teacher	-0.013	0.016	-268.551	-101.423
	-0.029	-0.028	(106.818)*	-102.459
Special education teacher	0.11	0.118	301.68	345.925
	(0.022)**	(0.022)**	(94.884)**	(95.127)**
Elementary school teacher	0.283	0.267	1,085.66	986.561
	(0.050)**	(0.049)**	(211.271)**	(207.469)**
Middle school teacher	0.174	0.117	750.033	414.255
	(0.060)**	(0.059)*	(255.159)**	-249.62
High school teacher	0.164	0.151	598.586	514.034
	(0.055)**	(0.055)**	(240.042)*	(237.985)*
Alternative Salary Schedule district	-0.086	-0.086		
	-0.059	-0.059		
TVAAS Subject Matter teacher		0.087		505.258
		(0.019)**		(83.577)**
Observations	11,044	11,044	11,053	11,053

Source: Administrative Payout Files, PIRS, EIS and author's calculations
Note: The payout probabilities models were estimated using probit regression. The payout amounts models were estimated using Tobit regression and includes school district fixed effects. In both cases, the robust standard errors (in parentheses) were clustered by school.
*significant at 5 percent;
** significant at 1 percent.

These analyses support six conclusions about the relationship between teacher characteristics and the probability that a teacher received a first-round payout. These conclusions should be interpreted with the caveat "all else being equal."

1. In bonus-only districts, teachers with advanced degrees were no more likely to receive a payout than any other teachers. However, in alternative salary schedule districts, teachers with advanced degrees were more likely to receive a payout.[45]
2. Teachers with more experience were significantly more likely to receive a payout than teachers with only a few years of experience.[46]
3. Teachers with math and science endorsements on their licenses were no more likely to receive a payout than any other type of license holder. However, teachers with a History endorsement were significantly more likely to receive a payout.
4. Teachers in grades and subjects where TVAAS scores could be calculated were significantly more likely than other teachers to receive a payout.
5. Special education teachers were significantly more likely to receive a payout than teachers who did not have a special education assignment.
6. Classroom teachers with an elementary school assignment were significantly more likely to receive a payout than classroom teachers with a middle school or high school assignment.

The third and fourth columns in Table 3.4 describe the relationship between teacher characteristics and the payout amounts that teachers received. Again, the table indicates marginal effects, so a coefficient estimate of 301.68 indicates that teachers with a special education assignment earned a payout that was $301.68 higher than the average payout received by a teacher without such an assignment, all other things being equal. The analysis of payout amounts supports five conclusions about the relationship between teacher characteristics and the dollar value of the payout amounts. Again, these findings should be interpreted with the caveat "all else being equal."

1. Teachers with advanced degrees received larger average payouts than teachers with at most a bachelor's degree—but only in alternative salary schedule districts. There was no premium for an advanced degree in bonus-only districts.
2. Teachers with more experience received significantly larger payouts in both bonus only districts and alternative salary schedule districts.
3. Teachers with math, English or history endorsements on their licenses received significantly higher average payouts than teachers with other license endorsements. Teachers with physical education endorsements or elementary fine arts assignments earned significantly smaller payouts.[47] However, those differences were

fully explained by the overarching difference between TVAAS subject matter teachers and those in non-tested grades or subjects. On average, TVAAS subject matter teachers receive just over $500 more in payouts than other teachers.[48]

4. Teachers with special education assignments received significantly larger average payouts.
5. Classroom teachers with an elementary school assignment received significantly larger payouts than classroom teachers with a middle school or high school assignment.

IV. IMPLEMENTATION, LOGISTICS, CHALLENGES, AND IMPACT: DISTRICT OFFICIALS' REPORTS ON SECOND YEAR IMPLEMENTATION

In the spring of 2013, researchers conducted phone interviews with district officials whose primary responsibility was to oversee the district's strategic compensation program. The interviews focused on aspects of implementation during the second year of implementation for each program (2012-13 school year). Each of the 14 interviews examined successes and challenges, effective and ineffective implementation strategies, logistics surrounding the first round of award payouts, program sustainability, and future plans. All interviews were conducted by phone and lasted approximately 30-45 minutes. Researchers analyzed and coded interview transcripts using the following key questions:[49]

1. What have been success and challenges with the implementation of strategic compensation in the second year?
2. What was the process for making revisions to the original program design prior to the second implementation year? Who was involved in this process?
3. How did districts prepare for and distribute the first round of award payouts (for performance during the 2011-12 school year)?
4. What actions have districts taken in order to meet sustainability requirements?
5. What is the outlook for the future of the strategic compensation program?

Key Findings from Interviews with District Officials:

- The majority of participating districts felt that their compensation reforms had improved district communication as well as teaching practices through a greater focus professional development, instructional coaching, and student data.
- Ten of the 14 participating districts made revisions to their compensation models due to issues raised during the first year of implementation (e.g., attendance and eligibility requirements).
- Interviewees cited data collection, communication, conflict resolution, and timing as positive aspects of payout distribution processes.
- Nine of 14 participating districts reported being under budget after first round payouts. However, all but one of those maintained concerns over fiscal sustainability.

GENERAL IMPLEMENTATION EXPERIENCES: SUCCESSES AND CHALLENGES

Interviewees were almost uniformly positive about strategic compensation implementation in their districts. The majority felt that strategic compensation had provided an impetus for improvements to instructional practice through an increased focus on quality professional development, use of instructional coaches, and strategic use of student performance data in instructional planning.

One district official noted,

> *One thing that we implemented has been [a professional development program] which is really developing [our teachers'] professional growth and targeting...where the teachers needed to improve... their teaching.*

Another interviewee stated,

> *We see...as a product of strategic comp as much as anything else, how our average teachers have stepped up and if getting paid more enabled them to work harder and plan better learning opportunities for the children, then that's a good thing.*

Several districts also cited effective communication about compensation models and improved communication between administrators and teachers as benefits of strategic compensation.

Most interviewees noted some challenges related to administration of the first round of award payouts. Among the nine district officials who cited difficulties with award payouts, four said that waiting on the release of data for specific performance measures either delayed award payouts or necessitated two or more phases of payouts. Both situations caused dissatisfaction among teachers and administrators as many waited until the winter and spring of the subsequent school year to receive their performance payout from the previous school year. Other challenges related to award payouts included reconciling concerns over teachers who met performance criteria but were not eligible for awards because they failed to meet attendance requirements, correcting inaccuracies in complex award calculations for itinerant teachers receiving percentages of awards from several different schools, and interpreting data from performance measures in order to create a ranking measure.

As an example, a district official said,

> *We had an excellent teacher…but she had missed too many days because of some things that… were not covered by our eligibility rules and so she was not eligible for any of the award even though…she'd done some of the best teaching we'd ever had and had…really good scores and everything.*

Other challenges included an increasing concern about budget and sustainability issues, addressing negative teacher attitudes and perceptions of the program, and managing concerns about the efficacy of selected performance measures.

MID-PROGRAM REVISIONS

Interviewers also asked participants to describe any revisions that were made to strategic compensation programs prior to or during the 2012-13 school year, and to provide the rationale, timeline, and process for making those changes. Eight out of the 14 districts reported making revisions to their models mostly in response to concerns raised during the first implementation year. Five districts made minor adjustments to eligibility requirements such as changing the number of days an employee must be employed in a district in order to qualify for an award or adding/removing attendance requirements for portions of awards. Three districts added eligible participant groups (e.g., teachers of specific grade levels or subject matters). In compliance to Tennessee's 2012 No Child Left Behind waiver, three districts added performance measures to reflect increased focus on annual measureable objectives (AMO) to replace other measures such as adequate yearly progress (AYP).[50] Three districts removed performance measures related to teacher effort (e.g., national board certification, mentor roles, degree reimbursement) mainly due to underuse. Other changes included adding an individual performance measure, increasing the size of bonus awards, and changing the payout structure for a category of educators.[51]

Some or all of the original design teams were involved in making revisions to compensation plans in seven out of eight districts that made changes. In two districts, additional representatives of district leadership and school personnel who had not been part of the original design team were included in the revision process. In one district, the revisions were deemed to be an outflow of state policy changes, so officials did not involve other stakeholders in making revisions. The timeline ranged from spring of 2012 through January 2013. For districts that made their revisions after the start of the 2012-13 school year, most mentioned that they informed their employees when they returned to school in the fall of 2012 that there would be changes made to specific parts of the compensation model and then later informed them of the actual changes. Districts informed administrators and teachers about changes primarily through face-to-face meetings and electronic communications. No districts reported any points of contention with revisions, and two reported that the revisions were well received by employees because they resolved issues that had been raised during the first implementation year.

PAYOUTS

Interviewers also asked district officials to reflect upon the process of preparing for and distributing the first round of award payouts in 2011-12. Despite widespread concern over the first payouts expressed in interviews in the previous year, interviewees were generally positive about most aspects of award distribution including data collection and synthesis, communication between central office departments, communication with building-

level, timing, and conflict resolution. Officials in five districts noted minor challenges affecting small numbers of employees related to clerical or calculation errors and conflicting interpretations of eligibility criteria or performance measures.

Preparation and distribution processes

The focus of district preparation for payouts was collecting and synthesizing performance data and communicating results to payroll departments and recipients in order for awards to be distributed. Nine districts partnered with Battelle for Kids (BFK), a nonprofit organization that provides a range of consulting and technology services to districts implementing strategic compensation, and five districts used in-house staff or other third party providers to support those processes. Regardless of the provider, all interviewees were pleased with the outcome. Those in partnership with BFK commented on the smooth information transfer between district departments and BFK as well as the value of the employee portal where participants could view their individual performance records and award amounts prior to disbursement.

> *I think the best [part] is the award portal that was created by Battelle for Kids, because it's very transparent and individual teachers were able to actually log onto the site to see not only their dollar amount of their award, but there was a PDF file that showed them exactly how that was calculated, as well as the support tickets they were able to submit for any questions that they had.*

Interviewees in districts not in partnership with BFK reported being equally pleased with their individual systems for data collection, award calculation, and notification. Thirteen of the 14 districts specifically commented on the importance of providing employees with clear information about their individual performance and how awards were calculated based on that performance. Two districts noted that this not only reduced the number of conflicts raised by employees but in many cases also allowed the districts to address those conflicts prior to award distribution. Online portals were the most commonly used mechanism, but some districts also used email communication, notifications within paychecks, and one-on-one meetings to notify employees.

One interviewee described his district's notification paperwork,

> *We developed a [one page] sheet…with their name and their baseline salary, and itemized everything that they got.... This was your team bonus, this was your individual, this was your hard-to-staff, this was your teacher leader, this was your annual increase to baseline pay. We put their evaluation score on there with every data point, everything they needed to know. That was calculated...., and it was given to them about two weeks prior to payout. We asked them if they had any questions to contact us.*

Payout Structure and Timeline

District plans for bonus payout structures and timelines varied greatly across the 14 districts. Seven districts paid awards to all award recipients at one time. The other seven districts distributed awards in two or more waves based on grade level, TDOE's timeline for releasing pertinent student outcome data, and/or performance measures. For example, two districts had separate payout timelines for elementary, middle, and high school employees because TDOE released student outcome data and the evaluation scores that were needed to calculate awards at different points in the year (e.g., graduation rates, TVAAS, standardized test scores). The majority of participating districts completed distribution of the first round of bonus award payouts by December of 2012. Payouts occurred between June 2012 and March 2013.

Plans for distributing funds in alternative salary districts also varied. In two districts, the percentage increase that a teacher earned was paid in a lump sum at the same time as bonus awards. Some districts made those payments in a regular payroll check while one district distributed payments through a separate check, independent of the regular payroll cycle. One district paid alternative salary increases incrementally in each payroll check throughout the year.

Conflicts and changes to future processes

Many districts notified participants of their performance levels and award amounts and required that participants verify the results prior to receiving their awards. This gave districts time to address questions or concerns and to ensure that award amounts were accurate before distributing any funds. All districts reported having an appeals process in place, and five districts created issue resolution teams to process any conflicts. After award payouts, seven districts reported receiving no complaints. The complaints raised in the other seven districts included minor issues related to missing data, calculation errors, and confusion over performance criteria.

One interviewee commented on difficulties related to itinerant teachers.

> *The difficulties that we had with payouts was that we have a lot of itinerant teachers and so if they serve 20 percent of their time at school B and 20 percent at school C, they're eligible for a percent of that school award. So there were a few that we missed that we had to go back and double check because our people move so frequently throughout the year that it's hard to keep up with them.*

At the time of the interviews, officials stated that all conflicts had been resolved.

When asked if their district would make any changes to the way it managed the payout process in the following year, ten interviewees stated that there were no plans to make changes, although two district officials noted that

the design teams would meet in the following summer to evaluate all aspects of strategic compensation programs. The changes indicated by interviewees in the other four districts included streamlining payouts into two payments rather than three, handling data collection and award calculation in-house rather than using a third party, and switching to a relative award model where participants earn points that correspond to a certain percentage of available funds instead of naming specific dollar amounts. In line with that thinking, another official stated that in future years,

> *We want to be able to look at the potential payout total before any teacher or any principal gets to look at what their award amount might be because last [year] the teachers were reviewing, but the district didn't really know what the exact payout was going to be because things kept changing. It was like one of those digital readouts of the national debt...when you look at it...it's going up...it's going down.*

Budgets

As part of the planning process, districts projected the amount of money for first round award payouts. Most districts developed a formula based on estimates of the number of eligible and participating teachers combined with performance levels from previous years in order to create a total payout projection. Interviewers asked officials whether they had met or been above or below payout projections and whether that would impact the strategic compensation model in subsequent years. Interviewees in 10 districts reported that their total award payout amount was below projections. None of those 10 districts anticipated making changes to their strategic compensation models or projections for subsequent years. All districts that commented on unused funds stated that those funds would be held in reserve to cover subsequent program costs. Most anticipated that future payouts would be higher due to more participation and better understanding of program requirements.

> *I have a feeling when the data comes back here this summer, and we see the payout amounts and we see the numbers involved…that will drive the conversation a little differently because… looking at our formative assessment data I…feel confident we'll have a much higher payout amount, so I think that will help steer the conversation into the next year.*

In the four districts where award payout amounts exceeded projections, actual costs ranged from 25 to 100 percent above projected costs, with two districts stating that the actual cost was double or nearly double the projection. Three districts reported using other district funding sources to cover overages while one district did not comment on how overages had been covered. When asked how year two overages might impact future payouts, one interviewee reported that her district had created new projections based on actual award payout from Year 1 but was not overly concerned about future overages as funding could again be pulled from other district funding streams. Another district opted to add language to its strategic compensation model informing participants that

if award payouts exceeded budgets in future years, individual award amounts would be reduced evenly across all participation groups. The interviewees from the remaining districts indicated that their districts were currently discussing possible resolutions, but no further information was available at the time of the interview.

LOOKING AHEAD

The final section of the 2013 interviews asked district officials to discuss future plans for strategic compensation programs, taking into account implementation experiences and state policy changes. Specifically, researchers asked about major areas of focus, new or ongoing concerns or threats, and the influences of state policy on their programs.

Officials most commonly stated that making modifications to eligibility and performance criteria would be an area of focus in the 2013-14 school year. Proposed changes included expanding participant groups to include teachers in new subject areas or grade levels, adding or changing performance measures (e.g., incorporating new end of course exams or standardized tests, aligning with STEM, annual measurable objectives (AMOs), or other district goals), raising required performance levels, changing award weighting structures, and increasing award amounts. A few districts mentioned the desire to examine the feasibility and benefits of converting to a relative award model to bring more budgetary stability to their programs. One interviewee expressed a desire to explore adding an alternative salary schedule component to the model.

During interviews with district officials the previous year, researchers asked interviewees to discuss concerns about implementing strategic compensation programs. Four districts reported no concerns or foreseeable threats to their program. Eight of the 14 districts expressed a related to funding and sustainability, particularly given grant requirements that district contributions to fund performance-based payouts increase over the remaining years of the grant. In 2013, five district interviewees voiced ongoing concerns related to budgets and funding.

One interviewee's remarks exemplified typical concerns:

> *I think the key thing for us is sustainability....Whatever we can do to help sustain it. Whatever we can do to gain public support for it is important. But I think that starts with teacher support. You know, if they don't support it well, then I don't know if the public will. Because, in a small community like ours, you know, our school district is the largest employer in the county. So what the teachers say about it is paramount.*

These interviewees were apprehensive about their district's ability to sustain programs over time, especially after the expiration of grant funding. Those who had already experienced budget shortfalls in the first year were uncertain as to whether it would be possible to apply the same strategies to cover overages in future years of the grant while also addressing the increasing local share of funding in general.

Interviewees who did not have funding concerns communicated concerns related to stakeholder buy-in, turnover of leadership positions within the district, and competing human capital needs, such as retaining effective teachers and attracting new teachers in hiring processes.

STATE POLICY IMPLICATIONS AND GRANT MANAGEMENT

The final questions of the interview asked district officials whether state policy had influenced their district's strategic compensation program and for their perceptions of the way TDOE had managed the grant to that point. Related to policy, interviewees most often noted the adoption of the new salary schedule and the enforcement of differentiated pay legislation. Interviewees were mostly positive about grant management and voiced a few concerns related to program staff turnover and timing of communication and reimbursements.

As noted previously, the Tennessee State Board of Education adopted a new minimum statewide salary schedule in the summer of 2013 that collapsed the previous step and ladder system into a structure with four levels of experience (0 years, 1-5 years, 6-10 years, and 11-15 years) and two categories for education level (bachelor's degree and advanced degrees).[52] Also included in the legislation was a re-commitment to previously unenforced legislation requiring all districts to adopt a differentiated pay plan by the 2014-15 school year. Eight interviewees mentioned these changes as having an influence on their district's strategic compensation program. Four of those interviewees spoke positively about how the changes in state policy had put them "ahead of the game" in implementing differentiated pay plans and had eased discussions about adding an alternative salary schedule to bonus models already in place.

Another state policy influence noted in interviews was the state's evaluation system, which was implemented concurrently with strategic compensation programs and has created an overlap in perceptions of the separate initiatives. A few interviewees speculated that some of the negative perceptions highlighted in district-level survey responses (especially those related to burdensome paperwork and drains on instructional time) were likely tied to perceptions of the evaluation system rather than the strategic compensation program. They pointed out that, for the most part, participating in their program required very limited enrollment and verification paperwork as opposed to the more significant paperwork required for a teacher's evaluation.

The majority of districts reported that they felt supported by TDOE through their provision of needed resources. Almost all interviewees noted that a strategic compensation convening held in January 2013 was helpful to them as it gave them the opportunity to meet with other districts to share concerns and lessons learned. About half of districts reported that TDOE staff was accessible and responded to district communications, though two districts noted that response times were often slow. Five districts expressed concern about the instability caused by staff turnover in the first two years of the grant which resulted in some conflicting communication about budgets and regulations.

V. FINDINGS FROM YEAR 2 COMPENSATION SURVEY

During the fall semester of the 2011-12 school year, and again in early spring of 2012-13, the Consortium administered a survey to all certified school personnel participating in district strategic compensation programs, as part of the CSF, the IAF, and the TN TIF 2010 cohort.[53] In both years, the Compensation Survey addressed five primary areas: (1) awareness and knowledge of the program, (2) perceptions of bonus awards and alternative salary components, (3) perceptions about program implementation, and (4) perceptions about program impact. As part of the 2012-13 survey, respondents were also asked about their (5) perceptions of the first-round of performance-based payouts.[54] This chapter focuses primarily on findings from the 2012-13 Compensation Survey, including a comparison of perceptions held by teachers and non-teachers. Where applicable, the chapter also discusses ways in which the 2012-13 results are similar to or different from the prior school year's findings.[55]

Researchers invited 9,887 certified school personnel in 192 schools to take the 2012-13 Strategic Compensation Survey. Overall, 55 percent responded for a total of 5,476[56] survey responses. Of those respondents, 88 percent (4,816) worked in schools participating in a strategic compensation program that included only performance-based bonus awards. The other 12 percent (660) worked in schools participating in a strategic compensation program that included both bonuses and an alternative salary schedule.

Survey respondents first identified their professional position. The vast majority (81.5 percent) of respondents identified themselves as teachers. Almost six percent identified themselves as administrators, and an additional 12 percent indicated that they were certified instructional staff (seven percent) or other certified staff (five percent).[57]

Researchers also examined the characteristics of survey respondents compared to those of all educators invited to participate in the 2012-13 survey. Overall, characteristics of respondents were similar to the characteristics of all certified school personnel employed in schools participating in strategic compensation programs. Appendix C provides further details about this review of respondent representativeness.

The remaining sections of this chapter address six key questions:

- Were educators aware of and knowledgeable about their district's strategic compensation program?
- How did educators feel about the design of bonus awards and alternative salary schedules, if applicable, offered in their schools?
- What were educators' perceptions of the implementation of the strategic compensation program in their school?
- What did educators perceive to be the impacts of the strategic compensation programs in their schools?
- What were educators' experiences with and perceptions about the first round of bonus payouts and base salary increases?
- What were educators' attitudes about compensation reform generally?

Findings are based on the responses of only educators serving in a certified school staff position (i.e., teacher, administrator, certified instructional staff, or other certified staff). Where appropriate, the chapter compares the 2012-13 responses of teachers to those of non-teachers, and responses from the 2012-13 survey to those of the prior year.

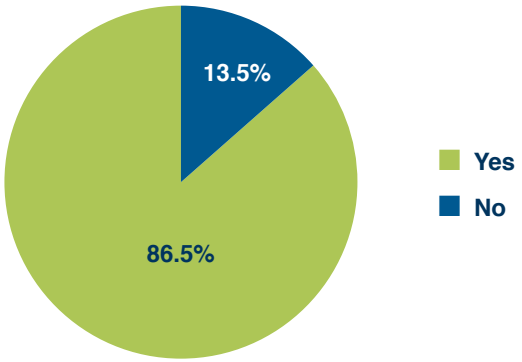
Key Findings from Compensation Surveys:

- A large majority of respondents were aware of strategic compensation programs and had an accurate understanding that bonus awards were part of the programs. There remained notable confusion about the alternative salary schedule component.
- Fifty-three percent of respondents agreed or strongly agreed that the bonus component was fair. Sixty-five percent of respondents indicated that the alternative salary component was fair.
- Less than 30 percent agreed that they would need change their professional practice to earn a bonus award. One-third of respondents felt they would need to change their professional practice to earn a base salary increase.
- Perceptions of implementation improved slightly from 2011-12 to 2012-13 but remained split about evenly with regard to overall satisfaction, adequacy of support, and the burden that participation and requisite paperwork placed on teachers.
- Respondent views of program impact improved in 2012-13 but remained split. Respondent beliefs about program impact on teacher satisfaction and retention remained low, as was the case in 2011-12.
- In relation to compensation reform generally, respondents felt that factors other than years of experience and level of education, should have high or moderate importance in performance-based payout decisions.
- Respondents held mixed views about the impact of performance-based pay generally on teaching, learning, interpersonal dynamics in schools, and feelings of teacher satisfaction.

AWARENESS AND KNOWLEDGE OF STRATEGIC COMPENSATION PROGRAMS

Educators were asked early in the survey whether they were aware of their school's participation in a strategic compensation program prior to receiving the 2012-13 Compensation Survey. As seen in Figure 5.1, among the 5,476 respondents asked this question, nearly 87 percent were aware of the programs. This awareness rate was slightly lower than on the prior year's Compensation Survey, where 92 percent of respondents indicated awareness of their district's strategic compensation program.

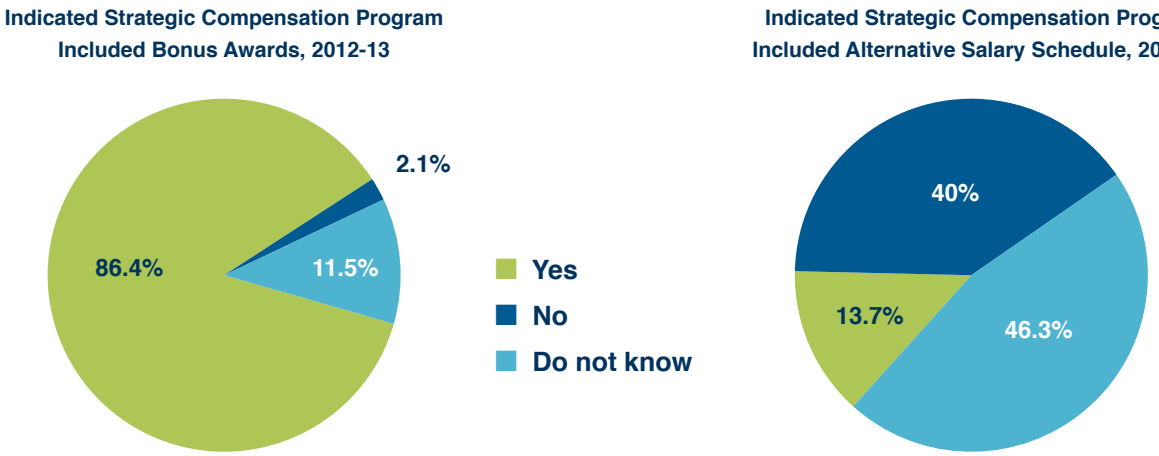
Figure 5.1: Aware of School Participation in Strategic Compensation Program, 2012-13



Source: Responses on 2012-13 Compensation Survey.
N=5,472 respondents with 18 missing responses.

Respondents who were aware of their school's participation in a strategic compensation program were then asked whether their district program included performance-based bonus awards and whether it included an alternative salary schedule. As seen in Figure 5.2, among the 4,736 respondents aware of their school's participation, 86 percent indicated that their district program included performance-based bonus awards while approximately 14 percent indicated that it included an alternative salary schedule. Just over 10 percent of respondents did not know if bonus awards were part of the 2012-13 strategic compensation programs, whereas 46 percent were unsure about whether their district program included an alternative salary schedule. These findings reflect similar levels of awareness seen in the 2011-12 Compensation Survey.

Figure 5.2: Indicated Strategic Compensation Program Included Bonus Awards and Alternative Salary Schedule, 2012-13



Source: Responses on 2012-13 Compensation Survey.
N=4,736 respondents with 3 (bonus) and 25 (alternative salary) missing responses.

For a more informative review of educator knowledge, researchers compared educator beliefs about the components of their district's strategic compensation programs to what the program actually included during the 2012-13 school year. As seen in Table 5.1, there was notable confusion about the presence of alternative salary schedules. Among the 4,085 respondents employed in districts with only bonus awards, almost 86 percent accurately indicated the programs included bonus awards in 2012-13 while nearly eight percent incorrectly indicated the program also included an alternative salary schedule. Almost 91 percent of the 651 respondents in districts with bonus awards and an alternative salary schedule correctly identified their program as having bonus awards; however, only half of respondents correctly indicated that the program also included an alternative salary schedule. Additionally, over 40 percent of respondents in both types of district programs did not know whether the programs actually included an alternative salary schedule. The extent of confusion about the inclusion of alternative salary schedules was similar during the 2011-12 school year.

Table 5.1: Understanding of Strategic Compensation Program Components by District Program Type, 2012-13

District Program Type	Believed Program Included Bonuses			Believed Program Included Alternative Salary Schedule		
	Yes	No	Do not know	Yes	No	Do not know
Bonus awards only	85.5%	2.2%	12.2%	7.7%	44.7%	47.1%
	-3,493	-89	-500	-314	-1,824	-1,922
Bonus awards & Alternative salary schedule	91.6%	1.4%	7.1%	51.2%	9.4%	39.5%
	-596	-9	-46	-333	-61	-257

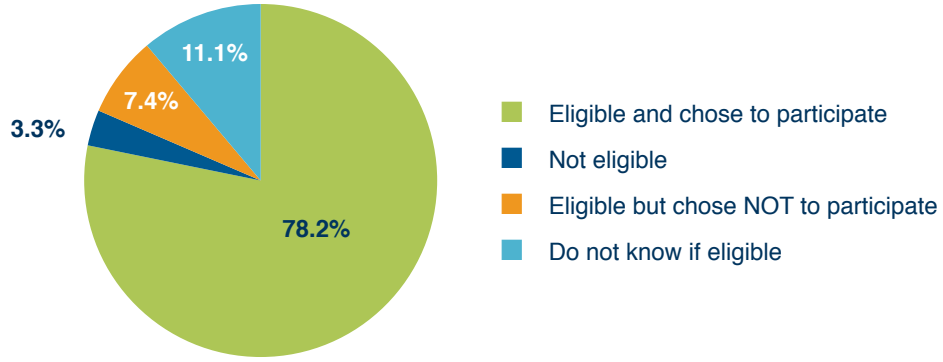
Source: Responses on 2012-13 Compensation Survey.
N=4,085 respondents in districts with bonus awards only.
N=651 respondents in districts with bonus awards and alternative salary schedule.

ATTITUDES AND BELIEFS ABOUT THE DESIGN OF STRATEGIC COMPENSATION PROGRAMS

The 2012-13 Compensation Survey asked educators to share their attitudes and beliefs about the design of bonus awards and alternative salary schedules during the 2012-13 school year. The questions focused primarily on the degree to which educators agreed with statements about the compensation program's fairness and the capacity of various components to motivate performance. Educators were also asked to predict whether they would earn a performance-based payout given their performance during the 2012-13 school year.

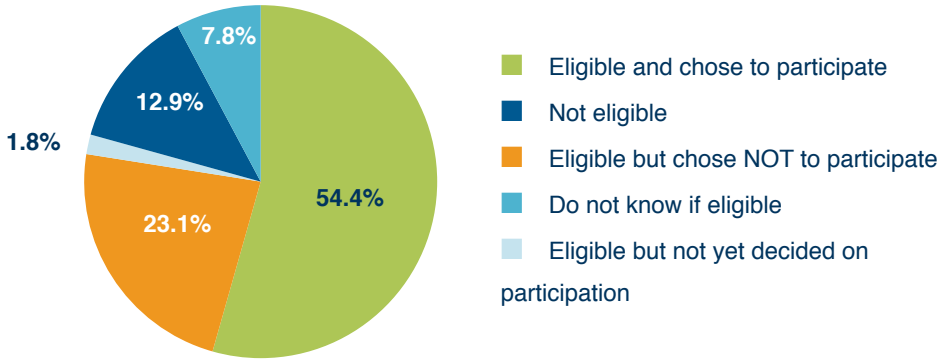
In order to accurately assess these perceptions, the survey first asked educators about the nature of their eligibility and participation in the components of the strategic compensation programs. As seen in Figure 5.3, 78 percent of the 4,089 respondents who accurately indicated that their district's program included bonus awards reported that they were eligible and participating in that program component. Fifty-four percent of the 333 respondents who correctly believed their district programs included an alternative salary schedule reported that they were eligible and participating in that program component (see Figure 5.4).

Figure 5.3: Participation in Bonus Awards Component, 2012-13



Source: Responses on 2012-13 Compensation Survey.
N=4,089 respondents with 7 missing responses.

Figure 5.4: Participation in Alternative Salary Component, 2012-13



Source: Responses on 2012-13 Compensation Survey.
N=647 respondents with no missing responses.

Eligible respondents who reported participating in strategic compensation programs were asked about projected payouts, fairness, and the motivational value of their district's compensation program. Of the 3,192 respondents eligible and participating in the bonus awards, 2,539 (or about 80 percent) held teaching positions in their schools. Of the 181 respondents eligible and participating in their district's alternative salary schedule, 153 (85 percent) held teaching positions in their schools. The discussion below compares teacher attitudes to those of other certified staff (e.g., principals, assistant principals, all other certified instructional staff). As appropriate, the discussion also compares the attitudes of respondents based on their eligibility and participation status in the 2012-13 school year.

ATTITUDES AND BELIEFS ABOUT BONUS AWARDS

The 3,192 respondents who reported being eligible and participating in their districts' 2012-13 bonus awards component were asked how much they believed they would receive as a performance-based bonus. Table 5.2 shows the distribution of responses across all respondents. Nearly 43 percent believing they would receive $1,000 to $1,999 for their 2012-13 school year performance.

Table 5.2: Bonus Payout Predications for 2012-13 Performance

Predicted Bonus Payout	All Respondents	Teachers	School Administrators	Certified Instructional Staff	Other Certified Staff
$0	8%	8%	10.5%	4.1%	9%
$1 to $999	15.3%	16.9%	4.4%	8.3%	15.7%
$1,000 to $1,999	42.8%	42.6%	41.5%	47.7%	45.2%
$2,000 to $2,999	18.3%	17.8%	22.6%	24.4%	14.8%
$3,000 to $3,999	3.5%	3.4%	7.7%	1.6%	1.9%
$4,000 to $4,999	0.9%	0.8%	3.2%	0.5%	0%
$5,000 to $5,999	1.4%	1.2%	3.6%	1.6%	0.5%
$6,000 to $6,999	0.1%	0.1%	0.4%	0%	0%
$7,000 to $7,999	0.1%	0%	0.4%	0.5%	0%
$8,000 to $8,999	0.2%	0%	0%	2.6%	0%
$10,000 or more	0.2%	0%	0%	0%	0%
Do not know	9%	9.1%	4.8%	8.8%	12.9%

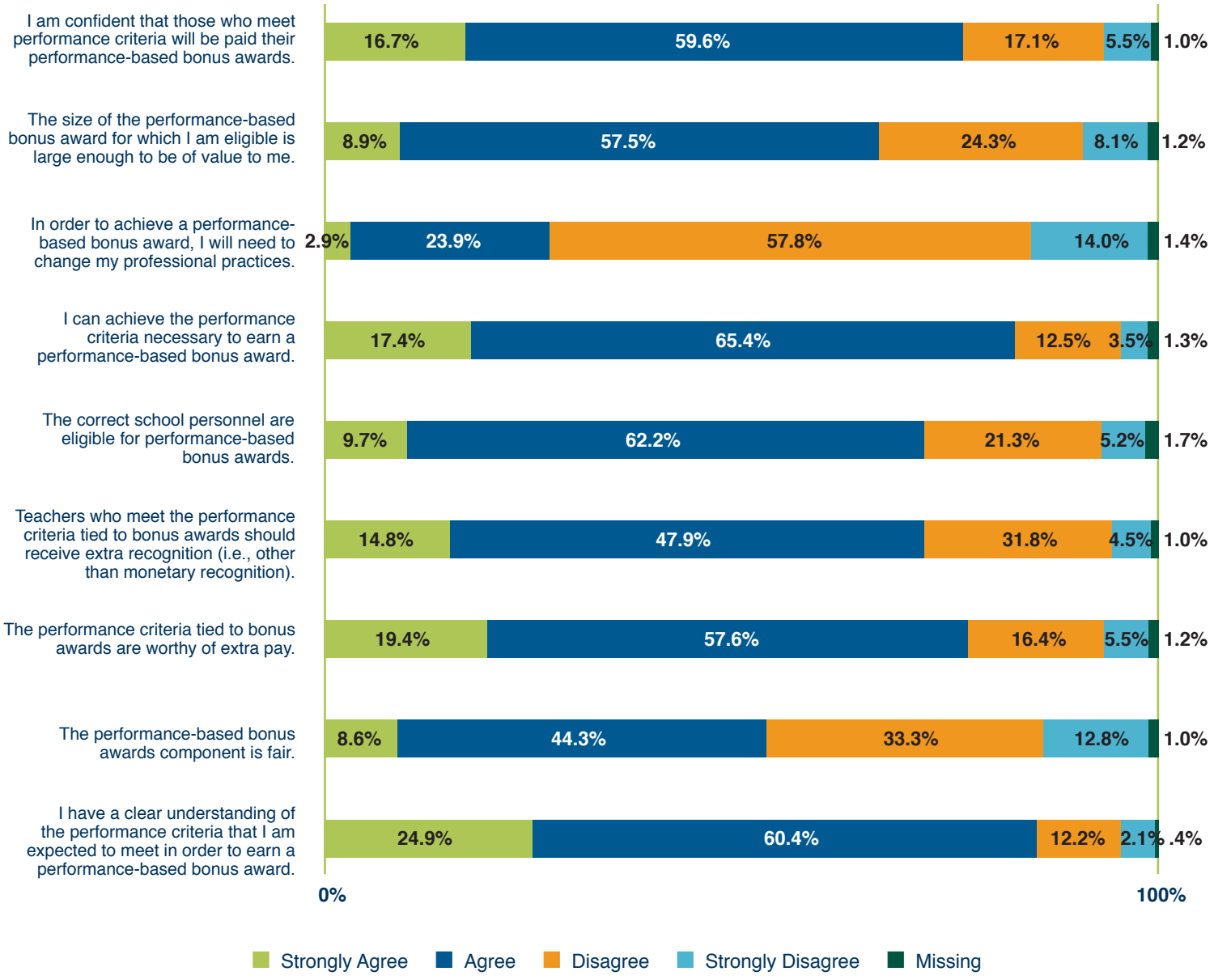
Source: Responses on 2012-13 Compensation Survey.
N=3,192 all respondents; 2,539 teachers; 249 school administrators; 193 certified instructional staff; 211 other certified staff members.

Payout predictions on the 2012-13 survey were similar between teachers and other certified staff positions, with a couple of notable exceptions (see Table 5.3). Sixty-eight percent of teachers, 70 percent of other certified staff, 60 percent of certified instructional staff, and 56 percent of administrators predicted a payout of less than $2,000. However, a larger proportion of school administrators and certified instructional staff predicted a payout above $2,000 than all other groups.

Respondents who believed their district program included bonus awards were asked about the fairness and motivational qualities of bonus awards. The wording of survey items differed slightly depending on the eligibility and participation status reported by the respondent. Figure 5.5 lists statements that were addressed by all respondents who were eligible and participating in the bonus award component during the 2012-13 school year. The first four statements are related to the concept of program fairness, specifically whether: (1) performance-based bonus awards were fair, (2) performance criteria tied to bonus awards were worthy of extra pay, (3) performance criteria tied to bonus awards were worthy of extra recognition, and (4) correct school personnel were eligible for bonus awards during the 2012-13 school year. The majority of respondents agreed with each of these four statements, with over 75 percent agreeing the performance criteria were worthy of extra pay. However, just over half agreed the bonus awards were fair.

The remaining five statements relate to motivation, specifically whether educators: (1) understood performance expectations, (2) could meet performance criteria, (3) would need to change practice to achieve payout, (4) valued the size of the payout amount, and (5) felt confident that payouts would actually occur for those attaining criteria. Over 80 percent of these respondents reported a clear understanding of performance criteria and felt that performance criteria were attainable during the 2012-13 school year. Additionally, three-quarters were confident that payouts would actually occur for those meeting performance criteria. In contrast, less than 30 percent of respondents indicated they would need to change their professional practice during the 2012-13 school year in order to earn a bonus award.

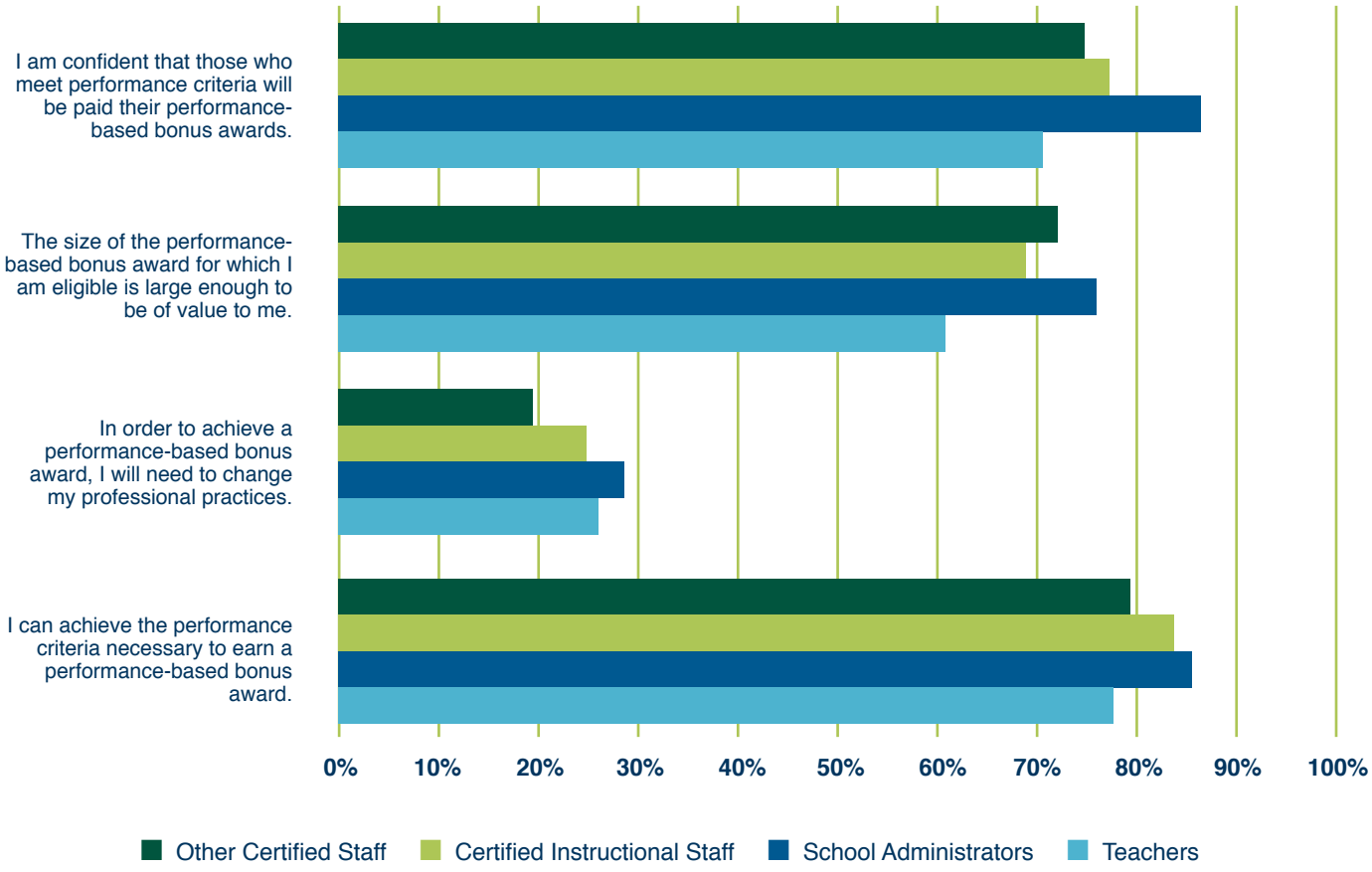
Figure 5.5: Perceptions of Fairness and Motivational Qualities of Bonus Awards Held by Eligible and Participating Educators in 2012-13



Source: Responses on 2012-13 Compensation Survey.
N=3,192 respondents.

Researchers also examined whether respondents in various professional positions held different beliefs about the fairness and motivational qualities of bonus awards. As seen in Figure 5.6, the majority of respondents in all positions – teacher, school administrators, certified instructional staff, and other certified school staff – believed the bonus award criteria were achievable and worthy of extra pay and recognition. Other than teachers, a majority of all groups agreed that it was fair. Less than 30 percent of respondents in each category agreed they would need to change their professional practice to earn a bonus award. School administrators consistently held more positive attitudes than teachers. Most notably, only 50 percent of teachers believed the bonus awards were fair compared to 75 percent of school administrators.

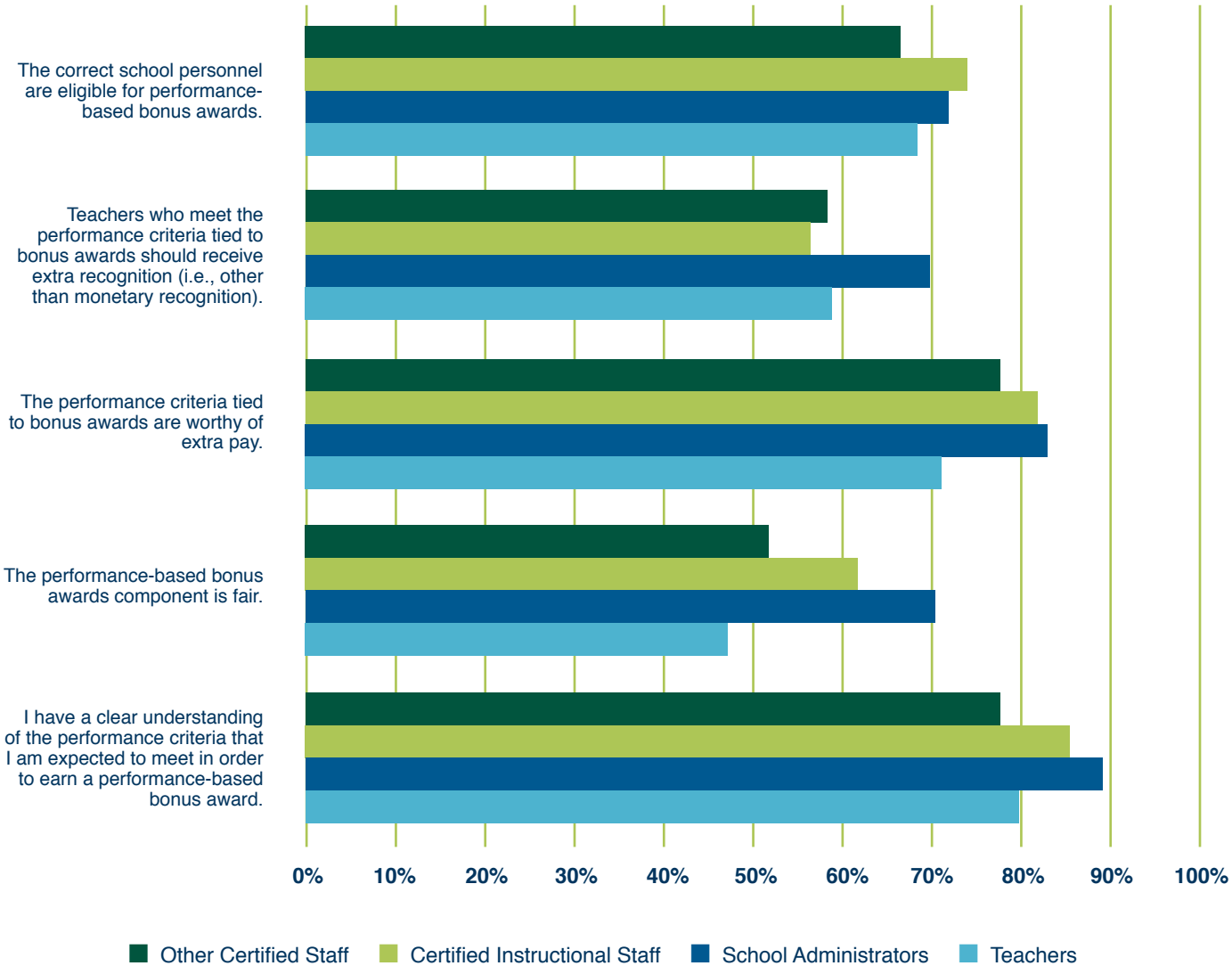
Figure 5.6: Percent Agreeing or Strongly Agreeing about Fairness and Motivational Qualities of Bonus Awards, by Respondent Position in 2012-13



Source: Responses on 2012-13 Compensation Survey.
Note: Response options for these survey items included Strongly Agree, Agree, Disagree, Strongly disagree. Each bar represents the percentage of respondents agreeing or strongly agreeing with each statement.
N= 2,539 teachers eligible and participating in 2012-13 bonus awards.
N= 249 school administrators eligible and participating in 2012-13 bonus awards.
N= 193 certified instructional staff eligible and participating in 2012-13 bonus awards.
N= 211 other certified staff eligible and participating in 2012-13 bonus awards.

Figure 5.6 Continued on page 63

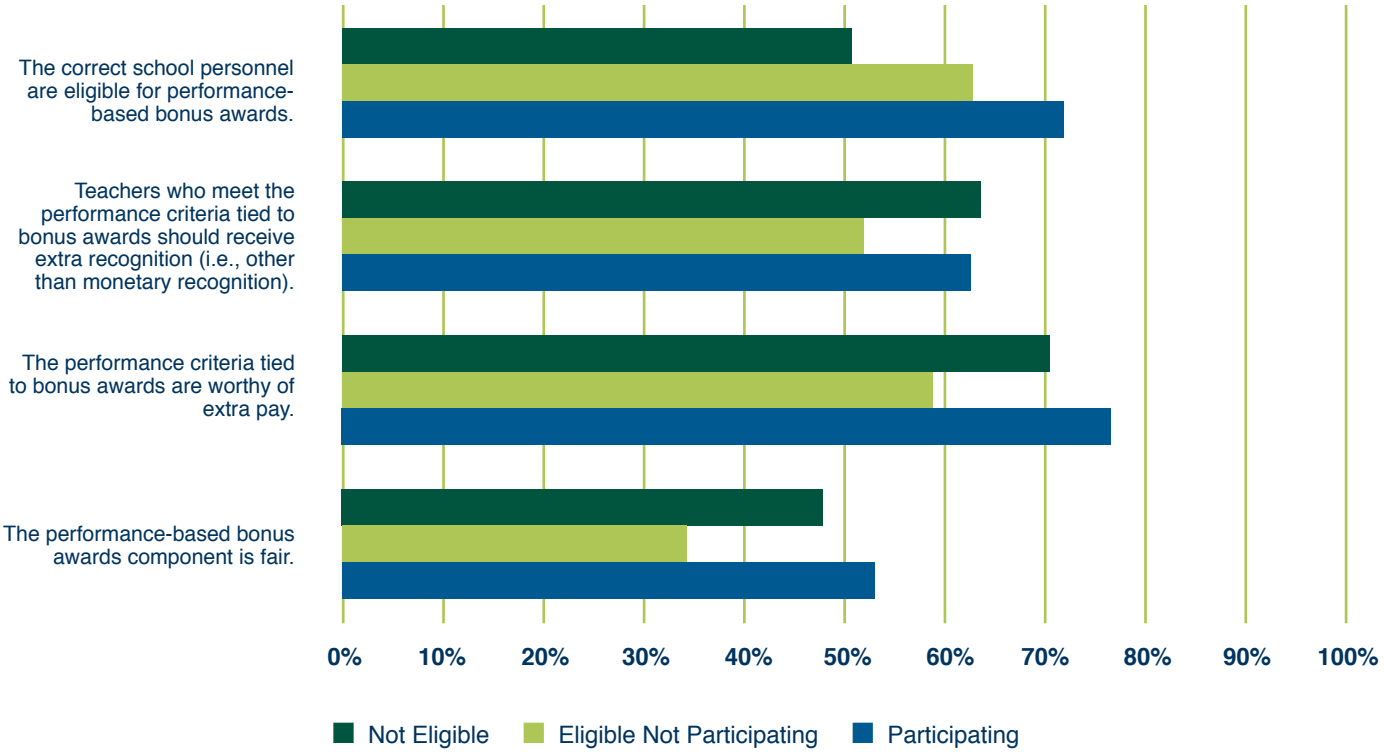
Figure 5.6: Percent Agreeing or Strongly Agreeing about Fairness and Motivational Qualities of Bonus Awards, by Respondent Position in 2012-13 (Continued from page 62)



Source: Responses on 2012-13 Compensation Survey.
Note: Response options for these survey items included Strongly Agree, Agree, Disagree, Strongly disagree. Each bar represents the percentage of respondents agreeing or strongly agreeing with each statement.
N= 2,539 teachers eligible and participating in 2012-13 bonus awards.
N= 249 school administrators eligible and participating in 2012-13 bonus awards.
N= 193 certified instructional staff eligible and participating in 2012-13 bonus awards.
N= 211 other certified staff eligible and participating in 2012-13 bonus awards.

Regardless of eligibility and participation status, all respondents who believed their district program included bonus awards were asked about the fairness of the bonus award structure. Figure 5.7 reports the extent to which respondents agreed that: (1) performance-based bonus awards were fair, (2) performance criteria tied to bonus awards were worthy of extra pay, (3) performance criteria tied to bonus awards were worthy of extra recognition, and (4) correct school personnel were eligible for bonus awards during the 2012-13 school year. The figure shows responses for those who were eligible and participating, those who were eligible but chose not to participate, as well as those who were not eligible for bonus awards in 2012-13.

Figure 5.7: Percent Agreeing or Strongly Agreeing About Fairness of Bonus Awards Compared by Respondent Eligibility and Participation Status in 2012-13



Source: Responses on 2012-13 Compensation Survey.
Note: Response options for these survey items included Strongly Agree, Agree, Disagree, Strongly disagree. Each bar represents the percentage of respondents agreeing or strongly agreeing with each statement.
N=3,192 respondents participating in the 2012-13 bonus awards component.
N=134 respondents that were eligible but chose not to participate in the 2012-13 bonus awards component.
N=301 respondents that were not eligible to participate in the 2012-13 bonus awards component.

Across all three groups of respondents, more educators agreed than not that the performance criteria were worthy of extra pay. Nearly 80 percent of participants agreed that the criteria were worthy of extra pay in 2012-13 compared to approximately 60 percent of eligible non-participants and 70 percent of those who were not eligible to participate. While over 60 percent of both participants and eligible non-participants felt that the correct school personnel were eligible for bonus awards, only half of non-eligible educators felt similarly. Agreement was lowest on the fairness of the performance-based bonus awards. Only one-third of eligible non-participants agreed that the bonus awards were fair.

ATTITUDES AND BELIEFS ABOUT ALTERNATIVE SALARY SCHEDULES

One hundred eighty-one respondents who reported being eligible and participating in their district's 2012-13 alternative salary component were asked how much they expected to receive in a salary increase for their performance during the school year (Table 5.3). Approximately 40 percent expected to receive up to a two percent increase on their base salary, while few predicted an increase over three percent. Almost 25 percent were not sure how much their base salary would increase for their 2012-13 performance.

Table 5.3: Salary Increase Predictions for 2012-13 Performance

Predicted Salary Increase	All Respondents	Teachers	All Other Certified Staff*
Do not know	23.3%	22.2%	29.5%
No increase (i.e., 0%)	5%	3.3%	14.6%
Up to 1%	15%	15.7%	11%
Up to 2%	27.8%	28.1%	26.1%
Up to 3%	26.7%	28.1%	18.8%
Up to 4%	0.6%	0.7%	0%
Greater than 4%	1.7%	2%	0%

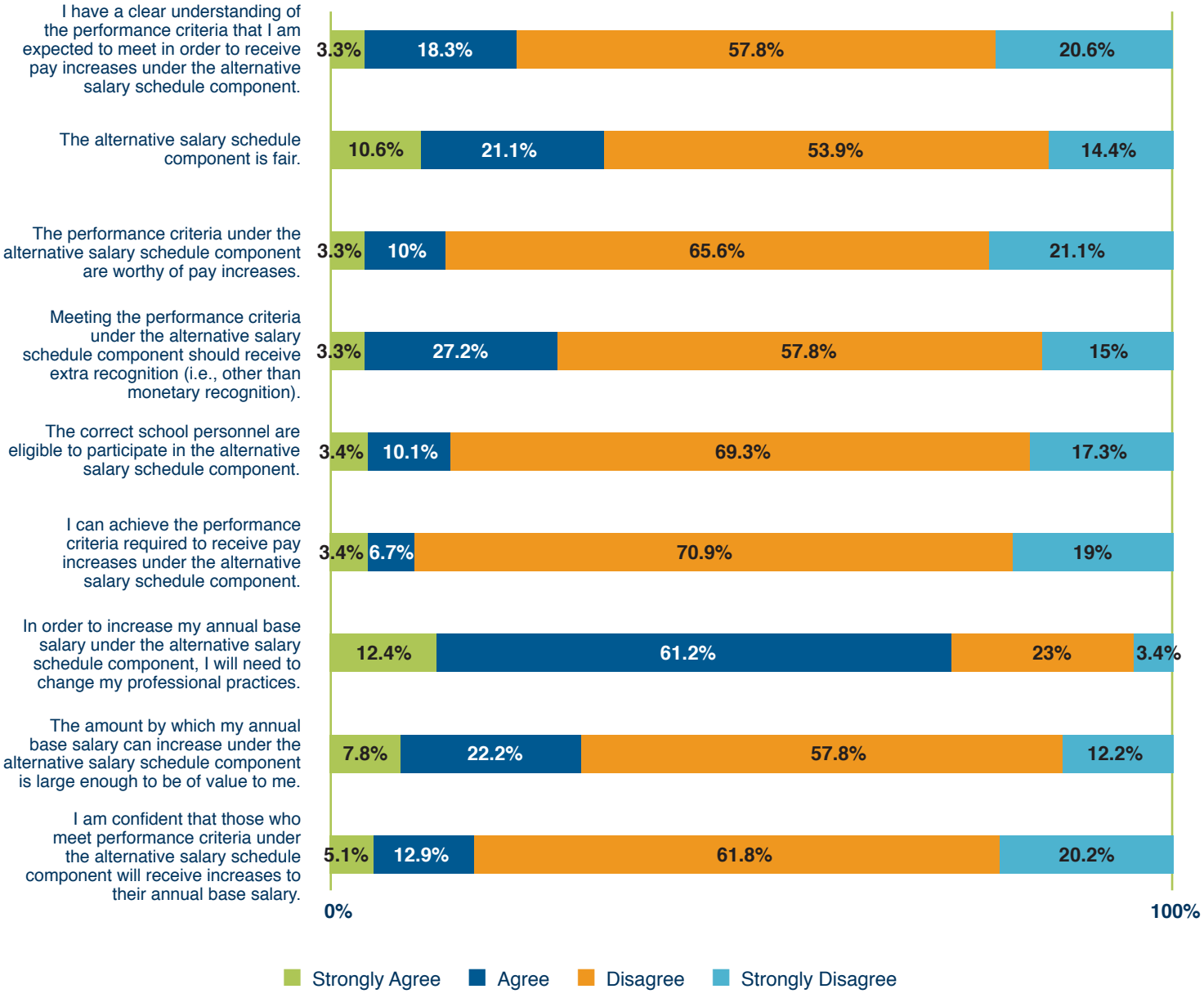
Source: Responses on 2012-13 Compensation Survey.
N=180 respondents; 153 teachers; 27 all other certified staff
*Due to small respondent numbers, this category includes administrators, certified instructional staff, and other certified staff in order to guarantee respondent confidentiality.

There were several differences between teacher salary increase predictions and those of other certified staff positions. For example, only three percent of teachers did not expect to earn a salary increase, as compared to almost 15 percent of all other certified staff. Additionally, a higher percentage of teachers (31 percent) expected to earn a salary increase of three percent or more, while less than 20 percent of all other certified staff expected an

increase of that size. For educators who expected a salary increase, the largest share of all groups predicted that their salary increase would be less than two percent.

Respondents who believed their district program included an alternative salary schedule were asked about the fairness and motivational qualities of their district's alternative salary schedule. As with questions about bonus awards, wording of survey items differed slightly depending on a respondent's reported eligibility and participation status. Figure 5.8 lists survey items for respondents who were eligible and participating in the alternative salary schedule component in 2012-13. The first four statements relate to program fairness, specifically whether: (1) the alternative salary schedule was fair, (2) performance criteria tied to the alternative salary schedule were worthy of extra pay, (3) performance criteria tied to the alternative salary schedule were worthy of extra recognition, and (4) correct school personnel were eligible for the alternative salary schedule during the 2012-13 school year. Over 85 percent of respondents agreed that the performance criteria were worthy of extra pay, and over 85 percent agreed that the correct school personnel were eligible for the alternative salary schedule. Over 65 percent of those participating in the alternative salary schedule agreed that program was fair in 2012-13.[58]

Figure 5.8: Perceptions of Fairness and Motivational Qualities of Alternative Salary Schedule Held by Eligible and Participating Educators in 2012-13

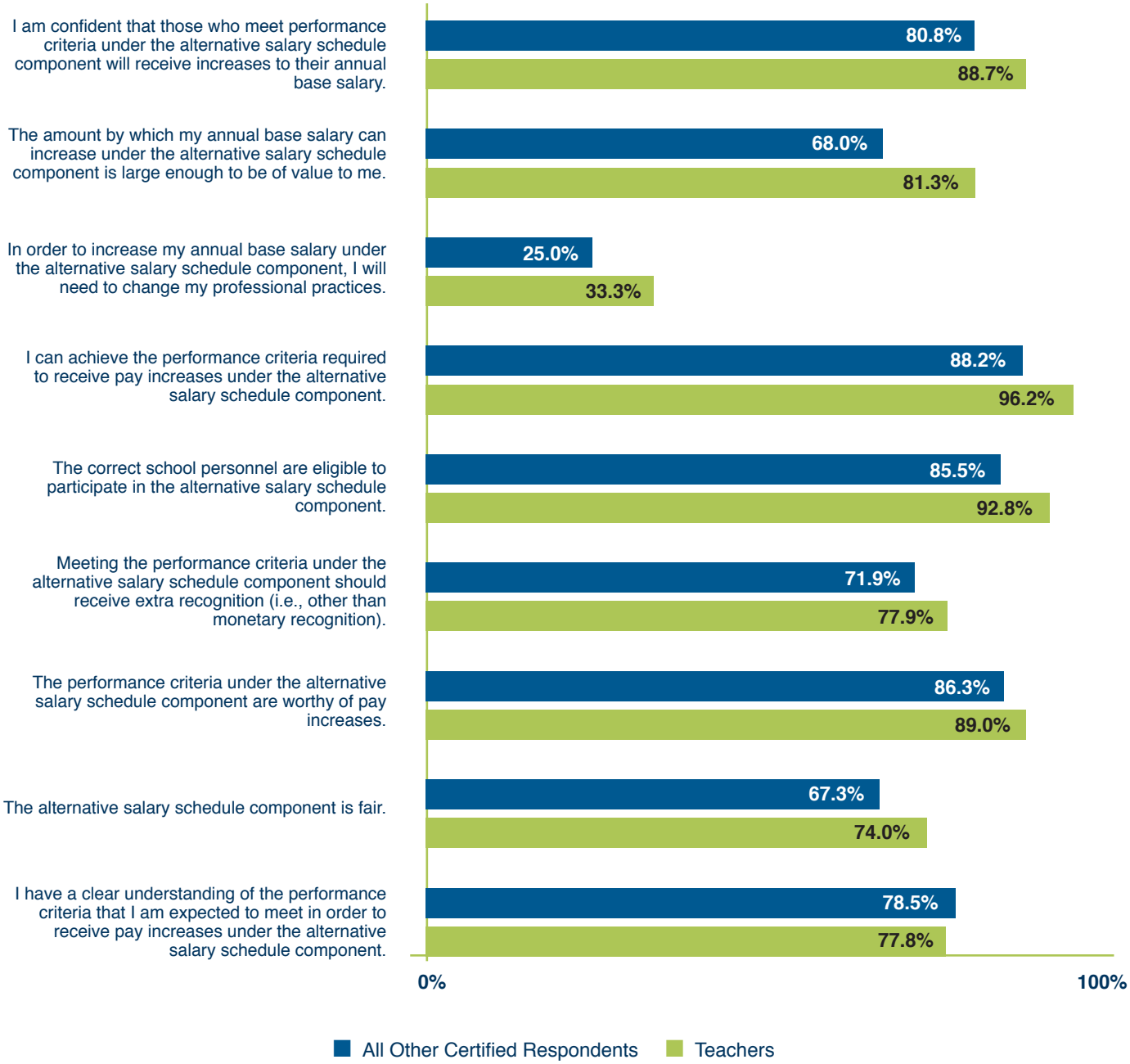


Source: Responses on 2012-13 Compensation Survey.
N=180 respondents.

Most eligible respondents participating in an alternative salary schedule held favorable views about the motivational qualities of their district's alternative salary schedule. Specifically, 90 percent believed the performance criteria were attainable, while roughly 80 percent understood performance expectations and felt that payouts would actually occur for educators meeting performance criteria. Conversely, only one-quarter of respondents indicated they would need to change professional practices in order to earn a salary increase.

Researchers further examined survey responses to identify whether respondents in various positions had different beliefs about the fairness and motivational quality of alternative salary schedules.[59] As seen in Figure 5.9, a majority of teachers, school administrators, certified instructional staff, and other certified school staff believed the bonus award criteria were achievable and worthy of salary increases and extra recognition. Apart from teachers, the majority of all groups agreed that the alternative salary schedule was fair. Approximately one-third of respondents in each category believed they would need to change their professional practices to earn a salary increase under the alternative salary schedule. Researchers also observed that school administrators consistently held more positive attitudes than teachers. Most notably, only 50 percent of teachers believed their district's alternative salary schedule was fair compared to 75 percent of school administrators.

Figure 5.9: Percent Agreeing or Strongly Agreeing about Fairness and Motivational Qualities of Alternative Salary Schedules by Position of Respondents in 2012-13



Source: Responses on 2012-13 Compensation Survey

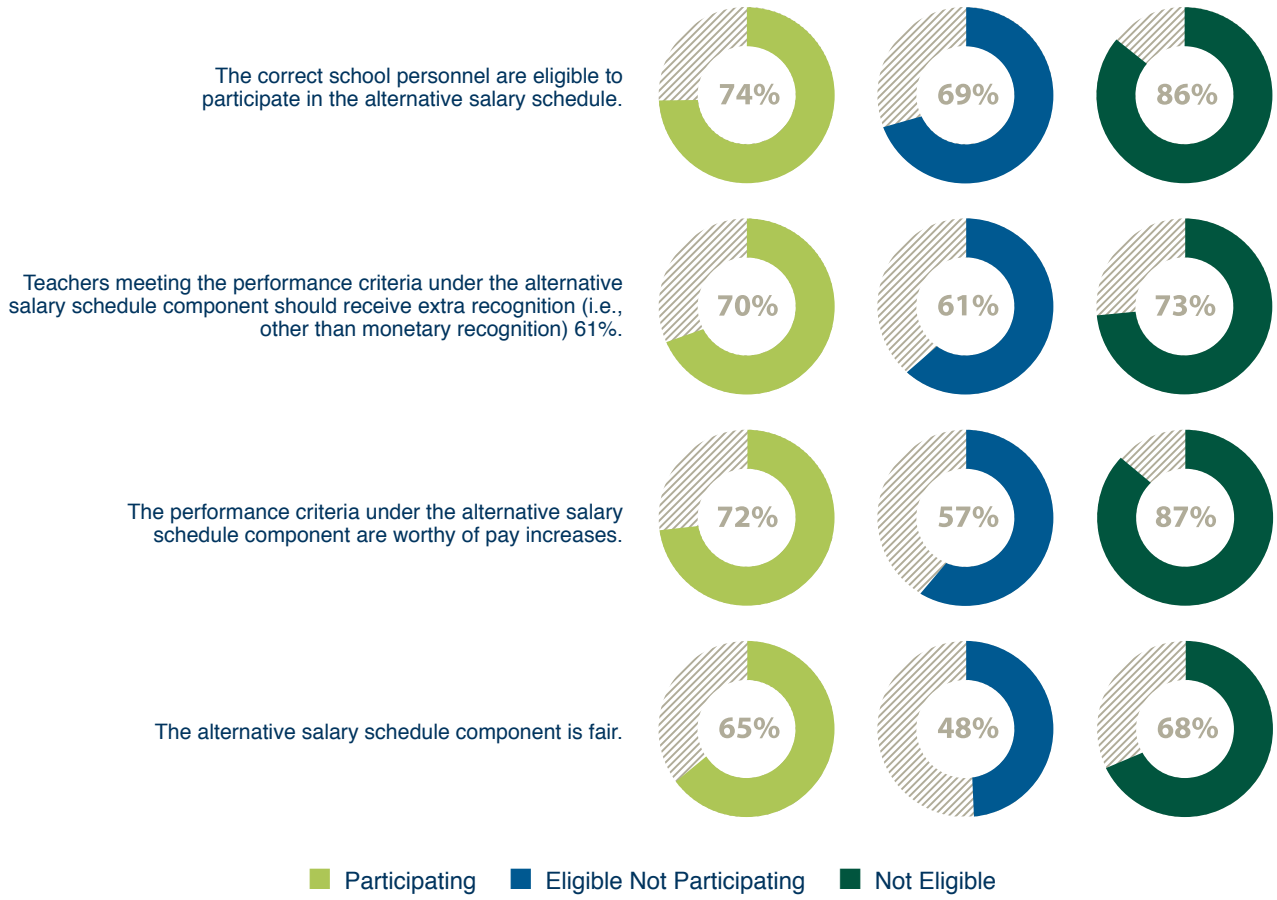
Note: Response options for these survey items included Strongly Agree, Agree, Disagree, Strongly Disagree. Each bar represents the percentage of respondents agreeing or strongly agreeing with each statement.

N=153 teachers eligible and participating in 2012-13 alternative salary schedule

N= 27 "all other certified respondents" (includes administrators, certified instructional staff, and other certified staff) eligible and participating in 2012-13 alternative salary schedule.

Respondents who indicated their district's program included an alternative salary schedule were asked about the fairness of their district's alternative salary schedule. Respondents included those who were eligible and participating, those who were eligible but chose not to participate, as well as those who were not eligible to participate in the alternative salary schedule in 2012-13. Figure 5.10 compares the extent to which the three groups of respondents agreed that: (1) alternative salary schedules were fair, (2) performance criteria tied to alternative salary schedules were worthy of extra pay, (3) performance criteria tied to alternative salary schedules were worthy of extra recognition, and (4) correct school personnel were eligible for alternative salary schedules during the 2012-13 school year.

Figure 5.10: Percent Agreeing and Strongly Agreeing about Fairness of Alternative Salary Schedules Compared by Respondent Eligibility and Participation Status in 2012-13



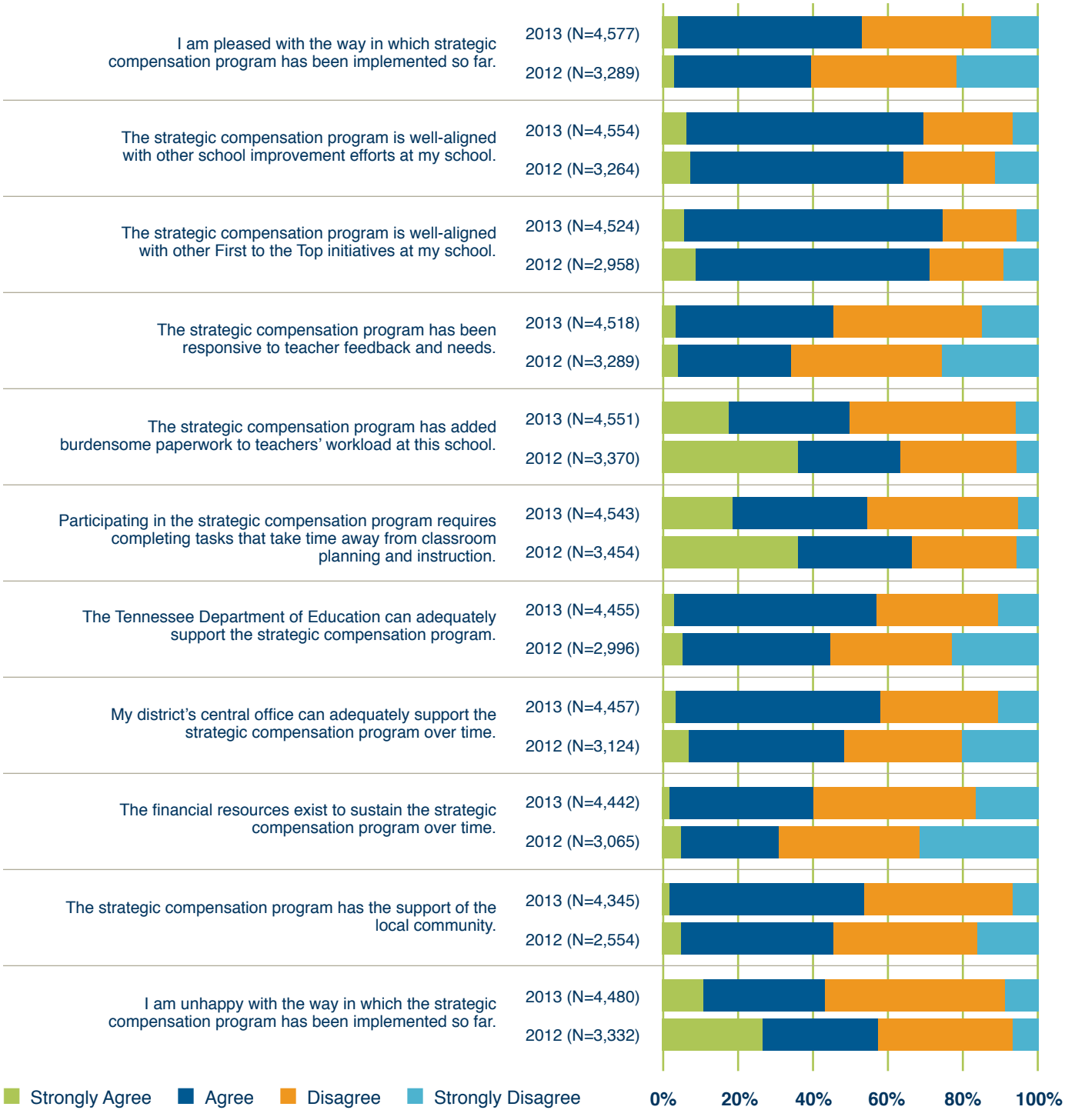
Source: Responses on 2012-13 Compensation Survey.
Note: Response options for these survey items included Strongly Agree, Agree, Disagree, Strongly Disagree. Each bar represents the percentage of respondents agreeing or strongly agreeing with each statement.
N=181 respondents participating in the 2012-13 alternative salary schedule component.
N=77 respondents who were eligible but chose not to participate in the 2012-13 alternative salary schedule component.
N=43 respondents who were not eligible to participate in the 2012-13 alternative salary schedule component.

Across all three groups, a majority of respondents agreed that the alternative salary schedule is fair. However, only 50 percent of those who were eligible for participation in the alternative salary schedule but chose not to participate agreed that the alternative salary schedule in their district was fair in 2012-13, as compared to approximately 65 percent of those who participated or those who were not eligible to participate.

PERCEPTIONS OF IMPLEMENTATION OF STRATEGIC COMPENSATION PROGRAMS

As in the 2011-12 Compensation Survey, educators were asked for their perceptions about their district's implementation of strategic compensation programs during the 2012-13 school year. In particular educators were asked about organizational alignment, administrative requirements, and district and state capacity to support the program. Educators who indicated on the survey that they were aware of their district's program (4,736 respondents) were asked to share their perceptions about program implementation. Figure 5.11 shows the degree to which this group of respondents agreed with statements around three topics: (1) overall satisfaction with program implementation, (2) beliefs about support and sustainability of the program, and (3) perceptions about program influence on professional practice and other school initiatives.[60]

Figure 5.11: Perceptions of Implementation of Strategic Compensation Programs, 2012-13



Source: Responses on 2011-12 and 2012-13 Compensation Surveys.

OVERALL SATISFACTION WITH PROGRAM IMPLEMENTATION

About half of respondents agreed that they were pleased with program implementation during the 2012-13 school year, whereas just over 40 percent indicated they were unhappy with it. Approximately 43 percent agreed that the program had been responsive to teacher feedback and needs. While overall satisfaction was split among respondents, perceptions of implementation in 2012-2013 were more favorable than among those who responded to the same survey items in the 2011-2012 school year.

SUPPORT AND SUSTAINABILITY FOR STRATEGIC COMPENSATION PROGRAMS

The survey also asked whether educators agreed that district central offices and the Tennessee Department of Education (TDOE) could adequately support implementation of strategic compensation programs, and whether educators agreed that the programs have community support and are financially sustainable. Nearly 55 percent of respondents agreed that each of the TDOE and their district central office could adequately support the strategic compensation program. While not an overwhelming majority, the percent of respondents agreeing with these statements in 2012-13 was greater than in the prior year, when roughly 30 percent of respondents agree that the state and district could support their program. Similarly, respondent views about local community support and financial sustainability improved in 2012-13 from the prior year. On the 2012-13 compensation survey, nearly half of respondents agreed that the programs had local community support and nearly 40 percent agreed that financial resources existed to sustain the compensation programs. These percentages represented nearly double the proportion of respondents agreeing with those same statements in 2011-12.

PROGRAM INFLUENCE ON PROFESSIONAL PRACTICE AND OTHER SCHOOL INITIATIVES

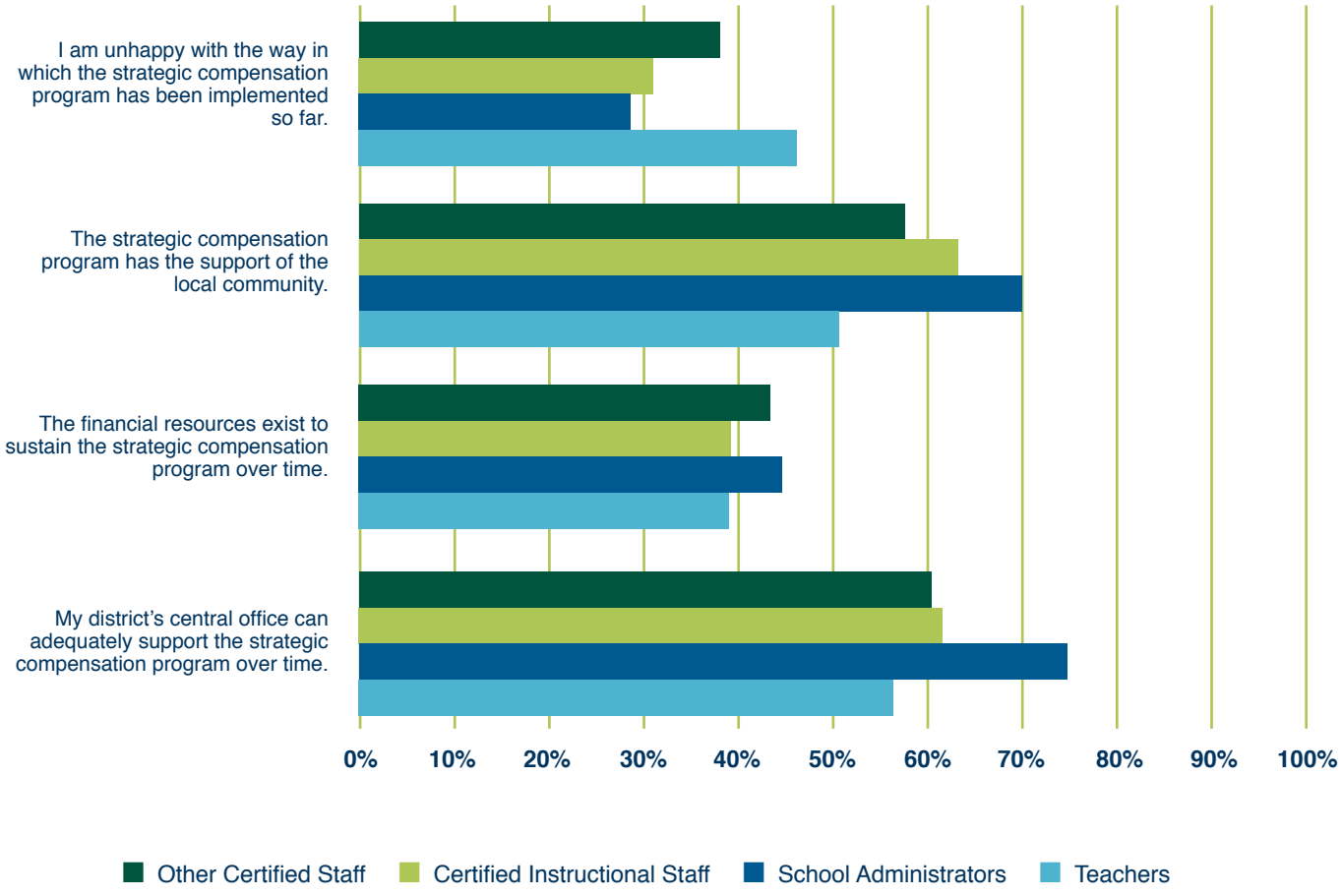
Around 70 percent of respondents agreed that the compensation programs were well aligned with other First to the Top (FTTT) initiatives and other school improvement efforts. The share of respondents expressing these positive views in 2012-13 was up from roughly 50 percent in 2011-12. However, approximately half of respondents in 2012-13 agreed that program participation required tasks that take time away from classroom planning and instruction or added burdensome paperwork. A similar percentage of respondents agreed with these same concerns about program burdens in the prior school year.

PERCEPTIONS ABOUT PROGRAM IMPLEMENTATION BY PROFESSIONAL POSITION

Researchers further examined survey responses to identify whether respondents in various professional positions held differing attitudes about implementation in 2012-13. As seen in Figure 5.12, school administrators

consistently held the most positive beliefs about program implementation. Their attitudes were notably more positive than those held by teachers, who held the least positive perceptions about program implementation. Seventy-two percent of school administrators were pleased with program implementation as compared to 50 percent of teachers. Similarly, 70 percent of school administrators agreed that the programs were responsive to teacher feedback and needs, while only 43 percent of teachers agreed. Across all groups, perceptions of the implementation of strategic compensation programs were generally more positive than in prior years.

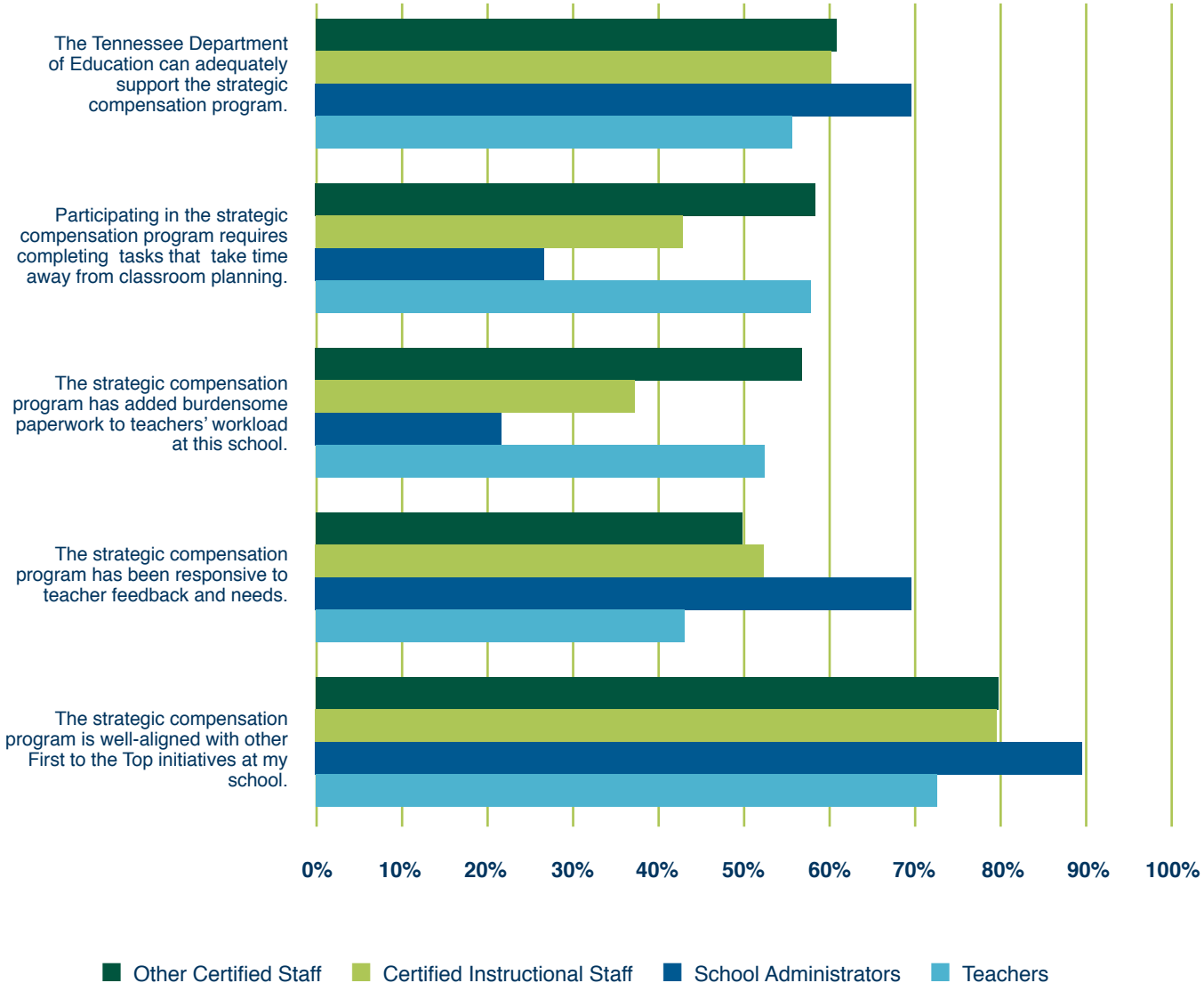
Figure 5.12: Percent Agreeing and Strongly Agreeing about Implementation of Strategic Compensation Programs by Respondent Position in 2012-13



Source: Responses on 2012-13 Compensation Survey.
Note: Response options for these survey items included Strongly Agree, Agree, Disagree, Strongly Disagree. Each bar represents the percentage of respondents agreeing or strongly agreeing with each statement.
N= 3,806 teachers aware of districts' strategic compensation programs in 2012-13.
N= 301 school administrators aware of districts' strategic compensation programs in 2012-13.
N= 274 certified instructional staff aware of districts' strategic compensation programs in 2012-13.
N= 355 other certified staff aware of districts' strategic compensation programs in 2012-13.

Figure 5.12 continued on page 75

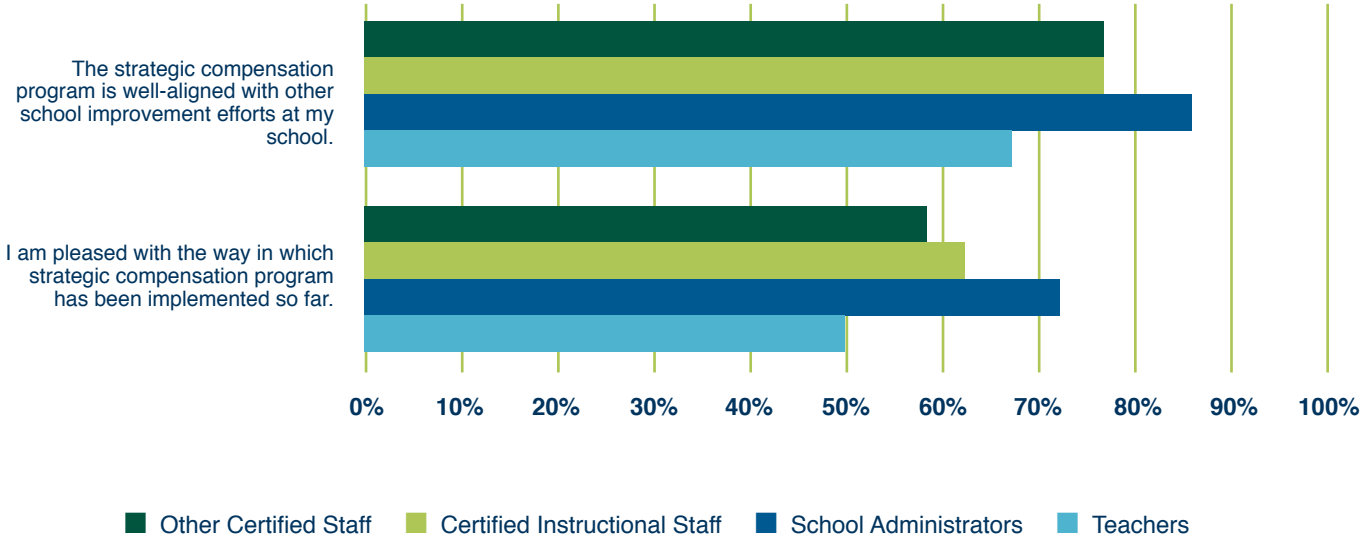
Figure 5.12: Percent Agreeing and Strongly Agreeing about Implementation of Strategic Compensation Programs by Respondent Position in 2012-13 (continued from page 74)



Source: Responses on 2012-13 Compensation Survey.
Note: Response options for these survey items included Strongly Agree, Agree, Disagree, Strongly Disagree. Each bar represents the percentage of respondents agreeing or strongly agreeing with each statement.
N= 3,806 teachers aware of districts' strategic compensation programs in 2012-13.
N= 301 school administrators aware of districts' strategic compensation programs in 2012-13.
N= 274 certified instructional staff aware of districts' strategic compensation programs in 2012-13.
N= 355 other certified staff aware of districts' strategic compensation programs in 2012-13.

Figure 5.12 continued on page 76

Figure 5.12: Percent Agreeing and Strongly Agreeing about Implementation of Strategic Compensation Programs by Respondent Position in 2012-13 (continued from page 75)



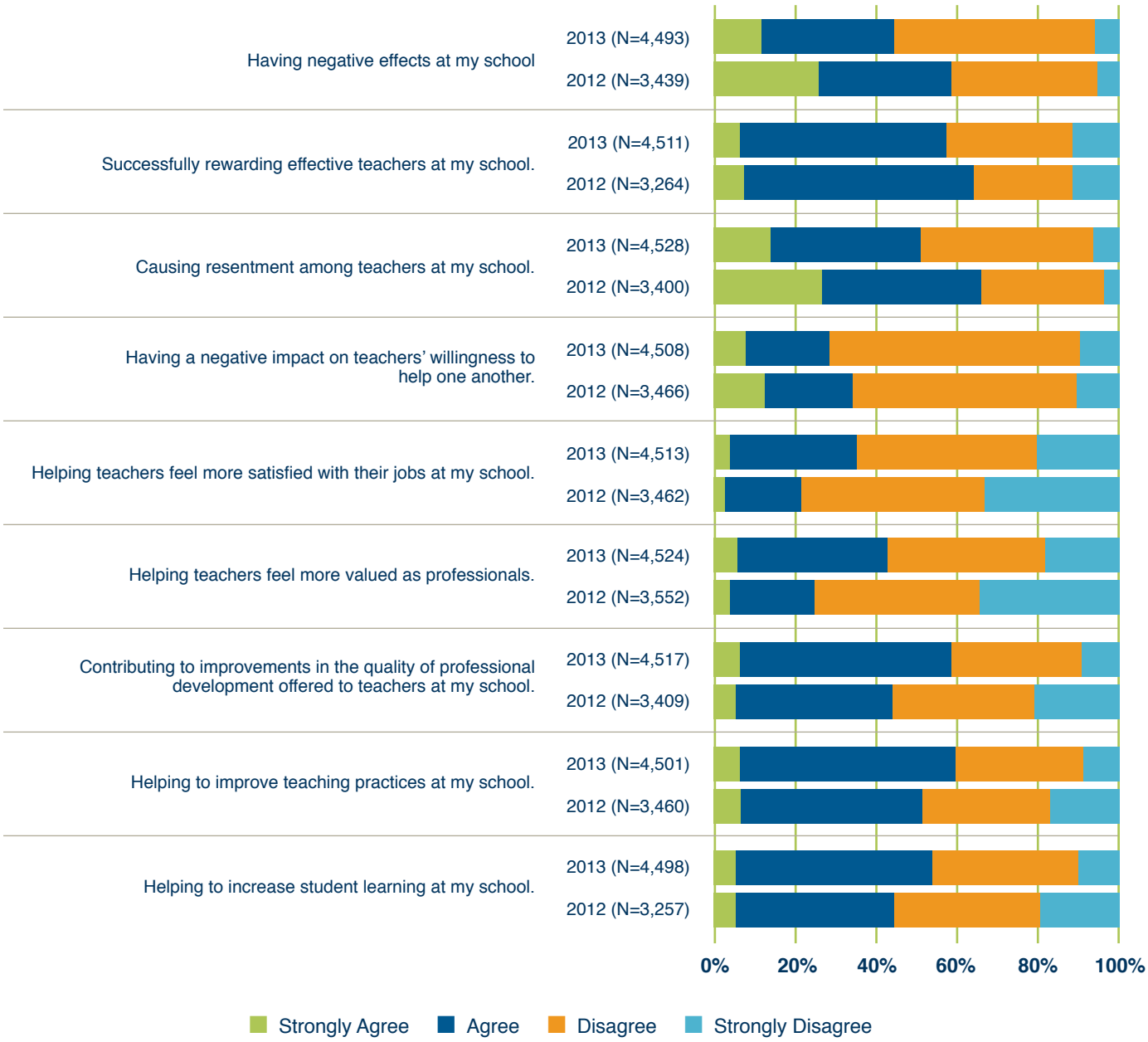
Source: Responses on 2012-13 Compensation Survey.
Note: Response options for these survey items included Strongly Agree, Agree, Disagree, Strongly Disagree. Each bar represents the percentage of respondents agreeing or strongly agreeing with each statement.
N= 3,806 teachers aware of districts' strategic compensation programs in 2012-13.
N= 301 school administrators aware of districts' strategic compensation programs in 2012-13.
N= 274 certified instructional staff aware of districts' strategic compensation programs in 2012-13.
N= 355 other certified staff aware of districts' strategic compensation programs in 2012-13.

PERCEPTIONS REGARDING THE IMPACT OF STRATEGIC COMPENSATION PROGRAMS

Educators were also asked about their perceptions of the impact of the strategic compensation programs. As with questions on program implementation, only educators who indicated that they were aware of their district program were asked to share perceptions about program impact. Figure 5.13 shows the levels to which this group of respondents agreed with statements organized around five topics: (1) overall effects of strategic compensation, (2) impact on quality of teaching and student learning, (3) impact on systems that support teaching and learning, (4) impact on teacher satisfaction, and (5) impact on interpersonal dynamics in schools.[61]

Figure 5.13: Perceptions of Impact of Strategic Compensation Programs, 2012-13

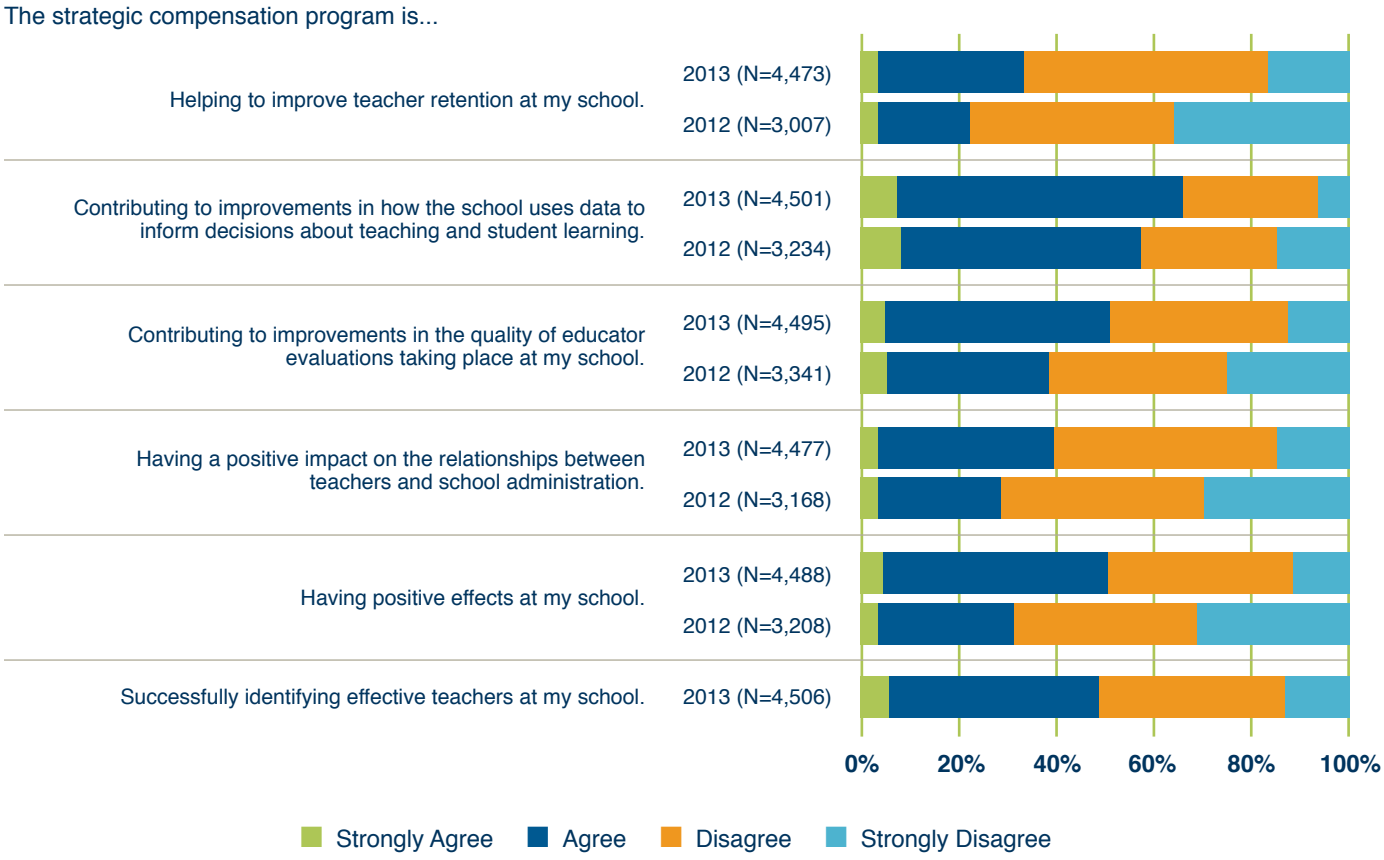
The strategic compensation program is...



Source: Responses on 2011-12 and 2012-13 Compensation Survey.

Figure 5.13 continued on page 78

Figure 5.13: Perceptions About Impact of Strategic Compensation Programs, 2012-13 (continued from page 77)



Source: Responses on 2011-12 and 2012-13 Compensation Survey.

OVERALL PROGRAM IMPACT

Nearly 50 percent of respondents agreed that their district strategic compensation program had positive effects in their schools during the 2012-13 school year, whereas just over 40 percent agreed they had negative effects. These views were noticeably more favorable than in the prior school year, when just over 20 percent of respondents agreed that programs had positive effects in schools.

IMPACT ON QUALITY OF TEACHING AND STUDENT LEARNING

Respondents were also split on their perceptions about program impact on teaching and student learning. A little over 50 percent agreed the strategic compensation programs helped to improve student learning and roughly 55 percent agreed the programs helped to improve teaching practices in schools. Additionally, approximately 45 percent agreed that programs successfully identified effective teachers while nearly 55 percent agreed that the

program rewarded effective teachers. Perceptions of impact in this area were more favorable than in the prior year's survey.

IMPACT ON SYSTEMS THAT SUPPORT TEACHING AND LEARNING

Perceptions around the impact of strategic compensation on systems that support teaching and learning (e.g., professional development, evaluation systems) were similarly mixed but showed improvements in 2012-13 as compared to the prior year. Nearly 50 percent of respondents agreed that the strategic compensation programs contributed to improvements in the quality of educator evaluations occurring during the 2012-13 school year. In fact, nearly twice as many respondents agreed with this statement in 2012-13 than on the prior year's survey. Roughly 55 percent of respondents agreed in 2012-13 that the programs contributed to improvements in professional development offered to teachers. Additionally, 63 percent agreed that the use of data to inform teaching and learning improved because strategic compensation programs were in place.

IMPACT ON TEACHER FEELINGS OF SATISFACTION

The share of respondents agreeing that strategic compensation programs had a positive impact on teachers' feelings of satisfaction and professional value increased slightly from the prior year, but remained low in 2012-13. Only 31 percent of respondents agreed that the programs helped to improve teacher retention, 41 percent agreed they helped teachers feel more valued as professionals, and only one-third believed teachers felt more satisfied in their jobs as a result of the programs.

IMPACT ON INTERPERSONAL DYNAMICS IN SCHOOLS

Respondents held mixed views in 2012-13 about the impact of strategic compensation programs on interpersonal dynamics in schools. Thirty-eight percent agreed the programs had a positive impact on relationships between teachers and school administration, which was a sizable improvement from the 20 percent of respondents who agreed this was the case in 2011-12. While nearly half of respondents agreed that the strategic compensation programs caused resentment among teachers in schools, over 70 percent disagreed when asked whether programs had a negative impact on teachers' willingness to help one another. These responses relative to program impact on relationships and collaboration among teachers did not change noticeably from 2011-2012 to 2012-13.

PERCEPTIONS ABOUT PROGRAM IMPACT BY PROFESSIONAL POSITION

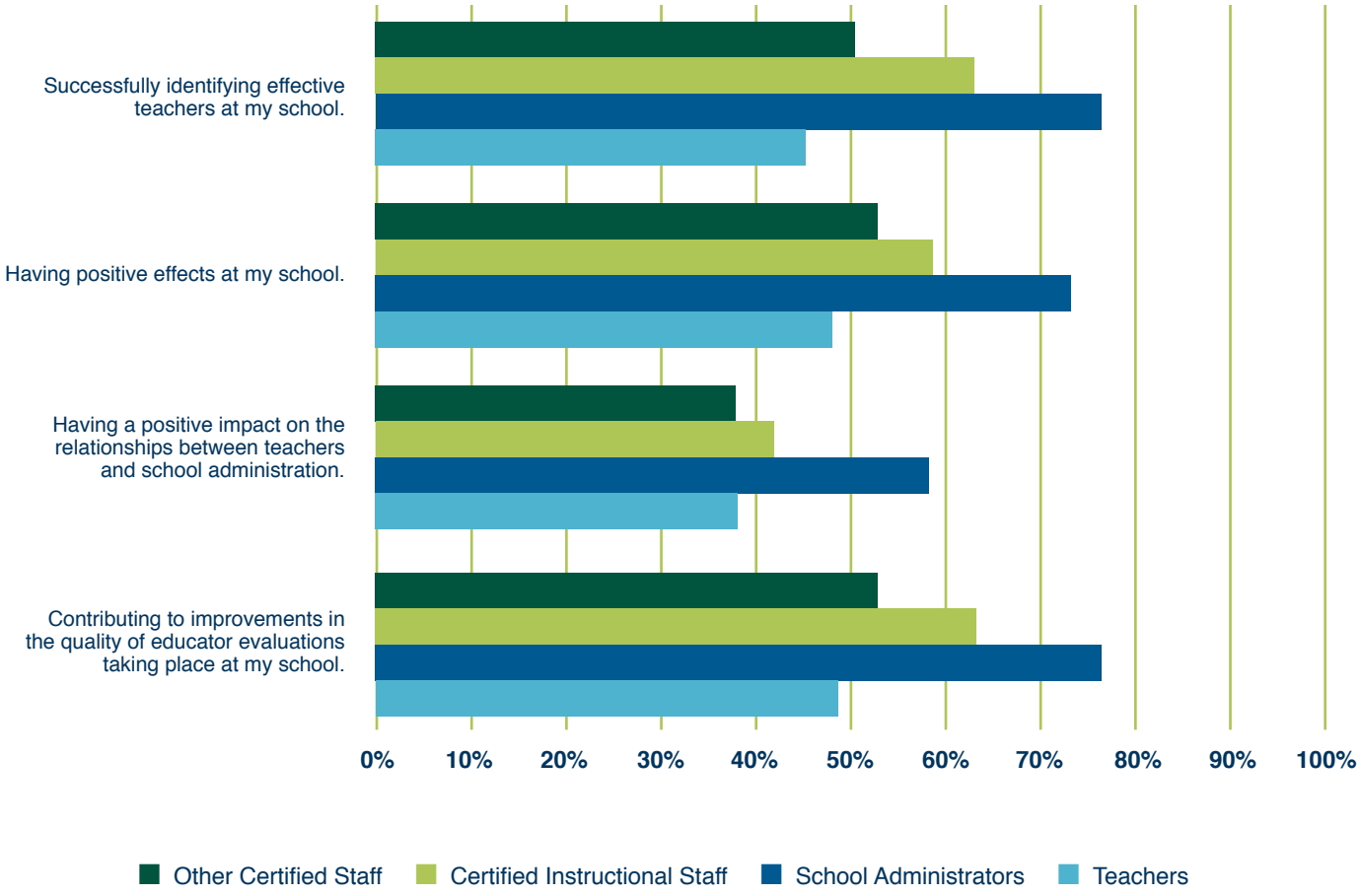
Researchers also examined whether respondents in various professional positions held differing beliefs about the impact of strategic compensation programs in 2012-13. As seen in Figure 5.14, school administrators consistently held the most positive beliefs among all groups when asked about program impact, while teachers held the least

positive beliefs. These findings are similar to respondent perceptions of program implementation, which are detailed in Figure 5.12.

For example, 76 percent of school administrators agreed that their school's program successfully identified effective teachers compared to 45 percent of teachers. Similarly, 69 percent of school administrators believed that their school's program helped teachers feel more valued as professionals, while only 40 percent of teachers agreed with that statement.

Figure 5.14: Percent Agreeing and Strongly Agreeing about Impact of Strategic Compensation Programs Compared by Position of Respondents in 2012-13

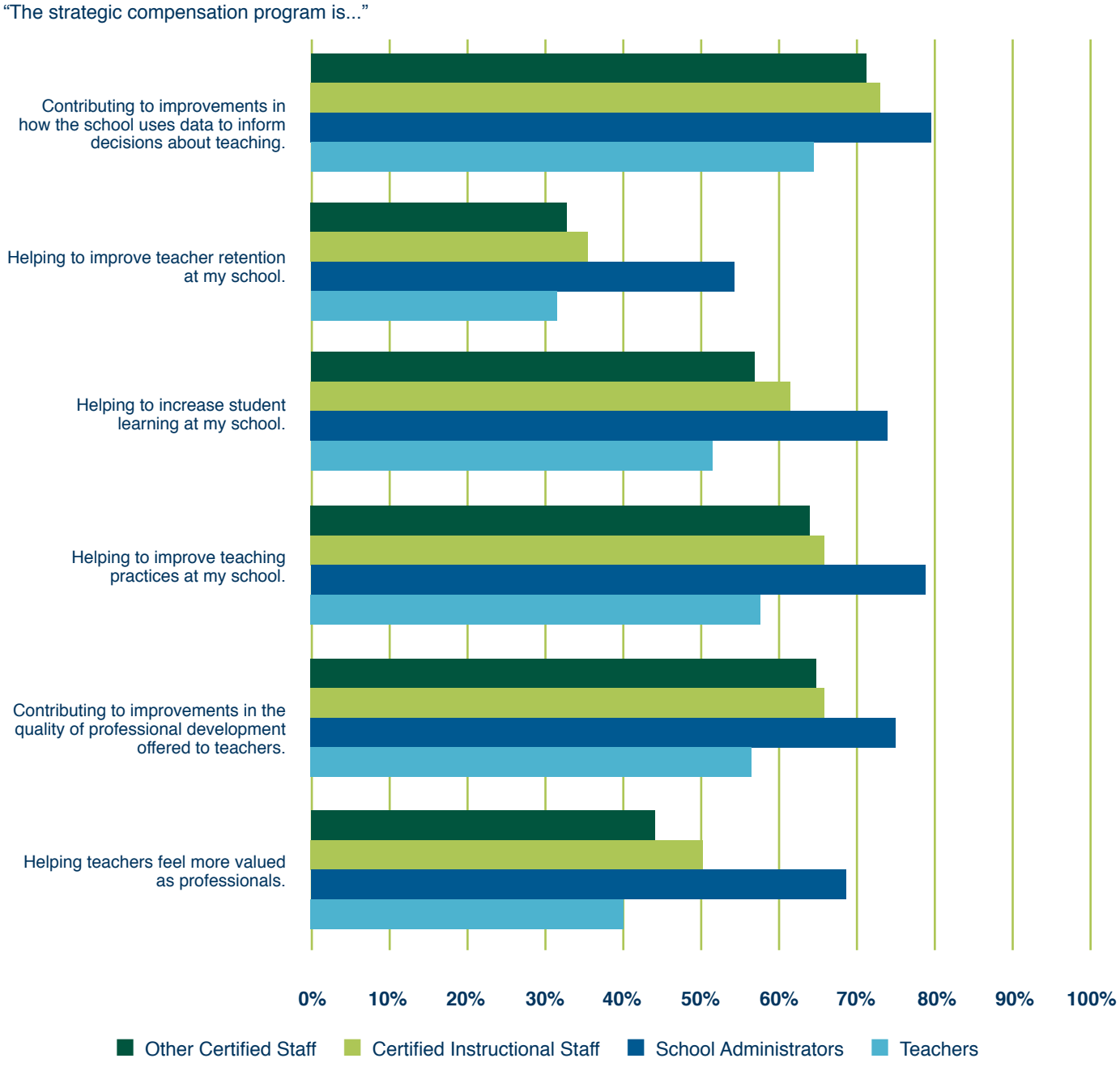
"The strategic compensation program is..."



Source: Responses on 2012-13 Compensation Survey.
Note: Response options for these survey items included Strongly Agree, Agree, Disagree, Strongly Disagree. Each bar represents the percentage of respondents agreeing or strongly agreeing with each statement.
N= 3,806 teachers aware of districts' strategic compensation programs in 2012-13.
N= 301 school administrators aware of districts' strategic compensation programs in 2012-13.
N= 274 certified instructional staff aware of districts' strategic compensation programs in 2012-13.
N= 355 other certified staff aware of districts' strategic compensation programs in 2012-13.

Figure 5.14 continued on page 81

Figure 5.14: Percent Agreeing and Strongly Agreeing about Impact of Strategic Compensation Programs Compared by Position of Respondents in 2012-13 (continued from page 80)



Source: Responses on 2012-13 Compensation Survey.
Note: Response options for these survey items included Strongly Agree, Agree, Disagree, Strongly Disagree. Each bar represents the percentage of respondents agreeing or strongly agreeing with each statement.
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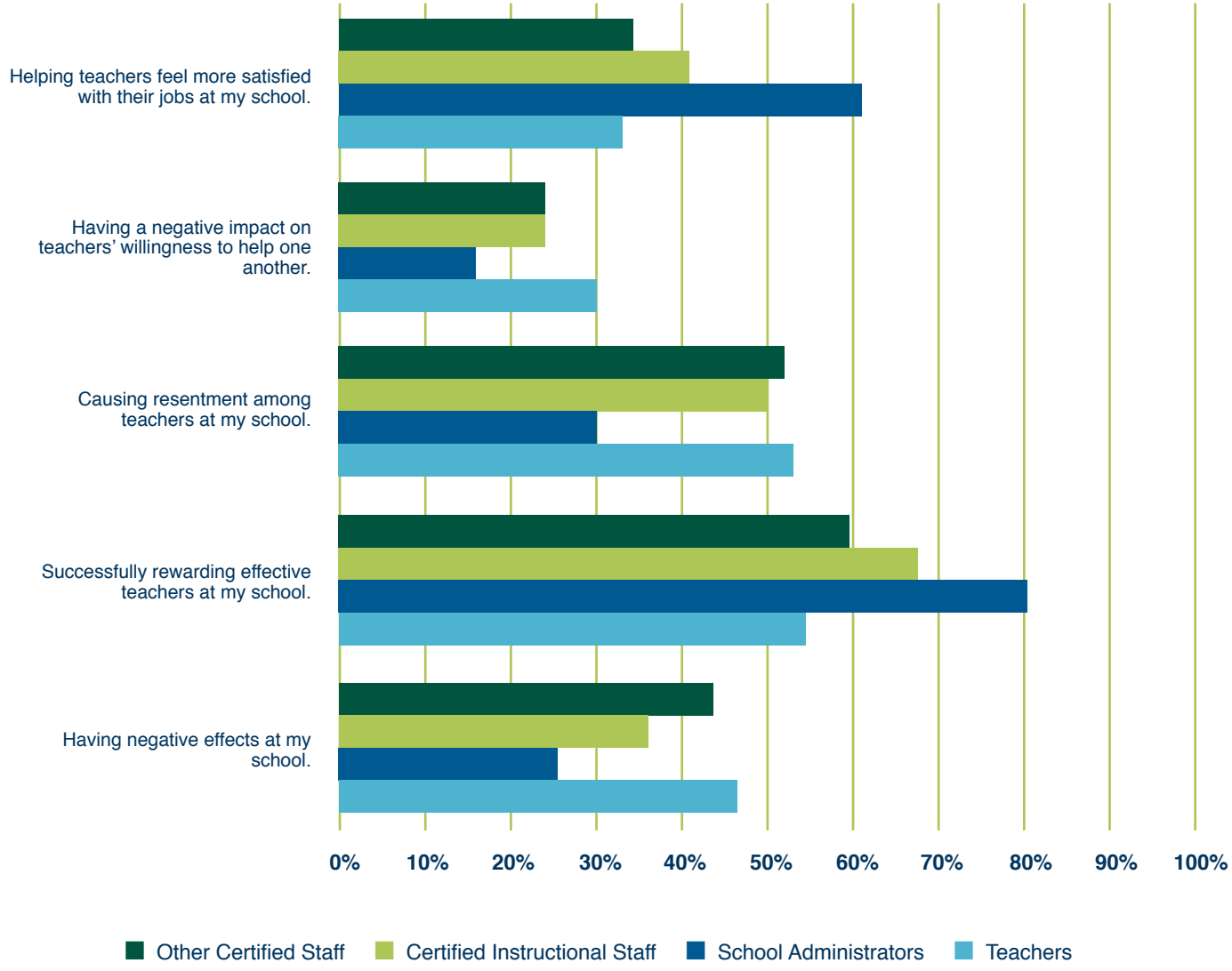
N= 355 other certified staff aware of districts' strategic compensation programs in 2012-13.

Figure 5.14 continued on page 82

Figure 5.14: Percent Agreeing and Strongly Agreeing about Impact of Strategic Compensation Programs Compared by Position of Respondents in 2012-13 (continued from page 80)



Source: Responses on 2012-13 Compensation Survey.
Note: Response options for these survey items included Strongly Agree, Agree, Disagree, Strongly Disagree. Each bar represents the percentage of respondents agreeing or strongly agreeing with each statement.
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N= 301 school administrators aware of districts' strategic compensation programs in 2012-13.
N= 274 certified instructional staff aware of districts' strategic compensation programs in 2012-13.
N= 355 other certified staff aware of districts' strategic compensation programs in 2012-13.

REFLECTIONS ON EXPERIENCE WITH 2011-12 STRATEGIC COMPENSATION PROGRAMS

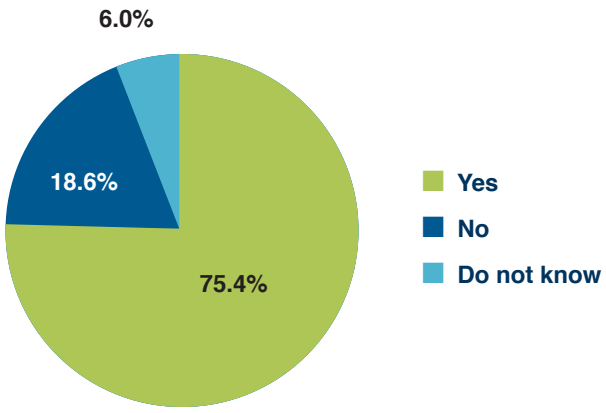
The 2012-13 Compensation Survey included a section of questions about educator experiences with and reflections on the first complete year of the strategic compensation program in 2011-12. These questions focused primarily on the first round of performance-based payouts, which were based on educator performance during the 2011-12 school year, as well as on questions about the motivational aspects of the strategic compensation programs.

This section of the 2012-13 Compensation Survey was limited to the 3,650 educators who reported that they were eligible to participate in the strategic compensation programs in 2011-12. Among those eligible, 92 percent (3,301 respondents) indicated that they chose to participate in the program that year.

PAYOUTS FROM BONUS AWARDS AND ALTERNATIVE SALARY SCHEDULES

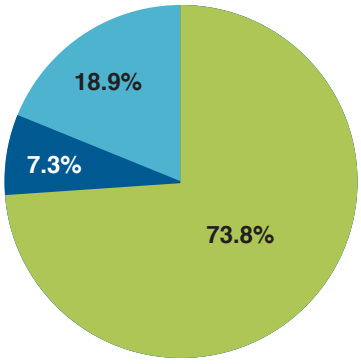
Respondents who indicated that they participated in their district's strategic compensation program during the 2011-12 school year were asked whether they earned a performance-based payout from either a bonus or a salary increase and if so, how much they earned (Figures 5.15a and 5.15b). Three-quarters of bonus-eligible respondents indicated that they earned a bonus award, and just under 74 percent of educators whose district program included an alternative salary schedule reported that they earned a salary increase. Interestingly, nearly 20 percent of respondents indicated that they did not know whether they earned a salary increase for their 2011-12 school year performance.

Figure 5.15a: Earned a Bonus Award for 2011-12 Performance



Source: Responses on 2012-13 Compensation Survey.
N=3,228 respondents with 17 missing responses.

Figure 5.15b: Earned a Salary Increase for 2011-12 Performance



Source: Responses on 2012-13 Compensation Survey.
N=724 respondents with 4 missing responses.

Respondents who earned a performance-based payout for their 2011-12 performance were also asked how much they received in a payout. As seen in Table 5.4, approximately 93 percent of those earning a bonus award received between $1 and $2,999.

Table 5.4, Amount of Bonus Awards Paid out for 2011-12 Performance

Amount of Bonus Payout	% of Respondents
$0	0.20%
$1-$999	17.00%
$1,000-$1,999	46.30%
$2,000-$2,999	29.60%
$3,000-$3,999	4.40%
$4,000-$4,999	0.90%
$5,000 or more	1.10%
Total	100.00%

Source: Responses on 2012-13 Compensation Survey. N=2,325 respondents with 55 missing responses.

Respondents participating in alternative salary schedules were also asked about the percentage by which their base salary increased in 2011-12 (Table 5.5). Twenty-seven percent of respondents did not know the percentage by which their salary increased. Among the remaining respondents, most increases ranged from one and three percent.

Table 5.5: Base Salary Increase Paid Out for 2011-12 Performance

Amount of Salary Increase	% of Respondents
Do not know	26.70%
No increase (i.e., 0%)	2.90%
Up to 1%	16.20%
Up to 2%	25.70%
Up to 3%	26.20%
Greater than 3%	2.30%
Total	100.00%

Source: Responses on 2012-13 Compensation Survey. N=210 respondents with 8 missing responses.

MOTIVATIONAL INFLUENCE OF PERFORMANCE-BASED PAYOUTS

The remaining questions in this section of the survey addressed the motivational influence of strategic compensation programs. Respondents were first asked whether the available payout amount motivated them to change their professional practice during the 2011-12 school year. As shown in Table 5.6, 42 percent of respondents found the available bonus award amounts and base salary increases each to be motivational. Respondents who said they were not motivated by the available amounts were asked whether they would have been motivated to change their practice for an amount equal to double their district's maximum potential payout. Sixty-one percent of surveyed educators indicated they would be motivated by a doubled potential bonus award and 56 percent indicated they would be motivated by a doubled potential base salary increase.

Table 5.6: Motivated by Available Payout Available Versus Prospect of Doubled Potential Payout Amounts in 2011-12

	Payout Type	Yes	No
Motivated to Change by Available Payout	Bonus Awards (N=3,192)	42.3%	57.7%
	Alternative Salary (N=282)	42.6%	57.4%
Motivated to Change by Prospect of Doubled Potential Payout	Bonus Awards (N=1,844)	60.7%	39.3%
	Alternative Salary (N=158)	55.7%	44.3%

Source: Responses on 2012-13 Compensation Survey.
N=3,228 respondents who participated in strategic compensation program in 2011-12 that included bonus awards. There were 36 missing responses.
N=282 respondents who participated in strategic compensation program in 2011-12 that included an alternative salary schedule.

Educators were also asked which practices they changed in response to existing potential bonus awards or would change if offered a doubled potential payout amount. Table 5.7 summarizes those responses. Respondents most often indicated trying new instructional practices and participating more in professional development sessions.

Table 5.7: Changing Professional Practices for Bonus Awards, 2011-12

	Respondents Motivated by Available Bonus Amount who Reported Changing Professional Practices (N=1,361)	Respondents Who WOULD Be Motivated to Change Professional Practices by Doubled Potential Bonus (N=1,119)
Participated more in team collaboration	870 (63.9%)	504 (45%)
Participated more in joint planning	603 (44.3%)	438 (39.1%)
Participated more in professional development sessions	912 (67%)	603 (53.9%)
Increased use of technology in my classroom	681 (5%)	469 (41.9%)
Increased use of student data when planning instruction	848 (62.3%)	504 (45%)
Used new instructional strategies	951 (69.9%)	618 (55.2%)
Received coaching and feedback from a mentor teacher	474 (34.8%)	364 (32.5%)
Used supplemental curricular materials	527 (38.7%)	449 (40.1%)

Source: Responses on 2012-13 Compensation Survey

Table 5.8 shows the practices that respondents changed because of the available salary increase or would have changed if their potential salary increase was twice as large. As with bonus awards, educators most often cited trying new instructional strategies and participating more in professional development.

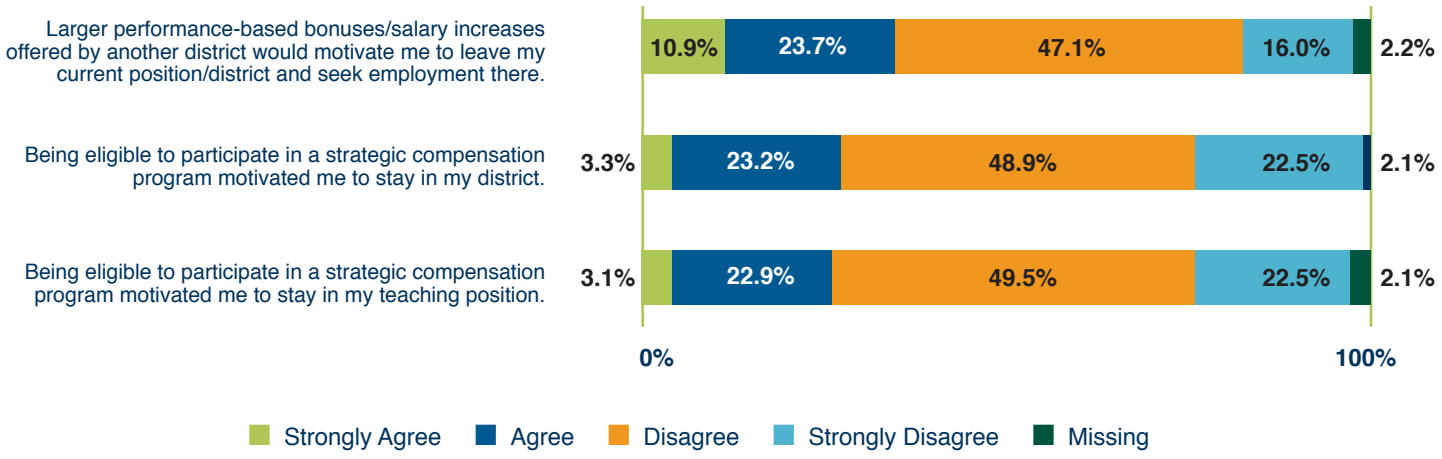
Table 5.8: Changing Professional Practices for Salary Increases, 2011-12

	Respondents Motivated by Available Salary Increase who Reported Changing Professional Practices (N=121)	Respondents Who WOULD Be Motivated to Change Professional Practices by Doubled Potential Salary Increase (N=163)
Participated more in team collaboration	69 (57%)	39 (23.9%)
Participated more in joint planning	51 (42.1%)	40 (24.5.%)
Participated more in professional development sessions	88 (72.7%)	57 (35%)
Increased use of technology in my classroom	73 (60.3%)	46 (28.2%)
Increased use of student data when planning instruction	73 (63.6%)	46 (31.3%)
Used new instructional strategies	81 (66.9%)	61 (37.4%)
Received coaching and feedback from a mentor teacher	42 (34.7%)	30 (18.4%)
Used supplemental curricular materials	50 (41.30%)	43 (26.4%)

Source: Responses on 2012-13 Compensation Survey.
N=347 respondents motivated by available salary increase.
N=201 respondents motivated by doubled salary increase.

Finally, educators who participated in their district's 2011-12 strategic compensation program were asked whether the compensation program influenced their decision to stay in their current district, in their current professional position, and whether a larger payout offered by another district would motivate them to leave their current position. Overall, researchers observed minimal impact of the strategic compensation program, as seen in Figure 5.16. Less than 30 percent of respondents agreed that being eligible for strategic compensation motivated them to stay in their current district or position. Only one-third of respondents agreed that they would be motivated to leave their current position if offered a larger performance-based payout by another district.

Figure 5.16: Influence of 2011-12 Strategic Compensation Program on Employment Decisions



Source: Responses on 2012-13 Compensation Survey.
N=3,316 respondents.

GENERAL ATTITUDES ABOUT PERFORMANCE-BASED COMPENSATION

The compensation survey also explored educator perceptions about compensation reform generally. All survey participants, regardless of program participation or familiarity with their district's strategic compensation program were asked to respond to these questions.

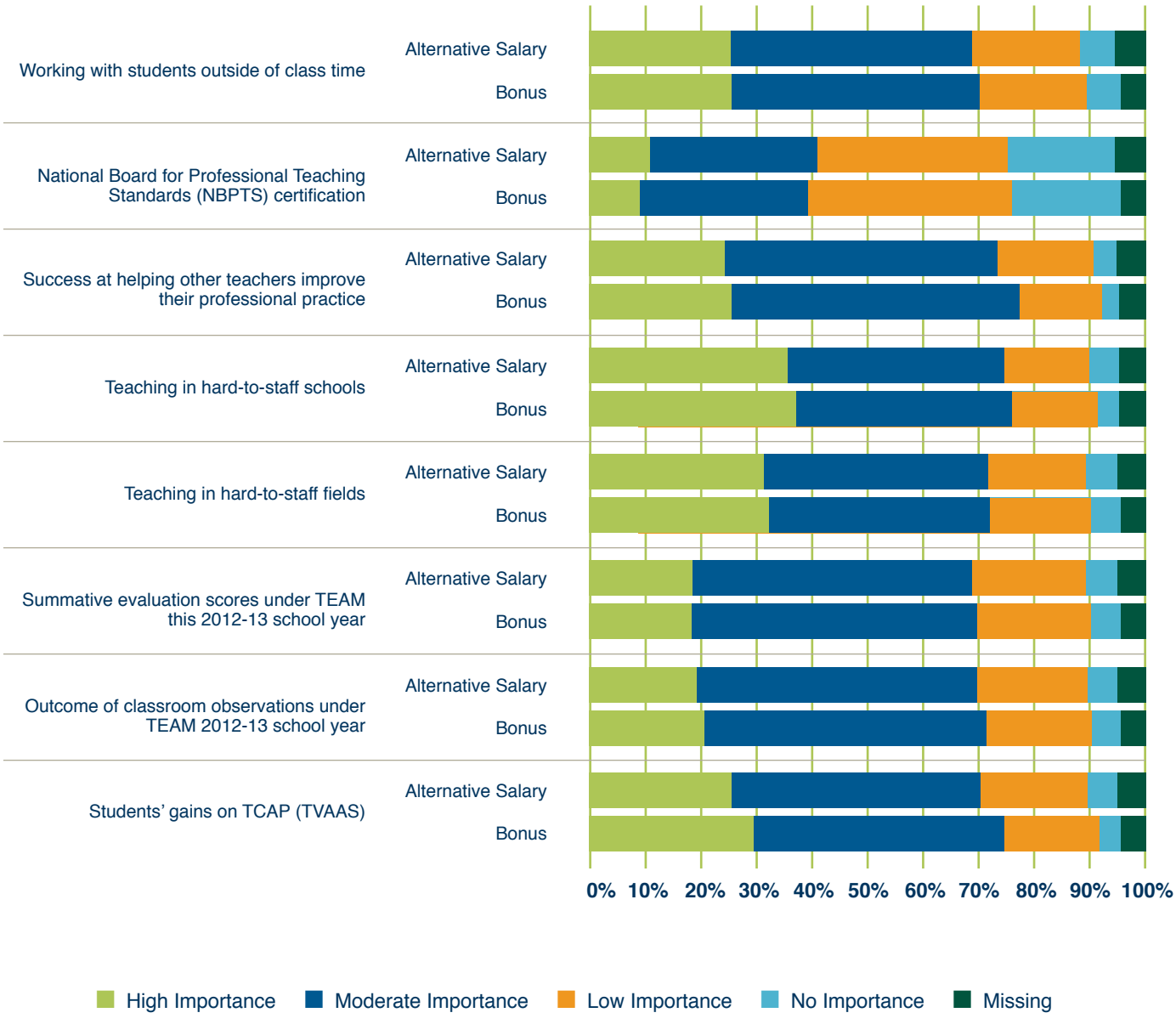
Educators were first asked to indicate the level of importance various factors should have in determining bonus awards and increases to teacher base salaries. Their responses are shown in Figure 5.17. A few notable findings emerge:

- A majority of respondents indicated that all factors were either of high or moderate importance in determining both bonus awards and salary increases, with one exception. Only 40 percent of respondents rated National Board for Professional Teaching Standards (NBPTS) certification as high or moderately important in determining performance-based pay.
- Respondents held similar views about the importance of factors for bonus awards and for increases to annual base salary. Factors rated as having high or moderate importance for bonus awards had similar ratings for salary increases.
- Approximately 75 percent of respondents rated success at helping other teachers improve professional practice, teaching in hard-to-staff schools, and time spent in professional development as having high or moderate importance for both bonus awards and increases to annual base salary. Student gains on TCAP (as measured

by TVAAS) and teaching in hard-to-staff fields were also rated as having high or moderate importance by over 70 percent of respondents.

- While not pictured in Figure 5.17, 80 percent of respondents also reported that years of experience and level of education (i.e., degree(s) held) should carry high or moderate importance in determining increases to annual base salary.

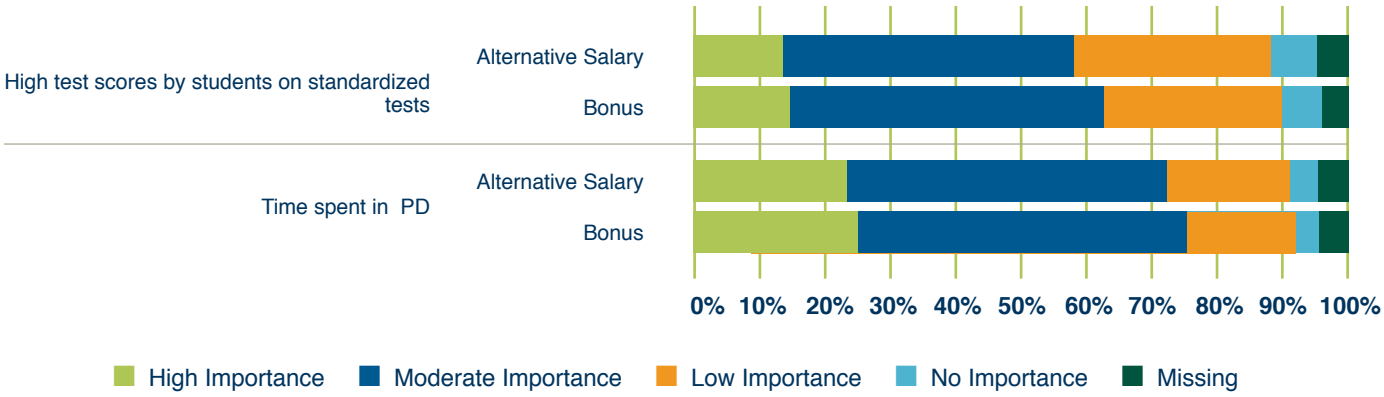
Figure 5.17: Perceived Importance of Factors for Performance-Based Pay



Source: Responses on 2012-13 Compensation Survey.
N=5,472 respondents.

Figure 5.17 continued on page 90

Figure 5.17: Perceived Importance of Factors for Performance-Based Pay (continued from page 89)



Source: Responses on 2012-13 Compensation Survey.
N=5,472 respondents.

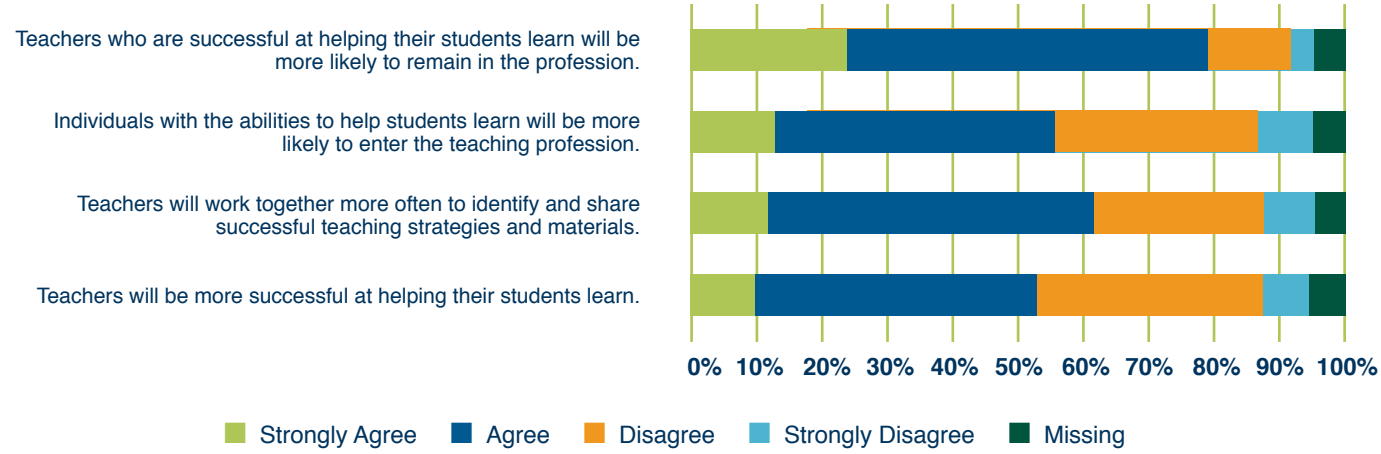
Respondents were then asked about outcomes of performance-based pay (Figure 5.18). Nearly 80 percent agreed that teachers who were successful at helping their students learn would be more likely to remain in the profession. Sixty percent agreed that teachers would work together to identify and share successful teaching strategies and materials. However, only 40 percent of respondents agreed that student test scores would improve faster if teachers were paid, at least in part, based on performance.

Figure 5.18: Perceived Impact of Performance-Based Pay Generally

Source: Responses on 2012-13 Compensation Survey.
N=5,472 respondents

Figure 5.18 continued on page 91

Figure 5.18: Perceived Impact of Performance-Based Pay Generally (continued from page 90)



Source: Responses on 2012-13 Compensation Survey.
N=5,472 respondents

VI. TURNOVER ANALYSIS

This chapter presents findings from an analysis of teacher retention and turnover from 2003-04 through 2011-12.[63] The final year of the analysis period (2011-12) corresponds to the period during which first-round performance payouts were earned. Throughout this analysis, classroom teachers are considered retained if they are employed by the same district in the subsequent academic year. Thus the retention rate for 2011-12 is the fraction of teachers who were employed by a district during 2011-12 and were still employed by the same district in 2012-13. Teachers who were not retained have turned over. Teachers who turn over are further classified into those who change districts (movers) and those no longer employed by a Tennessee public school (leavers).[64]

This chapter addresses the following questions:

- Did strategic compensation programs have an effect on teacher retention in participating schools? Are there differences in turnover in bonus-only and alternative salary program schools as compared to all other schools in the state?
- Did strategic compensation programs change the relationship between teacher turnover and characteristics of individual teachers (i.e., experience level and TVAAS scores)?
- How did first-round performance payouts affect teacher turnover?

Key Findings from Mobility Analysis:

- There is no evidence that the strategic compensation programs reduced teacher turnover at the end of the first program year. Instead, evidence suggests that turnover rates increased for bonus-only schools and remained unchanged for alternative salary schools.
- There is no evidence that the initial year of strategic compensation programs had any effect on the overall probability that a teacher would leave the public school system.
- There is no evidence that the initial year of strategic compensation programs had any effect on the retention of teachers eligible for a service retirement.
- Among teachers with TVAAS scores, there is no evidence that strategic compensation changed the relationship between teacher turnover and TVAAS scores. In districts with and without strategic compensation programs, turnover was highest among teachers with low TVAAS scores.
- Teachers who did not receive a payout had a sharply elevated probability of turnover, while the probability of turnover among teachers who received a substantial award was sharply reduced. This effect is above and beyond the pre-existing tendency of teachers with high TVAAS scores to stay and teachers with low TVAAS scores to leave.

TURNOVER RATES

As Table 6.1 illustrates, there were systematic differences in turnover across the three types of schools (bonus-only schools, alternative salary schedule schools and all other public schools in Tennessee) prior to the implementation of the strategic compensation programs. Compared with schools that did not have strategic compensation programs, alternative salary schools had a history of significantly higher shares of teachers moving to another district and significantly lower shares of teachers leaving the public school system. In contrast, bonus program schools had a history of lower retention rates and higher shares of teachers leaving the public school system than other schools.

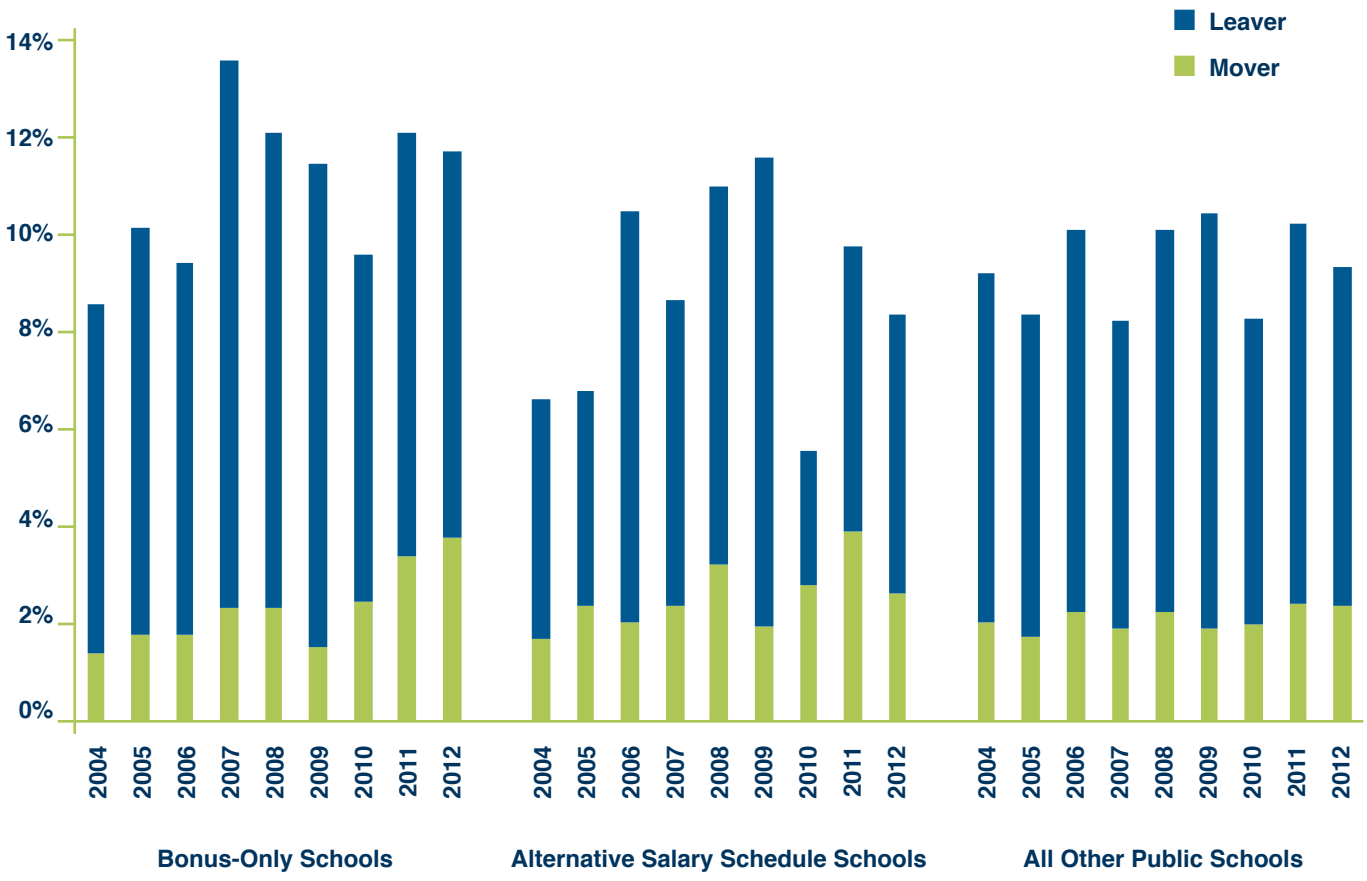
Table 6.1: Average Turnover Rates for Classroom Teachers, 2003-04 through 2010-11, by School Type

	Retained	Mover	Leaver
Bonus-Only Schools	89.9%	2.0%	8.1%
Alternative Salary Schedule Schools	91.4%	2.6%	6.0%
All Other Schools	91.3%	1.9%	6.8%

Source: EIS and PIRS

Figure 6.1 details the average annual teacher turnover rates for bonus-only schools, alternative salary schedule schools, and the remaining public schools in Tennessee. Teacher turnover rates were lower after the 2011-12 school year—the first year of the strategic compensation program—than after the previous year for both types of strategic compensation program schools. However, they were also lower for schools that did not participate in the program, so the decline in turnover at program schools may not be fully attributable to the strategic compensation program. Figure 6.1 also indicates that the share of teachers moving to other school districts rose for bonus-only schools in 2011-12 while it fell or remained unchanged elsewhere in the state.

Figure 6.1: Classroom Teacher Turnover Rates, 2004-5 through 2011-12, by School Type



Source: EIS and PIRS

Simple differences such as those presented in Figure 6.1 are not very persuasive evidence about the influence of strategic compensation programs because they are not the only factor affecting turnover in Tennessee. Changes in the demographic characteristics of the teaching staff or changes in local labor market condition offer alternative explanations for any observed changes in turnover patterns.

To separate the impact of strategic compensation from the other factors affecting teacher retention, evaluators adapted an analytic model that is commonly used in analyses of teacher turnover. The underlying assumption is that teachers choose to leave their jobs only if they expect to be happier in an alternative situation than they are in their current positions. Therefore, turnover is modeled as a function of the characteristics of a teacher's current job, his or her employment alternatives, and any personal characteristics that might influence the turnover decision.[65] The strategic compensation program was treated as one of the pertinent characteristics of a teacher's

current job. Table 6.2 illustrates the teacher, district and labor market characteristics included in the turnover models. See Appendix D for a detailed discussion of the analytic models and the regression estimates that underlie the following tables.

Table 6.2: Variables Included in the Analyses of Teacher Turnover

Teacher Characteristics	District Characteristics
Full-time-equivalent salary	Percent low income students
Sex	Percent LEP students
Race/ethnicity	Percent special education students
Educational attainment	District size
Years of experience	Bonus only school indicator
Age	Alternative salary schedule school indicator
Eligibility for service retirement	**Local Labor Market Conditions**
License endorsements in:	Prevailing wage for college graduates (CWI)
Mathematics	County unemployment rate
English	County cost of living (fair market rent)
Science	**Other characteristics**
History	School year indicators
Physical Education	
World Languages	
Campus administrator	
Elementary arts teacher	
Special education teacher	
EIS elementary level teacher	
EIS middle school teacher	
EIS high school teacher	
TVAAS Index Scores	

TURNOVER AMONG TEACHERS WITH DIFFERENT EXPERIENCE PROFILES

Table 6.3 illustrates the impact of the strategic compensation programs on teacher turnover rates. The first column indicates the overall impact of each type of strategic compensation program on the share of teachers who are retained. As the table illustrates, the probability that a teacher would be retained at the end of the 2011-12 school year (i.e., return to work in the district in the fall of 2012) was 1.2 percentage points lower in bonus-only schools than one would have expected in the absence of the program. The probability that a teacher would be retained in alternative salary schedule schools also fell, but the estimate is imprecise and the difference is not statistically reliable.

Table 6.3: Changes in the Probability of Turnover at the End of the 2011-12 School Year by Strategic Compensation Type, All Classroom Teachers

	Retained	Mover	Leaver
Bonus-Only schools			
Probability	90.1%**	3.5%***	6.4%
Change from expected probability	-1.2%**	1.1%***	0.2%
Alternative Salary Schedule Schools			
Probability	90.3%**	2.4%***	7.1%
Change from expected probability	-1.1%**	-0.2%***	1.3%

Source: Author's calculations from Appendix table D.2. The probability that a teacher is retained comes from a probit analysis; the probabilities that teachers move or leave come from a multinomial logit analysis. Rows may not add due to rounding and differences in estimation technique. Asterisks indicate changes that are statistically significant at the 1 percent (***), 5 percent (**), and 10 percent (*) levels.

The second and third columns of Table 6.3 report the regression-adjusted probabilities of turnover for movers and leavers. The first year of the strategic compensation program had a large statistically significant impact on a teacher's likelihood of moving from a bonus-only school to another district. At the end of 2011-12, the probability of moving to another district was 1.1 percentage points higher in bonus only schools than one would have otherwise expected. There was no discernible change for alternative salary schedule schools. There is also no evidence that the initial year of the strategic compensation program had any effect on the overall probability that a teacher would leave the public school system. For both bonus and alternative salary schedule schools, the probability that a teacher would leave was not statistically different from what would have been expected in the absence of the program.

BEGINNING TEACHERS

Teacher turnover rates vary significantly by teacher experience in Tennessee. The average turnover rate for beginning teachers is 13.3 percent, whereas the average turnover rate for experienced teachers is only 5.5 percent.[66] Beginning teachers are also more than twice as likely as experienced teachers to move between districts.

Table 6.4 examines the impact of the strategic compensation programs on teacher turnover among beginning teachers. Retention at the end of the 2011-12 school year was lower than predicted in both bonus-only and alternative salary schedule schools, but the difference was not statistically significant for either type of school. On the other hand, the probability of moving between districts was significantly higher than expected for beginning teachers in bonus-only schools, while the probability of leaving the public school system was significantly higher for beginning teachers in alternative salary districts. Thus, the strategic compensation programs appear to have had more of an impact on turnover among beginning teachers.

Table 6.4: Changes in the Probability of Turnover at the End of the 2011-12 School Year by Strategic Compensation Type, Beginning Classroom Teachers

	Retained	Mover	Leaver
Bonus-Only schools			
Probability	85.5%*	6.6%***	8.1%
Change from expected probability	-1.7%	1.9%***	0%
Alternative Salary Schedule Schools			
Probability	82.6%*	4.3%***	13.4%
Change from expected probability	-3.3%*	-1.1%***	5.1%**

Source: Author's calculations from Appendix table D.3. The probability that a teacher is retained comes from a probit analysis; the probabilities that teachers move or leave come from a multinomial logit analysis. Rows may not add due to rounding and differences in estimation technique. Asterisks indicate changes that are statistically significant at the 1 percent (***), 5 percent (**), and 10 percent (*) levels.

EXPERIENCED TEACHERS

Table 6.5 examines the impact of the strategic compensation programs on teacher turnover among experienced teachers who were not eligible for a service retirement.[67] Retention at the end of the first program year was significantly lower than predicted in bonus-only schools but not in alternative salary schedule schools. As with beginning teachers, the probability of moving between districts was significantly higher than expected for experienced teachers in bonus only schools. None of the other differences were statistically significant.

Table 6.5: Changes in the Probability of Turnover at the End of the 2011-12 School Year by Strategic Compensation Type, Experienced Classroom Teachers

	Retained	Mover	Leaver
Bonus-Only schools			
Probability	93.5%**	2.9%***	3.7%
Change from expected probability	-1.3%***	1.%***	0.4%
Alternative Salary Schedule Schools			
Probability	95.%**	2.1%***	3.4%
Change from expected probability	-0.7%**	0.3%***	0.3%

Source: Author's calculations from Appendix table D.4. The probability that a teacher is retained comes from a probit analysis; the probabilities that teachers move or leave come from a multinomial logit analysis. Rows may not add due to rounding and differences in estimation technique. Asterisks indicate changes that are statistically significant at the 1 percent (***), 5 percent (**), and 10 percent (*) levels.

RETIREMENT-ELIGIBLE TEACHERS

Table 6.6 examines the impact of the strategic compensation programs on turnover among teachers who were eligible for a service retirement. Retention at the end of 2011-12 was higher than expected, but the difference, which was largely attributable to a decline in the "leaver" percentage, was not statistically significant. Among retirement-eligible teachers, there is no evidence that the strategic compensation programs were associated with an increased probability of moving to another district.

Table 6.6: Changes in the Probability of Turnover at the End of the 2011-12 School Year by Strategic Compensation Type, Retirement-Eligible Classroom Teachers

	Retained	Mover	Leaver
Bonus-Only schools			
Probability	82.9%	0.5%***	16.7%
Change from expected probability	1.3%	0%***	-1.2%
Alternative Salary Schedule Schools			
Probability	87.4%	0%***	12.5%
Change from expected probability	1.6%	-0.1%***	-1.7%

Source: Author's calculations from Appendix table D.4. The probability that a teacher is retained comes from a probit analysis; the probabilities that teachers move or leave come from a multinomial logit analysis. Rows may not add due to rounding and differences in estimation technique. Asterisks indicate changes that are statistically significant at the 1 percent (***), 5 percent (**), and 10 percent (*) levels.

In sum, there is no reliable evidence that the strategic compensation programs reduced turnover among Tennessee teachers, and some evidence that they led to increased teacher mobility between districts for teachers in bonus-only districts who were not eligible for retirement. Beginning teachers also appear to have left the public school system at an unusually high rate in alternative salary schedule districts. Next, we examine whether turnover is more likely for certain groups of teachers under strategic compensation programs.

TURNOVER AMONG TEACHERS IN TESTED AND NON-TESTED SUBJECTS AND GRADES

One way of measuring teacher effectiveness is through the Tennessee Value-Added Assessment System (TVAAS). Although TVAAS scores are incomplete measures of teacher effectiveness, they are generally accepted as broadly indicative of teacher quality. For teachers in tested grades and subjects, TVAAS scores count for 35 percent of their teacher evaluation ratings.[68] Therefore, researchers added information about the TVAAS Index

scores for individual teachers to their models of teacher turnover. Due to data availability, this part of the analysis covers only three school years (2009-10 through 2011-12). Because Table 6.6 indicates that teachers eligible for a service retirement respond differently than other teachers, this portion of the analysis focuses on teachers who are not retirement-eligible. Analyses including teachers eligible for a service retirement yield qualitatively similar results.

As Table 6.7 illustrates, the pattern of turnover among teachers in non-tested grades and subjects was similar to the pattern of turnover among teachers in tested grades and subjects. For both groups of teachers (tested and non-tested) the probability of moving between districts after the 2011-12 school year was significantly higher than would have otherwise been expected in bonus-only schools. In addition, no significant change was detected for either group of teachers in alternative salary schedule schools. On the other hand, the probability of leaving the public school system was elevated for teachers in bonus-only schools in non-tested subjects and grades.

Table 6.7: Changes in the Probability of Turnover at the End of 2011-12 by Strategic Compensation Type and Tested Status, Among Classroom Teachers Not Eligible for a Service Retirement

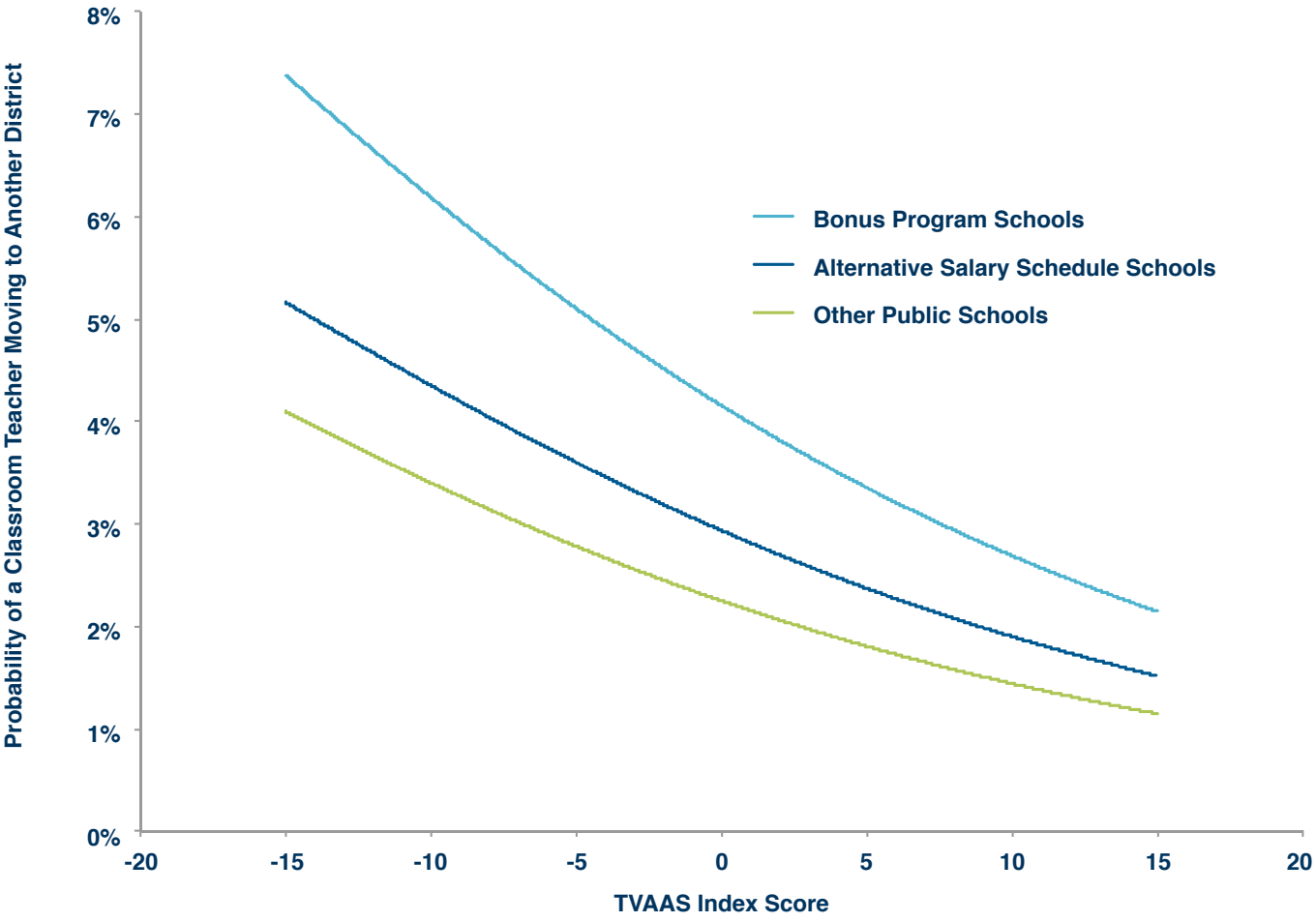
	Retained	Mover	Leaver
Teachers in Non-tested Grades and Subjects			
Bonus-Only Schools			
Probability	91%**	3%**	4.6%
Change from expected probability	-1.6%**	0.6%**	0.8%**
Alternative Salary Schedule Schools			
Probability	91.4%**	2%**	5.1%
Change from expected probability	-0.8%**	-0.7%**	1.5%
Teachers in Tested Grades and Subjects			
Bonus-Only Schools			
Probability	91.6%***	3.9%**	3.6%
Change from expected probability	-1.2%***	1.2%**	0.2%
Alternative Salary Schedule Schools			
Probability	90.9%***	3.2%**	5%
Change from expected probability	-1.3%***	-0.1%**	1.7%

Source: Author's calculations from Appendix table D.7.6b and D.7.7b. The probability that a teacher is retained comes from a probit analysis; the probabilities that teachers move or leave come from a multinomial logit analysis. Rows may not add due to rounding and differences in estimation technique. Asterisks indicate changes that are statistically significant at the 1 percent (***), 5 percent (**), and 10 percent (*) levels.

TURNOVER AMONG TEACHERS WITH TVAAS SCORES

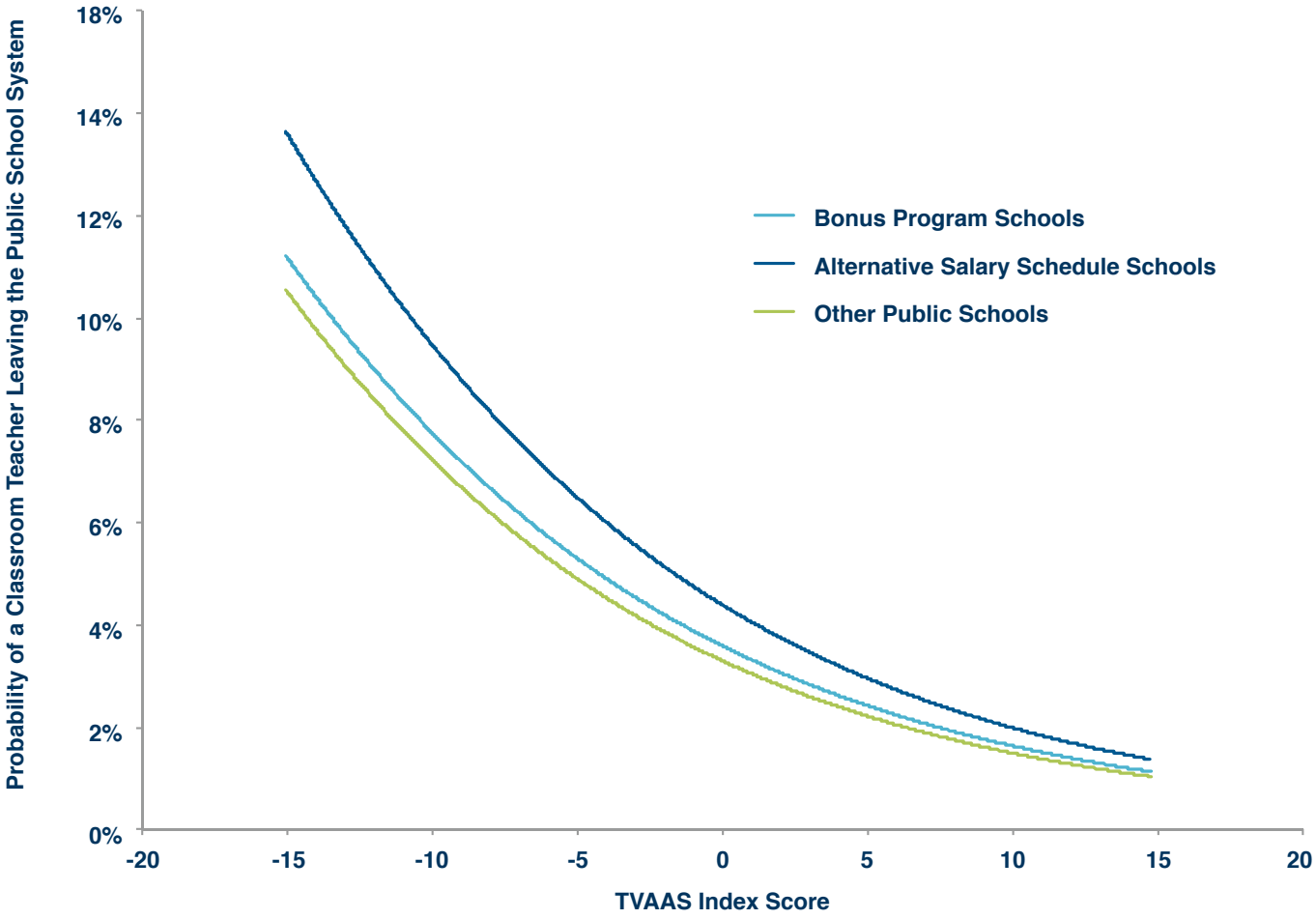
Although the probability of moving to another district was generally higher than otherwise expected for teachers with TVAAS scores in bonus-only schools, there were systematic differences between teachers who turned over and those who did not. Figures 6.2 and 6.3 illustrate the relationship between 2011-12 TVAAS scores and the probability of turnover for teachers in tested subjects and grades, after all the other determinants of turnover in Table 6.2 are taken into account. As the figures illustrate, the teachers most likely to be retained were the teachers with the highest TVAAS scores. Teachers with high TVAAS Index scores were significantly less likely to move to another district and significantly less likely to leave the public school system. This pattern held for bonus-only schools, alternative salary schedule schools, and schools that did not participate in the strategic compensation program alike.

Figure 6.2: The Relationship Between TVAAS Index Scores and the Probability that Classroom Teachers who were Not Eligible for a Service Retirement Moved to Another District at the End of 2011-12, by School Type



Source: Author's calculations. See Appendix Table D.8b.

Figure 6.3: The Relationship Between TVAAS Index Scores and the Probability that Classroom Teachers who were Not Eligible for a Service Retirement Left the Public School System at the End of 2011-12, by School Type



Source: Author's calculations. See Appendix Table D.8b.

A teacher with a TVAAS Index value greater than 2 is categorized by the Tennessee Department of Education as Most Effective while a teacher with a TVAAS Index value less than -2 is categorized as Least Effective.[69] According to the estimates for strategic compensation schools presented in Figures 6.2 and 6.3, the expected turnover rate for teachers categorized as Most Effective is at least 1.2 percentage points lower than the expected turnover rate for teachers categorized as Least Effective, all other things being equal.

Intriguingly, there is no evidence that the relationship between teacher retention and TVAAS scores was any different in 2011-12 (the first year of the strategic compensation programs) than it had been in the prior two school years. Teachers in bonus-only schools were more likely to move to another district after implementation, but the fraction of "movers" who had low TVAAS scores did not change significantly.

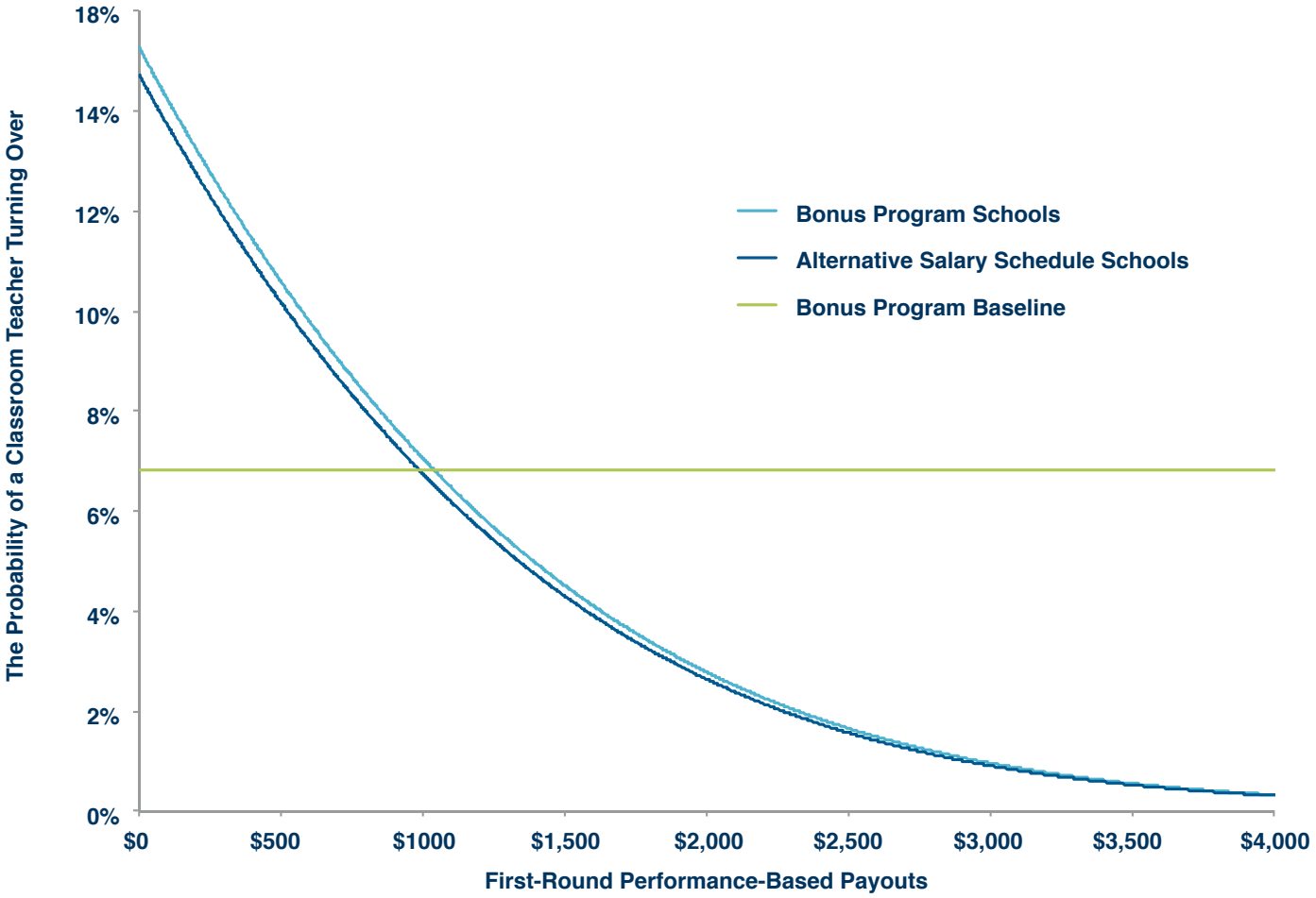
TURNOVER AMONG TEACHERS RECEIVING FIRST-ROUND PERFORMANCE-BASED PAYOUTS

While it is clear that the strategic compensation programs did not increase retention in general, they may have increased retention among the teachers that school districts are most eager to retain. This section examines the link between the first-round performance-based payouts under the strategic compensation programs and the probability that a teacher is retained. The analysis incorporates not only information on TVAAS scores, but also information on the actual dollar value of the performance-based payouts received by individual teachers. Data on the individual payouts earned in 2011-12 and distributed in 2012-13 are available for all 14 school districts that participated in the strategic compensation program.[70] As discussed in Chapter 3 payouts to classroom teachers ranged from $50 to $8,000 with an average payout of $1,647 (assuming the teacher received any payout at all).

A close examination of the pattern of individual awards suggests that some districts may have designed their strategic compensation programs to function as "golden handcuffs" and made payouts contingent on retention. In six of the 14 districts, no teacher who turned over earned an award. This raises the possibility that a lack of turnover leads to awards rather than a lack of awards leading to turnover.[71]

Figure 6.4 illustrates the estimated relationship between first-round performance-based payouts and teacher turnover, after adjustment for all the other determinants of turnover presented in Table 6.1.[72] As the figure illustrates, there is a negative and statistically significant relationship between teacher turnover and the size of the individual payouts. Teachers who did not receive a payout have a sharply elevated probability of turnover, while the probability of turnover among teachers who received a substantial award becomes vanishingly small. The probability of turnover by a teacher who received an award of $1,647 (the average award among classroom teachers who received awards) was roughly one third of the expected probability of turnover in the absence of the program (the baseline probabilities in Figure 6.4). In contrast, the probability of turnover among teachers who received no award was more than double the expected probability of turnover in the absence of the program.

Figure 6.4: The Relationship Between First-Round Performance-Based Payouts and the Probability that Classroom Teachers Turned Over at the End of the 2011-12 School Year, by School Type



Source: Author's calculations. See Appendix Table D.9b.

Thus, the analysis of teacher payouts strongly suggests that the strategic compensation programs had a considerable influence on the composition of teacher retention, even if they did not increase the share of teachers retained. To the extent that the first-round performance-based payouts reflect teacher quality, the strategic compensation programs increased retention of the teachers which school districts are most interested in retaining, while encouraging the departure of teachers who did not receive payouts.

All told, the evidence suggests that the strategic compensation programs had a significant impact on teacher turnover in participating schools following the 2011-12 school year. Teachers who received large awards were significantly more likely to be retained while teachers who received no award were significantly more likely to turn

over. On net, turnover rates rose in bonus-only schools.

Turnover rates increased in bonus-only schools because there was an increase in the percentage of teachers moving to other districts, and not because there was a significant increase in the percentage of teachers leaving the public school system in Tennessee. Furthermore, the teachers who were moving between districts in the wake of the strategic compensation program appear more likely to have been teachers with low TVAAS scores than teachers with high TVAAS scores.

VII. STRATEGIC COMPENSATION PROGRAMS AND STUDENT PERFORMANCE

This chapter investigates the association between student performance and strategic compensation program participation. It first looks at descriptive differences between the average performance of students attending program and non-program schools, where non-program schools are all other Tennessee public schools. The chapter also explores potential associations between program participation and student achievement gains. In addition to the relationship between student test performance gains and attendance at a participating school, the chapter also considers the relationship between design features of strategic compensation programs and changes in student test scores.[73]

There are important limitations of the chapter's analyses. Districts chose to participate in strategic compensation programs and designed their own strategic compensation models. Nonrandom selection of schools creates a fundamental challenge in identifying clearly the marginal impact of strategic compensation programs on student achievement. If program schools differ systematically from non-program schools, and if this difference impacted student performance independent from participation in a strategic compensation program, then findings of a relationship between strategic compensation and student performance may be due to underlying differences between program and non-program schools and not participation in the compensation programs. A second source of concern is the introduction of multiple Race to the Top education reforms concurrently with the strategic compensation programs, making it potentially challenging to isolate the effect of the compensation programs on student performance. This chapter addresses the following questions:

- How did TCAP proficiency rates in program schools differ from proficiency rates in non-program schools?
- How did TCAP achievement gains in program schools differ from gains in non-program schools?
- Among program schools, how did student achievement gains differ between schools using different incentive plan design features?

This chapter discusses student performance in strategic compensation program schools, with a focus on TCAP test scores in third through eighth grade math and reading. In the year three evaluation researchers plan to examine program effects on high school completion rates as an additional outcome. In all cases – unless otherwise noted – the analysis compares student performance in program schools to that of non-program schools.

Key Findings from Student Achievement Analysis

- Average TCAP proficiency rates for reading and math were lower in program schools than in non-program schools during the implementation period. This was also true prior to implementation for grades 5-8 in reading, and for all grades in math.
- TCAP reading and math proficiency rates generally increased in program schools between 2009-10 and 2012-13. The gap in proficiency rates between program and non-program schools remained generally constant over this period. This indicates that program schools were not catching up with performance in non-program schools with respect to this measure of student performance.
- Relative to the year prior to program implementation, students at program schools had higher standardized achievement gains on TCAP reading tests and lower standardized achievement gains on TCAP math tests over the first two program years.
- There is strong evidence to suggest that it will continue to be difficult to identify the program impact on reading gain scores, due to the variability in reading gain scores among program schools even in years prior to the initiation of the program. This variability confounds efforts to identify the impact of the program initiation in the 2011-2012 school year.
- With respect to results on TCAP reading tests, there is little evidence indicating a statistically or substantively significant impact of program participation on student performance.
- For math, the overall program participation impact is also small and statistically insignificant. Although the point estimate of the impact of adopting an alternative salary structure is large, this result is based on only three districts and a small number of students, and fails to attain statistical significance at conventional levels.

AVERAGE PROFICIENCY RATES AND PROGRAM PARTICIPATION

This section starts with an examination of differences in student proficiency rates on TCAP between participating and non-participating schools. These comparisons do not account for any differences in the characteristics of participating and non-participating schools that might account for performance differences even in the absence of the strategic compensation programs. Rather, they provide a description over time of how proficiency rates differ between students in participating and non-participating schools (from two years prior to two years following implementation of the compensation program).

Proficient/advanced rate reflects the percentage of students who are classified as proficient or advanced based upon their performance on the TCAP exams. Table 7.1 reports the percent of students by grade who met standards for proficiency or advanced classification for TCAP reading and math in the 2012-13 school year, which is the second year of the strategic compensation program. Overall, the percent of students meeting TCAP standards in participating schools was lower than the percent of students meeting TCAP standards in non-participating schools. The differences are more pronounced in grades 5 through 8.

Table 7.1: TCAP Proficient/Advanced Rates in Program and Non-Program Schools in 2012-13, by Grade

Grade	Reading		Math	
	Program School	Non-Program School	Program School	Non-Program School
3	50.2%	50.6%	60.0%	60.5%
4	49.5%	49.9%	49.0%	50.1%
5	53.2%	56.8%	54.9%	59.1%
6	56.6%	59.6%	44.4%	46.2%
7	46.2%	49.1%	46.9%	49.6%
8	46.1%	49.2%	49.2%	51.1%
Total	50.3%	52.5%	50.5%	52.8%
# observations	49,888	350,773	49,888	350,773

Evaluators next examined how student proficiency rates in participating and non-participating schools changed over time. As seen in Figures 7.1 and 7.2, non-program schools had higher proficiency rates than program schools, and both program and non-program schools generally improved scores over time, particularly in math.

Figures 7.1a–g show four-year trends (from 2009-10 to 2012-13) of TCAP reading proficiency rates by grade for participating and non-participating schools. These graphs confirm that TCAP reading proficiency rates were consistently higher at non-program schools. The differences are, however, small (around two percentage points). There is no evidence of convergence between program and non-program school performance in the initial two program years.

Figures 7.2a–g show four-year trends of TCAP math proficiency rates (from 2009-10 to 2012-13) by grade for program and non-program schools. The all students (Figure 7.2a) graph confirms that math proficiency rates were consistently higher at non-program schools over this period. The increase is more dramatic for math than for reading for both types of schools. Similar to reading, the gap between success rates for program and non-program schools is consistently around two percentage points.

Figures 7.1a – g: TCAP Reading Proficiency Rates in Program and Non-program Schools from 2009-10 to 2012-13, Overall and by Grade

Figure 7.1a: All Grades Average

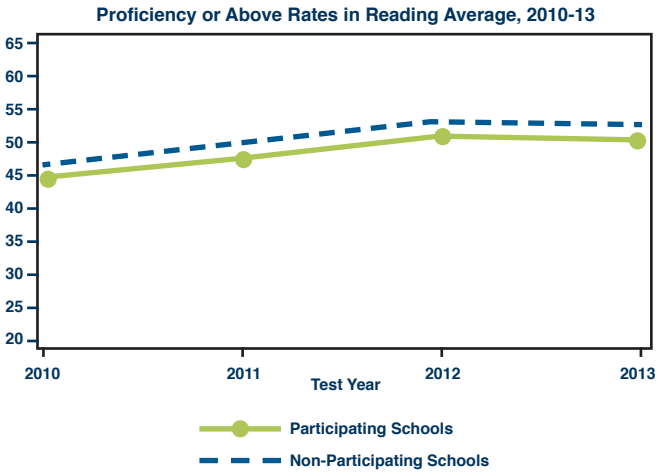


Figure 7.1b: Grade 3

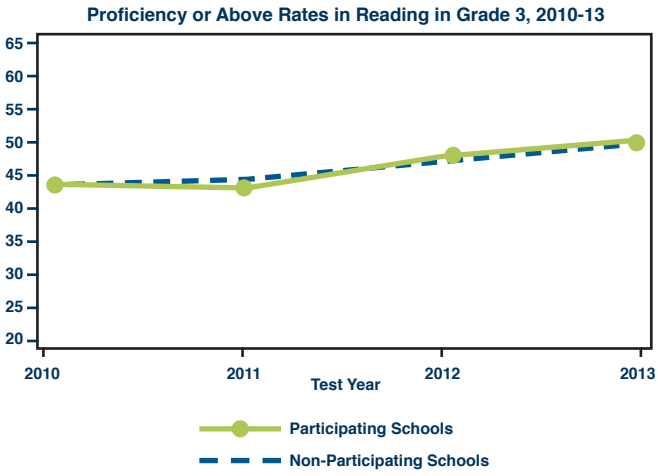


Figure 7.1c: Grade 4

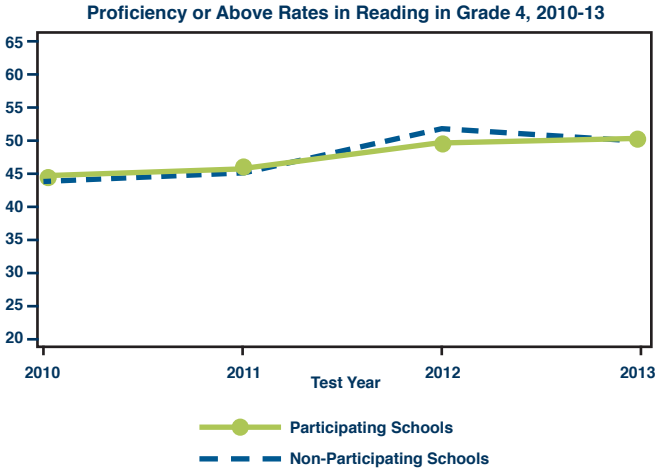
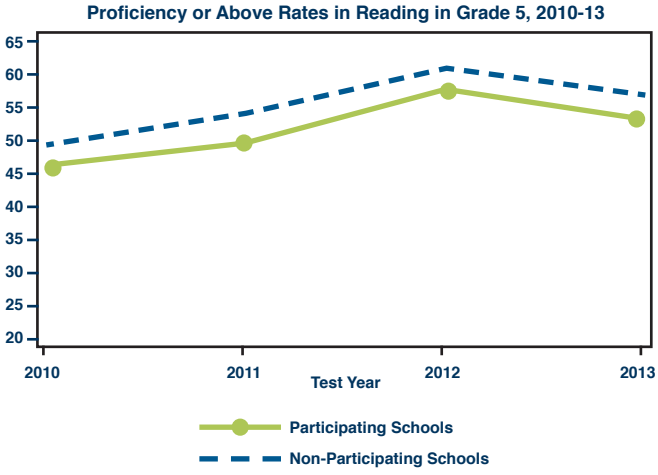


Figure 7.1d: Grade 5



Source: TCAP Reading Scores from 2009-10 to 2012-13, and evaluator's calculations

Figures 7.1a – g: TCAP Reading Proficiency Rates in Program and Non-program Schools from 2009-10 to 2012-13, Overall and by Grade (continued from page 109)

Figure 7.1e: Grade 6

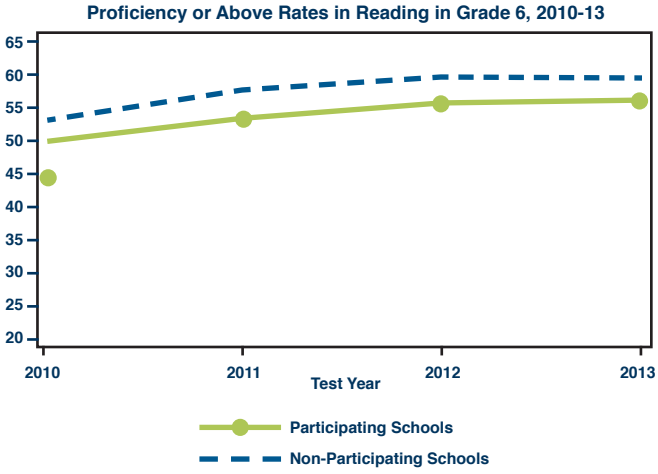


Figure 7.1f: Grade 7

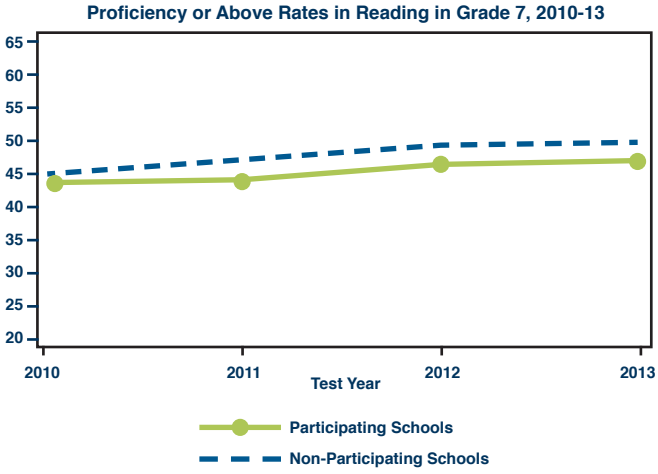
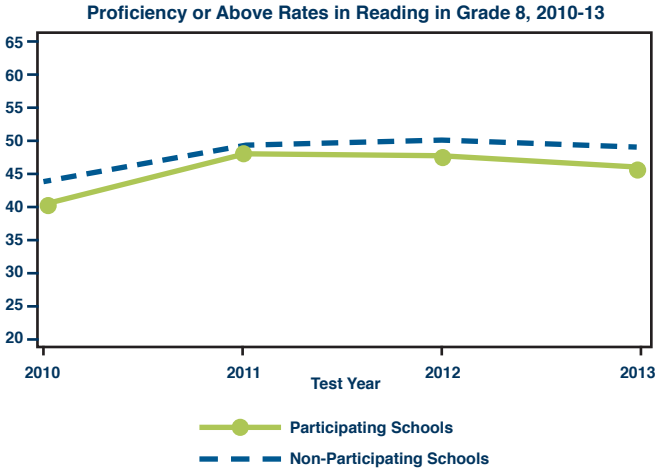


Figure 7.1g: Grade 8



Source: TCAP Reading Scores from 2009-10 to 2012-13, and evaluator's calculations

Figures 7.2a – g: TCAP Math Proficiency Rates in Program and Non-program Schools from 2010-11 to 2012-13, Overall and by Grade

Figure 7.2a: All Grades Average

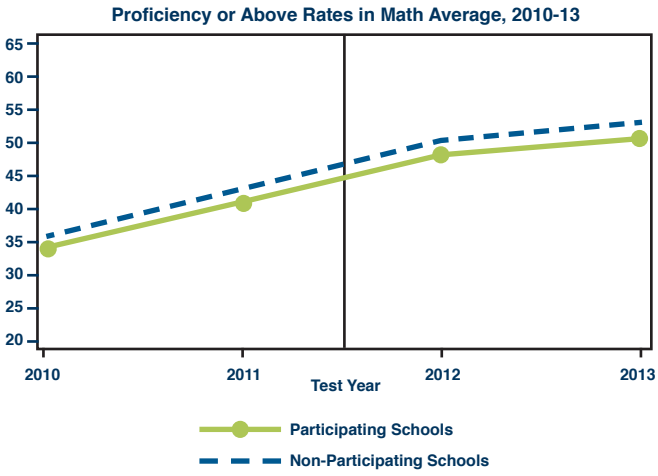


Figure 7.2b: Grade 3

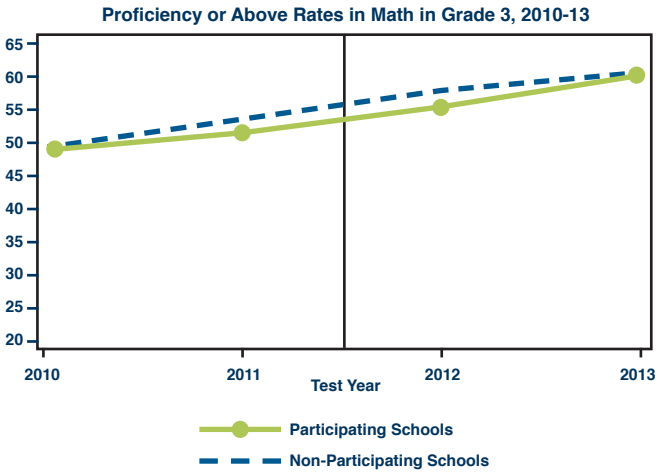


Figure 7.2c: Grade 4

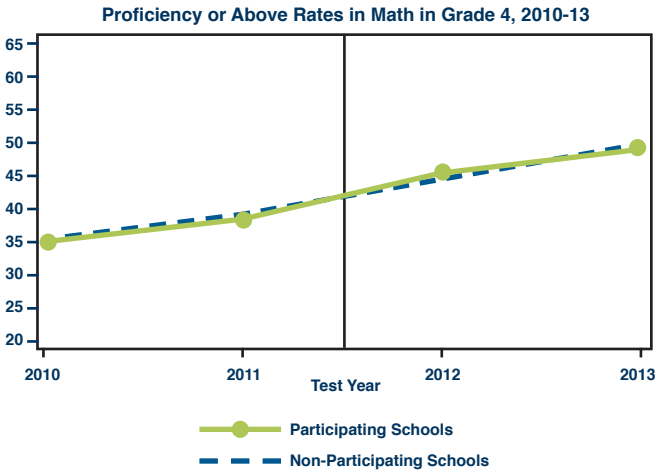
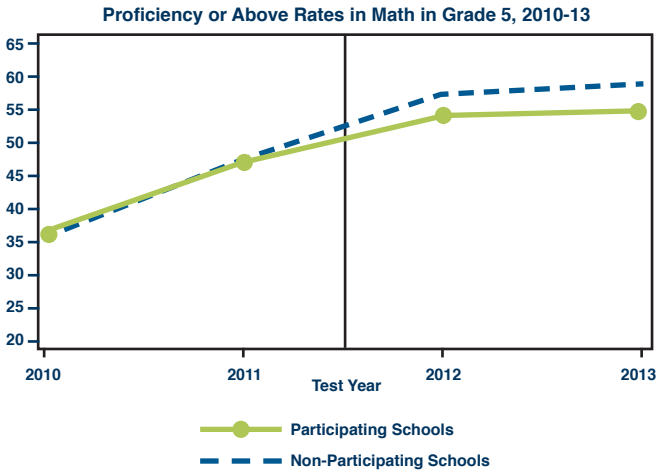


Figure 7.2d: Grade 5



Source: TCAP Reading Scores from 2009-10 to 2012-13, and evaluator's calculations

Figures 7.2a – g: TCAP Math Proficiency Rates in Program and Non-program Schools from 2010-11 to 2012-13, Overall and by Grade

Figure 7.2e: Grade 6

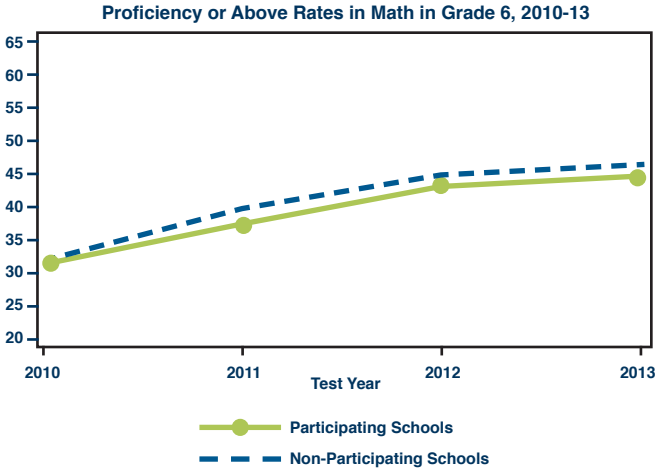


Figure 7.2f: Grade 7

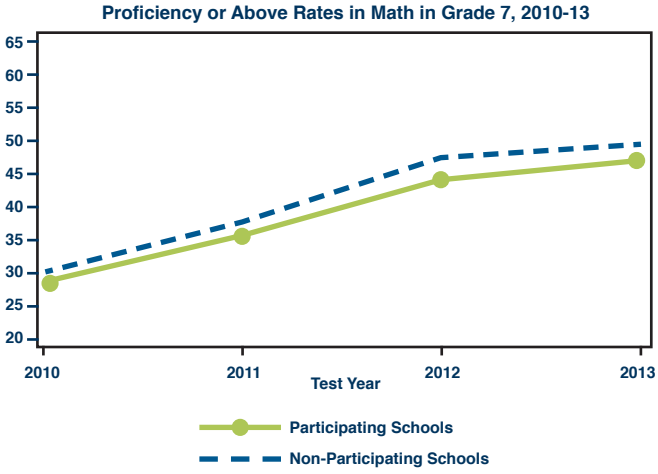
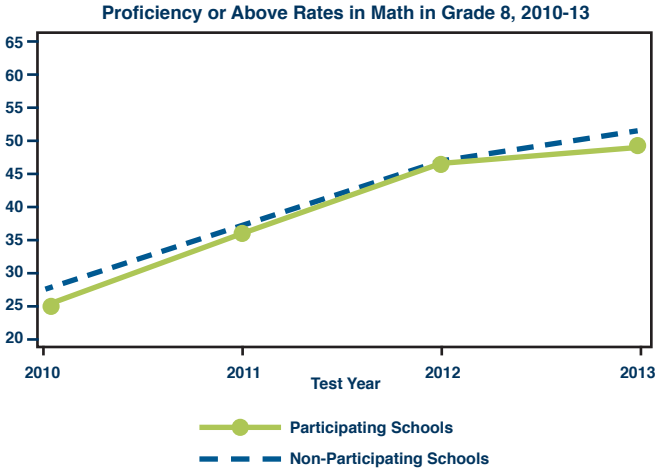


Figure 7.2g: Grade 8



Source: TCAP Reading Scores from 2009-10 to 2012-13, and evaluator's calculations

Figures 7.3a and b show the four-year trend (from 2009-10 to 2012-13) in differences in proficiency rates between program and non-program schools for reading and math, respectively. The differences in proficiency rates in non-program and program schools are positive and slightly larger (by 0.3 percentage points in reading and 0.5 percentage points in math) in 2013 than in 2010. Proficiency rates in program schools did not converge with those of non-program schools during the two program years, especially in math. In reading, there was a slight convergence in proficiency rates between program and non-program schools after 2011. While Figures 7.3a and 7.3b do not control for differences in school characteristics or students served, the consistency of the gap between program and non-program schools indicates that the strategic compensation programs may not have been impacting this particular measure of student proficiency.

Figure 7.3: Difference between TCAP Proficiency/Advanced Rates in Program and Non-Program Schools from 2009-10 to 2012-13

Figure 7.3a: Reading

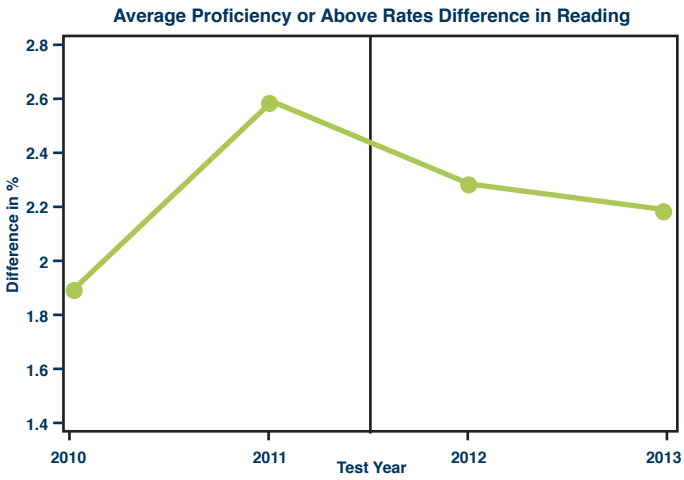
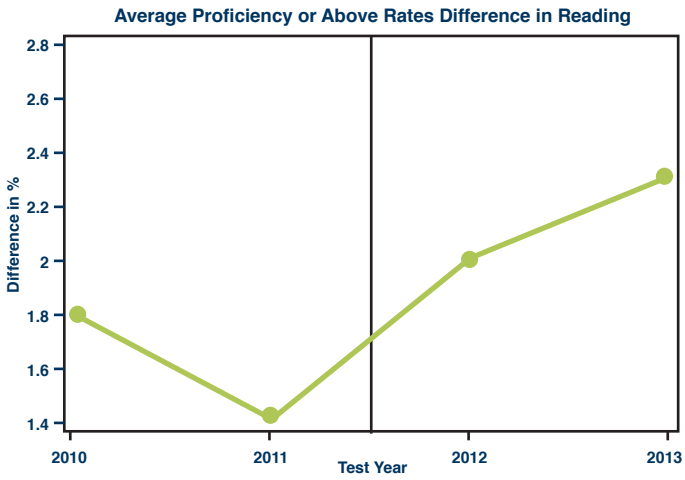


Figure 7.3b: Math



Source: TCAP Reading Scores from 2009-10 to 2012-13, and evaluator's calculations

STUDENT ACHIEVEMENT GAINS AND PROGRAM PARTICIPATION

In addition to proficiency rates, researchers also compared growth in student test scores in compensation program and non-program schools using two approaches:[74]

- A comparison of the average student gain scores in program and non-program schools.
- An examination of associations between student achievement gains and attending a program school, controlling for numerous background characteristics of students and schools that are likely to impact student performance.[75]

Researchers' measure of student achievement gains is based on actual student performance relative to their expected performance. This measure is found in an influential paper by Reback (2008). For each student, evaluators took their TCAP test score for the prior school year and compared their TCAP test performance one year later to all other students with the same prior year test score. Thus if a fourth grade student scored a 700 in math in 2008-09, evaluators looked at all fourth grade students scoring a 700 in math in 2008-09, and examined their scores in fifth grade in 2009-10. Evaluators identified whether the student scored higher or lower in fifth grade than the average score of other 5th grade students with the same prior year test score in fourth grade.[76]

SIMPLE COMPARISON OF STUDENT GAINS IN PROGRAM AND NON-PROGRAM SCHOOLS

Figures 7.4 a-f display mean student achievement gains on reading TCAP tests at program and non- program schools from the 2006-07 through 2012-13 school year.[77] This period includes five school years prior to program participation (2006-07 through 2010-11) and the first two years following program implementation (2011-12 and 2012-13).

There is no consistent pattern to the scores. In five of the seven years program schools had positive average achievement gains across grades 4-8, indicating students were scoring higher than other students with the same prior year test score (students in non-program schools would have the opposite pattern). The patterns across time for the five grades are heterogeneous and volatile. For example, program schools generally saw larger gains than non-program schools in grade 4 and smaller gains in grade 5. Grade 5 scores of program schools generally trend downward in the years prior to treatment. Program schools exhibit both higher and lower grade 6 scores than non-program schools across years. The large volatility in scores in the pre-treatment period makes it difficult to conclude that any changes in student scores following the introduction of compensation program are due to the program.

Figure 7.4: Standardized TCAP Reading Gain Scores in Compensation Program and Non-program Schools, Mean of Gain by Grade from 2006-07 to 2012-13

Figure 7.4a: All Grade Average

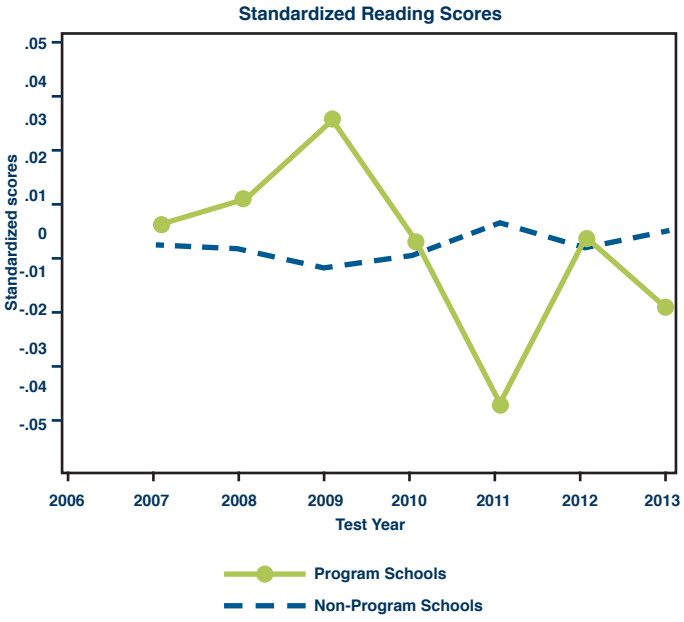


Figure 7.4b: Grade 4

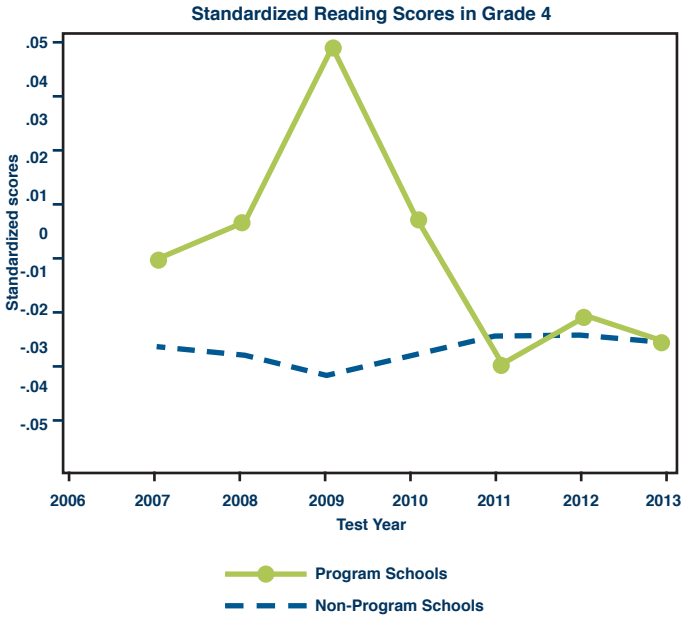


Figure 7.4c: Grade 5

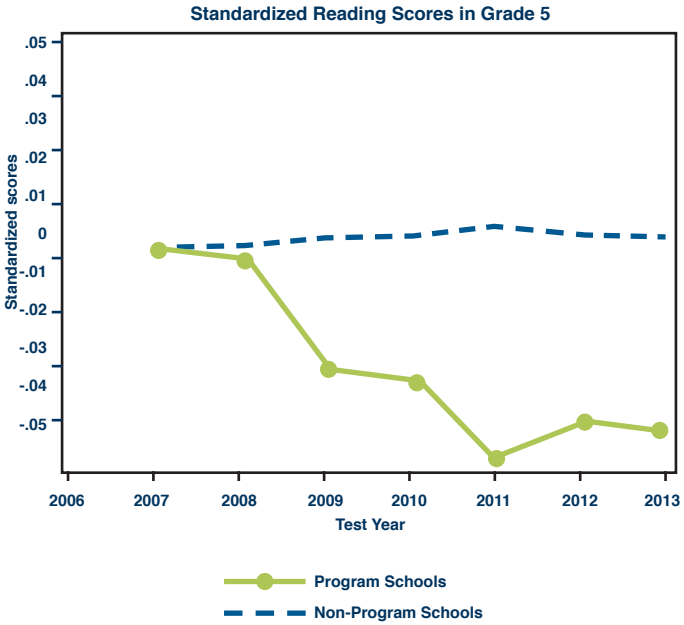
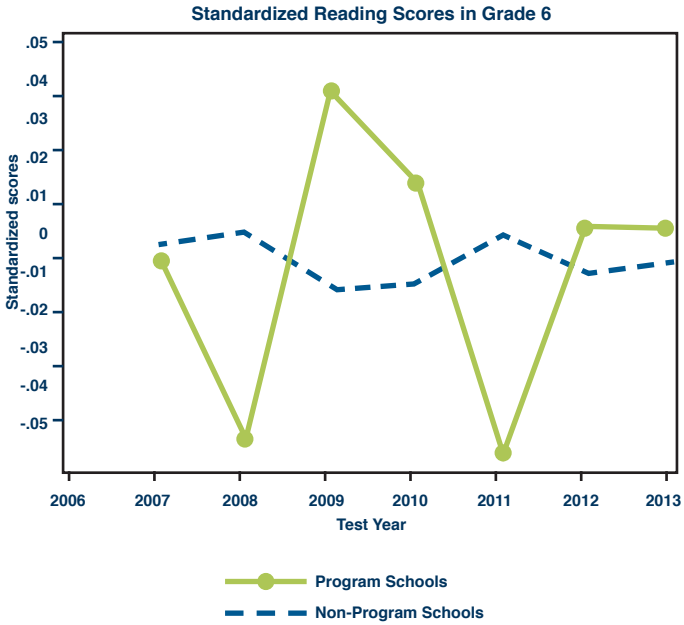


Figure 7.4d: Grade 6



Source: TCAP Reading Scores from 2009-10 to 2012-13, and evaluator's calculations

Figure 7.4: Standardized TCAP Reading Gain Scores in Compensation Program and Non-program Schools, Mean of Gain by Grade from 2006-07 to 2012-13

Figure 7.4e: Grade 7

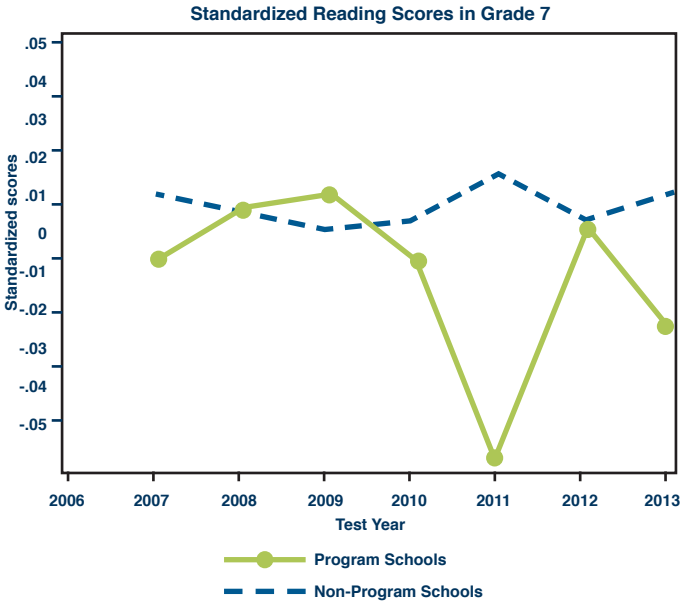
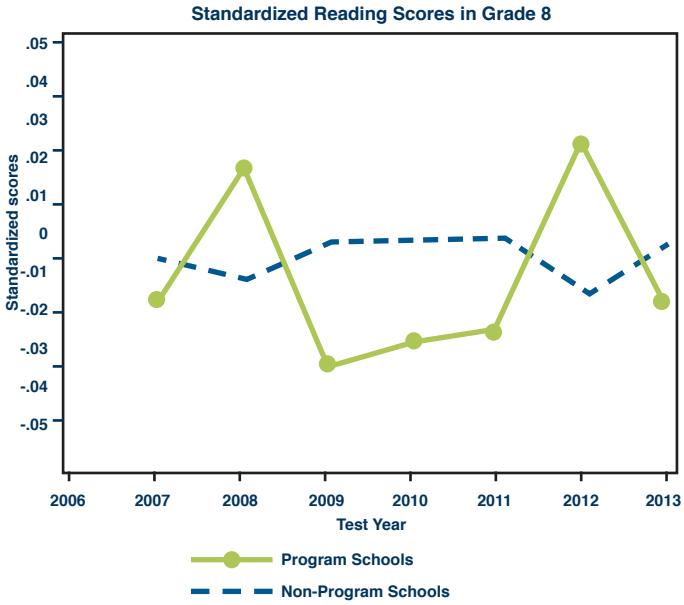


Figure 7.4f: Grade 8



Source: TCAP Reading Scores from 2009-10 to 2012-13, and evaluator's calculations

Figures 7.5 a-f shows student achievement gains in math on TCAP tests at program and non-program schools from 2006-07 through 2012-13. Note again that the pattern of gain scores for program schools varies both across grades and across time. Average gain scores are higher in program schools for three years and higher in non-program schools for the other four years, including both of the program treatment years. Grade 4 gain scores are higher in program schools for six of the seven school years, whereas grade 7 gain scores are always higher in non-program schools.

Figure 7.5: Standardized TCAP Math Gain Scores in Program and Non-program Schools, Mean of Gain by Grade from 2006-07 to 2012-13

Figure 7.5a: All Grade Average

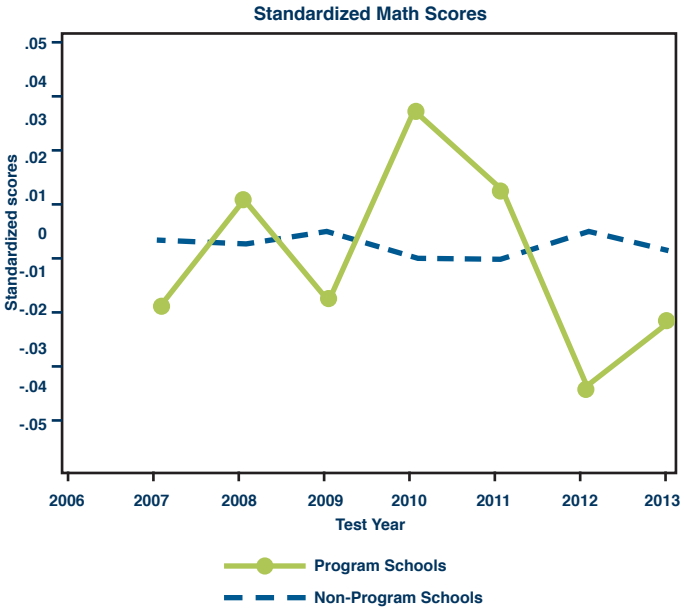


Figure 7.5b: Grade 4

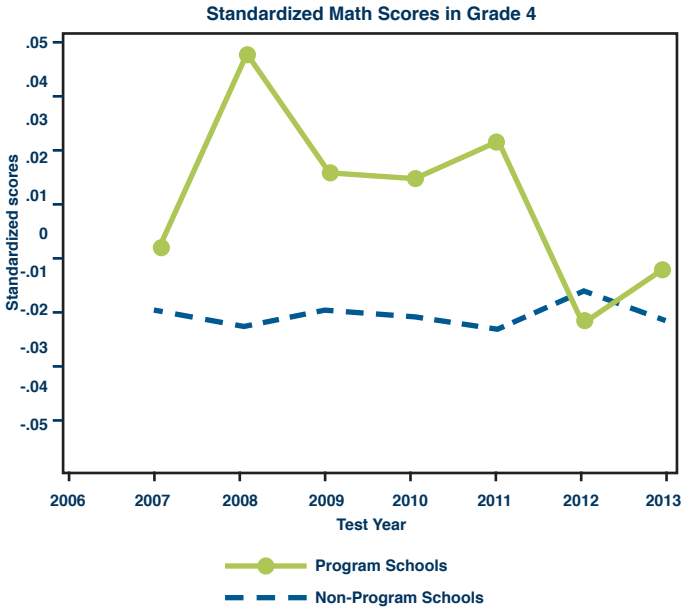


Figure 7.5c: Grade 5

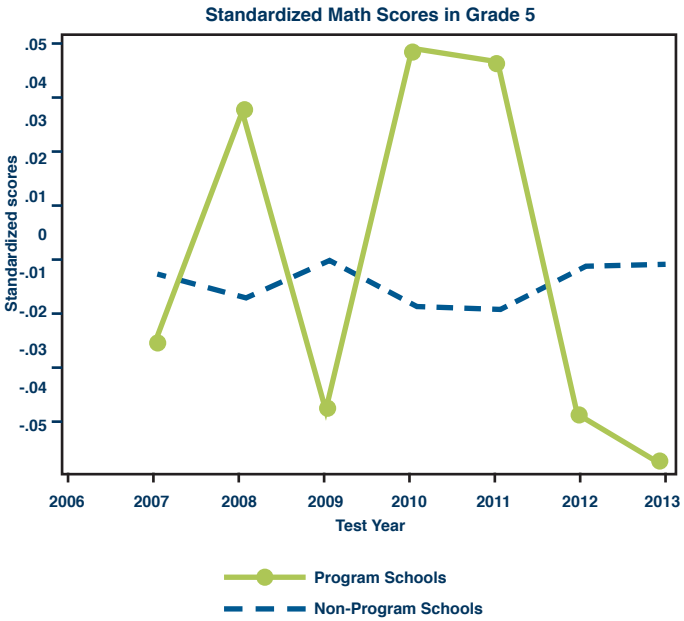
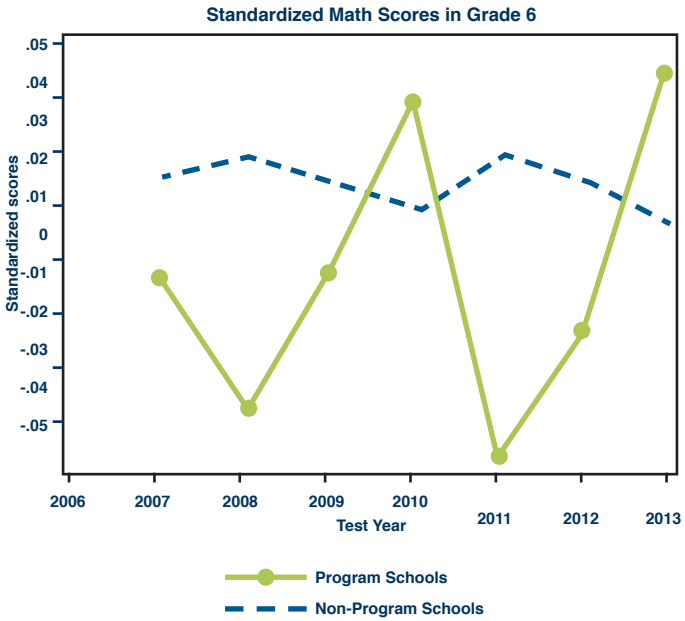


Figure 7.5d: Grade 6



Source: TCAP Reading Scores from 2009-10 to 2012-13, and evaluator's calculations

Figure 7.5: Standardized TCAP Math Gain Scores in Program and Non-program Schools, Mean of Gain by Grade from 2006-07 to 2012-13

Figure 7.5e: Grade 7

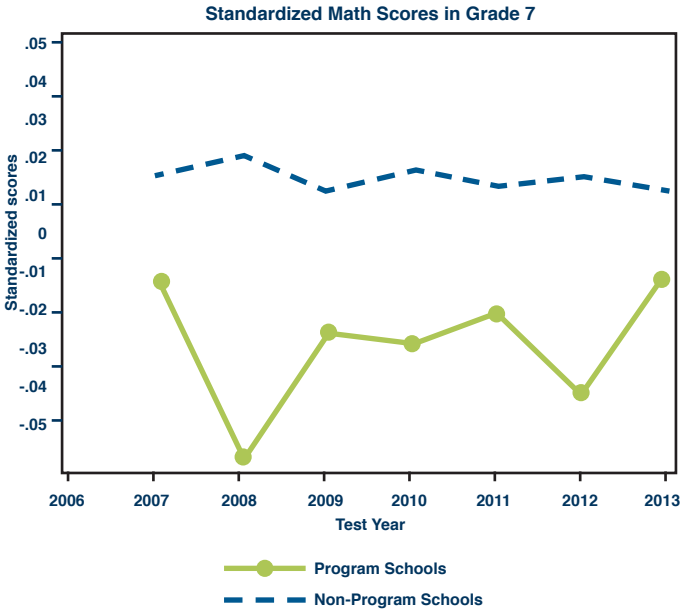
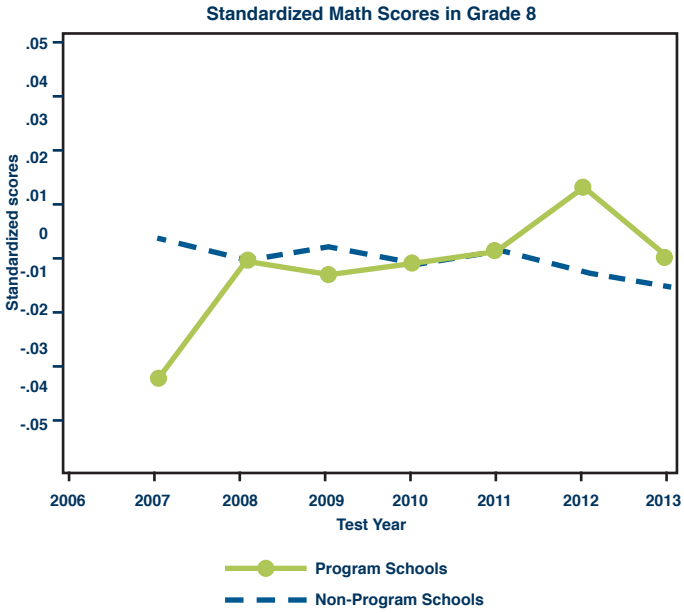


Figure 7.5f: Grade 8



Source: TCAP Reading Scores from 2009-10 to 2012-13, and evaluator's calculations

It is important to emphasize again that this is a simple comparison, and does not account for school or student characteristics that might also influence student gains. Such simple unconditional comparisons may provide misleading evidence as to any effect of the strategic compensation programs on student achievement gains.

Associations between student achievement gains and attending a strategic compensation program school

The second approach for examining the impact of program participation on student achievement gains uses a statistical model that accounts for various student and school characteristics that are likely to impact student achievement gains. These analyses are described in detail in Appendix E.

Table 7.2 summarizes the findings of the relationship between program participation and student achievement gains over the first two years of the strategic compensation programs. Panel 1 of the table reports the association between student achievement gains and attendance at a program school, regardless of program design, while controlling for several background characteristics of students and schools. The comparison is with students in non-program schools.

Table 7.2: Association Between Program Participation and Student Achievement Gains

Panel 1	Reading	Math
Program Participation (Compared to Non-Participants)	Positive but Small and Statistically Insignificant	Negative but Small and Statistically Insignificant

Panel 2	Reading	Math
Program Participation (Distinct from Impact of Salary Treatment)	Positive but Small and Statistically Insignificant	Negative but Small and Statistically Insignificant
Salary Treatment (Relative to Participants without Salary Treatment)	Negative but Statistically Insignificant	Positive and Large but Statistically Insignificant

Panel 3	Reading	Math
Salary Treatment (Compared only to Non-Participants; Participants without Salary Treatment are excluded from the comparison)	Negative but Statistically Insignificant	Positive and Large but Statistically Insignificant

Source: TCAP Reading/Math 2006-07 through 2012-13 and evaluator's estimations

Results indicate that student gains did not change in a statistically significant way when a student attended a program school. Gains in reading were positive but essentially zero numerically and far from statistically significant. Gains in math were negative but statistically insignificant and small, on the order of four one-hundredths of a standard deviation.

The second panel in Table 7.2 estimates both a participation effect and a separate impact for schools that adopted an alternative salary schedule. Here researchers find that the program participation effect is again statistically insignificant for reading and math. The extra impact of a district adopting a salary treatment (over and above the program participation effect) is statistically insignificant for reading. For math, though positive and large (nearly one-fourth of a standard deviation), it remains statistically insignificant.

A final check in Panel 3 compares student achievement gains in schools adopting the alternative salary compensation scheme with students in non-program schools, which excludes program schools that did not adopt an alternative salary compensation scheme. This differs from Panel 2 because here researchers drop all program schools that did not adopt an alternative salary structure in hopes of sharpening the comparison. The conclusions, however, are unchanged.

CONCLUSION

SUMMARY FINDINGS

Analyses of First-Round Payouts for Performance During 2011-12

- During the 2011-12 school year, 4,866 individuals received a performance-based payout.
- Payouts were generally small. Ninety-four percent of recipients received less than $3,000 and 30 percent of recipients received less than $1,500. The average award was $1,665.
- Classroom teachers received 88 percent of the payouts. Other positions receiving payouts included principals, assistant principals, librarians, school counselors, speech/hearing specialists and non-classroom teachers.
- Across all strategic compensation districts, 47 percent of the classroom teachers in participating schools received a payout. Less than a quarter of the classroom teachers in participating schools received a payout in Lebanon SSD, Hamilton County, and McMinn County. In contrast, more than three quarters of the classroom teachers in participating schools received a payout in Johnson County and South Carroll County SSD.
- In alternative salary schedule districts, classroom teachers with advanced degrees were more likely to receive a payout than other teachers, and received larger average payouts. In bonus-only districts, classroom teachers with advanced degrees were no more likely than other teachers to receive a payout, and did not receive significantly larger awards than teachers without advanced degrees.
- Experience was positively associated with payout size, all else being equal.
- Classroom teachers who were certified in math, English, or history received higher average awards than other classroom teachers, all else being equal. However, those differences were completely explained by the overarching difference between TVAAS tested teachers and those teaching non-tested subjects. Teachers in TVAAS tested subjects were predicted to receive roughly $500 larger payouts than other teachers, all else being equal.
- Special education teachers had a higher probability of a payout and received a larger payout, on average, than other classroom teachers.
- Classroom teachers with elementary school assignments received larger average awards than classroom teachers with middle school or high school assignments.

Implementation, Challenges, and Impact

- District official interviewees in the majority of participating districts felt that compensation reforms had improved district communication as well as teaching practices through a greater focus on professional development, instructional coaching, and student data. More than half of interviewees cited difficulties with the award payout process resulting from the delayed release of data on certain performance measures.

- Ten of the 14 participating districts made revisions to their compensation models for Year 2 due to issues raised during the first year of implementation.
- Data collection, communication, conflict resolution, and timing were all cited as positive aspects of the payout distribution by interviewees. The structure and timeline for payouts varied greatly across all participating districts.
- Payout preparation by districts focused on data collection and synthesis and communication with payroll departments and award recipients. All districts reported satisfaction with their processes.
- The use of online award portals allowed many districts to resolve potential issues prior to award distribution. After disbursement, half of districts reported only minor conflicts or concerns. Others reported no issues.
- Nine of the 14 participating districts reported being under-budget after disbursement, and all stated that unused funds would go toward future program costs within allowable parameters. Over half of participating districts reported concerns over sustainability.
- Districts that commented on state policy changes to the salary schedule stated that their strategic compensation programs had put them ahead of other districts which would make future compensation reform discussions easier.

School Personnel Reports from Second Year Program Implementation

- High proportions of educators correctly indicated that their district's strategic compensation program included performance-based bonus awards. However, many educators were unsure as to whether their district program included an alternative salary schedule.
- Generally, there was high agreement about the fairness of the performance criteria and that bonus award and alternative salary performance criteria are worthy of extra pay. This was true for eligible strategic compensation participants, eligible non-participants, and educators who were not eligible. However, eligible non-participants held slightly less positive beliefs about the fairness of the award structures.
- Low proportions of educators agreed they would need to change their professional practice to earn either a bonus award or salary increase.
- School administrators held the most positive beliefs about strategic compensation implementation and impact teachers held the least positive beliefs.
- Survey responses indicate that most educators did not agree that the strategic compensation program improved teacher satisfaction or retention.

Teacher Turnover and Retention Analysis

- There is no evidence that the existence of strategic compensation programs reduced teacher turnover in participating schools, had any effect on the probability that a teacher would leave the public education system,

or had any effect on the retention of teachers eligible for a service retirement.

- Among teachers with TVAAS scores, there is no evidence that strategic compensation programs changed the relationship between teacher turnover and the TVAAS scores of individual teachers. Within all Tennessee schools, turnover was highest among teachers with low TVAAS scores.
- Teachers who did not receive a payout had a sharply elevated probability of turnover, while the probability of turnover among teachers who received a substantial award was sharply reduced.

Student Performance Analysis

- Average TCAP proficiency rates for reading and math were lower in program schools than in non-program schools during the implementation period. This was also true prior to implementation for grades 5-8 in reading, and for all grades in math.
- TCAP reading and math proficiency rates generally increased in program schools between 2009-10 and 2012-13. The gap in proficiency rates between program and non-program schools remained generally constant over this period. This indicates that program schools were not catching up with performance in non-program schools with respect to this measure of student performance.
- Relative to the year prior to program implementation, students at program schools had higher standardized achievement gains on TCAP reading tests and lower standardized achievement gains on TCAP math tests over the first two program years.
- There is strong evidence to suggest that it will continue to be difficult to identify program impact on reading gain scores, due to the variability in reading gain scores among program schools in years prior to the initiation of the program. This variability confounds efforts to identify the impact of the program initiation in the 2011-2012 school year.
- With respect to results on TCAP reading tests, there is little evidence indicating a statistically or substantively significant impact of program participation on student performance.
- For math, the overall program participation impact is also small and statistically insignificant. Although the point estimate of the impact of adopting an alternative salary structure is large, this result is based on only three districts and a small number of students, and fails to attain statistical significance at conventional levels.

REVIEW OF YEAR 1 RECOMMENDATIONS

The Consortium's first report on Tennessee's strategic compensation initiatives, *Evaluation of Tennessee's Strategic Compensation Programs: Interim Findings on Development, Design, and Implementation*, concluded with a list of four recommendations which were aimed at providing useful information to TDOE and participating districts as they worked to improve compensation programs for subsequent years. A summary of those recommendations and an update on evidence of progress in the recommended areas follows.

Engage stakeholders and communicate often

In the first year, most evidence from reviews of district plans and interviews with district officials suggested that districts made communication and engagement a priority during the design and implementation phases. There was, however, mixed evidence from school personnel about the effectiveness of those efforts. Awareness of the program and bonus components was high among 2011-12 survey respondents, and a sizeable majority of respondents indicated they had a clear understanding of the requisite performance criteria. There was evidence of confusion about alternative salary components from both those respondents in alternative salary schedule districts and those in bonus-only districts. These findings suggest a sizeable share of educators did not have complete knowledge of how they were being compensated in the first year of the programs.

In the second year, district interviewees again emphasized the importance of communication and reported the use of a variety of different communication tools, including newsletters, emails, and in-person meetings, to provide information to program participants. Despite these efforts, there was a slight drop in overall awareness of strategic compensation programs (92 percent down to 87 percent), and confusion related to alternative salary components remained an issue with 40 percent of those who were in districts with alternative salary schedules indicating that they were unsure about the presence of that component.

Continue to Use Multiple Measures and Shared Accountability while Gaining Better Understanding Educator Perceptions

A review of program applications prior to implementation revealed that districts were using multiple performance measures and shared accountability which are commonly believed to be critical to the success of performance-pay initiatives (Kane & Cantrell, 2010). Evidence from the first year suggested that although districts adhered to this guidance, educator perceptions of the programs, especially in relation to fairness and motivational qualities, were mixed at best.

In the second year, there were improvements in several areas of educator perceptions, but overall, results were still mixed. Half of all respondents and less than 45 percent of teachers agreed that bonus programs were fair. A majority of all respondents agreed that bonus awards were large enough to be of value and that performance criteria were worthy of extra pay and recognition. Eight-two percent agreed that they could achieve the criteria necessary to earn an award, but less than one-third agreed that they would need to change their professional practice to do it.

Use of High Quality and Integrated Data Systems

In the first year, interviews with district officials indicated that data issues related to initial implementation had

gone smoothly. However, interviewees acknowledged that first-round payouts represented a more critical phase data system integration, and several expressed concern about whether data systems would be ready and capable of proper alignment of multiple sets of information from various departments.

In the second year, district officials were unanimously pleased with the data systems in place in their districts, whether managed in-house or by an outside provider. Interviewees noted how vital clear notification of award amounts to participants prior to actual payouts was in reducing, or in many cases, eliminating conflicts. At the time of the interviews, no interviewees anticipated any significant changes to district processes for collection, calculation, or distribution of awards in future years suggesting that their concerns from the previous year had been addressed.

Make Reform Systemic and Sustainable

At the end of the first implementation year, information from interviews and survey responses suggested that both district officials and employee participants were unsure about the sustainability of strategic compensation programs. Most district sustainability plans submitted with applications lacked specificity, and district interviewees did not appear confident that current plans would continue beyond grant funding.

In the second year, a similar lack of confidence in the future of strategic compensation programs remained. Just over half of survey respondents agreed that TDOE and their district could support programs. Less than 40 percent agreed that the appropriate financial resources existed to sustain programs over time. More than half of district officials continued to express concern how to prioritize strategic compensation among competing budget demands as they planned for the increasing share of district funding required by the grant in each year.

CONCLUDING OBSERVATIONS - YEAR 2

Although it is still early, the analyses presented in this report seem to suggest that skepticism is in order regarding the potential gains of strategic compensation in the form in which it is currently being implemented in Tennessee.

One of the primary goals of the TIF program is improving educator effectiveness in order to raise student achievement. Findings from the first two years of the strategic compensation evaluation provide little evidence that the strategic compensation programs currently being employed in Tennessee school districts are making positive differences in either area. Survey results indicate that respondents are not convinced that strategic compensation will have a positive impact on their schools, their students, or their profession. Despite efforts to incentivize activities that develop educators, most did not believe they needed to do anything differently in order to receive a performance payout. Analyses of teacher mobility and student achievement results fail to find that Tennessee's compensation programs are having positive effects on the retention of effective teachers or student achievement.

Despite little evidence of positive effects, it does not appear that these reforms are likely to be harmful.
Nothing in the first two years of the evaluation raises concerns that efforts to continue these programs would cause negative outcomes for schools or districts. This is important in light of Tennessee's current commitment to proceed with expanding compensation reform on this model throughout the state.

Further study is required to see whether these initial results will hold in the future.
Evaluation activities for the third implementation year (2013-14 school year) are already underway. In future reports, the Consortium will examine additional years of financial payout, teacher mobility, and student achievement data as well as responses from the third iterations of the compensation survey and interviews with district officials. However, due to recent state initiatives that mandate strategic compensation for all teachers, subsequent analyses to determine the effects of compensation reform could be limited due to the lack of a comparison group.

ENDNOTES

[1] See Evaluation of Tennessee's Strategic Compensation Programs: Interim Findings on Development, Design,

[2] For the purposes of the federal TIF grant, the U.S. Department of Education defines high-need schools as those schools at which 50 percent or more of enrolled students are from low-income families.

[3] In the spring on 2014, TNCRED was informed by TDOE that Johnson County had been incorrectly categorized as a district with an alternative salary schedule. In actuality, Johnson County Schools includes a bonus component that is based on a percentage of an individual's base salary and not a percentage increase to base salary. All analyses for the first evaluation year (reported in Evaluation of Tennessee's Strategic Compensation Programs: Interim Findings on Development, Design, and Implementation) included Johnson County as an alternative salary schedule district, and thus, may be inaccurate, especially in relation to survey items focused on respondents' understanding of components included in their district's strategic compensation program. All analyses in this report have been adjusted to reflect the accurate categorization of Johnson County as a district implementing a compensation program with only a bonus component.

[4] South Carroll SSD was a 2010 CSF grant recipient but did not receive implementation funds through IAF or TN TIF. The district eventually received additional funds through a second-round CSF competition to support implementation of their strategic compensation model.

[5] As required by law, the Commissioner of Education and State Board of Education has to approve an alternative salary schedule before a public school district implements one.

[6] To learn more about the federal TIF program, see "The national context for educator compensation reform" on page 14 of this report.

[7] The Tennessee State Report Card does not include employee totals at the school level, and thus, information at the district level rather than at the program school level is included here.

[8] Minority students were classified into four categories: Black, Hispanic, Asian, and Native American.

[9] An economically disadvantaged student is classified as one who comes from a family that meets the required income-related criteria to receive a free or reduced price lunch.

[10] See the Tennessee Department of Education's "Frequently Asked Questions: 2013 State Minimum Salary Schedule" for more information.

[11] Source: Review of state's application submitted to the Department of Education in 2012

[12] As an example, the Teacher Incentive Fund began with the Bush administration and has been continued – and expanded – under the Obama administration. Additionally, the nation's two major teacher unions – the American Federation of Teachers and the National Education Association – have grown to support differentiated pay for educators, primarily knowledge- and skills-based pay programs that reward teachers for factors such as acquiring additional certifications and professional development coursework (Koppich, 2008). For more information about AFT and NEA positions see http://www.aft.org/pdfs/teachers/fs_diffpay0410.pdf and http://www.nea.org/assets/docs/HE/PB20_AlternativeComp2.pdf.

[13] The Schools and Staffing Survey (SASS) is a national, comprehensive survey of approximately 8,000 public schools and 43,000 public school teachers conducted by the National Center for Education Statistics. SASS includes private schools and teachers as well; however, the focus of this study is on trends in public schools. There have been six waves of SASS, associated with seven school years: 1987-88, 1990-91, 1994-95, 1999-00, 2003-04, 2007-08, and 2011-2012. SASS has formed the basis for a number of studies of teacher pay in both public and private schools (e.g., Ballou, 1996; Ballou and Podgursky, 1997; Chambers, 1996; Ingersoll, 2001; Figlio, & Kenney, 2007). Given that SASS has now spanned nearly two decades and each wave includes questions on teacher pay, it is possible to examine SASS to track trends in the incidence and character of pay systems nationwide. Unfortunately, for the most part, the more specific questions about teacher pay in earlier administrations (1999-00 and 2003-04) are not compatible with pay questions in the later survey years; thus, an examination of trends must extract the most compatible items from earlier surveys.

[14] Survey results based on National Center for Education Statistics (2010), Schools and Staffing Survey table library found at http://nces.ed.gov/surveys/sass/tables.asp.

[15] See Lee, 2010; U.S. Department of Education, 2010a; and U.S. Department of Education, 2010b.

[16] For more information on the Ohio TIF evaluation, please see http://www.westat.com/Westat/pdf/evaluation/Westat_OTIF_Year_5_Report_06-29-11_Final.pdf. For further information on the national study of TIF, visit http://www.mathematica-mpr.com/publications/PDFs/education/performpay_TIF.pdf.

[17] Visit http://www2.ed.gov/programs/racetothetop/index.html for further information about grant competitions under the Race to the Top Fund.

[18] See http://www.mathematica-mpr.com/our-publications-and-findings/projects/evaluating-the-chicago-teacher-advancement-program for further information about Mathematica's evaluation of Chicago TAP, including evaluation reports.

[19] For more information on North Carolina's program and its impacts, visit https://aefpweb.org/sites/default/files/ webformStart Here M school. Individuals and reward teachers who have attained National Board for Professional Teacher Standards Certifica/How%20salient%20are%20performance%20incentives%20in%20education.pdf and http://www.ncpublicschools.org/docs/accountability/reporting/abc/2011-12/execsumm.pdf.

[20] The performance salary portions of Florida's SB736 legislation are available at http://www.leg.state.fl.us/Statutes/ index.cfm?App_mode=Display_Statute&Search_String=&URL=1000-1099/1012/Sections/1012.22.html. A lawsuit was filed by the teachers' union challenging the portions of the bill that require teacher evaluation scores for teachers in untested grades and subjects be based on the standardized test scores of students and subjects they do not teach. In May of 2014, a U.S. district court judge dismissed those challenges. An appeal was filed.

[21] See http://education.state.mn.us/MDE/SchSup/QComp/ for further information about Minnesota's Q-Comp.

[22] See http://portal.battelleforkids.org/Aspire/Home.html?sflang=en for further information on HISD's ASPIRE Award Program.

[23] The IMPACT rating is based on four dimensions of teacher performance: student achievement, instructional expertise, collaboration, and professionalism. Under the IMPACT reforms, financial awards were coupled with the threat of dismissal for low-performing teachers and supports, such as instructional coaches, to help teachers improve their performance.

[24] Additional information on Baltimore's Professional Practices and Student Learning Program is available at http://www.baltimorecityschools.org/Page/13956

[25] No formal evaluation or analysis has been conducted in Florida, Minnesota, or Baltimore to determine the impacts of their programs.

[26] See Springer, Lewis, Ehlert et al (2010); Springer, Lewis, Podgursky et al. (2009a); Springer, Lewis, Podgursky et al. (2009b).

[27] The reduction in least effective teachers is likely due in part to the program's dismissal threat. See Dee and Wyckoff (2013) for an evaluation of DC's IMPACT.

[28] See Ahn & Vigdor (2012).

[29] See Ahn & Vigdor (2012); Brodsky et al. (2010); Fryer (2011); Fulbeck (2014); Goldhaber & Walsh (2012); Hough & Loeb, (2013); Lincove (2012); and Yuan et al. (2013).

[30] According TDOE documents "TIF Allocations_5-11-11"and "TIF 3 2012-13 Allocations", the TN TIF allocation of grant dollars was based on teacher count in participating schools as of April of the prior school year.

[31] Summative evaluation scores stem from districts' teacher and principal evaluation models (TEAM, TIGER, COACH). The scores are generally a combination of quantitative and observational data.

[32] All attendance requirements hold harmless absences for such things as jury duty, FMLA, and military leave.

[33] Employees in "good standing" have certification verification, are supervised and evaluated by their assigned manager, have TVAAS instructional linkage and assignment verification.

[34] In Lebanon SSD, only certified employees at the middle school level are eligible for bonus awards.

[35] The Tennessee Value-Added Assessment System (TVAAS) is a statistical analysis tool that shows academic growth over time. More information about TVAAS can be found at https://tvaas.sas.com/welcome.html?ad=xAYKJHbCnuU8haLb&as=a.

[36] Administrators in Putnam County are not eligible for the districts' alternate salary schedule.

[37] Putnam and Trousdale counties use the Tennessee Educator Acceleration Model (TEAM) for evaluation. Teachers receive effectiveness scores based on 50 percent qualitative measures from teacher observations and 50 percent quantitative data based on student achievement and growth measures. Effectiveness scores are on a scale from one to five with one representing significantly below expectations and five representing significantly above expectations. More information about TEAM can be found at http://team-tn.org/. Lexington City Schools uses the Teacher Instructional Growth for Effectiveness and Results (TIGER) evaluation system. TIGER is an alternative teacher evaluation system created by the Association of Independent and Municipal Schools. It includes three stages of teacher development with five levels of proficiency within each level (i.e., a score of 1 representing significantly below expectations and a score of 5 representing significantly above expectations). More information about TIGER can be found at http://tigermodel.net/.

[38] Some districts offered additional "opt-in" periods at the beginning of the 2012-13 school year or were planning to do so prior to the 2013-14 school year.

[39] The payout data were extensively audited and cleaned by the researchers, and then match-merged with administrative personnel records from the Personnel Information Reporting System (PIRS) and Education Information System (EIS), which had been similarly cleaned by the evaluators.

[40] Classroom teachers are individuals who were identified as classroom teachers in either the PIRS or the EIS files. Similarly, principals are individuals identified as such in either PIRS or EIS, assistant principals are individuals identified as such in either PIRS or EIS, and so on.

[41] The "Other Non-Teacher" category also includes recipients for whom information about their position was not available.

[42] The mean payout to principals was significantly different from the mean payout to classroom teachers at the 5% level. The mean payouts to assistant principals, librarians, school counselors, and speech/hearing specialists were not significantly different at the 5% level.

[43] All schools were considered participating in Bradford SSD, Hollow Rock-Bruceton SSD, Knox County, Johnson County, Lexington City, McMinn County, South Carroll County SSD and Trousdale County.

[44] The evaluators used probit analysis to examine the link between teacher characteristics and the probability that a teacher received a first-round performance-based payout, and Tobit analysis to examine the size of such awards. In both cases, only classroom teachers are included in the analysis. The dependent variable for the probit analyses is whether a teacher did or did not receive a payout. The dependent variable for the Tobit analysis is the dollar amount of the actual payouts. Teachers who did not receive a payout are coded as receiving an award of zero dollars. The Tobit analysis includes school district fixed effects. For statistical reasons, fixed effects are inappropriate in probit models. Because there may be a correlation in the residuals between two individuals from the same school, evaluators report robust standard errors clustered by school for all models.

[45] The hypothesis that the coefficients on advanced degrees and the interaction between advanced degrees and the alternative salary schedule district indicator were jointly zero could be rejected at the 5% level.

[46] The hypothesis that the coefficients on experience and experience squared were jointly zero could be rejected at the 5% level.

[47] An elementary fine arts teacher is a teacher with a PIRS assignment code of 27 or 36, or an EIS assignment code of EA or EM.

[48] Many districts designed their compensation plans to provide larger award amounts to teachers in tested grades and subjects and those with TVAAS scores.

[49] A copy of the interview protocol can be found in Appendix C.

[50] For more information about the waiver and changes to Tennessee legislation, please see http://tn.gov/governor/pdf/051012_NCLB_Bill_summary.pdf and http://www.comptroller.tn.gov/Repository/RE/NCLBWaiver.pdf.

[51] A specific description of each district's revisions can be found in chapter 2 of this report.

[52] A copy of the Tennessee state salary schedule can be found by visiting http://www.tn.gov/sbe/2013_documents/June2013_Board_Meeting/III_A%202013-2014_State_Minimum_Salary_Schedule_Attachment.pdf

[53] A copy of the 2012-13 Compensation Survey instrument can be found in Appendix C.

[54] The 2012-13 Compensation Survey was administered in the spring semester (as opposed to the fall semester in the prior year) in order to gather teacher feedback after the distribution of first-round performance-based payouts.

[55] For an extensive discussion of 2011-12 survey findings, visit http://www.tnconsortium.org/data/files/gallery/ ContentGallery/Evaluation_of_Tennessees_Strategic_Compensation_ProgramsFull_Report.pdf. For more information on district-by-district results, including a comparison of Compensation Survey results from 2011-12 and 2012-13, visit http://www.tnconsortium.org/projects-publications/compensation-reform/index.aspx.

[56] There were 5,295 complete responses

[57] More information about respondent characteristics can be found in Appendix C.

[58] No survey results on beliefs about alternative salary schedules were reported in the prior year's report on the 2011-12 Compensation Survey. There was extensive evidence of misunderstanding about the alternative salary schedules in 2011-12; therefore, researchers did not analyze respondent beliefs about the fairness and motivational qualities of that program component.

[59] Due to small sample size for these survey items, administrators, certified instructional staff, and other certified staff were combined into one group in order to guarantee the confidentiality of respondents.

[60] Researchers further analyzed survey responses on the 2012-13 Compensation Survey to see if any differences in perceptions existed between those 3,229 respondents who reported participating in at least one component of the strategic compensation program versus those 130 respondents who were not participating at all. Perceptions held by these two groups of respondents were similar, with participants holding slightly more favorable views of program implementation. For example, 53 percent of participants agreed they were pleased with program implementation compared to 49 percent of non-participants.

[61] Researchers further analyzed survey responses on the 2012-13 Compensation Survey to see if any differences in perceptions existed between those 3,229 respondents who reported participating in at least one component of the strategic compensation programs versus those 130 respondents who were not participating at all. Perceptions held by these two groups of respondents were similar, with participants holding slightly more favorable views of program impact. For example, 50 percent of participants agreed the program was having positive effects at their schools compared to 45 percent of non-participants.

[63] The analysis uses administrative records from PIRS and EIS that were extensively audited and cleaned by the evaluators. Additional data used in the analysis come from the U.S. Department of Housing and Urban Development (HUD), the National Center for Education Statistics (NCES) and the Bureau of Labor Statistics (BLS). See Appendix D for details.

[64] This analysis focuses exclusively on classroom teachers. Classroom teachers are individuals who were identified as holding a classroom teaching assignment in either the PIRS or the EIS files and who worked at least half time. The category includes any individual with a classroom teaching assignment, regardless of their other duties. The Leavers category includes teachers who formally retired and those who left the public school system temporarily but subsequently returned.

[65] In addition to the observable characteristics in Table 6.2, there are undoubtedly other characteristics—such as a change in marital status, the birth of a baby, a spousal relocation or a serious illness—that could also explain an individual teachers retention decision. Unfortunately, we do not observe data on those other characteristics.

[66] Beginning teachers are teachers with fewer than five years of experience. Beginning teachers are not vested in the Tennessee Consolidated Retirement System (http://www.treasury.state.tn.us/tcrs/

[67] To be eligible for a service retirement (i.e. a standard retirement) a teacher must have 30 years of experience, or be age 60 with at least 5 years of experience.

[68] For more on the role of TVAAS scores in teacher evaluations, visit http://www.tn.gov/education/TVAAS.shtml.

[69] See http://www.tn.gov/education/assessment/doc/TVAAS_TE_Report_Help.PDF

[70] The payment amounts were merged to the administrative data files for 2011-12 using teacher license numbers and district identifiers.

[71] To accurately reflect this possibility, all analyses incorporating individual awards use a statistical technique known as Instrumental Variables (see Appendix D). Intuitively, this technique involves predicting the payout teachers should have received based on their observed characteristics, and then measuring the relationship between their predicted payouts and their actual turnover.

[72] Unfortunately, the instrumental variables technique is not appropriate for multinomial logit analyses, so it is not possible to analyze Movers and Leavers separately.

[73] Appendix E provides technical information about the methods used to conduct analysis for this chapter.

[74] The evaluator constructed such gain score measures using methods described in Appendix E. These measures indicate student performance relative to expected performance, where expected performance is based on student performance

on the prior year test.

[75] This second approach controls for various background characteristics by using a regression analysis that allows evaluators to condition on many background characteristics that also impact student performance in addition to the percentage of economically disadvantaged students at a school. Appendix E provides a more detailed explanation of the data, sample, and key variables employed in the analyses.

[76] For technical reasons evaluators standardize these achievement gains, subtracting the mean and dividing by the standard deviation, so as to have a z-score for these gains (see Appendix E for further details).

[77] Researchers started these figures in 2006-2007 because statistical analysis of the student achievement gains benefits from longer samples. The graphs produced earlier for proficiency rates start in 2009-2010 because there was a change in the reported proficiency categories that began in the 2009-2010 academic year, making comparisons with earlier years problematic. Student achievement gains calculations do not rely on proficiency rating categories and can make use of the longer sample of data.

[78] It is useful to benchmark the size of the estimated association between strategic compensation program participation and student achievement gains. Reback (2008) analyzed the relationship between student gains and accountability rating pressures in Texas, using a methodology very similar to the approach in this report. He reports that students who contribute to a math passing rate at a school that needs a moderate improvement to bump up the school's ranking make gains that are between .019 and .034 standard deviations larger than normal. In a study more closely related to the current analysis, Springer et.al. (2010) evaluate a teacher compensation incentive program (D.A.T.E.) implemented in Texas. The evaluators find that participation in D.A.T.E. is associated with increases in student gains of between .01 and .03 standard deviations.

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APPENDIX A - PARTICIPATING DISTRICT DEMOGRAPHICS AND CHARACTERISTICS

TABLE A.1: STRATEGIC COMPENSATION (SC) PROGRAM SCHOOLS AND STUDENT ENROLLMENT

DISTRICT	TOTAL SCHOOLS	TOTAL SC PROGRAM SCHOOLS	TOTAL STUDENT ENROLLMENT	TOTAL STUDENTS IN PROGRAM SCHOOLS
Bradford	2	2	534	534
Hamilton	77	13	43,691	6,348
Hollow Rock	2	2	669	669
Johnson	7	7	2,329	2,329
Knox	88	88	58,940	58,940
Lebanon	6	2	3,691	1,114
Lexington	2	2	1,018	1,018
McMinn	9	9	6,093	6,093
MNPS	154	22	81,134	15,725
Putnam	21	18	11,084	11,008
Shelby	52	14	46,601	11,440
South Carroll	1	1	393	393
Tipton	14	9	11,819	6,217
Trousdale	3	3	1,276	1,276
Total in SC Districts	438	192	269,272	122,570
Total in State	1,797	N/A	993,256	N/A

Source: Data from Tennessee State Report Card, Tennessee Department of Education (2013).

APPENDIX A - PARTICIPATING DISTRICT DEMOGRAPHICS AND CHARACTERISTICS

TABLE A.2: PARTICIPATING DISTRICT ACCOUNTABILITY STATUS.[1]

DISTRICT	ACCOUNTABILITY STATUS
Bradford	Exemplary
Hamilton	Need Improvement –Subgroup
Hollow Rock	Need Improvement – Subgroup
Johnson	Need Improvement – Subgroup
Knox	Need Improvement – Subgroup
Lebanon	Need Improvement – Subgroup
Lexington	Intermediate
McMinn	Intermediate
MNPS	Intermediate
Putnam	Need Improvement – Subgroup
Shelby	Need Improvement – Subgroup
South Carroll	Intermediate
Tipton	Need Improvement – Subgroup
Trousdale	Intermediate

Source: Data from Tennessee State Report Card, Tennessee Department of Education (2013).

[1]For further explanation of these classifications, see http://www.tn.gov/education/data/accountability/index.shtml

APPENDIX A - PARTICIPATING DISTRICT DEMOGRAPHICS AND CHARACTERISTICS

TABLE A.3: PARTICIPATING DISTRICT EMPLOYEE CHARACTERISTICS

			ADMINISTRATOR/TEACHER EDUCATION LEVEL					
DISTRICT	NUMBER OF ADMINISTRATORS	NUMBER OF TEACHERS	PHD	EDS	MS+45	MS	BA/BS	<BS
Bradford	3	45	0	1	7	23	17	
Hamilton	212	3,088	42	128	104	1,625	1,330	71
Hollow Rock	5	48	0	0	5	16	32	0
Johnson	17	161	3	16	10	77	66	6
Knox	438	3,529	37	336	123	1,934	1,475	7
Lebanon	15	240	0	11	15	105	124	0
Lexington	15	68	1	2	13	29	38	0
McMinn	32	341	2	74	22	172	91	12
MNPS	757	5,576	234	279	979	2,790	2,021	30
Putnam	98	743	11	100	21	330	371	8
Shelby	169	2,673	44	146	627	1,103	896	26
South Carroll	2	38	0	0	1	17	22	0
Tipton	54	757	11	24	83	358	328	7
Trousdale	7	88	0	16	1	33	45	0
Total in SC Districts	1,824	17,395	385	1,133	2,011	8,612	6,856	167
Total in State	4,957	65,105	1,109	5,975	5,800	28,948	27,247	983

APPENDIX A - PARTICIPATING DISTRICT DEMOGRAPHICS AND CHARACTERISTICS

TABLE A.3: PARTICIPATING DISTRICT EMPLOYEE CHARACTERISTICS

Source: Data from Tennessee Education Association (TEA).

APPENDIX A - PARTICIPATING DISTRICT DEMOGRAPHICS AND CHARACTERISTICS

TABLE 2.6: STUDENT DEMOGRAPHIC COMPARISON[2]

DISTRICTS	% WHITE	% BLACK	% NATIVE AMERICAN	% HISPANIC OR LATINO	% Asian	All Minorities	% Economically Disadvantaged	%English language learner	% with disabilities
Bradford	92.5	6.4	0.2	0.2	0.4	7.2	58.1	0	13.1
Hamilton*	6.8	77.4	0	15	0	92.4	95.1	12.1	13.8
Hollow Rock	88.2	9.6	0	2.2	0	11.8	71.7	0	16.6
Johnson	97.6	0.5	0.1	1.6	0.2	2.4	72.8	0.5	20.8
Knox	75.2	16.1	0.4	5.8	2.3	24.6	47.2	3.5	13.7
Lebanon*	69.5	17.3	0.3	11.4	1.5	30.5	60.2	8.2	14.5
Lexington	69.4	24.1	0	4.5	1.9	30.5	54.9	2.5	12.6
McMinn	89.7	5.4	0.3	3.9	0.7	10.3	61.3	0.5	11.7
MNPS*	25.1	50.1	0	21.9	2.4	74.4	81.5	13.5	13
Putnam	83.9	3.8	0.4	10.2	1.6	16	54.8	6	14.6
Shelby*	15.7	72.7	0.1	9	1.9	83.7	70	5.2	12.2
South Carroll	88.5	6.9	0	2.5	0	9.4	59.8	0	15.3
Tipton*	64.6	32.8	0	1.3	0	34.1	69.4	0	18.1
Trousdale	83.4	13.6	0	2.8	0	16.4	55.7	1	16.6
Average in SC Districts	67.8	24.0	0.1	6.5	0.9	31.6	65.1	3.7	14.7
Average in SC Program Schools	66.6	24.8	0.1	6.8	0.9	32.8	65.9	4.0	14.6
State Average	66.3	24.1	0.3	7.3	1.9	33.6	58.6	4.3	13.7

[2] Data on student demographics was taken from the Tennessee Department of Education (TDOE) State Report Card. Averages were calculated by the Tennessee Consortium on Research, Evaluation, and Development (TNCRED) from this data. Data on student demographics for participating districts in which not all schools were strategic compensation program schools was taken from EIS.

[3] An economically disadvantaged student is classified as one who comes from a family that meets the required income-related criteria to receive a free or reduced price lunch.

[4] English Language Learner designates a student who is non-English speaking.

APPENDIX B - STRATEGIC COMPENSATION PROGRAM MODEL SUMMARY BY DISTRICT

DISTRICT MODEL SUMMARY – BONUS ONLY DISTRICTS

	Bradford	Hamilton	Hollow Rock-Bruceton	Johnson	Knox	Lebanon	McMinn	MNPS	Shelby	South Carroll	Tipton
ELIGIBLE PARTICIPANT GROUPS											
Tested Teachers	x	x	x	x	x	x	x	x	x	x	x
Non-Tested Teachers	x	x	x	x	x	x	x	x	x	x	x
Administrators	x	x	x	x	x	x	x	x	x	x	x
Elementary	x	x	x	x	x		x	x	x	x	x
Middle	x	x	x	x	x	x	x	x	x	x	x
High	x	x	x	x	x		x	x	x	x	x
Subject matter	all	all	all	all	all	all	all	all	all	all	all
ELIGIBILITY RULES											
Employment date (e.g. within first 20 days, by October 1, etc.)	x	x	x	x	x	x	x	x	x	x	x
Continuously employed in eligible position through last day of school	x		x		x		x		x	x	
Continuously employed in eligible position through time of payout		x	x	x		x		x	x		x
Attendance	x	x	x		x	x			x	x	x
Evaluation Score (TIGER, COACH, TEAM)	x	x	x	x	x	x	x		x		
"In good standing"	x	x	x	x	x	x		x	x	x	x
Attend minimum professional development					x						

APPENDIX B - STRATEGIC COMPENSATION PROGRAM MODEL SUMMARY BY DISTRICT

DISTRICT MODEL SUMMARY – BONUS ONLY DISTRICTS CONT.

		Bradford	Hamilton	Hollow Rock-Bruceton	Johnson	Knox	Lebanon	McMinn	MNPS	Shelby	South Carroll	Tipton
INPUTS	**PERFORMANCE MEASURES**											
	Degree reimbursement								x			
	Department/grade-level chair					x	x					
	Hard to staff/high needs schools positions					x						
	Instructional Coaching					x						
	Master Teacher/Lead Teacher					x						
	Mentoring					x	x	x				
	PLC participation/leadership					x		x				
	Professional development						x	x		x	x	
	Tutoring							x				
OUTPUTS	TVAAS individual (level 4 or 5)	x	x	x	x	x	x	x	x	x	x	
	TVAAS subject		x		x		x		x	x		
	TVAAS school	x	x	x		x		x	x		x	
	TVAAS school ranking	x	x		x	x			x	x	x	
	TVAAS district	x	x	x	x	x	x		x			
	Fountas and Pinnell Test	x	x	x	x	x		x	x	x	x	
	ACT school				x							

APPENDIX B - STRATEGIC COMPENSATION PROGRAM MODEL SUMMARY BY DISTRICT

DISTRICT MODEL SUMMARY – BONUS ONLY DISTRICTS CONT.

		Bradford	Hamilton	Hollow Rock-Bruceton	Johnson	Knox	Lebanon	McMinn	MNPS	Shelby	South Carroll	Tipton
OUTPUTS	**Graduation Rate school**	x	x							x		x
	Graduation Rate district										x	x
	School rank in district					x						
	School-wide state and federal benchmarks							x				
	Earn exemplary school status								x			
	District AYP goals met or gains											x
	Summative Evaluation Score	x		x	x	x			x	x	x	
	Observational Evaluation Score									x		
	Teacher Attendance			x							x	
	Student Survey										x	
	Utility Usage			x								
ACCOUNTABILITY UNITS												
	Individual	x	x	x	x	x	x	x	x	x	x	x
	Team	x	x						x			
	School	x	x	x	x	x	x	x	x	x		x
	District			x							x	x
AWARD STRUCTURE												
	Flat	x	x	x			x	x	x	x	x	x
	Tiered	x		x	x	x	x	x	x	x	x	x
AWARD AMOUNTS												
	Award Minimum (non-tested)	$200	$100	$200	$369.95*	$1,500	$25	$1,000	$500	$250	$25	$250
	Award Maximum (non-tested)	$1,500	$600	$3,100	$1086.42*	$2,000	$2,350	$14,350	$1,500	$1,950	$2,550	$2,550
	Award Minimum (tested)	$200	$100	$200	$369.95*	$1,500	$25	$1,000	$100	$250	$25	$500
	Award Maximum (tested)	$1,800	$6,100	$4,100	$2086.42*	$2,000	$3,850	$18,350	$3,600	$2,850	$2,550	$3,200
	Award Minimum (Administrator)	$125	$5,000	$200	$369.95*	$1,500	$1,500	$1,250	$500	$500	$25	$400
	Award Maximum (Administrator)	$1,575	$10,000	$2,450	$3086.42*	$2,000	$3,000	$5,000	$5,500	$2,650	$2,550	$2,800

*** Minimum and maximum awards were calculated using the minimum/maximum bonus percentages applied to the minimum/maximum salaries in Johnson County's salary schedule. For tested teachers and administrators these amounts include potential bonus awards.**

APPENDIX B - STRATEGIC COMPENSATION PROGRAM MODEL SUMMARY BY DISTRICT

DISTRICT MODEL SUMMARY – ALTERNATIVE SALARY DISTRICTS

	Lexington City		Putnam		Trousdale	
ELIGIBLE PARTICIPANT GROUPS	Bonus	Salary	Bonus	Salary	Bonus	Salary
Tested Teachers	x	x	x	x	x	x
Non-Tested Teachers	x	x	x	x	x	x
Administrators	x	x	x		x	x
Elementary	x	x	x	x	x	x
Middle	x	x	x	x	x	x
High	n/a	n/a	x	x	x	x
Subject matter	all	all	all	all	all	all
ELIGIBILITY RULES						
Employment date (e.g. within first 20 days, by October 1, etc.)	x	x	x	x	x	x
Continuously employed in eligible position through last day of school			x	x	x	x
Continuously employed in eligible position through time of payout	x	x				
Attendance	x	x	x	x	x	x
Evaluation Score (TIGER, COACH, TEAM)		x				
"In good standing"	x	x	x	x	x	x
PERFORMANCE MEASURES						
Degree reimbursement	x		x			
Department/grade-level chair					x	
Hard to staff/high needs schools positions			x		x	
Instructional Coaching					x	
Master Teacher/Lead Teacher			x			
Mentoring			x			
Professional development			x			

OUTPUTS

APPENDIX B - STRATEGIC COMPENSATION PROGRAM MODEL SUMMARY BY DISTRICT

DISTRICT MODEL SUMMARY – ALTERNATIVE SALARY DISTRICTS CONT.

OUTPUTS

	Lexington City		Putnam		Trousdale	
PERFORMANCE MEASURES	Bonus	Salary	Bonus	Salary	Bonus	Salary
Annual measureable objective goals - achievement school	x					
Annual measurable objective goals - gap closure school	x					
TCAP (percent proficient/advanced)			x			
TCAP subject	x				x	
3 year TCAP achievement score school			x			
TCAP % of special education students proficient of advanced (district)			x			
TVAAS individual (level 4 or 5)	x		x		x	
TVAAS school			x		x	
SAT 10					x	
EXPLORE School			x		x	
End of course exams value-added effect score school			x			
State writing assessment					x	
ACT school			x		x	
ACT composite score/benchmark district			x			
Graduation Rate school					x	
AYP targets school					x	
Earn exemplary district status			x			
College Career Readiness district			x			
Summative Evaluation Score		x		x		x
Parent Survey					x	

APPENDIX B - STRATEGIC COMPENSATION PROGRAM MODEL SUMMARY BY DISTRICT

DISTRICT MODEL SUMMARY – ALTERNATIVE SALARY DISTRICTS CONT.

	Lexington City		Putnam		Trousdale	
ACCOUNTABILITY UNITS	Bonus	Salary	Bonus	Salary	Bonus	Salary
Individual	x	x	x	x	x	x
Team	x		x			
School	x		x		x	
District	x		x			
AWARD STRUCTURE			x			
Flat	x		x		x	
Tiered	x	x		x	x	x
AWARD AMOUNTS			x		x	
Award Minimum (non-tested)	$200	1%	$ 25	1%	$227.27*	1.45%
Award Maximum (non-tested)	$700	3%	$6,380	3%	$6,000	2.20%
Award Minimum (tested)	$150	1%	$25	1%	$227.27*	1.45%
Award Maximum (tested)	$1,000	3%	$7,130	3%	$8,250	2.20%
Award Minimum (Administrator)	$750	1%	% of teacher award	n/a	$454.55*	1.45%
Award Maximum (Administrator)	$1,000	3%	% of teacher award	n/a	$5,000	2.20%

* Minimum awards were calculated using 1/11th of the $2,500 (Teachers) and $5,000 (Principals) awards available for meeting school benchmarks

APPENDIX C – DATA COLLECTION INSTRUMENTS

DISTRICT INTERVIEW PROTOCOL

Introduction

The Tennessee Consortium on Research, Evaluation, and Development is conducting an independent evaluation of the state's strategic compensation programs, in which your district is participating. We thank you and your district for continued participation in data collection activities.

As part of that evaluation, you have agreed to take part in a phone interview to help us learn more about your district's experiences with implementing and managing a strategic compensation program. We anticipate that the phone interview will require no more than 45 minutes of your time. Participation is voluntary. You may choose not to answer any question you do not wish to address, and you may end the interview at any time if you do not wish to continue.

This phone interview will be audio-recorded to make sure we completely capture the information you have to share. The information that each interviewee provides will be kept strictly confidential. Researchers will not share confidential information with state, district, or school level staff or anyone else outside the project, except as required by law. The confidential information will be accessible only to Consortium researchers and will be used strictly for the purposes specified above. At the completion of the study, all audio-recordings will be destroyed.

Researchers will not identify any individuals by name in study reports; nor will findings be reported in a manner that would identify an individual. If quotations are used in any written reports, they will be included only for illustrative purposes and will not be attributed to any individual. Our study reports will include interview findings only in the aggregate.

In an effort to maintain confidentiality, we will refrain from using your name, your district's name, or any other names of schools or other individuals in your district during this phone interview. If, for some reason a name is mentioned, that information will be de-identified when transcribing the content of the audio-recordings. It is fine to refer to individuals by their professional title.

Do you have any questions before we begin the interview?

APPENDIX C – DATA COLLECTION INSTRUMENTS

PART 1: PROFESSIONAL BACKGROUND INFORMATION

I want to begin by learning a bit more about your professional experience and your role in the district.

1. What is your official position in your district during this 2012-13 school year?
   a. Including this 2012-13 school year, for how many years have you served in that position?
2. How long have you been involved with the strategic compensation program in your district? In what capacity?

We would like to learn about your other professional experiences and roles.

3. Prior to your current position, did you serve in any other position(s) **in this district?**
   a. *[If yes]* What kind of position(s) and for how long?
4. Do you have any experience in the field of education **outside of this district?**
   a. *[If yes]* What kind of position(s) and for how long?
5. Do you have any professional experience **outside the field of education?**
   a. *[If yes]* What field(s), types of positions held, and for how long?

PART 1: IMPLEMENTATION OF STRATEGIC COMPENSATION PROGRAM

We now ask you to reflect upon your district's overall experience during its second year of implementing the strategic compensation program in 2012-13.

6. In your opinion, what has gone well and what has **not** gone well? Why do you think that is the case?
7. During this 2012-13 school year, has the district made any revisions to its strategic compensation program?

   • *If yes:*

a. Was the original design team that created the strategic compensation program involved in these revisions? Why or why not?
   b. Who else, if any, was involved?
   c. At what time of year did revisions take place? What was the reason for the timing?
   d. Were there any contentious points when making revisions to the program? How did the district arrive at a resolution?
   e. How were these changes communicated to participants?
   f. What has been the response to those changes?
   g. We will go through some different components of your program where revisions might have been made

APPENDIX C – DATA COLLECTION INSTRUMENTS

For each area, please describe the changes that were made and the reasons for making them…

i. Budget
ii. Nature of payout
iii. Eligibility Rules
iv. Participation groups
v. Performance Criteria
vi. Payout amounts
vii. Feasibility Analysis
viii. Other

• If no:

h. Has the original design team met in the last year? If so, why did they meet? What was discussed?

8. If your district could start all over go back through the design process again, do you believe the district would arrive at the same compensation model? Why or why not?

PART 3: PAYOUT LOGISTICS

We will now turn to some questions specifically related to the payouts that were made in your district during this school year for performance during the 2011-12 school year.

9. Generally, what went well with the payout process?
10. Generally, what did not go well?
11. How did your district prepare to make payouts?
12. Did your district have any difficulties preparing to make payouts? Please describe those difficulties if any?
13. At what point did your district make its payouts for performance during the 2011-12 school year?
14. Were the payouts made all at one time or in phases? If in phases, how were those phases structured?
15. How were payout recipients notified that they would receive an award? What was the timing of that communication? How far after that notification did they receive their actual award?
16. Was there any celebration or recognition at the district level for those who received awards? At the school level that you are aware of?
17. Did the district meet or exceed the payout projections in the feasibility plan? How will this impact your model for the next year?
18. Did you have any conflict with payouts? How were those handled?
19. Will you make any changes to how you address payouts in the future? If so, what will those changes be?

APPENDIX C – DATA COLLECTION INSTRUMENTS

PART 4: FUTURE PLANS

We would now like to ask a few questions about your district's future plans for its strategic compensation program.

20. How does your district plan to meet the local matching contribution for the 2012-13 school year?
21. What do you believe will be the major areas of focus or major next steps for the district as the strategic compensation program continues and moves into the 2013-14 school year?
    i. What kind of assistance or resources would benefit the district as it embarks on those next steps?
22. Do you believe the district will make any significant revisions to the strategic compensation program for the 2013-14 school year or beyond?
    j. *[If yes]* What would those revisions likely be? Why would those revisions be made?
23. Do you believe there are any new or ongoing threats to the future success of the strategic compensation program?
    k. *[If yes]* What are they? How do you think the district will deal with those threats?

Finally, we are interested in knowing how – if at all – state policy more broadly has influenced your district's strategic compensation program.

24. Do you believe that state policy has influenced your district's strategic compensation program so far or that it will influence the program in the future? Please explain
    l. What about other district factors that are influencing the program or might influence it in the future?
25. What is your perception of TDOE's management of these grants?
26. What support has TDOE offered to your district?
27. What further support would have been or would be helpful?

We thank you for your time and greatly appreciate your thoughtful responses. Do you have any questions for me before we close?

TENNESSEE CONSORTIUM
ON RESEARCH, EVALUATION & DEVELOPMENT

APPENDIX C – DATA COLLECTION INSTRUMENTS

TENNESSEE STRATEGIC COMPENSATION SURVEY

2012-2013

Thank you for your participation in this survey. Before you begin, we would like to remind you of a few important details. Only certified school personnel (full-time and part-time) should complete this survey. If you are not a certified school staff member and feel you have received this survey in error, please contact staff at the Tennessee Consortium on Research, Evaluation and Development (the Consortium).

Your responses will be kept strictly confidential. We will not share individual responses with state, district, or school level staff or anyone else outside the project, except as required by law. At the end of the study, we will destroy any personally identifiable information.

It should take approximately 20-25 minutes to complete this survey. We encourage you to complete the survey in one sitting, but you do have the option to save and return to the survey for its completion at a later time.

Because we realize your time is valuable, when you complete the survey you can be entered into a drawing for one of two hundred (200) $100 cash prizes. The random drawing will be held after the close of the survey, and you will be notified of the outcome via e-mail or phone. To be entered into the drawing you must complete the survey and provide your contact information at the end. Those who do not provide a way to contact them will not be entered into the lottery. All information that you provide will be kept strictly confidential. Your chances of receiving one of these prizes is approximately 1 in 33.

Additionally, by completing this survey, you can also increase your school's chance of earning a $5,000 prize. Each school achieving a 85% school-level response rate will be entered into a lottery pool. From that pool, 2 schools will be selected at random to receive a $5,000 award to be used by the school at its discretion. Your school's chance of receiving one of these prizes is approximately 1 in 25.

If you have questions about the survey content or about technical issues please contact Consortium staff. They can be reached by phone at 615-322-5538 or by email at tnconsortium@vanderbilt.edu.

APPENDIX C – DATA COLLECTION INSTRUMENTS

I. OVERVIEW OF CURRENT POSITION AND SCHOOL

1. Which label below best represents your current position this 2012-13 school year? (Select one option)

a.	Teacher	Go to Item 2
b.	Principal or Assistant Principal	Go to Item 2
c.	Certified instructional staff (e.g. reading specialist, instructional coach)	Go to Item 2
d.	Other certified school staff position	Go to Item 2
e.	I am not in a certified school staff position	STOP, you have finished the survey.

2. Please choose the school name that represents your current primary assignment from the following list. Note: If you work at multiple schools, this 2012-13 school year, please choose the school in which you work most of your hours. (Selection one option).

IMPORTANT NOTE FOR THOSE WORKING AT MULTIPLE SCHOOLS THIS 2012-13 YEAR: When asked throughout this survey to reflect upon "your school," please refer to the school that you consider to be the location of your current primary assignment.

3. Including this school year (2012-2013), how many years have you been employed in your current type of position? For example, if you previously labeled your current position as being a "teacher", for how many years have you been employed as a teacher? (Select one option)

a.	1	k.	11	u.	21	ee.	31	oo.	41
b.	2	l.	12	v.	22	ff.	32	pp.	42
c.	3	m.	13	w.	23	gg.	33	qq.	43
d.	4	n.	14	x.	24	hh.	34	rr.	44
e.	5	o.	15	y.	25	ii.	35	ss.	45
f.	6	p.	16	z.	26	jj.	36	tt.	46
g.	7	q.	17	aa.	27	kk.	37	uu.	47
h.	8	r.	18	bb.	28	ll.	38	vv.	48
i.	9	s.	19	cc.	29	mm.	39	ww.	49
j.	10	t.	20	dd.	30	nn.	40	xx.	50

APPENDIX C – DATA COLLECTION INSTRUMENTS

The following questions ask you to indicate how long you have been employed in your current school and in your current district. Please address each question below.

4. Including this 2012-13 school year, how many years have you been employed in your current school?

a. 1	k. 11	u. 21	ee. 31	oo. 41
b. 2	l. 12	v. 22	ff. 32	pp. 42
c. 3	m. 13	w. 23	gg. 33	qq. 43
d. 4	n. 14	x. 24	hh. 34	rr. 44
e. 5	o. 15	y. 25	ii. 35	ss. 45
f. 6	p. 16	z. 26	jj. 36	tt. 46
g. 7	q. 17	aa. 27	kk. 37	uu. 47
h. 8	r. 18	bb. 28	ll. 38	vv. 48
i. 9	s. 19	cc. 29	mm. 39	ww. 49
j. 10	t. 20	dd. 30	nn. 40	xx. 50

5. Including this 2012-13 school year, how many years have you been employed in your current district?

a. 1	k. 11	u. 21	ee. 31	oo. 41
b. 2	l. 12	v. 22	ff. 32	pp. 42
c. 3	m. 13	w. 23	gg. 33	qq. 43
d. 4	n. 14	x. 24	hh. 34	rr. 44
e. 5	o. 15	y. 25	ii. 35	ss. 45
f. 6	p. 16	z. 26	jj. 36	tt. 46
g. 7	q. 17	aa. 27	kk. 37	uu. 47
h. 8	r. 18	bb. 28	ll. 38	vv. 48
i. 9	s. 19	cc. 29	mm. 39	ww. 49
j. 10	t. 20	dd. 30	nn. 40	xx. 50

APPENDIX C – DATA COLLECTION INSTRUMENTS

6. Please indicate the grade level(s) you currently teach at this school. Mark all that apply.

a. Do not teach	f. 3rd grade	k. 8th grade
b. Pre-Kindergarten	g. 4th grade	l. 9th grade
c. Kindergarten	h. 5th grade	m. 10th grade
d. 1st grade	i. 6th grade	n. 11th grade
e. 2nd grade	j. 7th grade	o. 12th grade

7. Which subjects do you currently teach? Mark all that apply.

a.	Do not teach	__
b.	Self-contained classroom teacher (all core subjects)	__
c.	English / language arts / reading	__
d.	Mathematics	__
e.	Science	__
f.	Social studies or history	__
g.	Foreign language	__
h.	English as a Second Language (ESL) or special instruction for English Language Learners (ELL) or Limited English Proficient (LEP) students	__
i.	Visual or performing arts	__
j.	Special education	__
k.	Other (please specify)	__

8. Before receiving our invitation to complete this survey, were you aware that your school is participating in the district's strategic compensation program this 2012-13 school year? By "strategic compensation program" we are referring to an alternative compensation system for educators in your district which might include components such as performance-based bonus awards, alternative salary schedules, or other awards over and above what you earn from your regular school year salary (i.e., annual base salary) and extra duty pay.

a. Yes Go to Item 9

b. No Go to Item 49

APPENDIX C – DATA COLLECTION INSTRUMENTS

II. PERCEPTIONS OF STRATEGIC COMPENSATION PROGRAM, PART 1

We would like to learn more about the strategic compensation program and your personal participation in it. The next set of questions address two possible components of a strategic compensation program:

(1) Performance-based bonus awards, which are bonuses for meeting performance criteria and are paid over and above what you earn from your annual base salary and extra duty pay; and

(2) Alternative salary schedule, which occurs when your annual base salary is determined by factors other than the traditional schedule based only on years of experience and education/degree. These programs include **percentage increases to base salary** based on meeting performance criteria not lump sum awards that are paid out over the course of the school year.

The strategic compensation program in which your school is participating may use one of these components or both of them. We will ask about each possible component separately.

9. Does the 2012-13 strategic compensation program in which your school is participating include performance-based bonus awards (i.e., performance-based bonus awards that are over and above what you earn from your annual base salary and extra duty pay)? (Select one option)

a. Yes — Go to Item 10
b. No — Go to Item 16
c. Do not know — Go to Item 16

10. We would like to learn more about your personal participation in the **performance-based bonus awards component** of the strategic compensation program. Below is a list of statements. Which statement best represents the nature of your involvement in the performance-based bonus awards component this 2012-13 school year? Note: Whether you are ELIGIBLE to participate is determined by criteria designated by your district's strategic compensation program NOT by your choice to participate. (Select one option)

a. At the beginning of the 2012-13 school year, I was eligible for performance-based bonus awards and chose to participate in the program.
Go to Item 11

b. At the beginning of the 2012-13 school year, I was eligible for performance-based bonus awards and chose NOT to participate in the program.
Go to Item 13

APPENDIX C – DATA COLLECTION INSTRUMENTS

c. At the beginning of the 2012-13 school year, I was not eligible for performance-based bonus awards.

Go to Item 15

d. I do not know if I am eligible for performance-based bonus awards.

Go to Item 16

You indicated that you were eligible for **performance-based bonus awards** at the beginning of this 2012-13 school year. To what extent do you agree or disagree with each of the following statements?

11. Please select the most appropriate response for each item below.

		Strongly Disagree	Disagree	Agree	Strongly Agree
a.	I have a clear understanding of the performance criteria that I am expected to meet in order to earn a performance-based bonus award. (Select one option)	1	2	3	4
b.	The performance-based bonus awards component is fair. (Select one option)	1	2	3	4
c.	The performance criteria tied to bonus awards are worthy of extra pay. (Select one option)	1	2	3	4
d.	Teachers who meet the performance criteria tied to bonus awards should receive extra recognition (i.e., other than monetary recognition). (Select one option)	1	2	3	4
e.	The correct school personnel are eligible for performance-based bonus awards. (Select one option)	1	2	3	4
f.	I can achieve the performance criteria necessary to earn a performance-based bonus award. (Select one option)	1	2	3	4
g.	In order to achieve a performance-based bonus award, I will need to change my professional practices. (Select one option)	1	2	3	4
h.	The size of the performance-based bonus award for which I am eligible is large enough to be of value to me. (Select one option)	1	2	3	4
i.	I am confident that those who meet performance criteria will be paid their performance-based bonus awards. (Select one option)	1	2	3	4

APPENDIX C – DATA COLLECTION INSTRUMENTS

12. How much will you personally be compensated in the form of a **performance-based bonus award** (i.e., over and above your annual base salary and extra duty pay) from the strategic compensation program based on your likely performance over the course of this 2012-13 school year? Please select the most appropriate response below. (Select one option)

a. $0
b. $1 to $999
c. $1,000 to $1,999
d. $2,000 to $2,999
e. $3,000 to $3,999
f. $4,000 to $4,999
g. $5,000 to $5,999
h. $6,000 to $6,999
i. $7,000 to $7,999
j. $8,000 to $8,999
k. $9,000 to $9,999
l. $10,000 or more
m. Do not know Go to Item 16

You indicated that you were NOT ELIGIBLE for performance-based bonus awards under the strategic compensation program at the beginning of this 2012-13 school year. To what extent do you agree or disagree with each of the following statements?

13. Please select the most appropriate response for each item below.

		Strongly Disagree	Disagree	Agree	Strongly Agree
a.	I have a clear understanding of the performance criteria that teachers are expected to meet in order to earn a performance-based bonus award. (Select one option)	1	2	3	4
b.	The performance-based bonus awards component is fair. (Select one option)	1	2	3	4
c.	The performance criteria tied to bonus awards are worthy of extra pay. (Select one option)	1	2	3	4
d.	Teachers who meet the performance criteria tied to bonus awards should receive extra recognition (i.e., other than monetary recognition). (Select one option)	1	2	3	4
e.	The correct school personnel are eligible for performance-based bonus awards. (Select one option)	1	2	3	4
f.	I wish I was participating in the performance-based bonus awards component this 2012-13 school year. (Select one option)	1	2	3	4

APPENDIX C – DATA COLLECTION INSTRUMENTS

14. In the space provided below, please explain why you are not participating in the performance-based awards component this 2012-13 school year even though you are eligible to do so.

Got to Item 16

15. Please select the most appropriate response for each item below

		Strongly Disagree	Disagree	Agree	Strongly Agree
a.	The performance-based bonus awards component is fair. (Select one option)	1	2	3	4
b.	The performance criteria tied to bonus awards are worthy of extra pay. (Select one option)	1	2	3	4
c.	Teachers who meet the performance criteria tied to bonus awards should receive extra recognition (i.e., other than monetary recognition). (Select one option)	1	2	3	4
d.	The correct school personnel are eligible for performance-based bonus awards. (Select one option)	1	2	3	4
e.	I wish I were eligible for performance-based bonus awards this 2012-13 school year.	1	2	3	4
f.	I understand WHY I am not eligible for performance-based bonus awards this 2012-13 school year.	1	2	3	4

16. Does the 2012-13 strategic compensation program in which your school participates include an alternative salary schedule (i.e., annual base salary determined by factors other than the traditional years of experience and education/degree)? (Select one option)

a. Yes — Go to Item 17
b. No — Go to Item 23
c. Do not know — Go to Item 23

APPENDIX C – DATA COLLECTION INSTRUMENTS

17. We would like to learn more about your personal participation in the alternative salary schedule component of the strategic compensation program. Below is a list of statements. Which statement best represents the nature of your involvement in the alternative salary schedule component this 2012-13 school year? (Select one option)

a. At the beginning of the 2012-13 school year, I was eligible to participate in the alternative salary schedule component AND I have chosen to participate in it.

Go to Item 18

b. At the beginning of the 2012-13 school year, I was eligible to participate in the alternative salary schedule component, but I chose NOT to participate in it.

Go to Item 20

c. At the beginning of the 2012-13 school year, I was eligible to participate in the alternative salary schedule component, but I have not decided whether or not to participate.

d. At the beginning of the 2012-13 school year, I was eligible to participate in the alternative salary schedule component, but I have not decided whether or not to participate.

Go to Item 23

e. At the beginning of the 2012-13 school year, I was not eligible to participate in the alternative salary schedule component.

Go to Item 22

f. I do not know if I am eligible to participate in the alternative salary schedule component.

Go to Item 23

APPENDIX C – DATA COLLECTION INSTRUMENTS

You indicated that you are participating in the alternative salary schedule component of the strategic compensation program this 2012-13 school year. To what extent do you agree or disagree with each of the following statements?

18. Please select the most appropriate response for each item below.

		Strongly Disagree	Disagree	Agree	Strongly Agree
a.	I have a clear understanding of the performance criteria that I am expected to meet in order to receive pay increases under the alternative salary schedule component. (Select one option)	1	2	3	4
b.	The alternative salary schedule component is fair. (Select one option)	1	2	3	4
c.	The performance criteria under the alternative salary schedule component are worthy of pay increases. (Select one option)	1	2	3	4
d.	Meeting the performance criteria under the alternative salary schedule component should receive extra recognition (i.e., other than monetary recognition). (Select one option)	1	2	3	4
e.	The correct school personnel are eligible to participate in the alternative salary schedule component. (Select one option)	1	2	3	4
f.	I can achieve the performance criteria required to receive pay increases under the alternative salary schedule component. (Select one option)	1	2	3	4
g.	In order to increase my annual base salary under the alternative salary schedule component, I will need to change my professional practices. (Select one option)	1	2	3	4
h.	The amount by which my annual base salary can increase under the alternative salary schedule component is large enough to be of value to me. (Select one option)	1	2	3	4
i.	I am confident that those who meet performance criteria under the alternative salary schedule component will receive increases to their annual base salary. (Select one option)	1	2	3	4

APPENDIX C – DATA COLLECTION INSTRUMENTS

19. How much will your annual base salary increase for the 2013-14 school year based on your likely performance over the course of this 2012-13 school year? Please select the most appropriate response below. (Select one option)

a. No increase (i.e., 0%)
b. Up to 1%
c. Up to 2%
d. Up to 3%
e. Up to 4%
f. Greater than 4%
g. Do not know Go to Item 23/Page No. 13

You indicated that you were eligible to participate in the alternative salary schedule component of the strategic compensation program, but you are NOT participating. To what extent do you agree or disagree with each of the following statements?

20. Please select the most appropriate response for each item below.

		Strongly Disagree	Disagree	Agree	Strongly Agree
a.	I have a clear understanding of the performance criteria that teachers are expected to meet in order to receive a pay increase on the alternative salary schedule.	1	2	3	4
b.	The alternative salary schedule component is fair. (Select one option)	1	2	3	4
c.	The performance criteria required for pay increases under the alternative salary schedule component are worthy of pay increases. (Select one option)	1	2	3	4
d.	Teachers who meet the performance criteria under the alternative salary schedule component should receive extra recognition (i.e., other than monetary recognition). (Select one option)	1	2	3	4
e.	The correct school personnel are eligible to participate in the alternative salary schedule component. (Select one option)	1	2	3	4
f.	I wish I was participating in the alternative salary schedule component this 2012-13 school year. (Select one option)	1	2	3	4

APPENDIX C – DATA COLLECTION INSTRUMENTS

21. In the space provided below, please explain why you are not participating in the alternative salary schedule component this 2012-13 school year even though you are eligible to do so.

Go to Item 23

You indicated that you are NOT ELIGIBLE to participate in the alternative salary schedule component of the strategic compensation program this 2012-13 school year. To what extent do you agree or disagree with each of the following statements?

22. Please select the most appropriate response for each item below.

		Strongly Disagree	Disagree	Agree	Strongly Agree
a.	I have a clear understanding of the performance criteria that teachers are expected to meet in order to receive a pay increase on the alternative salary schedule. (Select one option)	1	2	3	4
b.	The alternative salary schedule component is fair. (Select one option)	1	2	3	4
c.	The performance criteria under the alternative salary schedule component are worthy of pay increases. (Select one option)	1	2	3	4
d.	Teachers who meet the performance criteria under the alternative salary schedule component are worthy of extra recognition (i.e., other than monetary recognition).	1	2	3	4
e.	The correct school personnel are eligible to participate in the alternative salary schedule component. (Select one option)	1	2	3	4
f.	I wish I was participating in the alternative salary schedule component this 2012-13 school year. (Select one option)	1	2	3	4
g.	I understand WHY I am not eligible to participate in the alternative salary schedule component this 2012-13 school year. (Select one option)	1	2	3	4

APPENDIX C – DATA COLLECTION INSTRUMENTS

III. PERCEPTIONS OF STRATEGIC COMPENSATION PROGRAM, PART 2

We would like to know more about your perceptions of the strategic compensation program in which your school is participating this 2012-13 school year. To what extent do you agree or disagree with each of the following statements regarding the strategic compensation program this 2012-13 school year?

Please select the most appropriate response for each item below.

		Strongly Disagree	Disagree	Agree	Strongly Agree
a.	I am pleased with the way in which the strategic compensation program has been implemented so far. (Select one option)	1	2	3	4
b.	The strategic compensation program is well-aligned with other school improvement efforts at my school. (Select one option)	1	2	3	4
c.	The strategic compensation program is well-aligned with other First to the Top initiatives at my school. (Select one option)	1	2	3	4
d.	The strategic compensation program has been responsive to teacher feedback and needs. (Select one option)	1	2	3	4
e.	The strategic compensation program has added burdensome paperwork to teachers' workload at this school. (Select one option)	1	2	3	4
f.	Participating in the strategic compensation program requires completing tasks that take time away from classroom planning and instruction. (Select one option)	1	2	3	4
g.	The Tennessee Department of Education can adequately support the strategic compensation program. (Select one option)	1	2	3	4
h.	My district's central office can adequately support the strategic compensation program. (Select one option)	1	2	3	4
i.	The financial resources exist to sustain the strategic compensation program over time. (Select one option)	1	2	3	4
j.	The strategic compensation program has the support of the local community (e.g., business leaders, parents). (Select one option)	1	2	3	4
k.	I am unhappy with the way in which the strategic compensation program has been implemented so far. (Select one option)	1	2	3	4

APPENDIX C – DATA COLLECTION INSTRUMENTS

To what extent do you agree or disagree with each of the following statements regarding the strategic compensation program in which your school is participating during this 2012-13 school year?

23. Please select the most appropriate response for each item below. The strategic compensation program is...

		Strongly Disagree	Disagree	Agree	Strongly Agree
a.	Having negative effects at my school.	1	2	3	4
b.	Successfully rewarding effective teachers at my school.	1	2	3	4
c.	Causing resentment among teachers at my school.	1	2	3	4
d.	Having a negative impact on teachers' willingness to help one another. (Select one option)	1	2	3	4
e.	Helping teachers feel more satisfied with their jobs at my school. (Select one option)	1	2	3	4
f.	Helping teachers in my school feel more valued as professionals. (Select one option)	1	2	3	4
g.	Contributing to improvements in the quality of professional development offered to teachers at my school.	1	2	3	4
h.	Helping to improve teaching practices at my school. (Select one option)	1	2	3	4
i.	Helping to increase student learning at my school. (Select one option)	1	2	3	4
j.	Helping to improve teacher retention at my school. (Select one option)	1	2	3	4
k.	Contributing to improvements in how the school uses data to inform decisions about teaching and student learning.	1	2	3	4
l.	Contributing to improvements in the quality of educator evaluations taking place at my school. (Select one option)	1	2	3	4
m.	Having a positive impact on the relationships between teachers and school administration. (Select one option)	1	2	3	4
n.	Having positive effects at my school.	1	2	3	4
o.	Successfully identifying effective teachers at my school.				

APPENDIX C – DATA COLLECTION INSTRUMENTS

IV. PAYOUT AMOUNTS AND LOGISTICS

24. At the beginning of the 2011-12 school year, were you eligible to participate in your district's strategic compensation program?

a. Yes Go to Item 26
b. No Go to Item 49

25. Which statement applies to you?

a. I chose NOT to participate in my district's strategic compensation program during the 2011-12 school year. Go to Item 38
b. I chose to participate in my district's strategic compensation program during the 2011-12 school year. Go to Item 27

26. Did your district's 2011-12 strategic compensation program include performance-based bonus awards which are bonuses paid over and above your annual base salary and extra duty pay for meeting certain performance criteria (i.e. evaluation scores, student achievement scores, teacher-leadership activities, hard-to-staff positions/ subjects, etc.) designated by your district.

a. Yes Go to Item 28
b. No Go to Item 39

27. Did the amount of the available bonus motivate you to change your professional practice in order to meet the required criteria?

a. Yes Go to Item 30
b. No Go to Item 29

28. If the available bonus amount had been [ENTER DOUBLE THE DISTRICT-SPECIFIC MAXIMUM AVAILABLE BONUS AMOUNT], would you have been motivated to change your professional practice in order to meet the required criteria?

a. Yes Go to Item 30
b. No Go to Item 31

APPENDIX C – DATA COLLECTION INSTRUMENTS

29. You indicated that you changed or would have changed your professional practice in order to try to earn a performance-based bonus. Please check all the ways that you changed your practice.

a. Participated more in team collaboration
b. Participated more in joint planning
c. Participated more in development sessions
d. Increased use of technology in my classroom
e. Increased use of student data when planning instruction
f. Used new instructional strategies
g. Received coaching and feedback from a mentor teacher
h. Used supplemental curricular materials
i. Other

30. Did you meet the performance criteria to receive a performance-based bonus award for the 2011-12 school year?

a. Yes — Go to Item 32
b. No — Go to Item 39
c. I don't know — Go to Item 39

31. Choose the statement that applies to you.

a. I have received my bonus
   Go to Item 33
b. I have not received my bonus, but I am aware of the bonus amount that I will receive.
   Go to Item 33 (see note)
c. I have not received my bonus, and I am unaware of the bonus amount that I will receive.
   Go to Item 39

Note for choice b.: You have indicated that you have not received your bonus but are aware of the amount that you will receive. Please refer to that amount when answering the following questions as if you had already received it.

APPENDIX C – DATA COLLECTION INSTRUMENTS

32. What was the amount of your performance-based bonus for the 2011-12 school year?
    a. $0
    b. $1 to $999
    c. $1,000 to $1,999
    d. $2,000 to $2,999
    e. $3,000 to $3,999
    f. $4,000 to $4,999
    g. $5,000 to $5,999
    h. $6,000 to $6,999
    i. $7,000 to $7,999
    j. $8,000 to $8,999
    k. $9,000 to $9,999
    l. $10,000 or more

33. Select the statement that best applies to you.
    a. The bonus that I received was the amount that I expected
    b. The bonus that I received was less than what I expected.
    c. The bonus that I received was larger than I expected.

34. Did you receive your bonus at the time you expected?
    a. Yes — Go to Item 37
    b. No — Go to Item 36
    c. I have not yet received my bonus — Go to Item 37

35. Select the statement that applies to you.
    a. My bonus arrived later than I expected.
    b. My bonus arrived earlier than I expected.

APPENDIX C – DATA COLLECTION INSTRUMENTS

36. Please select the most appropriate response for each item below.

		Strongly Disagree	Disagree	Agree	Strongly Agree
a.	The bonus amount that I received was appropriate considering my performance during the 2011-12 school year. (Select one option)	1	2	3	4
b.	My district communicated effectively about when and how I would receive my bonus. (Select one option)	1	2	3	4
c.	Based on their performance, the correct personnel in my school earned bonus awards. (Select one option)	1	2	3	4

Go to Item 39

37. Please tell us why you chose not to participate in your district's strategic compensation program during the 2011-12 school year.

Go to Item 49

38. Did your district's 2011-12 strategic compensation program include an alternative salary schedule (i.e. annual base salary determined by factors other than traditional years of experience and education/degree)? Note: These programs include percentage increase to base salary based on meeting performance criteria not lump sum awards that are paid out over the course of the school year.

a. Yes Go to Item 40
b. No Go to Item 48

39. Did the amount of the available salary increase motivate you to change your professional practice in order to meet the required criteria?

m. Yes Go to Item 42
n. No Go to Item 41

APPENDIX C – DATA COLLECTION INSTRUMENTS

40. If the available salary increase had been [ENTER AMOUNT EQUAL TO DOUBLE DISTRICT-SPECIFIC AVAILABLE MAXIMUM PERCENTAGE INCREASE], would you have been motivated to change your professional practice in order to meet the required criteria?

o. Yes Go to Item 42
p. No Go to Item 43

41. You indicated that you changed or would have changed your teaching practice in order meet performance criteria required to receive a pay increase according to the alternative salary schedule. Please check all the ways that you changed your practice.

a. Participated more in team collaboration
b. Participated more in participation in joint planning
c. Participated more in professional development sessions
d. Increased use of technology in my classroom
e. Increased use of student data when planning instruction
f. Used new instructional strategies
g. Received coaching and feedback from a mentor teacher
h. Used supplemental curricular materials
i. Other

42. Did you meet the performance criteria during the 2011-12 school year necessary to receive a pay increase according to the alternative salary schedule?

q. Yes Go to Item 44
r. No Go to Item 48
s. I don't know Go to Item 48

43. By what percentage did your base salary increase?

a. No increase (i.e., 0%)
b. Up to 1%
c. Up to 2%
d. Up to 3%
e. Up to 4%
f. Greater than 4%
g. Do not know

APPENDIX C – DATA COLLECTION INSTRUMENTS

44. Did the amount of your salary increase meet your expectations?

    t. Yes — Go to Item 47

    u. No — Go to Item 46

45. Select the statement that applies to you.

    v. My salary increase was less than what I expected.

    w. My salary increase was larger than I expected.

46. Please select the most appropriate response for each item below.

		Strongly Disagree	Disagree	Agree	Strongly Agree
a.	The salary increase that I received was appropriate considering my performance during the 2011-12 school year. (Select one option)	1	2	3	4
b.	Based on their performance, the correct people in my school met the criteria to be paid according to alternative salary schedule (Select one option)	1	2	3	4

47. What influence did your eligibility to participate in a strategic compensation program have on your employment decisions? Please select the most appropriate response for each item below.

		Strongly Disagree	Disagree	Agree	Strongly Agree
a.	Being eligible to participate in a strategic compensation program motivated me to stay in my teaching position. (Select one option)	1	2	3	4
b.	Being eligible to participate in a strategic compensation program motivated me to stay in my district. (Select one option)	1	2	3	4
c.	Larger performance-based bonuses/salary increases offered by another district would motivate me to leave my current position/district and seek employment there. (Select one option)	1	2	3	4

APPENDIX C – DATA COLLECTION INSTRUMENTS

V. GENERAL ATTITUDES ABOUT COMPENSATION REFORM

We would now like to learn more about your thoughts regarding compensation reform generally. The following questions are about compensation reform generally and NOT about the specific strategic compensation program in which your school is participating this 2012-13 school year.

APPENDIX C – DATA COLLECTION INSTRUMENTS

Imagine you are designing a BONUS AWARD program for teachers (i.e., bonus awards that are paid over and above what teachers earn from annual base salary and extra duty pay).

The next question asks you to rate the importance of each of 10 possible factors that could be rewarded as part of a bonus award program for teachers.

48. How important would each of the following factors be in determining what should be rewarded in a bonus award program for teachers that you are designing?

		Not Important	Low Importance	Moderate Importance	Very Important
a.	Time spent in professional development. (Select one option)	1	2	3	4
b.	High test scores by students on a standardized test. (Select one option)	1	2	3	4
c.	Students' gains on TCAP as measured by the Tennessee Value-Added Assessment System (TVAAS). (Select one option)	1	2	3	4
d.	The outcome of classroom observations completed under Tennessee's new teacher evaluation system, TEAM (or an alternative model being used in your school, such as TIGER) this 2012-13 school year. (Select one option)	1	2	3	4
e.	Summative evaluation scores under Tennessee's new teacher evaluation system, TEAM (or an alternative model being used in your school, such as TIGER) this 2011-12 school year. (Select one option)	1	2	3	4
f.	Teaching in hard-to-staff fields (i.e., subjects for which it is difficult to find and retain qualified and effective teachers). (Select one option)	1	2	3	4
g.	Teaching in hard-to-staff schools (i.e., schools that have difficulty finding and retaining qualified and effective teachers). (Select one option)	1	2	3	4
h.	Success at helping other teachers improve their professional practice (as reflected in their students' outcomes). (Select one option)	1	2	3	4
i.	National Board for Professional Teaching Standards (NBPTS) certification. (Select one option)	1	2	3	4
j.	Working with students outside of class time. (Select one option)	1	2	3	4

APPENDIX C – DATA COLLECTION INSTRUMENTS

Now imagine you are designing a new SALARY SCHEDULE for teachers that would be used to determine increases to teachers' annual base salary.

The next question asks you to rate the importance of each of 12 possible factors that might be used to determine increases to teachers' base salary every year.

49. How important would each of the following factors be in determining increases to a teachers' annual base salary in a compensation program that you are designing?

		Not Important	Low Importance	Moderate Importance	Very Important
a.	Time spent in professional development. (Select one option)	1	2	3	4
b.	High test scores by students on a standardized test. (Select one option)	1	2	3	4
c.	Students' gains on TCAP as measured by the Tennessee Value-Added Assessment System (TVAAS). (Select one option)	1	2	3	4
d.	The outcome of classroom observations completed under Tennessee's new teacher evaluation system, TEAM (or an alternative model being used in your school, such as TIGER) this 2012-13 school year. (Select one option)	1	2	3	4
e.	Summative evaluation scores under Tennessee's new teacher evaluation system, TEAM (or an alternative model being used in your school, such as TIGER) this 2011-12 school year. (Select one option)	1	2	3	4
f.	Teaching in hard-to-staff fields (i.e., subjects for which it is difficult to find and retain qualified and effective teachers). (Select one option)	1	2	3	4
g.	Teaching in hard-to-staff schools (i.e., schools that have difficulty finding and retaining qualified and effective teachers). (Select one option)	1	2	3	4
h.	Success at helping other teachers improve their professional practice (as reflected in their students' outcomes). (Select one option)	1	2	3	4
i.	National Board for Professional Teaching Standards (NBPTS) certification. (Select one option)	1	2	3	4
j.	Working with students outside of class time. (Select one option)	1	2	3	4
k.	Years of experience teaching. (Select one option)	1	2	3	4
l.	Level of education/degrees earned. (Select one option)	1	2	3	4

APPENDIX C – DATA COLLECTION INSTRUMENTS

We are interested in knowing your thoughts about how the statements below might be influenced - if at all - by the way in which teachers are paid. In the questions below, please note that performance pay could be based on measures of individual teacher performance, group performance, or school-wide performance.

50. Assuming that teachers are paid at least in part based on performance, please indicate your agreement or disagreement with each of the following statements:

		Strongly Disagree	Disagree	Agree	Strongly Agree
a.	Teachers will be more successful at helping their students learn. (Select one option)	1	2	3	4
b.	Teachers will work together more often to identify and share successful teaching strategies and materials. (Select one option)	1	2	3	4
c.	Individuals with the abilities to help students learn will more likely to enter the teaching profession. (Select one option)	1	2	3	4
d.	Teachers who are successful at helping their students learn will be more likely to remain in the teaching profession. (Select one option)	1	2	3	4
e.	Teachers will be more likely to resent the way in which they are compensated. (Select one option)	1	2	3	4
f.	Teachers will feel more satisfied with their jobs. (Select one option)	1	2	3	4
g.	Teachers will feel more valued as professionals. (Select one option)	1	2	3	4
h.	Student test scores will improve faster. (Select one option)	1	2	3	4

APPENDIX C – DATA COLLECTION INSTRUMENTS

VI. BACKGROUND INFORMATION

52. In your current position this 2012-13 school year, do you teach in a subject and grade that is part of the Tennessee Comprehensive Assessment Program (TCAP)? (Select one option)
    a. Yes
    b. No
    c. Not applicable to my current position

53. Are you a member of a teachers' or employee association? (Select one option)
    a. Yes
    b. No

We are interested in knowing the highest degree you hold, your major field(s) of study for that degree, and the granting institution for each. Please address each question below as it applies.

54. What is the highest degree you hold? (Select one option)
    a. Bachelor's degree
    b. Master's degree
    c. Doctoral degree
    d. Other (please specify)

55. For the highest degree that you indicated in the previous question, please tell us your major field(s) of study.

56. Please tell us the year in which you received your highest degree.

57. Please use the space provided below to indicate the name and location of the granting institution for the highest degree that you hold.
    a. Name of institution _____
    b. City where institution is located _____
    c. State (or country if not U.S.) where institution is located_____

APPENDIX C – DATA COLLECTION INSTRUMENTS

58. If you would like to be entered into the random drawing for 200 $100 awards please enter your contact information here:

Name: _____

Phone: _____

Email: _____

Preferred method of contact: _____

59. We would like to know if you have any feedback for us about your experience taking this survey. In the space below, if you so choose, please let us know your thoughts regarding the survey's content, format, or anything else you would like to share. Many thanks for your time.

END OF SURVEY

APPENDIX C – DATA COLLECTION INSTRUMENTS

Survey Respondent Representative Analysis

STRATA	% OF RESPONDENTS	% OF EMPLOYEES	# OF RESPONDENTS	# OF EMPLOYEES	CHI-SQUARE
HIGHEST EDUCATIONAL LEVEL					20.217 DF=6 P = .003
BELOW BACHELOR'S	1.0%	1.5%	49	151	
BACHELOR'S	34.7%	36.3%	1,771	3,538	
MASTER'S	46.4%	45.3%	2,367	4,415	
MASTER'S PLUS	7.2%	7.1%	366	691	
EDUCATION SPECIALIST	9.2%	8.2%	469	801	
DOCTORATE	1.5%	1.5%	76	144	
MISSING	0.0%	0.1%	1	13	
SEX					38.472 DF=2 P < .0000
FEMALE	82.5%	78.2%	4,205	7,622	
MALE	17.5%	21.8%	894	2,131	
MISSING	---	---	---	---	
URBANICITY OF DISTRICT					62.083 DF=3 P < .000
ENROLLMENT > 40,000	70.5%	76.0%	3,596	7,413	
40,000 > E > 10,000	15.7%	13.3%	800	1,293	
10,000 > E > 5,000	4.8%	4.5%	247	436	
5,000 > ENROLLMENT	8.9%	6.3%	456	611	
TIER					80.226 DF=5 P < .000
K-5	46.9%	40.6%	2,393	3,964	
5 - 8	21.9%	23.6%	1,119	2,305	
9 - 12	23.2%	28.9%	1,185	2,818	
K-8	5.6%	4.7%	283	461	
K-12	1.0%	0.9%	49	88	
OTHER	1.4%	1.2%	70	117	
YEARS EXPERIENCE					46.726 DF=6 P < .000
0 TO 3 YEARS	19.8%	23.8%	1,011	2,317	
4 TO 6 YEARS	14.1%	14.9%	717	1,458	
7 TO 10 YEARS	16.5%	15.5%	842	1,511	
11 TO 17 YEARS	22.1%	19.7%	1,128	1,925	
18 TO 25 YEARS	14.8%	13.3%	757	1,297	
OVER 26 YEARS	12.6%	12.6%	643	1,232	
MISSING	0.0%	0.1%	1	13	

Notes: (1) Certified employees data from ONLY "program" schools in the 2012-2013 EIS; (2) 5,099 respondents (93.1%) included; 68 respondents not from any "program" schools excluded; 36 respondents (0.7%) with missing license numbers excluded; and 273 respondents with no EIS data excluded.

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

This appendix presents the analytic model, data and regression coefficients underlying the analysis of teacher turnover in Chapter 6.

The Analytic Model

It is common to model teacher turnover as the voluntary consequence of each teacher's pursuit of happiness (Imazeki, 2005). Let the utility (happiness) that teacher i receives from employment situation j (Uij) be defined as:

$$U_{ij} = U_i(W_{ij}, X_{ij}) + e_{ij}$$

where Wij is the wage received in situation j, Xij is a set of nonwage characteristics of situation j, and eij is a random variable representing the unobserved determinants of utility. Then the probability that a teacher chooses to leave a teaching position is the probability that her utility in a different situation would be higher than her utility in the current position.

$$\Pr[\text{quit}] = \Pr[U_i(W_{ij}, X_{ij}) + e_{ij} > U_i(W_{id}, X_{id}) + e_{id}]$$

or equivalently,

$$\Pr[\text{quit}] = \Pr[e_{ij} - e_{id} > U_i(W_{id}, X_{id}) - U_i(W_{ij}, X_{ij})]$$

where the d subscript denotes the current employer.

Teachers choose to leave their current positions only if their expected utility from staying is lower than their expected utility from their best alternative situation. Thus, the probability that a teacher leaves his/her current position is a function of the wage and nonwage aspects of the current position, wage and non-wage aspects of alternative positions, and personal characteristics that might alter the shape of the utility function. If eij and eid are distributed as independent, normal random variables, then their difference is also normally distributed, and the third equation above can be estimated using probit regression (Singell 1991).

Probit and multinomial logit regression analyses of the equation above provide the foundation for the empirical analysis of the effect of strategic compensation plans on teacher retention. Probit analyses are used to examine the impact on turnover in general; multinomial logit analyses are used to examine any differential impact on the components of teacher turnover. The components of teacher turnover are moving to another district and leaving the Tennessee public school system.

The Data

Theory indicates that the data for any analysis of teacher turnover needs to reflect pertinent characteristics about the teacher's current job, her employment alternatives, and any personal characteristics that might influence

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

her turnover decision. Participation in a strategic compensation program is simply one of the pertinent job characteristics.

Data on teacher characteristics, including compensation, turnover and teaching assignment, come from the PIRS and EIS administrative records of the Tennessee Education Agency. Data on other district and location characteristics come from the National Center for Education Statistics (NCES), the U.S. Bureau of Labor Statistics (BLS), and the U.S. Department of Housing and Urban Development (HUD).

The data cover the nine academic years from the 2003-04 school year through the 2011-12 school year. The strategic compensation programs operated during the last year of the analysis period. Analyses are restricted to individuals who held a classroom teaching assignment and worked at least half time.[1] The analysis includes classroom teachers from all Tennessee pubic school districts operating in 2011-12 except the Tennessee School for the Deaf, the West Tennessee School for the Deaf, the Tennessee School for the Blind and the Alvin C. York Institute.

Teacher Data

The examination of teacher turnover uses three categories of teacher data: (1) teacher retention, (2) working conditions, and (3) individual teacher characteristics.

Classroom teachers are considered retained if they are employed by the same school district in the subsequent academic year. Teachers who are not retained are further classified into the following categories: those who are employed by another Tennessee school district in the subsequent year (movers); and those no longer employed by a Tennessee public school district (leavers). On average over the analysis period, 91 percent of Tennessee teachers were retained each year, 2 percent moved to another district and 7 percent left the public school system, at least temporarily.

A teacher's turnover decision can be influenced by the characteristics of her current teaching position. Therefore, the analyses also control for a teacher's classroom assignment. The analysis includes indicators for whether or not the teacher was assigned as an elementary teacher, a middle school teacher or a high school teacher in EIS. There are also indicators for special education teachers, elementary fine arts teachers,[2] and classroom teachers who also served as campus-level administrators (principals or assistant principals).

All analyses described in this chapter also account for a teacher's full-time-equivalent annual salary, age, years

[1] Classroom teachers are individuals who were identified as classroom teachers in either the PIRS or the EIS files. In PIRS, a classroom teacher has an assignment code of 027, 036, 037, 043, 044, 060, 061, 064, 068, 069, 070, 071, 079, 080, 081, 082, 083, 084, 085, 086, 087, 088, 089, 090 or 091. In EIS, an elementary classroom teacher has an assignment code of BE, CC, CE, DE, EA, ED, EL, EM, EP, ET, G1, G2, G3, G4, G5, GE, KG, LC, LE, MC, ME, PK, RC, RE, SE, or TE; a middle school classroom teacher has an assignment code of CM, G6, G7, G8, GM, LM, MM, RM, SM, or TM; and a high school classroom teacher has an assignment code of CS, LS, MS, SG, SS or TS.

[2] An elementary fine arts teacher is a teacher with a PIRS assignment code of 27 or 36, or an EIS assignment code of EA or EM.

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

of experience, gender, race/ethnicity, and educational attainment.[3] To capture the possible influence of the Tennessee retirement system, all analyses also include an indicator for whether or not a teacher's age and experience are such that she is eligible for a full pension (i.e. a service retirement)[4] and the interactions between the service-retirement indicator and the teacher's age and experience. (Analyses excluding teachers eligible for a service retirement yield qualitatively similar results and are included in this appendix for completeness.)

Endorsements on a teacher's license indicate that she has specialized skills that could make her more attractive to other school districts or more attached to teaching as a profession. Therefore, all analyses also include indicators for whether or not the teacher had a license endorsement in mathematics, science, English, history, world languages or physical education during the designated academic year. (A teacher could hold endorsements in any or all of these subjects simultaneously.) Table D.1 indicates the certificate endorsements held by teachers who are identified as being certified in each subject.

Table D.1: License Endorsement Descriptions

Mathematics	English
Mathematics 7-12	English 7-12
Science	History
Biology 7-12	History 7-12
Chemistry 7-12	World Languages
Earth & Space Science 7-12	French 7-12
Earth Science 7-12	French Prek-12
General Science 7-12	German 7-12
Physics 7-12	German Prek-12
Physics 9-12	Latin 7-12
Physical Education	Latin Prek-12
Health & PE K-12	Russian 7-12
Physical Education 7-12	Russian Prek-12
Physical Education K-8	Spanish 7-12
Physical Education K-12	Spanish Prek-12

Source: Tennessee licensure files.

Some analyses include indicators for whether or not a teacher was assigned to a grade level or subject matter that is evaluated under the Tennessee Value-Added Assessment System (TVAAS). For teachers with TVAAS scores, some of the analyses also include the individual teacher's index scores. Index scores range from -22 to 28 with zero indicating average performance. Due to data availability, any analysis incorporating TVAAS scores

[3] The full-time equivalent annual salary is the reported annual salary divided by the percent time, where the percent time is the number of total months paid divided by 10. Total months paid is adjusted to include additional days paid, assuming 30 days per month.
[4] To be eligible for a service retirement, a teacher must either be 60 years of age and have at least 5 years of experience, or have 30 years of credited experience.

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

or indicators for the presence of TVAAS scores is restricted to the 2009-10 through 2011-12 school years.

School District and Location Data

Other researchers have found that student demographics have a significant influence on teacher turnover (Hanushek, Kain and Rivkin, 2004). The student demographics used in these analyses, which come from the NCES' Common Core data file, include: the percentage of students who are economically disadvantaged (as measured by the percentage receiving free or reduced price lunches, FRLPCT) the percentage of students who are in special education programs (SPEPCT) and the percentage of students who are limited English proficient (LEPPCT).[5] The analyses also include measures of school district size (the log of school district ENROLLMENT), because variations in teacher turnover may arise from the lack of transfer opportunities within a district.

The analyses include several indicators of local labor market conditions outside of education. The NCES Comparable Wage Index (CWI) measures the prevailing wage for college graduates in each school district (Taylor and Fowler, 2006). It has been updated by the original author to cover the period from 1997 through 2012.[6] County unemployment rates (URATE) are taken from the BLS, and fair market rents on a two-bedroom apartment (a measure of regional differences in the cost of living, FMRENT) come from HUD.

Plan Characteristics

The analyses include an array of variables reflecting a school's strategic compensation plan. The first is an indicator for whether or not a school participated in the strategic compensation program (PARTICIPSCHL). This indicator takes on a value of one if the school was or would become a participating school (and zero otherwise). The second indicator (ALTSCHL) takes on a value of one if the school was or would become a participating school with an alternative salary schedule (and zero otherwise). The indicator PARTICIP2012 takes on the value of one if the school is participating and the year is 2012 (the initial program year). Similarly, the indicator ALT2012 takes on the value of one if the school has an alternative salary schedule and the year is 2012.

Individual Awards

Data on the individual awards earned in 2011-12 and distributed in 2012-13 are available for all 14 school districts that participated in the strategic compensation program. The payment amounts were merged to the administrative data files for 2011-12 using teacher license numbers and district identifiers. The payment amounts used in the analyses are the natural log of the total dollar payments received by a given teacher from the designated district.

[5] NCES data on student demographics are missing for some years at the beginning and ending of the analysis period. The missing data were imputed with the available data on the prior or subsequent year, whichever is available.
[6] The files are available for download at http://bush.tamu.edu/research/faculty/Taylor_CWI/

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Importantly, the pattern of individual awards indicates that six of the 14 districts appear to have withheld payouts from teachers who turned over. This raises the possibility that a lack of turnover leads to awards rather than a lack of awards leading to turnover. To accurately reflect this possibility, all analyses incorporating individual awards treat those awards as endogenous. Instrumental variables regression is the standard technique for dealing with endogenous regressors. The instrumental variables probit regressions use two instruments for the individual teacher payouts—an indicator for whether or not a teacher is new to the school building and the prior year's TVAAS Index score for individuals with prior year's TVAAS scores. (Individuals without prior year's TVAAS scores were assigned a score of zero.) Both instruments are set to zero in nonparticipating schools and nonprogram years.

The Regression Estimates

Tables D.2 through D.5 present coefficient estimates and robust standard errors from a series of analyses comparing turnover in strategic compensation schools with turnover in the other Tennessee public schools for which data are available. In all cases, these tables present two alternative analyses of teacher retention. The first column in each table presents results from a probit analysis of teacher turnover. The probit analysis is used to examine the impact of strategic compensation programs on turnover in general. The remaining two columns present results from a multinomial logit analysis of the two types of turnover. (The reference category is the teachers who are retained.) This part of the analysis is used to examine any differential impact of strategic compensation plans on movers and leavers. In all cases, the robust standard errors have been adjusted for clustering by school and year.

Tables 6.3 through 6.6 in the main report present selected marginal effects from the probit and multinomial logit analyses in Tables D.2 through D.5. Each marginal effect indicates the change in the predicted turnover rate, holding constant at the mean all of the teacher, district and county characteristics in the model. The predicted probabilities were calculated using the method of recycled predictions.

Table D.2 presents results for all classroom teachers. Table D.3 presents results for beginning teachers. For purposes of this analysis, beginning teachers are teachers who are not vested in the Tennessee Consolidated Retirement System. Therefore, beginning teachers are those with fewer than five years of experience. Table D.4 presents results for teachers who are vested in the retirement system but not eligible for a service retirement. Table D.5 presents results for teachers who are eligible for a service retirement.

Tables D.6a and D.6b present probit analyses of the relationship between teacher turnover and teacher characteristics, including an indicator for whether or not the teacher has a TVAAS score. Table D.6a presents

[7] For more on the Tennessee Consolidated Retirement System, visit http://www.treasury.state.tn.us/tcrs/.

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

results for a model including all levels of teacher experience while Table D.6b presents results for a model that excludes teachers who were eligible for a service retirement. Both tables present separate analyses for teachers in tested subjects and grades (i.e. those with a TVAAS score) and teachers in nontested subjects and grades (i.e. those without a TVAAS score) as well as pooled analyses. Due to data availability, these analyses only cover the three-year period from 2009-10 through 2011-12. Because teachers who are eligible for a service retirement respond differently than other teachers to the strategic compensation programs (see Table D.5), the analysis excluding retirement-eligible teachers (Table D.6b) is the preferred specification. In all cases, the robust standard errors have been adjusted for clustering by school and year.

Tables D.7a and D.7b present multinomial logit versions of the last two columns in Table D.6a and D.6b,. respectively. The results are qualitatively similar, so Table D.7a is presented only as a robustness check. In all cases, the robust standard errors have been adjusted for clustering by school and year.

Tables D.8a and D.8b present a set of multinomial logit models drawn from the subset of teachers who have a TVAAS index score. As before, Table D.8a presents results for a model including all levels of teacher experience while Table D.8b presents results for a model that excludes teachers who were eligible for a service retirement. In both tables, the first two columns present a model that holds the relationship between TVAAS index scores and teacher turnover constant over time, and the last two columns present a model that allows the relationship between TVAAS index scores and turnover to be different in 2011-12 (the program year) than it was in prior years. In both cases, the robust standard errors have been adjusted for clustering by school and year, and we statistically reject the hypothesis that the relationship had changed, making the first two columns the preferred model. The multinomial analyses in Table D.8b underlies Figures 6.2 and 6.3 of the main text. The predicted probabilities were calculated using the method of recycled predictions, holding all other regressors constant at the mean.

Finally, Tables D.9a and D.9b present a series of instrumental variables probit (IVProbit) models exploring the relationship between strategic compensation payouts and teacher turnover. Each table presents three models—a standard probit analysis, an IV Probit analysis using Newey's two-step method, and an IV Probit analysis using maximum likelihood estimation (MLE). For both maximum likelihood models (Probit and IV Probit MLE) the robust standard errors have been adjusted for clustering by school and year. The two-step model does not accommodate clustering so the standard errors have not been adjusted.

As the table illustrates, the analysis is not sensitive to these differences in specification. In all three cases, turnover falls as the payout amount increases. Figure 6.4 in the main report illustrates the relationship determined by the IV Probit MLE model in Table D.9b. The predicted probabilities were calculated using the method of recycled predictions, holding all variables other than the payout amounts and school type indicators constant at the mean.

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.2: Probit and Multinomial Logit Regression Analyses of Turnover, All Teachers

	Separation	Mover	Leaver
Annual FTE Salary (log)	-0.386***	-0.795***	-1.014***
	(0.0429)	(0.171)	(0.0943)
Female	-0.0242***	-0.148***	0.00812
	(0.00722)	(0.0249)	(0.0169)
Black	-0.0714***	-0.196***	-0.128***
	(0.0104)	(0.0408)	(0.0236)
Hispanic	0.391***	0.0395	0.845***
	(0.0501)	(0.202)	(0.0993)
Other nonwhite	0.180***	0.214	0.362***
	(0.0418)	(0.147)	(0.0887)
MA	0.0205***	0.243***	-0.0153
	(0.00690)	(0.0275)	(0.0155)
MA plus hours	-0.0104	0.300***	-0.0752***
	(0.0126)	(0.0596)	(0.0276)
Doctorate	-0.0520***	0.408***	-0.307***
	(0.0153)	(0.0554)	(0.0376)
Education Unknown	0.886	-2.314e+32	1.588
	(0.655)	(0)	(1.078)
First year teacher	0.0236**	0.219***	0.00595
	(0.0113)	(0.0348)	(0.0254)
Years experience	-0.0493***	-0.0783***	-0.0850***
	(0.00157)	(0.00754)	(0.00342)
Years experience, squared	0.00119***	0.000456**	0.00219***
	(3.54e-05)	(0.000199)	(7.58e-05)
Years experience unknown	0.00840	0.513***	-0.180*
	(0.0496)	(0.141)	(0.104)
Age * years experience	6.05e-06	0.000247**	-2.50e-05
	(1.62e-05)	(9.66e-05)	(3.05e-05)
Age	-0.0759***	-0.0631***	-0.148***
	(0.00219)	(0.00960)	(0.00479)
Age, squared	0.000917***	0.000454***	0.00189***
	(2.57e-05)	(0.000119)	(5.54e-05)
Age unknown	-0.954***	-1.215***	-1.566***
	(0.0497)	(0.204)	(0.107)
Service retirement eligible	0.304***	-0.298***	0.739***
	(0.0129)	(0.0889)	(0.0285)
PE endorsement	-0.0209*	0.430***	-0.214***
	(0.0112)	(0.0379)	(0.0272)
Math endorsement	0.0868***	0.513***	0.0449*
	(0.0120)	(0.0412)	(0.0272)
Science endorsement	0.0273***	0.244***	0.0240
	(0.0104)	(0.0395)	(0.0236)

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.2: Probit and Multinomial Logit Regression Analyses of Turnover, All Teachers (cont. from p. 179)

	Separation	Mover	Leaver
English endorsement	0.0261***	0.275***	-0.0219
	(0.0101)	(0.0388)	(0.0228)
History endorsement	-0.0488***	0.186***	-0.184***
	(0.0110)	(0.0403)	(0.0258)
World lang. endorsement	0.101***	0.402***	0.132***
	(0.0164)	(0.0589)	(0.0366)
Elementary arts teacher	0.0260*	0.258***	-0.0192
	(0.0142)	(0.0536)	(0.0326)
Special education teacher	-0.129***	0.0995**	-0.396***
	(0.0109)	(0.0392)	(0.0243)
Campus administrator	-0.228***	-0.344*	-0.578***
	(0.0492)	(0.185)	(0.136)
EIS elementary teacher	-0.251***	-0.522***	-0.509***
	(0.0102)	(0.0369)	(0.0215)
EIS middle school teacher	-0.150***	-0.221***	-0.337***
	(0.0118)	(0.0424)	(0.0254)
EIS high school teacher	-0.0991***	-0.185***	-0.214***
	(0.0128)	(0.0463)	(0.0263)
FRLPCT	-0.139***	-0.406***	-0.288***
	(0.0372)	(0.142)	(0.0775)
LEPPCT	1.578***	5.792***	2.343***
	(0.170)	(0.495)	(0.376)
SPEPCT	-0.746***	0.256	-2.089***
	(0.161)	(0.571)	(0.356)
LKIDS	-0.00774	-0.227***	0.0724***
	(0.00511)	(0.0158)	(0.0114)
CWI	0.297***	0.483**	0.621***
	(0.0626)	(0.201)	(0.141)
FMRENT (log)	0.0848*	0.488***	0.0242
	(0.0483)	(0.155)	(0.108)
URATE	-0.00537	0.00316	-0.0179**
	(0.00330)	(0.0125)	(0.00701)
ALTSCHL	-0.0125	0.0439	-0.0730
	(0.0343)	(0.0955)	(0.0779)
PARTICIPSCHL	0.00504	0.105**	-0.0405
	(0.0132)	(0.0418)	(0.0297)
ALTSCHL2012	-0.00396	-0.448*	0.179
	(0.0812)	(0.258)	(0.192)
PARTICIP2012	0.0785**	0.400***	0.0544
	(0.0337)	(0.102)	(0.0731)
2004-05 School year	-0.0250	-0.112	-0.0175
	(0.0178)	(0.0824)	(0.0348)

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.2: Probit and Multinomial Logit Regression Analyses of Turnover, All Teachers (cont. from p. 179)

	Separation	Mover	Leaver
2005-06 School year	0.0157	0.128*	0.00835
	(0.0195)	(0.0713)	(0.0430)
2006-07 School year	-0.0902***	-0.0383	-0.204***
	(0.0210)	(0.0755)	(0.0459)
2007-08 School year	0.0478**	0.154*	0.112**
	(0.0218)	(0.0867)	(0.0464)
2008-09 School year	-0.0495*	-0.0761	-0.0561
	(0.0299)	(0.124)	(0.0622)
2009-10 School year	-0.0238	0.0152	-0.0127
	(0.0282)	(0.115)	(0.0590)
2010-11 School year	0.121***	0.264**	0.288***
	(0.0268)	(0.109)	(0.0556)
2011-12 School year	0.0737***	0.233**	0.162***
	(0.0249)	(0.0977)	(0.0523)
Constant	3.809***	5.295**	10.07***
	(0.510)	(2.076)	(1.109)
Number of Observations	585,729	585,729	585,729

Source: Authors' calculations using data from EIS, PIRS, NCES, HUD and BLS.

Note: Robust standard errors in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.3: Probit and Multinomial Logit Regression Analyses of Turnover, Beginning Teachers

	Separation	Mover	Leaver
Annual FTE Salary (log)	-0.256***	-0.949***	-0.418***
	(0.0731)	(0.265)	(0.147)
Female	-0.0219*	-0.0694*	-0.0164
	(0.0116)	(0.0361)	(0.0261)
Black	-0.0542***	-0.184***	-0.0862**
	(0.0163)	(0.0569)	(0.0359)
Hispanic	0.405***	-0.128	0.862***
	(0.0679)	(0.281)	(0.127)
Other nonwhite	0.172***	-0.115	0.427***
	(0.0575)	(0.210)	(0.113)
MA	0.0401***	0.327***	-0.0300
	(0.0120)	(0.0404)	(0.0260)
MA plus hours	0.0243	0.326***	-0.0594
	(0.0358)	(0.125)	(0.0784)
Doctorate	-0.0442	0.427***	-0.318***
	(0.0419)	(0.128)	(0.102)
Education Unknown	0.542	-1.288e+10	1.114
	(0.866)	(0)	(1.354)
First year teacher	-0.0378	0.118	-0.172***
	(0.0276)	(0.0870)	(0.0614)
Years experience	-0.0362	-0.00182	-0.0912
	(0.0254)	(0.0826)	(0.0568)
Years experience, squared	0.000542	-0.0172	0.00623
	(0.00490)	(0.0160)	(0.0112)
Age * years experience	-0.00146***	-0.00224**	-0.00296***
	(0.000256)	(0.000928)	(0.000492)
Age	-0.0420***	-0.0870***	-0.0639***
	(0.00403)	(0.0134)	(0.00878)
Age, squared	0.000556***	0.000877***	0.000964***
	(5.20e-05)	(0.000174)	(0.000112)
Age unknown	-0.257***	-1.636***	0.0724
	(0.0796)	(0.263)	(0.173)
Physical Education Endorsement	-0.00102	0.419***	-0.283***
	(0.0224)	(0.0601)	(0.0573)
Math endorsement	0.156***	0.600***	0.122***
	(0.0210)	(0.0600)	(0.0454)
Science endorsement	0.0775***	0.213***	0.0992**
	(0.0206)	(0.0645)	(0.0446)
English endorsement	0.0427**	0.310***	-0.0407
	(0.0184)	(0.0568)	(0.0414)
History endorsement	-0.00759	0.232***	-0.164***
	(0.0217)	(0.0633)	(0.0492)

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.3: Probit and Multinomial Logit Regression Analyses of Turnover, Beginning Teachers (cont. from p. 182)

	Separation	Mover	Leaver
World language endorsement	0.175***	0.407***	0.261***
	(0.0279)	(0.0865)	(0.0574)
Elementary arts teacher	0.0947***	0.306***	0.103*
	(0.0237)	(0.0726)	(0.0536)
Special education teacher	-0.0553***	0.160***	-0.251***
	(0.0173)	(0.0530)	(0.0384)
Campus administrator	-0.281	-1.621	-0.228
	(0.182)	(1.009)	(0.385)
EIS elementary teacher	-0.196***	-0.371***	-0.385***
	(0.0150)	(0.0458)	(0.0315)
EIS middle school teacher	-0.0674***	-0.122**	-0.136***
	(0.0170)	(0.0537)	(0.0360)
EIS high school teacher	-0.00609	-0.196***	0.0701**
	(0.0181)	(0.0585)	(0.0354)
FRLPCT	-0.0874	-0.666***	-0.0437
	(0.0535)	(0.172)	(0.109)
LEPPCT	1.799***	5.462***	2.435***
	(0.240)	(0.634)	(0.527)
SPEPCT	-1.062***	0.624	-3.203***
	(0.225)	(0.688)	(0.481)
LKIDS	-0.0259***	-0.249***	0.0591***
	(0.00745)	(0.0198)	(0.0162)
CWI	0.323***	0.489*	0.572***
	(0.0936)	(0.258)	(0.211)
FMRENT (log)	0.152**	0.355*	0.241
	(0.0701)	(0.194)	(0.160)
URATE	-0.00597	0.00215	-0.0200*
	(0.00486)	(0.0151)	(0.0106)
ALTSCHL	0.0611	0.133	0.0358
	(0.0540)	(0.132)	(0.117)
PARTICIPSCHL	0.00691	0.0935*	-0.0248
	(0.0181)	(0.0520)	(0.0392)
ALTSCHL2012	0.0626	-0.539	0.521**
	(0.106)	(0.346)	(0.245)
PARTICIP2012	0.0782	0.367***	0.0259
	(0.0480)	(0.118)	(0.110)
2004-05 School year	-0.0874***	-0.112	-0.182***
	(0.0261)	(0.0992)	(0.0503)
2005-06 School year	-0.0457*	0.135	-0.188***
	(0.0271)	(0.0868)	(0.0584)
2006-07 School year	-0.148***	-0.00926	-0.379***
	(0.0310)	(0.0951)	(0.0666)

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.3: Probit and Multinomial Logit Regression Analyses of Turnover, Beginning Teachers (cont. from p. 183)

	Separation	Mover	Leaver
2007-08 School year	-0.0452	0.173	-0.171***
	(0.0313)	(0.107)	(0.0656)
2008-09 School year	-0.120***	-0.149	-0.216**
	(0.0430)	(0.152)	(0.0877)
2009-10 School year	-0.109***	0.0624	-0.272***
	(0.0409)	(0.140)	(0.0856)
2010-11 School year	0.0270	0.308**	-0.00418
	(0.0387)	(0.133)	(0.0800)
2011-12 School year	-0.0444	0.253**	-0.185**
	(0.0363)	(0.120)	(0.0760)
Constant	1.556*	8.319***	1.275
	(0.862)	(3.140)	(1.750)
Number of Observations	148,747	148,747	148,747

Source: Authors' calculations using data from EIS, PIRS, NCES, HUD and BLS.

Note: Robust standard errors in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%

Table D.4: Probit and Multinomial Logit Regression Analyses of Turnover, Experienced Teachers

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.4: Probit and Multinomial Logit Regression Analyses of Turnover, Experienced Teachers

	Separation	Mover	Leaver
Annual FTE Salary (log)	-0.320***	-0.815***	-0.829***
	(0.0584)	(0.214)	(0.146)
Female	-0.0298***	-0.226***	0.0444
	(0.0105)	(0.0346)	(0.0278)
Black	-0.101***	-0.192***	-0.218***
	(0.0147)	(0.0598)	(0.0372)
Hispanic	0.424***	0.165	1.008***
	(0.0730)	(0.324)	(0.150)
Other nonwhite	0.243***	0.696***	0.380**
	(0.0648)	(0.195)	(0.163)
MA	0.00524	0.192***	-0.0482**
	(0.00965)	(0.0375)	(0.0240)
MA plus hours	-0.0337*	0.242***	-0.168***
	(0.0175)	(0.0706)	(0.0439)
Doctorate	-0.0356*	0.379***	-0.317***
	(0.0192)	(0.0667)	(0.0532)
Years experience	-0.0756***	-0.0674***	-0.187***
	(0.00341)	(0.0139)	(0.00853)
Years experience, squared	0.00222***	-0.000444	0.00587***
	(8.85e-05)	(0.000398)	(0.000222)
Age * years experience	-4.20e-05	0.000741***	-0.000120**
	(3.09e-05)	(0.000179)	(5.91e-05)
Age	-0.108***	-0.0427**	-0.293***
	(0.00503)	(0.0197)	(0.0126)
Age, squared	0.00124***	0.000110	0.00347***
	(5.66e-05)	(0.000229)	(0.000140)
Age unknown	-1.793***	-0.673	-4.873***
	(0.117)	(0.449)	(0.288)
Physical Education endorsement	-0.000160	0.397***	-0.198***
	(0.0154)	(0.0512)	(0.0426)
Math endorsement	0.100***	0.451***	0.0996**
	(0.0168)	(0.0572)	(0.0430)
Science endorsement	0.0504***	0.271***	0.0556
	(0.0150)	(0.0522)	(0.0379)
English endorsement	0.0647***	0.265***	0.0769**
	(0.0147)	(0.0533)	(0.0368)
History endorsement	-0.0209	0.161***	-0.145***
	(0.0158)	(0.0537)	(0.0430)
World language endorsement	0.0843***	0.427***	0.0449
	(0.0246)	(0.0800)	(0.0638)
Elementary arts teacher	0.0444**	0.212***	0.0474
	(0.0202)	(0.0796)	(0.0502)

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.4: Probit and Multinomial Logit Regression Analyses of Turnover, Experienced Teachers (cont. from p.185)

	Separation	Mover	Leaver
Special education teacher	-0.111***	0.0882*	-0.396***
	(0.0144)	(0.0535)	(0.0359)
Campus administrator	-0.180***	-0.229	-0.614***
	(0.0584)	(0.188)	(0.192)
EIS elementary teacher	-0.282***	-0.639***	-0.622***
	(0.0129)	(0.0507)	(0.0303)
EIS middle school teacher	-0.186***	-0.282***	-0.475***
	(0.0150)	(0.0559)	(0.0365)
EIS high school teacher	-0.123***	-0.137**	-0.342***
	(0.0156)	(0.0575)	(0.0362)
FRLPCT	-0.185***	-0.0886	-0.548***
	(0.0436)	(0.166)	(0.105)
LEPPCT	1.760***	6.215***	2.841***
	(0.205)	(0.685)	(0.501)
SPEPCT	-0.598***	0.0690	-1.824***
	(0.184)	(0.682)	(0.455)
LKIDS	-0.0139**	-0.201***	0.0577***
	(0.00615)	(0.0206)	(0.0154)
CWI	0.309***	0.546**	0.746***
	(0.0768)	(0.275)	(0.190)
FMRENT (log)	0.126**	0.655***	0.0472
	(0.0593)	(0.213)	(0.144)
URATE	-0.00186	0.00436	-0.0126
	(0.00397)	(0.0150)	(0.00970)
ALTSCHL	-0.0272	-0.0112	-0.0766
	(0.0428)	(0.130)	(0.112)
PARTICIPSCHL	0.00556	0.116**	-0.0635
	(0.0162)	(0.0576)	(0.0395)
ALTSCHL2012	-0.0483	-0.310	-0.0228
	(0.113)	(0.368)	(0.271)
PARTICIP2012	0.113***	0.449***	0.135
	(0.0408)	(0.135)	(0.0968)
2004-05 School year	-0.00213	-0.101	0.0498
	(0.0207)	(0.0914)	(0.0465)
2005-06 School year	0.0283	0.134	0.0418
	(0.0232)	(0.0887)	(0.0564)
2006-07 School year	-0.0664***	-0.0528	-0.157***
	(0.0252)	(0.0990)	(0.0607)
2007-08 School year	0.0608**	0.141	0.165***
	(0.0266)	(0.104)	(0.0637)
2008-09 School year	-0.0736**	-0.00230	-0.186**
	(0.0354)	(0.141)	(0.0841)

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.4: Probit and Multinomial Logit Regression Analyses of Turnover, Experienced Teachers (cont. from p.186)

	Separation	Mover	Leaver
2009-10 School year	-0.0420	-0.0245	-0.0601
	(0.0342)	(0.133)	(0.0826)
2010-11 School year	0.0975***	0.235*	0.249***
	(0.0325)	(0.128)	(0.0772)
2011-12 School year	0.0704**	0.219*	0.164**
	(0.0305)	(0.118)	(0.0731)
Constant	3.764***	3.629	11.64***
	(0.666)	(2.458)	(1.662)
	368,454	368,454	368,454

Source: Authors' calculations using data from EIS, PIRS, NCES, HUD and BLS.

Note: Robust standard errors in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.5: Probit and Multinomial Logit Regression Analyses of Turnover, Service Retirement Eligible Teachers

	Separation	Mover	Leaver
Annual FTE Salary (log)	-0.203**	-2.484**	-0.328**
	(0.0898)	(0.993)	(0.167)
Female	0.00534	-0.164	0.0157
	(0.0181)	(0.164)	(0.0339)
Black	-0.0606***	-0.228	-0.104***
	(0.0211)	(0.245)	(0.0394)
Hispanic	0.215	0.110	0.408
	(0.146)	(1.053)	(0.259)
Other nonwhite	-0.153	-13.21***	-0.250
	(0.144)	(0.250)	(0.266)
MA	-0.00819	0.732***	-0.0330
	(0.0168)	(0.195)	(0.0309)
MA plus hours	-0.0420*	1.004***	-0.101**
	(0.0229)	(0.252)	(0.0424)
Doctorate	-0.143***	1.388***	-0.314***
	(0.0333)	(0.321)	(0.0631)
Education Unknown	1.124	-14.14***	1.955
	(0.867)	(1.173)	(1.344)
Years experience	0.0538***	0.0971	0.103***
	(0.00825)	(0.0941)	(0.0150)
Years experience, squared	-0.000472***	-0.00173*	-0.000946***
	(8.87e-05)	(0.000894)	(0.000166)
Age * years experience	-0.000229**	-0.000824	-0.000391**
	(9.77e-05)	(0.00131)	(0.000166)
Age	0.419***	-0.638*	0.917***
	(0.0330)	(0.350)	(0.0653)
Age, squared	-0.00280***	0.00501*	-0.00628***
	(0.000263)	(0.00285)	(0.000517)
Age unknown	15.25***	-22.09**	32.99***
	(1.075)	(11.15)	(2.140)
Physical Education endorsement	-0.0671***	0.487**	-0.143***
	(0.0233)	(0.192)	(0.0441)
Math endorsement	-0.0311	0.209	-0.0677
	(0.0287)	(0.245)	(0.0539)
Science endorsement	-0.0260	-0.0378	-0.0452
	(0.0210)	(0.193)	(0.0390)
English endorsement	-0.0501**	-0.113	-0.0924**
	(0.0218)	(0.222)	(0.0405)
History endorsement	-0.0867***	-0.165	-0.156***
	(0.0208)	(0.217)	(0.0391)
World language endorsement	0.0336	0.592*	0.0384
	(0.0368)	(0.306)	(0.0682)

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.5: Probit and Multinomial Logit Regression Analyses of Turnover, Service Retirement Eligible Teachers (Cont. from p.188)

	Separation	Mover	Leaver
Elementary arts teacher	-0.135***	0.426	-0.259***
	(0.0374)	(0.360)	(0.0707)
Special education teacher	-0.342***	-0.593**	-0.639***
	(0.0278)	(0.263)	(0.0528)
Campus administrator	-0.224***	-13.28***	-0.403**
	(0.0854)	(0.146)	(0.168)
EIS elementary teacher	-0.277***	-0.913***	-0.507***
	(0.0224)	(0.201)	(0.0413)
EIS middle school teacher	-0.229***	-0.343	-0.441***
	(0.0254)	(0.224)	(0.0475)
EIS high school teacher	-0.247***	-0.211	-0.473***
	(0.0247)	(0.212)	(0.0458)
FRLPCT	-0.0917	-1.068	-0.135
	(0.0648)	(0.708)	(0.120)
LEPPCT	0.104	13.18***	-0.237
	(0.357)	(2.793)	(0.661)
SPEPCT	-0.655**	-7.505***	-1.059*
	(0.299)	(2.642)	(0.568)
LKIDS	0.0223**	-0.209**	0.0473**
	(0.0102)	(0.0908)	(0.0188)
CWI	0.0270	0.902	0.0331
	(0.120)	(1.004)	(0.223)
FMRENT (log)	-0.113	0.278	-0.229
	(0.100)	(0.888)	(0.186)
URATE	-0.0141**	0.0504	-0.0280***
	(0.00576)	(0.0506)	(0.0108)
ALTSCHL	-0.176**	-1.300	-0.286*
	(0.0797)	(1.045)	(0.148)
PARTICIPSCHL	0.0248	0.214	0.0356
	(0.0272)	(0.244)	(0.0505)
ALTSCHL2012	-0.0244	-12.47***	-0.0671
	(0.186)	(1.177)	(0.356)
PARTICIP2012	-0.0517	-0.0154	-0.0850
	(0.0640)	(0.578)	(0.116)
2004-05 School year	0.0323	-0.490	0.0847
	(0.0345)	(0.384)	(0.0653)
2005-06 School year	0.0939**	-0.496	0.200***
	(0.0392)	(0.378)	(0.0743)
2006-07 School year	-0.0903**	-0.439	-0.148*
	(0.0428)	(0.384)	(0.0809)
2007-08 School year	0.159***	-0.151	0.323***
	(0.0426)	(0.419)	(0.0807)

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.5: Probit and Multinomial Logit Regression Analyses of Turnover, Service Retirement Eligible Teachers (Cont. from p.189)

	Separation	Mover	Leaver
2008-09 School year	0.108**	-0.203	0.223**
	(0.0542)	(0.504)	(0.102)
2009-10 School year	0.160***	-0.522	0.333***
	(0.0515)	(0.534)	(0.0966)
2010-11 School year	0.345***	-0.225	0.668***
	(0.0494)	(0.495)	(0.0925)
2011-12 School year	0.284***	-0.0286	0.548***
	(0.0470)	(0.455)	(0.0878)
Constant	-13.85***	41.78***	-30.60***
	(1.453)	(14.68)	(2.794)
Number of Observations	67,484	67,484	67,484

Source: Authors' calculations using data from EIS, PIRS, NCES, HUD and BLS.

Note: Robust standard errors in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%

Table D.6a: Probit Analyses of Turnover including TVAAS Indicator, 2009-10 through 2011-12, All Experience Levels

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.6a: Probit Analyses of Turnover including TVAAS Indicator, 2009-10 through 2011-12, All Experience Levels

	All Teachers	All Teachers	Non-tested grades and Subjects	Tested grades and Subjects
Annual FTE Salary (log)	-0.360***	-0.372***	-0.412***	-0.260**
	(0.0661)	(0.0660)	(0.0734)	(0.120)
Female	-0.0161	-0.0143	-0.000202	-0.0363*
	(0.0121)	(0.0121)	(0.0147)	(0.0211)
Black	-0.0783***	-0.0782***	-0.0690***	-0.113***
	(0.0179)	(0.0179)	(0.0200)	(0.0332)
Hispanic	0.577***	0.576***	0.514***	0.851***
	(0.0867)	(0.0869)	(0.0930)	(0.179)
Other nonwhite	0.219***	0.220***	0.170**	0.326***
	(0.0641)	(0.0642)	(0.0770)	(0.110)
MA	0.0203*	0.0202*	0.0139	0.0285
	(0.0111)	(0.0111)	(0.0127)	(0.0211)
MA plus hours	-0.0133	-0.0166	-0.0217	-0.00544
	(0.0201)	(0.0201)	(0.0227)	(0.0404)
Doctorate	-0.0750***	-0.0740***	-0.0952***	-0.0343
	(0.0237)	(0.0237)	(0.0273)	(0.0445)
First year teacher	0.00185	0.00353	-0.0198	0.0508
	(0.0191)	(0.0191)	(0.0230)	(0.0340)
Years experience	-0.0542***	-0.0541***	-0.0520***	-0.0588***
	(0.00262)	(0.00262)	(0.00297)	(0.00510)
Years experience, squared	0.00116***	0.00115***	0.00109***	0.00133***
	(5.70e-05)	(5.70e-05)	(6.49e-05)	(0.000115)
Years experience unknown	-0.0443	-0.0508	-0.107	0.273
	(0.102)	(0.102)	(0.113)	(0.231)
Age * years experience	0.000112***	0.000119***	0.000116***	0.000111
	(3.56e-05)	(3.56e-05)	(3.98e-05)	(8.19e-05)
Age	-0.0763***	-0.0761***	-0.0783***	-0.0731***
	(0.00364)	(0.00366)	(0.00421)	(0.00709)
Age, squared	0.000910***	0.000902***	0.000924***	0.000874***
	(4.27e-05)	(4.29e-05)	(4.91e-05)	(8.53e-05)
Age unknown	-1.172***	-1.176***	-1.235***	-1.111***
	(0.0856)	(0.0859)	(0.0986)	(0.165)
Service retirement eligible	0.339***	0.340***	0.347***	0.311***
	(0.0213)	(0.0213)	(0.0240)	(0.0455)
PE endorsement	-0.0366*	-0.0706***	-0.0941***	0.0355
	(0.0187)	(0.0191)	(0.0206)	(0.0511)
Math endorsement	0.0669***	0.110***	0.0528**	0.177***
	(0.0196)	(0.0197)	(0.0269)	(0.0300)
Science endorsement	0.0192	0.0411**	0.0338	0.0632**
	(0.0172)	(0.0172)	(0.0220)	(0.0296)
English endorsement	0.0135	0.0571***	0.0812***	0.0566**
	(0.0163)	(0.0166)	(0.0228)	(0.0272)

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.6a: Probit Analyses of Turnover including TVAAS Indicator, 2009-10 through 2011-12, All Experience Levels (Cont. from p.191)

	All Teachers	All Teachers	Non-tested grades and Subjects	Tested grades and Subjects
History endorsement	-0.0404**	-0.0177	-0.00595	-0.0294
	(0.0178)	(0.0178)	(0.0229)	(0.0287)
World lang. endorsement	0.120***	0.0796***	0.0629**	0.0522
	(0.0266)	(0.0268)	(0.0280)	(0.0930)
Elementary arts teacher	0.0323	-0.0176	-0.0279	0.126
	(0.0231)	(0.0234)	(0.0238)	(0.248)
Special education teacher	-0.247***	-0.291***	-0.316***	-0.141
	(0.0204)	(0.0205)	(0.0218)	(0.0973)
Campus administrator	-0.266***	-0.303***	-0.289***	-0.446
	(0.0782)	(0.0779)	(0.0803)	(0.336)
EIS elementary teacher	-0.362***	-0.368***	-0.405***	-0.294***
	(0.0195)	(0.0193)	(0.0214)	(0.0374)
EIS middle school teacher	-0.260***	-0.181***	-0.0613**	-0.243***
	(0.0213)	(0.0221)	(0.0283)	(0.0364)
EIS high school teacher	-0.213***	-0.225***	-0.233***	-0.250***
	(0.0223)	(0.0220)	(0.0245)	(0.0406)
FRLPCT	-0.103	-0.115*	-0.0570	-0.284***
	(0.0636)	(0.0634)	(0.0717)	(0.0970)
LEPPCT	0.819***	0.798**	0.802**	0.946**
	(0.313)	(0.313)	(0.351)	(0.482)
SPEPCT	0.275	0.305	0.0953	0.853
	(0.360)	(0.360)	(0.403)	(0.562)
LKIDS	-0.00147	-0.00143	-0.00770	0.0122
	(0.00839)	(0.00838)	(0.00930)	(0.0134)
CWI	0.0698	0.0691	0.155	-0.145
	(0.0993)	(0.0992)	(0.110)	(0.160)
FMRENT (log)	0.288***	0.285***	0.238**	0.377***
	(0.0873)	(0.0873)	(0.0980)	(0.136)
URATE	-0.00371	-0.00308	-0.0109**	0.0170**
	(0.00464)	(0.00465)	(0.00529)	(0.00728)
ALTSCHL	-0.0378	-0.0435	-0.0427	-0.0503
	(0.0781)	(0.0780)	(0.0930)	(0.112)
PARTICIPSCHL	-0.00174	0.00117	-0.0236	0.0651*
	(0.0213)	(0.0214)	(0.0244)	(0.0347)
ALTSCHL2012	-0.00433	0.00194	-0.0453	0.103
	(0.106)	(0.106)	(0.139)	(0.155)
PARTICIP2012	0.0951***	0.0930**	0.100**	0.0732
	(0.0366)	(0.0368)	(0.0415)	(0.0579)
2010-11 School year	0.156***	0.156***	0.148***	0.184***
	(0.0153)	(0.0153)	(0.0173)	(0.0239)
2011-12 School year	0.127***	0.131***	0.110***	0.186***
	(0.0207)	(0.0207)	(0.0232)	(0.0330)

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.6a: Probit Analyses of Turnover including TVAAS Indicator, 2009-10 through 2011-12, All Experience Levels (Cont. from p.192)

	All Teachers	All Teachers	Non-tested grades and Subjects	Tested grades and Subjects
No TVAAS score		0.178***		
		(0.0128)		
Constant	2.416***	2.437***	3.426***	0.540
	(0.853)	(0.852)	(0.954)	(1.501)
Number of Observations				
	204,646	204,646	142,479	62,167

Source: Authors' calculations using data from EIS, PIRS, NCES, HUD and BLS.

Note: Robust standard errors in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.6b: Probit Analyses of Turnover including TVAAS Indicator, 2009-10 through 2011-12, Excluding Teachers Eligible for a Service Retirement

	All Teachers	All Teachers	Non-tested grades and Subjects	Tested grades and Subjects
Annual FTE Salary (log)	-0.260***	-0.278***	-0.316***	-0.176
	(0.0718)	(0.0716)	(0.0804)	(0.132)
Female	-0.00852	-0.00694	0.00680	-0.0279
	(0.0131)	(0.0131)	(0.0161)	(0.0230)
Black	-0.0809***	-0.0809***	-0.0733***	-0.109***
	(0.0198)	(0.0197)	(0.0226)	(0.0357)
Hispanic	0.547***	0.546***	0.493***	0.800***
	(0.0865)	(0.0866)	(0.0944)	(0.190)
Other nonwhite	0.219***	0.221***	0.157*	0.359***
	(0.0672)	(0.0673)	(0.0811)	(0.112)
MA	0.0287**	0.0288**	0.0261*	0.0266
	(0.0120)	(0.0120)	(0.0140)	(0.0228)
MA plus hours	-0.00666	-0.00845	-0.00937	-0.0186
	(0.0245)	(0.0245)	(0.0280)	(0.0482)
Doctorate	-0.0441*	-0.0427*	-0.0667**	-0.00629
	(0.0258)	(0.0259)	(0.0306)	(0.0476)
First year teacher	-0.0751***	-0.0725***	-0.0946***	-0.0266
	(0.0197)	(0.0197)	(0.0238)	(0.0349)
Years experience	-0.0819***	-0.0813***	-0.0778***	-0.0884***
	(0.00349)	(0.00350)	(0.00402)	(0.00665)
Years experience, squared	0.00218***	0.00215***	0.00200***	0.00254***
	(9.99e-05)	(0.000100)	(0.000115)	(0.000197)
Years experience unknown	-0.158	-0.163	-0.216*	0.150
	(0.102)	(0.102)	(0.113)	(0.232)
Age * years experience	8.12e-05	8.56e-05*	8.88e-05	5.50e-05
	(5.13e-05)	(5.15e-05)	(5.78e-05)	(0.000114)
Age	-0.0607***	-0.0608***	-0.0661***	-0.0507***
	(0.00445)	(0.00446)	(0.00514)	(0.00853)
Age, squared	0.000728***	0.000725***	0.000785***	0.000604***
	(5.36e-05)	(5.38e-05)	(6.18e-05)	(0.000106)
Age unknown	-0.864***	-0.875***	-0.993***	-0.675***
	(0.0994)	(0.0997)	(0.115)	(0.188)
PE endorsement	-0.00101	-0.0419*	-0.0716***	0.117*
	(0.0215)	(0.0220)	(0.0236)	(0.0618)
Math endorsement	0.0954***	0.150***	0.102***	0.189***
	(0.0217)	(0.0217)	(0.0302)	(0.0330)
Science endorsement	0.0396**	0.0695***	0.0616**	0.0847**
	(0.0200)	(0.0200)	(0.0258)	(0.0335)
English endorsement	0.0462**	0.101***	0.146***	0.0779***
	(0.0188)	(0.0191)	(0.0272)	(0.0299)
History endorsement	-0.0377*	-0.0102	-0.00125	-0.0202
	(0.0218)	(0.0218)	(0.0291)	(0.0332)

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.6b: Probit Analyses of Turnover including TVAAS Indicator, 2009-10 through 2011-12, Excluding Teachers Eligible for a Service Retirement (Cont. from p. 194)

	All Teachers	All Teachers	Non-tested grades and Subjects	Tested grades and Subjects
World lang. endorsement	0.159***	0.115***	0.0916***	0.151
	(0.0286)	(0.0287)	(0.0303)	(0.102)
Elementary arts teacher	0.0515**	-0.00522	-0.0197	0.310
	(0.0258)	(0.0263)	(0.0268)	(0.261)
Special education teacher	-0.210***	-0.261***	-0.281***	-0.146
	(0.0218)	(0.0220)	(0.0233)	(0.108)
Campus administrator	-0.307***	-0.351***	-0.363***	-0.280
	(0.0975)	(0.0970)	(0.102)	(0.333)
EIS elementary teacher	-0.362***	-0.369***	-0.403***	-0.314***
	(0.0205)	(0.0203)	(0.0227)	(0.0393)
EIS middle school teacher	-0.241***	-0.155***	-0.0206	-0.229***
	(0.0224)	(0.0233)	(0.0300)	(0.0377)
EIS high school teacher	-0.178***	-0.194***	-0.203***	-0.215***
	(0.0234)	(0.0231)	(0.0258)	(0.0424)
FRLPCT	-0.113	-0.124*	-0.0799	-0.253**
	(0.0689)	(0.0687)	(0.0789)	(0.104)
LEPPCT	1.092***	1.076***	1.175***	0.989*
	(0.329)	(0.329)	(0.372)	(0.511)
SPEPCT	-0.172	-0.143	-0.383	0.487
	(0.395)	(0.394)	(0.448)	(0.611)
LKIDS	-0.00925	-0.00945	-0.0176*	0.00650
	(0.00910)	(0.00909)	(0.0102)	(0.0144)
CWI	0.0311	0.0305	0.153	-0.246
	(0.108)	(0.108)	(0.122)	(0.171)
FMRENT (log)	0.356***	0.351***	0.264**	0.529***
	(0.0940)	(0.0941)	(0.107)	(0.146)
URATE	-0.00361	-0.00286	-0.0110*	0.0166**
	(0.00505)	(0.00506)	(0.00596)	(0.00784)
ALTSCHL	0.0366	0.0310	0.0216	0.0426
	(0.0789)	(0.0788)	(0.0950)	(0.111)
PARTICIPSCHL	-0.00489	-0.00135	-0.0280	0.0652*
	(0.0223)	(0.0225)	(0.0253)	(0.0371)
ALTSCHL2012	-0.0396	-0.0349	-0.0525	0.00171
	(0.103)	(0.102)	(0.134)	(0.164)
PARTICIP2012	0.108***	0.106***	0.112**	0.0908
	(0.0391)	(0.0394)	(0.0433)	(0.0639)
2010-11 School year	0.146***	0.147***	0.142***	0.168***
	(0.0164)	(0.0164)	(0.0188)	(0.0256)
2011-12 School year	0.121***	0.126***	0.104***	0.182***
	(0.0224)	(0.0224)	(0.0254)	(0.0355)

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.6b: Probit Analyses of Turnover including TVAAS Indicator, 2009-10 through 2011-12, Excluding Teachers Eligible for a Service Retirement (Cont. from p. 194)

	All Teachers	All Teachers	Non-tested grades and Subjects	Tested grades and Subjects
No TVAAS score		0.195***		
		(0.0141)		
Constant	0.862	0.941	2.221**	-1.455
	(0.932)	(0.931)	(1.056)	(1.642)
Number of Observations	179,037	179,037	123,067	55,970

Source: Authors' calculations using data from EIS, PIRS, NCES, HUD and BLS.

Note: Robust standard errors in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.7a: Multinomial Logit Analyses of Turnover 2009-10 through 2011-12, All Experience Levels by TVAAS Status

	Non-tested Grades and Subjects		Tested Grades and Subjects	
	Mover	Leaver	Mover	Leaver
Annual FTE Salary (log)	-0.402	-1.029***	-0.168	-0.840***
	(0.258)	(0.159)	(0.392)	(0.286)
Female	0.0664	-0.00349	0.0128	-0.0962*
	(0.0498)	(0.0332)	(0.0703)	(0.0509)
Black	-0.167**	-0.137***	-0.129	-0.280***
	(0.0748)	(0.0457)	(0.112)	(0.0867)
Hispanic	0.548*	1.013***	1.422***	1.595***
	(0.292)	(0.182)	(0.506)	(0.354)
Other nonwhite	0.213	0.342**	0.291	0.732***
	(0.247)	(0.158)	(0.378)	(0.234)
MA	0.212***	-0.0394	0.167**	0.0159
	(0.0474)	(0.0281)	(0.0711)	(0.0516)
MA plus hours	0.314***	-0.131***	0.316**	-0.106
	(0.101)	(0.0498)	(0.148)	(0.0960)
Doctorate	0.310***	-0.422***	0.354***	-0.350***
	(0.0965)	(0.0657)	(0.137)	(0.125)
First year teacher	0.0737	-0.0509	0.0401	0.175**
	(0.0699)	(0.0509)	(0.0990)	(0.0781)
Years experience	-0.0702***	-0.0939***	-0.0856***	-0.106***
	(0.0120)	(0.00653)	(0.0189)	(0.0127)
Years experience, squared	0.000427	0.00215***	0.00184***	0.00255***
	(0.000335)	(0.000134)	(0.000569)	(0.000252)
Years experience unknown	-0.665	-0.0126	1.123***	-0.909
	(0.442)	(0.224)	(0.433)	(1.039)
Age * years experience	0.000197	0.000105	-0.000439	0.000138
	(0.000175)	(7.94e-05)	(0.000274)	(0.000192)
Age	-0.109***	-0.134***	-0.0835***	-0.135***
	(0.0187)	(0.00908)	(0.0279)	(0.0166)
Age, squared	0.000907***	0.00171***	0.000709**	0.00176***
	(0.000230)	(0.000105)	(0.000357)	(0.000197)
Age unknown	-2.072***	-1.900***	-1.507***	-1.852***
	(0.398)	(0.210)	(0.584)	(0.386)
Service retirement eligible	-0.505***	0.856***	-0.619**	0.832***
	(0.161)	(0.0527)	(0.309)	(0.106)
PE endorsement	0.212***	-0.319***	0.655***	-0.152
	(0.0717)	(0.0478)	(0.175)	(0.123)

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.7a: Multinomial Logit Analyses of Turnover 2009-10 through 2011-12, All Experience Levels by TVAAS Status (Cont. from p.197)

	Non-tested Grades and Subjects		Tested Grades and Subjects	
	Mover	Leaver	Mover	Leaver
Math endorsement	0.441***	-0.0109	0.571***	0.257***
	(0.0930)	(0.0591)	(0.100)	(0.0692)
Science endorsement	0.240***	0.0367	0.242**	0.0977
	(0.0851)	(0.0483)	(0.102)	(0.0701)
English endorsement	0.360***	0.0921*	0.293***	0.0370
	(0.0823)	(0.0497)	(0.0926)	(0.0637)
History endorsement	0.276***	-0.0934*	0.0489	-0.0849
	(0.0856)	(0.0505)	(0.101)	(0.0715)
World lang. endorsement	0.339***	0.0402	0.460	-0.0677
	(0.0939)	(0.0623)	(0.293)	(0.216)
Elementary arts teacher	0.0937	-0.105*	0.0382	0.185
	(0.0926)	(0.0537)	(1.038)	(0.564)
Special education teacher	-0.167**	-0.777***	-0.381	-0.211
	(0.0684)	(0.0492)	(0.345)	(0.236)
Campus administrator	-0.700*	-0.553***	-0.116	-15.29***
	(0.360)	(0.200)	(0.772)	(0.229)
EIS elementary teacher	-0.656***	-0.832***	-0.932***	-0.370***
	(0.0635)	(0.0474)	(0.111)	(0.0875)
EIS middle school teacher	0.00536	-0.176***	-0.765***	-0.304***
	(0.0852)	(0.0628)	(0.102)	(0.0853)
EIS high school teacher	-0.334***	-0.499***	-0.776***	-0.339***
	(0.0692)	(0.0541)	(0.113)	(0.0952)
FRLPCT	0.0622	-0.173	-0.223	-0.797***
	(0.237)	(0.156)	(0.316)	(0.225)
LEPPCT	3.872***	0.748	3.439**	1.345
	(1.028)	(0.774)	(1.441)	(1.158)
SPEPCT	-0.838	0.459	1.416	2.049
	(1.325)	(0.847)	(1.677)	(1.254)
LKIDS	-0.182***	0.0490**	-0.172***	0.136***
	(0.0283)	(0.0209)	(0.0381)	(0.0325)
CWI	-0.379	0.533**	-0.608	-0.105
	(0.355)	(0.240)	(0.525)	(0.371)
FMRENT (log)	0.941***	0.266	1.433***	0.297
	(0.314)	(0.210)	(0.433)	(0.322)
URATE	-0.0356*	-0.0208*	0.0369	0.0314*
	(0.0206)	(0.0111)	(0.0238)	(0.0163)

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.7a: Multinomial Logit Analyses of Turnover 2009-10 through 2011-12, All Experience Levels by TVAAS Status (Cont. from p.198)

	Non-tested Grades and Subjects		Tested Grades and Subjects	
	Mover	Leaver	Mover	Leaver
ALTSCHL	0.154	-0.222	0.189	-0.394
	(0.231)	(0.207)	(0.249)	(0.315)
PARTICIPSCHL	0.156**	-0.134**	0.220**	0.0573
	(0.0737)	(0.0567)	(0.105)	(0.0813)
ALTSCHL2012	-0.591	0.138	-0.387	0.660
	(0.391)	(0.299)	(0.410)	(0.435)
PARTICIP2012	0.249**	0.170*	0.383**	0.0286
	(0.123)	(0.0919)	(0.183)	(0.134)
School year 2010-11	0.268***	0.295***	0.268***	0.413***
	(0.0545)	(0.0376)	(0.0736)	(0.0581)
School year 2011-12	0.267***	0.184***	0.373***	0.365***
	(0.0748)	(0.0509)	(0.0997)	(0.0793)
Constant	0.193	8.910***	-6.314	5.521
	(3.178)	(2.092)	(4.915)	(3.624)
Number of Observations	142,479	142,479	62,167	62,167

Source: Authors' calculations using data from EIS, PIRS, NCES, HUD and BLS.

Note: Robust standard errors in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.7b: Multinomial Logit Analyses of Turnover 2009-10 through 2011-12, Excluding Teachers Eligible for a Service-Retirement, by TVAAS Status

	Non-tested Grades and Subjects		Tested Grades and Subjects	
	Mover	Leaver	Mover	Leaver
Annual FTE Salary (log)	-0.373	-0.766***	-0.249	-0.380
	(0.260)	(0.181)	(0.400)	(0.329)
Female	0.0748	0.00578	0.0140	-0.0838
	(0.0508)	(0.0385)	(0.0710)	(0.0588)
Black	-0.175**	-0.143***	-0.105	-0.297***
	(0.0762)	(0.0552)	(0.113)	(0.0990)
Hispanic	0.571*	0.985***	1.184**	1.527***
	(0.293)	(0.186)	(0.545)	(0.374)
Other nonwhite	0.223	0.298*	0.326	0.794***
	(0.249)	(0.171)	(0.379)	(0.232)
MA	0.213***	-0.0230	0.180**	-0.0203
	(0.0477)	(0.0326)	(0.0721)	(0.0581)
MA plus hours	0.302***	-0.163**	0.278*	-0.247*
	(0.104)	(0.0682)	(0.155)	(0.130)
Doctorate	0.278***	-0.429***	0.365***	-0.385***
	(0.0981)	(0.0816)	(0.139)	(0.145)
First year teacher	0.0629	-0.326***	0.00646	-0.138*
	(0.0717)	(0.0517)	(0.101)	(0.0798)
Years experience	-0.0680***	-0.184***	-0.100***	-0.222***
	(0.0138)	(0.00933)	(0.0218)	(0.0176)
Years experience, squared	0.000195	0.00541***	0.00224***	0.00693***
	(0.000450)	(0.000270)	(0.000709)	(0.000525)
Years experience unknown	-0.684	-0.368	1.130***	-1.370
	(0.442)	(0.225)	(0.430)	(1.041)
Age * years experience	0.000200	2.67e-05	-0.000287	2.12e-05
	(0.000218)	(0.000125)	(0.000323)	(0.000309)
Age	-0.124***	-0.119***	-0.0784***	-0.0973***
	(0.0189)	(0.0114)	(0.0295)	(0.0207)
Age, squared	0.00112***	0.00156***	0.000638*	0.00134***
	(0.000231)	(0.000136)	(0.000380)	(0.000254)
Age unknown	-2.360***	-1.587***	-1.362**	-1.060**
	(0.403)	(0.247)	(0.609)	(0.451)
PE endorsement	0.208***	-0.335***	0.675***	-0.0391
	(0.0735)	(0.0606)	(0.180)	(0.174)
Math endorsement	0.480***	0.0790	0.564***	0.255***
	(0.0942)	(0.0691)	(0.102)	(0.0824)

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.7b: Multinomial Logit Analyses of Turnover 2009-10 through 2011-12, Excluding Teachers Eligible for a Service-Retirement, by TVAAS Status (Cont. from p.200)

	Non-tested Grades and Subjects		Tested Grades and Subjects	
	Mover	Leaver	Mover	Leaver
Science endorsement	0.267***	0.0730	0.237**	0.136
	(0.0875)	(0.0613)	(0.105)	(0.0853)
English endorsement	0.405***	0.239***	0.282***	0.0795
	(0.0844)	(0.0623)	(0.0936)	(0.0761)
History endorsement	0.302***	-0.162**	0.0536	-0.0867
	(0.0876)	(0.0717)	(0.103)	(0.0911)
World lang. endorsement	0.350***	0.0861	0.531*	0.190
	(0.0952)	(0.0690)	(0.296)	(0.248)
Elementary arts teacher	0.0697	-0.0962	0.0729	0.899
	(0.0941)	(0.0649)	(1.041)	(0.598)
Special education teacher	-0.145**	-0.755***	-0.338	-0.275
	(0.0692)	(0.0561)	(0.345)	(0.296)
Campus administrator	-0.647*	-0.883***	-0.0799	-12.72***
	(0.361)	(0.308)	(0.774)	(0.226)
EIS elementary teacher	-0.648***	-0.866***	-0.895***	-0.418***
	(0.0645)	(0.0538)	(0.114)	(0.0978)
EIS middle school teacher	0.00792	-0.0597	-0.725***	-0.225**
	(0.0870)	(0.0701)	(0.104)	(0.0932)
EIS high school teacher	-0.338***	-0.414***	-0.727***	-0.184*
	(0.0706)	(0.0593)	(0.115)	(0.105)
FRLPCT	0.0429	-0.229	-0.211	-0.716***
	(0.238)	(0.185)	(0.318)	(0.260)
LEPPCT	3.925***	1.487*	3.071**	0.961
	(1.029)	(0.867)	(1.458)	(1.302)
SPEPCT	-0.735	-1.026	1.493	0.873
	(1.343)	(1.028)	(1.691)	(1.498)
LKIDS	-0.178***	0.0337	-0.168***	0.156***
	(0.0287)	(0.0247)	(0.0387)	(0.0378)
CWI	-0.353	0.615**	-0.668	-0.535
	(0.363)	(0.288)	(0.531)	(0.423)
FMRENT (log)	0.921***	0.308	1.484***	0.754**
	(0.319)	(0.247)	(0.437)	(0.379)
URATE	-0.0363*	-0.0213	0.0381	0.0258
	(0.0209)	(0.0132)	(0.0240)	(0.0195)
ALTSCHL	0.168	-0.0499	0.204	-0.0423
	(0.235)	(0.232)	(0.250)	(0.316)

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.7b: Multinomial Logit Analyses of Turnover 2009-10 through 2011-12, Excluding Teachers Eligible for a Service-Retirement, by TVAAS Status (Cont. from p.201)

	Non-tested Grades and Subjects		Tested Grades and Subjects	
	Mover	Leaver	Mover	Leaver
PARTICIPSCHL	0.143*	-0.168***	0.229**	0.0377
	(0.0742)	(0.0617)	(0.107)	(0.0906)
ALTSCHL2012	-0.567	0.166	-0.390	0.362
	(0.392)	(0.306)	(0.411)	(0.474)
PARTICIP2012	0.262**	0.199**	0.384**	0.0623
	(0.125)	(0.0995)	(0.186)	(0.157)
School year 2010-11	0.265***	0.289***	0.273***	0.370***
	(0.0547)	(0.0435)	(0.0744)	(0.0667)
School year 2011-12	0.258***	0.164***	0.378***	0.354***
	(0.0753)	(0.0603)	(0.101)	(0.0931)
Constant	0.216	6.034**	-5.869	-2.206
	(3.232)	(2.451)	(5.006)	(4.230)
Number of observations	123,067	123,067	55,970	55,970

Source: Authors' calculations using data from EIS, PIRS, NCES, HUD and BLS.

Note: Robust standard errors in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.8a: Multinomial Logit Analyses of Turnover 2009-10 through 2011-12, Tested Subjects and Grade Levels, Including TVAAS Index Values, All Experience Levels

	Model 1		Model 2	
	Mover	Leaver	Mover	Leaver
Annual FTE Salary (log)	-0.190	-0.860***	-0.185	-0.864***
	(0.395)	(0.290)	(0.395)	(0.291)
Female	0.0289	-0.0577	0.0292	-0.0576
	(0.0705)	(0.0515)	(0.0705)	(0.0515)
Black	-0.146	-0.319***	-0.142	-0.319***
	(0.113)	(0.0875)	(0.113)	(0.0875)
Hispanic	1.427***	1.607***	1.430***	1.604***
	(0.504)	(0.354)	(0.502)	(0.352)
Other nonwhite	0.312	0.751***	0.319	0.757***
	(0.377)	(0.235)	(0.377)	(0.235)
MA	0.175**	0.0265	0.174**	0.0262
	(0.0712)	(0.0518)	(0.0713)	(0.0518)
MA plus hours	0.325**	-0.0932	0.324**	-0.0924
	(0.148)	(0.0968)	(0.148)	(0.0968)
Doctorate	0.369***	-0.348***	0.368***	-0.346***
	(0.137)	(0.126)	(0.137)	(0.126)
First year teacher	0.00620	0.131*	0.00653	0.131*
	(0.0991)	(0.0780)	(0.0992)	(0.0781)
Years experience	-0.0841***	-0.104***	-0.0842***	-0.104***
	(0.0190)	(0.0128)	(0.0190)	(0.0128)
Years experience, squared	0.00181***	0.00247***	0.00180***	0.00247***
	(0.000570)	(0.000256)	(0.000570)	(0.000256)
Years experience unknown	1.141***	-0.896	1.134***	-0.899
	(0.438)	(1.046)	(0.438)	(1.045)
Age * years experience	-0.000419	0.000176	-0.000419	0.000178
	(0.000275)	(0.000195)	(0.000275)	(0.000195)
Age	-0.0875***	-0.137***	-0.0873***	-0.137***
	(0.0279)	(0.0167)	(0.0279)	(0.0167)
Age, squared	0.000738**	0.00175***	0.000735**	0.00175***
	(0.000357)	(0.000198)	(0.000356)	(0.000198)
Age unknown	-1.602***	-1.906***	-1.599***	-1.902***
	(0.585)	(0.389)	(0.585)	(0.389)
Service retirement eligible	-0.635**	0.836***	-0.633**	0.838***
	(0.309)	(0.107)	(0.309)	(0.107)
PE endorsement	0.632***	-0.193	0.631***	-0.192
	(0.176)	(0.125)	(0.176)	(0.125)

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.8a: Multinomial Logit Analyses of Turnover 2009-10 through 2011-12, Tested Subjects and Grade Levels, Including TVAAS Index Values, All Experience Levels (Cont. from p.203)

	Model 1		Model 2	
	Mover	Leaver	Mover	Leaver
Math endorsement	0.575***	0.251***	0.573***	0.250***
	(0.101)	(0.0698)	(0.101)	(0.0698)
Science endorsement	0.218**	0.0437	0.223**	0.0455
	(0.103)	(0.0705)	(0.103)	(0.0706)
English endorsement	0.271***	0.0143	0.271***	0.0149
	(0.0925)	(0.0636)	(0.0923)	(0.0636)
History endorsement	0.0690	-0.0606	0.0712	-0.0590
	(0.101)	(0.0719)	(0.102)	(0.0719)
World lang. endorsement	0.450	-0.0715	0.452	-0.0732
	(0.294)	(0.218)	(0.294)	(0.219)
Elementary arts teacher	-0.00443	0.0942	-0.0202	0.0894
	(1.039)	(0.568)	(1.041)	(0.568)
Special education teacher	-0.400	-0.235	-0.405	-0.236
	(0.344)	(0.235)	(0.344)	(0.235)
Campus administrator	-0.0790	-14.43***	-0.0903	-13.94***
	(0.770)	(0.229)	(0.772)	(0.230)
EIS elementary teacher	-0.921***	-0.353***	-0.916***	-0.353***
	(0.111)	(0.0875)	(0.111)	(0.0877)
EIS middle school teacher	-0.753***	-0.297***	-0.747***	-0.297***
	(0.101)	(0.0850)	(0.101)	(0.0851)
EIS high school teacher	-0.777***	-0.345***	-0.787***	-0.350***
	(0.114)	(0.0956)	(0.114)	(0.0960)
FRLPCT	-0.301	-0.915***	-0.319	-0.921***
	(0.318)	(0.228)	(0.319)	(0.229)
LEPPCT	3.606**	1.583	3.633**	1.596
	(1.445)	(1.160)	(1.445)	(1.160)
SPEPCT	1.274	1.694	1.326	1.712
	(1.686)	(1.265)	(1.688)	(1.264)
LKIDS	-0.174***	0.131***	-0.174***	0.131***
	(0.0382)	(0.0326)	(0.0382)	(0.0326)
CWI	-0.606	-0.150	-0.601	-0.145
	(0.525)	(0.369)	(0.525)	(0.369)
FMRENT (log)	1.435***	0.327	1.442***	0.326
	(0.433)	(0.321)	(0.433)	(0.321)
URATE	0.0364	0.0307*	0.0376	0.0306*
	(0.0239)	(0.0163)	(0.0239)	(0.0164)

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.8a: Multinomial Logit Analyses of Turnover 2009-10 through 2011-12, Tested Subjects and Grade Levels, Including TVAAS Index Values, All Experience Levels (Cont. from p.204)

	Model 1		Model 2	
	Mover	Leaver	Mover	Leaver
ALTSCHL	0.180	-0.413	0.163	-0.390
	(0.245)	(0.317)	(0.243)	(0.310)
PARTICIPSCHL	0.221**	0.0640	0.221**	0.0598
	(0.105)	(0.0813)	(0.105)	(0.0825)
ALTSCHL2012	-0.340	0.707	-0.242	0.614
	(0.406)	(0.441)	(0.449)	(0.439)
PARTICIP2012	0.379**	0.0213	0.341*	-0.00755
	(0.184)	(0.135)	(0.187)	(0.143)
School year 2010-11	0.367***	0.564***	0.343***	0.557***
	(0.0757)	(0.0595)	(0.0766)	(0.0600)
School year 2011-12	0.488***	0.553***	0.495***	0.556***
	(0.103)	(0.0813)	(0.102)	(0.0813)
TVAAS Index Score	-0.0458***	-0.0706***	-0.0375***	-0.0667***
	(0.00834)	(0.00652)	(0.0111)	(0.00874)
TVAAS Index * Alt			-0.0278	0.0341
			(0.0519)	(0.0480)
TVAAS Index Participating			0.0250	-0.00654
			(0.0293)	(0.0204)
Alt Index 2012			0.0114	0.0414
			(0.132)	(0.0950)
Participating Index 2012			0.0160	0.0432
			(0.0429)	(0.0405)
Index 2012			-0.0319	-0.0152
			(0.0196)	(0.0143)
Constant	-6.005	5.669	-6.111	5.719
	(4.930)	(3.657)	(4.933)	(3.658)
Number of Observations	62,167	62,167	62,167	62,167

Source: Authors' calculations using data from EIS, PIRS, NCES, HUD and BLS.

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.8b: Multinomial Logit Analyses of Turnover 2009-10 through 2011-12, Tested Subjects and Grade Levels, Including TVAAS Index Values, Excluding Teachers Eligible for a Service Retirement

	Model 1		Model 2	
	Mover	Leaver	Mover	Leaver
Annual FTE Salary (log)	-0.273	-0.406	-0.268	-0.406
	(0.403)	(0.334)	(0.404)	(0.334)
Female	0.0299	-0.0449	0.0301	-0.0453
	(0.0712)	(0.0593)	(0.0712)	(0.0593)
Black	-0.121	-0.331***	-0.117	-0.330***
	(0.113)	(0.0995)	(0.113)	(0.0995)
Hispanic	1.189**	1.542***	1.192**	1.538***
	(0.542)	(0.371)	(0.539)	(0.369)
Other nonwhite	0.346	0.817***	0.355	0.823***
	(0.378)	(0.236)	(0.378)	(0.237)
MA	0.189***	-0.00966	0.187***	-0.0103
	(0.0722)	(0.0584)	(0.0723)	(0.0583)
MA plus hours	0.287*	-0.239*	0.286*	-0.239*
	(0.155)	(0.130)	(0.155)	(0.130)
Doctorate	0.380***	-0.371**	0.380***	-0.368**
	(0.139)	(0.146)	(0.139)	(0.146)
First year teacher	-0.0290	-0.196**	-0.0289	-0.196**
	(0.101)	(0.0798)	(0.101)	(0.0800)
Years experience	-0.0986***	-0.218***	-0.0987***	-0.219***
	(0.0219)	(0.0177)	(0.0219)	(0.0177)
Years experience, squared	0.00221***	0.00687***	0.00220***	0.00687***
	(0.000712)	(0.000529)	(0.000712)	(0.000530)
Years experience unknown	1.148***	-1.356	1.141***	-1.360
	(0.435)	(1.050)	(0.434)	(1.048)
Age * years experience	-0.000271	3.51e-05	-0.000270	4.10e-05
	(0.000328)	(0.000316)	(0.000328)	(0.000317)
Age	-0.0828***	-0.103***	-0.0827***	-0.103***
	(0.0294)	(0.0207)	(0.0294)	(0.0206)
Age, squared	0.000672*	0.00138***	0.000670*	0.00137***
	(0.000379)	(0.000254)	(0.000378)	(0.000254)
Age unknown	-1.466**	-1.201***	-1.464**	-1.196***
	(0.609)	(0.453)	(0.609)	(0.453)
PE endorsement	0.653***	-0.0782	0.652***	-0.0778
	(0.181)	(0.174)	(0.181)	(0.174)
PE endorsement	0.632***	-0.193	0.631***	-0.192
	(0.176)	(0.125)	(0.176)	(0.125)

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.8b: Multinomial Logit Analyses of Turnover 2009-10 through 2011-12, Tested Subjects and Grade Levels, Including TVAAS Index Values, Excluding Teachers Eligible for a Service Retirement (Cont. from p. 206)

	Model 1		Model 2	
	Mover	Leaver	Mover	Leaver
Math endorsement	0.570***	0.252***	0.567***	0.250***
	(0.102)	(0.0836)	(0.102)	(0.0837)
Science endorsement	0.215**	0.0904	0.219**	0.0927
	(0.105)	(0.0852)	(0.105)	(0.0852)
English endorsement	0.261***	0.0577	0.260***	0.0584
	(0.0934)	(0.0761)	(0.0933)	(0.0761)
History endorsement	0.0753	-0.0456	0.0776	-0.0444
	(0.103)	(0.0915)	(0.103)	(0.0916)
World lang. endorsement	0.521*	0.174	0.523*	0.173
	(0.297)	(0.249)	(0.297)	(0.249)
Elementary arts teacher	0.0341	0.810	0.0173	0.803
	(1.042)	(0.597)	(1.044)	(0.596)
Special education teacher	-0.359	-0.306	-0.364	-0.307
	(0.344)	(0.296)	(0.344)	(0.296)
Campus administrator	-0.0393	-13.99***	-0.0513	-13.12***
	(0.772)	(0.217)	(0.774)	(0.218)
EIS elementary teacher	-0.883***	-0.395***	-0.878***	-0.393***
	(0.114)	(0.0979)	(0.114)	(0.0980)
EIS middle school teacher	-0.713***	-0.213**	-0.707***	-0.211**
	(0.103)	(0.0924)	(0.104)	(0.0925)
EIS high school teacher	-0.730***	-0.201*	-0.740***	-0.207**
	(0.115)	(0.105)	(0.115)	(0.106)
FRLPCT	-0.292	-0.862***	-0.310	-0.874***
	(0.321)	(0.263)	(0.322)	(0.264)
LEPPCT	3.246**	1.332	3.273**	1.364
	(1.463)	(1.302)	(1.463)	(1.303)
SPEPCT	1.347	0.494	1.404	0.504
	(1.700)	(1.508)	(1.702)	(1.508)
LKIDS	-0.170***	0.151***	-0.170***	0.150***
	(0.0388)	(0.0377)	(0.0387)	(0.0378)
CWI	-0.664	-0.584	-0.660	-0.582
	(0.531)	(0.421)	(0.531)	(0.421)
FMRENT (log)	1.485***	0.776**	1.493***	0.777**
	(0.437)	(0.378)	(0.437)	(0.377)
URATE	0.0375	0.0230	0.0387	0.0234
	(0.0240)	(0.0196)	(0.0240)	(0.0196)

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.8b: Multinomial Logit Analyses of Turnover 2009-10 through 2011-12, Tested Subjects and Grade Levels, Including TVAAS Index Values, Excluding Teachers Eligible for a Service Retirement (Cont. from p. 207)

	Model 1		Model 2	
	Mover	Leaver	Mover	Leaver
ALTSCHL	0.196	-0.0650	0.179	-0.0429
	(0.246)	(0.320)	(0.244)	(0.309)
PARTICIPSCHL	0.230**	0.0448	0.230**	0.0464
	(0.106)	(0.0905)	(0.106)	(0.0917)
ALTSCHL2012	-0.340	0.436	-0.228	0.383
	(0.407)	(0.476)	(0.450)	(0.481)
PARTICIP2012	0.380**	0.0541	0.338*	0.0230
	(0.186)	(0.157)	(0.188)	(0.162)
School year 2010-11	0.375***	0.559***	0.351***	0.550***
	(0.0766)	(0.0683)	(0.0775)	(0.0691)
School year 2011-12	0.497***	0.581***	0.505***	0.582***
	(0.104)	(0.0957)	(0.103)	(0.0957)
TVAAS Index Score	-0.0475***	-0.0859***	-0.0382***	-0.0828***
	(0.00846)	(0.00727)	(0.0112)	(0.00990)
TVAAS Index * Alt			-0.0297	0.0347
			(0.0528)	(0.0474)
TVAAS Index Participating			0.0227	0.00726
			(0.0300)	(0.0266)
Alt Index 2012			0.00917	0.0168
			(0.133)	(0.0860)
Participating Index 2012			0.0219	0.0299
			(0.0434)	(0.0435)
Index 2012			-0.0346*	-0.0165
			(0.0199)	(0.0158)
Constant	-5.533	-1.832	-5.634	-1.834
	(5.020)	(4.269)	(5.024)	(4.272)
Number of Observations	55,970	55,970	55,970	55,970

Source: Authors' calculations using data from EIS, PIRS, NCES, HUD and BLS.

Note: Robust standard errors in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.9a: Probit Analyses of Turnover 2009-10 through 2011-12, Including Individual Awards, All Experience Levels

	Probit	IV Probit (Newey's two step)	Model 2
Annual FTE Salary (log)	-0.377***	-0.379***	-0.379***
	(0.0530)	(0.0533)	(0.0662)
Female	-0.00937	-0.00893	-0.00891
	(0.0114)	(0.0114)	(0.0122)
Black	-0.0825***	-0.0825***	-0.0825***
	(0.0151)	(0.0145)	(0.0180)
Hispanic	0.583***	0.585***	0.585***
	(0.0730)	(0.0713)	(0.0873)
Other nonwhite	0.220***	0.220***	0.220***
	(0.0607)	(0.0598)	(0.0644)
MA	0.0217**	0.0221**	0.0221**
	(0.0104)	(0.0104)	(0.0111)
MA plus hours	-0.0174	-0.0174	-0.0174
	(0.0191)	(0.0189)	(0.0202)
Doctorate	-0.0724***	-0.0719***	-0.0719***
	(0.0218)	(0.0218)	(0.0239)
First year teacher	-0.00432	-0.00491	-0.00497
	(0.0181)	(0.0178)	(0.0192)
Years experience	-0.0537***	-0.0535***	-0.0535***
	(0.00238)	(0.00232)	(0.00263)
Years experience, squared	0.00113***	0.00113***	0.00113***
	(5.21e-05)	(5.02e-05)	(5.73e-05)
Years experience unknown	-0.0508	-0.0504	-0.0503
	(0.102)	(0.103)	(0.103)
Age * years experience	0.000126***	0.000127***	0.000127***
	(3.26e-05)	(3.18e-05)	(3.53e-05)
Age	-0.0766***	-0.0766***	-0.0766***
	(0.00358)	(0.00350)	(0.00366)
Age, squared	0.000905***	0.000904***	0.000904***
	(4.21e-05)	(4.11e-05)	(4.28e-05)
Age unknown	-1.190***	-1.191***	-1.190***
	(0.0831)	(0.0818)	(0.0859)
Service Retirement Eligible	0.340***	0.340***	0.340***
	(0.0215)	(0.0204)	(0.0214)
PE endorsement	-0.0715***	-0.0714***	-0.0713***
	(0.0184)	(0.0182)	(0.0191)

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.9a: Probit Analyses of Turnover 2009-10 through 2011-12, Including Individual Awards, All Experience Levels (Cont. from p.209)

	Probit	IV Probit (Newey's two step)	Model 2
Math endorsement	0.111***	0.111***	0.111***
	(0.0191)	(0.0189)	(0.0198)
Science endorsement	0.0327*	0.0328*	0.0328*
	(0.0176)	(0.0173)	(0.0173)
English endorsement	0.0522***	0.0523***	0.0524***
	(0.0166)	(0.0164)	(0.0166)
History endorsement	-0.0135	-0.0135	-0.0135
	(0.0179)	(0.0177)	(0.0178)
World lang. endorsement	0.0790***	0.0791***	0.0791***
	(0.0260)	(0.0256)	(0.0268)
Elementary arts teacher	-0.0198	-0.0199	-0.0199
	(0.0232)	(0.0232)	(0.0235)
Special education teacher	-0.290***	-0.290***	-0.290***
	(0.0185)	(0.0177)	(0.0206)
Campus administrator	-0.299***	-0.298***	-0.298***
	(0.0802)	(0.0788)	(0.0778)
EIS elementary teacher	-0.365***	-0.363***	-0.363***
	(0.0158)	(0.0151)	(0.0194)
EIS middle school teacher	-0.178***	-0.178***	-0.178***
	(0.0178)	(0.0168)	(0.0222)
EIS high school teacher	-0.224***	-0.224***	-0.224***
	(0.0165)	(0.0159)	(0.0221)
FRLPCT	-0.126***	-0.127***	-0.127**
	(0.0428)	(0.0420)	(0.0637)
LEPPCT	0.797***	0.792***	0.792**
	(0.211)	(0.212)	(0.313)
SPEPCT	0.303	0.316	0.316
	(0.250)	(0.254)	(0.361)
LKIDS	-0.00172	-0.00171	-0.00170
	(0.00593)	(0.00588)	(0.00841)
CWI	0.0726	0.0763	0.0762
	(0.0697)	(0.0713)	(0.0993)
FMRENT (log)	0.296***	0.299***	0.299***
	(0.0611)	(0.0619)	(0.0874)
URATE	-0.00304	-0.00294	-0.00294
	(0.00335)	(0.00331)	(0.00467)

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.9a: Probit Analyses of Turnover 2009-10 through 2011-12, Including Individual Awards, All Experience Levels (Cont. from p.2010)

	Probit	IV Probit (Newey's two step)	Model 2
PARTICIPSCHL	0.00176	0.00190	0.00189
	(0.0164)	(0.0163)	(0.0213)
ALTSCHL	-0.0443	-0.0439	-0.0439
	(0.0504)	(0.0508)	(0.0775)
ALTSCHL2012	0.0487	0.0805	0.0806
	(0.0840)	(0.0886)	(0.122)
PARTICIP2012	0.286***	0.373***	0.372***
	(0.0293)	(0.0807)	(0.103)
School year 2010-11	0.172***	0.172***	0.172***
	(0.0106)	(0.0107)	(0.0154)
School year 2011-12	0.151***	0.151***	0.151***
	(0.0145)	(0.0144)	(0.0208)
No TVAAS Score	0.170***	0.169***	0.169***
	(0.0113)	(0.0110)	(0.0130)
TVAAS Index	-0.0267***	-0.0261***	-0.0261***
	(0.00229)	(0.00243)	(0.00256)
Payout (log)	-0.000355***	-0.000468***	-0.000469***
	(2.65e-05)	(0.000104)	(0.000137)
Constant	2.418***	2.415***	2.415***
	(0.666)	(0.675)	(0.854)
First-stage test statistic for the hypothesis that the instruments are jointly zero		F-statistic	Chi-squared statistic
		4876.25	183.78
Number of Observations	204,646	204,646	204,646

Source: Authors' calculations using data from EIS, PIRS, NCES, HUD and BLS.

Note: The instruments are the lagged TVAAS index and an indicator for whether or not the teacher is new to the building. Both instruments are set equal to zero for nonprogram schools and years. Robust standard errors in parentheses for the maximum likelihood models (Probit and IV Probit MLE). Standard errors in parentheses for Newey's two-step IVProbit model * significant at 10%; ** significant at 5%; *** significant at 1%.

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.9b: Probit Analyses of Turnover 2009-10 through 2011-12, Including Individual Awards, Excluding Teachers Eligible for a Service Retirement

	Probit	IV Probit (Newey's two step)	Model 2 MLE
Annual FTE Salary (log)	-0.284***	-0.288***	-0.288***
	(0.0599)	(0.0608)	(0.0720)
Female	-0.00235	-0.00169	-0.00167
	(0.0126)	(0.0126)	(0.0132)
Black	-0.0845***	-0.0842***	-0.0842***
	(0.0171)	(0.0163)	(0.0198)
Hispanic	0.555***	0.559***	0.559***
	(0.0797)	(0.0777)	(0.0872)
Other nonwhite	0.221***	0.220***	0.220***
	(0.0633)	(0.0624)	(0.0676)
MA	0.0306***	0.0314***	0.0314***
	(0.0115)	(0.0115)	(0.0121)
MA plus hours	-0.00921	-0.00941	-0.00939
	(0.0239)	(0.0238)	(0.0245)
Doctorate	-0.0396	-0.0386	-0.0386
	(0.0244)	(0.0245)	(0.0261)
First year teacher	-0.0812***	-0.0818***	-0.0818***
	(0.0187)	(0.0186)	(0.0198)
Years experience	-0.0806***	-0.0803***	-0.0802***
	(0.00331)	(0.00330)	(0.00353)
Years experience, squared	0.00213***	0.00212***	0.00212***
	(9.63e-05)	(9.38e-05)	(0.000101)
Years experience unknown	-0.163	-0.162	-0.161
	(0.103)	(0.104)	(0.103)
Age * years experience	9.35e-05*	9.66e-05**	9.66e-05*
	(5.07e-05)	(4.92e-05)	(5.15e-05)
Age	-0.0619***	-0.0620***	-0.0619***
	(0.00446)	(0.00444)	(0.00446)
Age, squared	0.000734***	0.000734***	0.000733***
	(5.40e-05)	(5.38e-05)	(5.37e-05)
Age unknown	-0.900***	-0.902***	-0.901***
	(0.0981)	(0.0979)	(0.0997)
PE endorsement	-0.0433**	-0.0433**	-0.0433**
	(0.0214)	(0.0213)	(0.0219)
PE endorsement	-0.0715***	-0.0714***	-0.0713***
	(0.0184)	(0.0182)	(0.0191)

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.9b: Probit Analyses of Turnover 2009-10 through 2011-12, Including Individual Awards, Excluding Teachers Eligible for a Service Retirement (Cont. from p.212)

	Probit	IV Probit (Newey's two step)	Model 2 MLE
Math endorsement	0.150***	0.151***	0.151***
	(0.0210)	(0.0210)	(0.0218)
Science endorsement	0.0614***	0.0617***	0.0616***
	(0.0204)	(0.0204)	(0.0201)
English endorsement	0.0949***	0.0950***	0.0950***
	(0.0188)	(0.0188)	(0.0192)
History endorsement	-0.00347	-0.00332	-0.00331
	(0.0213)	(0.0212)	(0.0218)
World lang. endorsement	0.114***	0.114***	0.114***
	(0.0286)	(0.0285)	(0.0288)
Elementary arts teacher	-0.00785	-0.00814	-0.00812
	(0.0259)	(0.0258)	(0.0263)
Special education teacher	-0.259***	-0.258***	-0.258***
	(0.0205)	(0.0195)	(0.0220)
Campus administrator	-0.345***	-0.343***	-0.343***
	(0.0987)	(0.0979)	(0.0969)
EIS elementary teacher	-0.366***	-0.363***	-0.363***
	(0.0176)	(0.0168)	(0.0204)
EIS middle school teacher	-0.151***	-0.151***	-0.151***
	(0.0197)	(0.0186)	(0.0234)
EIS high school teacher	-0.193***	-0.193***	-0.192***
	(0.0182)	(0.0176)	(0.0232)
FRLPCT	-0.137***	-0.138***	-0.137**
	(0.0482)	(0.0470)	(0.0690)
LEPPCT	1.099***	1.095***	1.094***
	(0.233)	(0.235)	(0.329)
SPEPCT	-0.151	-0.129	-0.128
	(0.282)	(0.288)	(0.396)
LKIDS	-0.0103	-0.0105	-0.0105
	(0.00659)	(0.00657)	(0.00915)
CWI	0.0372	0.0444	0.0443
	(0.0790)	(0.0808)	(0.108)
FMRENT (log)	0.363***	0.368***	0.368***
	(0.0685)	(0.0694)	(0.0941)
URATE	-0.00281	-0.00260	-0.00260
	(0.00379)	(0.00373)	(0.00508)

APPENDIX D – TECHNICAL APPENDIX FOR TEACHER TURNOVER ANALYSES

Table D.9b: Probit Analyses of Turnover 2009-10 through 2011-12, Including Individual Awards, Excluding Teachers Eligible for a Service Retirement (Cont. from p.212)

	Probit	IV Probit (Newey's two step)	Model 2 MLE
PARTICIPSCHL	-0.000343	4.25e-05	3.61e-05
	(0.0179)	(0.0178)	(0.0224)
ALTSCHL	0.0295	0.0301	0.0301
	(0.0538)	(0.0546)	(0.0780)
ALTSCHL2012	0.0104	0.0630	0.0631
	(0.0905)	(0.0959)	(0.124)
PARTICIP2012	0.302***	0.451***	0.451***
	(0.0318)	(0.0882)	(0.103)
School year 2010-11	0.166***	0.165***	0.165***
	(0.0119)	(0.0120)	(0.0166)
School year 2011-12	0.150***	0.150***	0.149***
	(0.0162)	(0.0162)	(0.0225)
No TVAAS Score	0.186***	0.184***	0.184***
	(0.0127)	(0.0123)	(0.0143)
TVAAS Index	-0.0301***	-0.0290***	-0.0290***
	(0.00249)	(0.00266)	(0.00275)
Payout (log)	-0.000382***	-0.000580***	-0.000582***
	(3.10e-05)	(0.000115)	(0.000140)
Constant	0.943	0.941	0.941
	(0.755)	(0.772)	(0.933)
First-stage test statistic for the hypothesis that the instruments are jointly zero		F-statistic	Chi-squared statistic
		4337.18	163.71
Number of Observations	179,037	179,037	179,037

Source: Authors' calculations using data from EIS, PIRS, NCES, HUD and BLS.

Note: The instruments are the lagged TVAAS index and an indicator for whether or not the teacher is new to the building. Both instruments are set equal to zero for nonprogram schools and years. Robust standard errors in parentheses for the maximum likelihood models (Probit and IV Probit MLE). Standard errors in parentheses for Newey's two-step IVProbit model * significant at 10%; ** significant at 5%; *** significant at 1%.

APPENDIX E: TECHNICAL APPENDIX STRATEGIC COMPENSATION PROGRAMS AND STUDENT PERFORMANCE

This appendix provides technical details about the methods employed by evaluators and the results for findings presented in Chapter 7.

Association between Student Achievement Gains and Strategic Compensation Program Participation

This section of the appendix discusses the data used to examine associations between strategic compensation program participation and/or program plan design features and student achievement gains. The analysis used data from the first two years of the compensation program.

Variables used to estimate the association between program participation and/or program plan design features and student achievement gains included a measure of student growth in mathematics and reading, program plan design features, and various controls for student and school characteristics.

The data came from two primary sources. First, a longitudinal, student-level data set containing student characteristics and achievement data for grades 3 through 8 in mathematics and reading was provided to us by NCPI. Achievement

results come from TCAP, a standardized assessment adopted in spring 2003 that evaluates student performance on a subset of the state-defined and state-mandated curriculum. The data set covers the academic years 2006-7 through 2012-13. School level data were generated by the evaluators based upon the individual student data. Information on the district/school compensation plans was based upon evaluators' review of district applications submitted to TDOE in June 2011.

The sample for the analysis of the strategic compensation program is based on the 14 districts and the 192 schools that participated in strategic compensation programs in both 2011-12 and 2012-13. We focus on students in schools in grades up to grade eight, although in future analysis we intend to explore the impact of these strategic compensation schemes on student performance in high school years.

Student Test Score Gains

The analysis used a student's spring-to-spring test score gain in mathematics and reading as the outcome variable. Test scores were measured on the state's high-stakes accountability test, TCAP. The evaluators constructed a standardized gain score measure. The standardization was motivated by at least three important considerations: (1) The TCAP testing regime changed in a fundamental way in 2010 (2) tests may lead to smaller or larger gains at various points on the achievement distribution (3) a standardized gain score also lessened

APPENDIX E: TECHNICAL APPENDIX STRATEGIC COMPENSATION PROGRAMS AND STUDENT PERFORMANCE

the chances that mean reverting measurement error would bias estimated associations between program participation or program plan design features and student test score gains.

To standardize the gain score, each student's actual gain score was normalized relative to the gain scores for all students with identical prior year assessment scores in identical grades.[1] A student's test score gain was standardized by taking the difference between that student's nominal gain and the mean gain of all matched students (i.e. those students in the same grade and with same score in the previous year) over the standard deviation of all student gains in the interval. The standardized gain score has a mean of zero and standard deviation of one and can be interpreted as an individual student's test score gain compared to the mean test score gain at a particular place in the achievement distribution.

More formally, in this normalization, evaluators used test scores for student (i), grade (g), and time or year (t), denoted as S_{igt} .

$$Y_{igt} = \frac{S_{igt} - E(S_{igt}|S_{i,g-1,t-1})}{[E(S_{igt}^2|S_{i,g-1,t-1}) - E(S_{igt}|S_{i,g-1,t-1})^2]^{0.5}}$$

Strategic Compensation Plan Design Features

Analysis focused primarily on two design features of a district's strategic compensation plan; features that could be attributed to the school level and were available in the first two years of the program. Compensation plan structures for teachers in tested positions were the objects of analysis in this report. Analysis considered a participation effect, and any special impact on students in schools that implemented an alternative salary compensation plan.

In future work additional features of the bonus plans might bear consideration. One is the size of the size of the proposed maximum bonus incentive award. Bonus award models also differed in structure. Analysis could consider whether a tiered structure was associated with different performance gains compared with a flat structure. Finally, the analysis could consider the unit of accountability (i.e. whether awards for teachers were determined by individual, team, and/or school-wide performance). Schools had a variety of accountability units, and they were not mutually exclusive. Almost all had individual unit accountability and school level accountability,

[1] This approach is described in Reback (2007), and is similar to a normalizing procedure introduced by Hanushek et al (2005) and used by Springer (2007, 2008).

APPENDIX E: TECHNICAL APPENDIX STRATEGIC COMPENSATION PROGRAMS AND STUDENT PERFORMANCE

so these were not studied as they did not vary much across treatments. There was more variability among schools with respect to whether they adopted team accountability, and whether they had a district component of accountability.

A major issue is whether these various plan characteristics have sufficient variability across schools, and sufficient observations, to merit further analysis. The statistical insignificance attached to the bonus plan participation in the first two years of the program, and various identification issues we raise, makes finer combing of plan features problematic. Analysis of the alternative salary structure plans illustrates some of the issues here.

APPENDIX E: TECHNICAL APPENDIX STRATEGIC COMPENSATION PROGRAMS AND STUDENT PERFORMANCE

Table E.1: Incentive Plan Design Features 2011-12 and 2012-13
(Student and School tabulations are for our sample of non-high school students)

Treatment Type/Description	2011-2012	2012-2013
Alternative Salary Schedule	3 districts 19 campuses 5265 students	3 districts 18 campuses 5381students
Maximum Award (tested subjects)	2% - 3%	2% - 3%
Bonus Plan	14 districts 100 campuses 48,741 students	14 districts 99 campuses 49,888 students
Maximum Award		
Range	$500 - $16,000	$500 - $16,000
Average (student weighted)	$3,658.52	$3,671.28
Accountability Unit: Team		
Percent of Treated Students	23.05%	23.29%
Percent of Districts	4 districts	4 districts
Percent of Campuses	39 campuses	38 campuses
Accountability Unit: District		
Percent of Treated Students	15.83%	15.81%
Percent of Districts	4 districts	4 districts
Percent of Campuses	26 campuses	25 campuses
Award Structure: Flat		
Percent of Treated Students	49.53%	49.51%
Percent of Districts	12 districts	12 districts
Percent of Campuses	55 campuses	54 campuses
Award Structure: Tiered		
Percent of Treated Students	87.09%%	87.04%
Percent of Districts	12 districts	12 districts
Percent of Campuses	91 campuses	91 campuses

Table E.1 provides a description of the design features used by schools in Years 1and 2 of the strategic compensation program.

APPENDIX E: TECHNICAL APPENDIX STRATEGIC COMPENSATION PROGRAMS AND STUDENT PERFORMANCE

Controlling for Student, School, and Program Characteristics

Analyses controlled for select student, school, and strategic compensation plan characteristics. All models included a student-fixed effect estimator to account for time invariant characteristics of students that may have been correlated with student achievement gains, including parent and student motivation, parental education, and innate student ability.

Analyses controlled for a number of student and school characteristics at the school-level. School-level student characteristics included the percentage of white students, hispanic students, black students, and asian students, as well as the percent of students receiving a free or reduced price lunch, the percent of English language learners, the percent migrant, the percent who moved within a year (within district, across district, and from outside the Tennessee public school system), the percent special education students (including separately the level of special education intervention, medium or high intensity).

Individual student characteristics that could vary over time were controlled for, including migrant status, English language learner status, a series of indicators for student movers (within district, across district, and from outside the public school system), an indicator for students receiving a free or reduced price lunch, and indicators for special education treatment including measures of intensity (low, medium, high).

All analyses included grade by year fixed effects. This accounted for changes in test performance across grade levels and cohorts that may have given an invalid appearance of an association between strategic compensation plan characteristics and student achievement (i.e. spurious correlation). That is, if test difficulty varied from year to year, and/or varied for different student populations from year to year, estimates of the association between strategic plan design features and student achievement gains would have been biased toward zero.

Because a compensation plan was determined at the district (occasionally, school-within-district) level, standard errors need to take into account within-district correlation or clustering of the random disturbances in the model (Moulton, 1986). We found conventional solutions to this problem to be unsatisfactory. Huber-White standard errors robust to clustering can be seriously understated when the number of clusters are small, as it is in this analysis (McCaffrey and Bell, 2003). The problem is particularly serious when estimating the impact of alternative salary structures, where the number of clusters is only three. Random effects estimators are sensitive to departures from the variance components model (e.g., non-normality, serial correlation).

Our standard errors have been calculated using a randomization (also known as a rerandomization or permutation) test (Good, 2000; Edgington and Ongehna, 2007). Districts and schools were assigned randomly

APPENDIX E: TECHNICAL APPENDIX STRATEGIC COMPENSATION PROGRAMS AND STUDENT PERFORMANCE

to treatment status, regardless of whether they had actually adopted a strategic compensation plan. This was done a thousand times, yielding replicate data sets identical to the true data except for these fictitious treatment indicators. The achievement models described above were estimated, yielding 1000 estimates of the "treatment" effect. Because the set of program "participants" was in each case a random subset of the original data, the distribution of resulting "effects" resembles the distribution of actual program impacts under the null hypothesis that participation had no systematic impact on student achievement. The p-values of the actual coefficient estimates were obtained by tabulating the frequency with which they were exceeded in absolute value by coefficients obtained in these simulations.

Because the magnitude of district-by-year random effects can depend importantly on district size (the smaller the district, the greater the impact of a single random event—say, hiring a new teacher—on mean achievement), we stratified the data based on district size before randomly assigning fictitious treatment indicators. We employed four strata: districts of fewer than 700 students, 700-2000, 2000-5000, and above 10,000. (There were no participating districts in which enrollment fell between 5000 and 10,000.) In districts with partial participation (i.e., those in which some but not all schools adopted a plan), we randomly selected a subset of schools based on the mean number participating schools among such districts in that stratum. We followed this procedure for assigning pseudo values for both treatment indicators used in this analysis: whether a strategic compensation plan of any type was adopted, and whether the plan took the form of an alternative salary schedule. The pseudo-treatment indicators were set to one in the true treatment years, 2011-12 and 2012-13, and to zero in the earlier years. The result was asset of "difference-in-differences" estimates based on changes in achievement in a random subset of schools compared to changes over the same period in the schools not assigned to "treatment." The results showed that large differences occur by chance far more frequently than was reflected in Huber-White standard errors and that p-values using the latter were far too small, overstating statistical significance.

We also calculated the "adjusted" p-values described in Aickin (2010), correcting for the influence of the actual effect of treatment on the simulated data. The effect of these adjustments was trivial and are not reflected in the results reported here.

Results

Associations between strategic program pa rticipation and student achievement gains

Table E.2 summarizes the findings of the relationship between program participation and student achievement gains over the first two years of the strategic compensation program initiative. The table provides statistics

APPENDIX E: TECHNICAL APPENDIX STRATEGIC COMPENSATION PROGRAMS AND STUDENT PERFORMANCE

associated with Table 7.2 in the main report. We report results from a regression on an indicator for treatment in years 2011-12 and 2012-13 (labeled 1), then results from a regression on an indicator for treatment and an indicator for salary treatment in years 2011-12 and 2012-13 (labeled 2a and 2b), and finally results from a regression on an indicator for salary treatment in the two treatment years. In this final regression (labeled 3) we dropped all schools treated only with bonuses.

We see that the estimated treatment effect is statistically insignificant in all specifications. Point estimates are small except for the impact of adopting an alternative salary schedule on mathematics scores. Students in schools that adopted an alternative salary schedule increased their math score gains by about .17 of a standard deviation compared to students in districts that did not participate in the strategic compensation initiative (row 3). However, the latter is imprecisely estimated and falls to attain statistical significance at the 10% level. This result (and its counterpart in row 2b) suggest that there may have been a positive impact in mathematics, although more observations – more years of treatment – are needed for a more definitive conclusion.

Table E.2: Association between Strategic Compensation Program Participation and Student Achievement Gains

	Reading	Math
1. Treatment Effect (Bonus and/or Salary Schedule)	.002 p=.948	-.037 p=.542
2a. Treatment Effect (Bonus and/or Salary Schedule)	.006 p=.845	-.060 p=.304
2b. Salary Schedule Differential Effect	-.043 p=.606	.231 p=.135
3. Salary Schedule Treatment (Bonus-only treatment dropped)	-.036 p=.725	.170 p=.285

Source: Author calculations. Controls included the following school-level covariates: percentage of white, Hispanics, black, and Asian students; the percentage of students receiving a free or reduced price lunch, the percentage of English language learners, the percentage migrant, the percentage who moved within a year (within district, across district, and from outside the Tennessee public school system), the percentage special education students (including separately the level of special education intervention, medium or high intensity). The model also included controls for individual student characteristics that could vary over time: migrant status, English language learner status, a series of indicators for student movers (within district, across district, and from outside the public school system), an indicator for students receiving a free or reduced price lunch, and indicators for special education treatment including measures of intensity (low, medium, high). All models included grade by year fixed effects and student fixed effects.

Note: ** significant at the 5% level; * significant at the 10% level.

APPENDIX E: TECHNICAL APPENDIX STRATEGIC COMPENSATION PROGRAMS AND STUDENT PERFORMANCE

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