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Moving Teachers: Implementation of Transfer Incentives in Seven Districts

Executive Summary

NATIONAL CENTER FOR EDUCATION EVALUATION AND REGIONAL ASSISTANCE
Institute of Education Sciences

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DISCLOSURE OF POTENTIAL CONFLICTS OF INTEREST[1]

The research team for this evaluation consists of a prime contractor, Mathematica Policy Research, Inc., of Princeton, New Jersey, and a subcontractor, Optimal Solutions Group of College Park, Maryland. Neither of these organizations or their key staff members have financial interests that could be affected by findings from the evaluation. No one on the Technical Working Group, convened by the research team to provide advice and guidance, has financial interests that could be affected by findings from the evaluation.

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EXECUTIVE SUMMARY

There is growing concern that the nation's most effective teachers are not working in the schools with the most disadvantaged students (Goldhaber 2008; Peske and Haycock 2006; Tennessee Department of Education 2007; Sass et al. 2010; Glazerman and Max 2011). Policymakers at the federal, state, and local levels have considered a range of policies for helping struggling schools attract and retain effective teachers. One goal of such policies is to improve the access that disadvantaged students have to top teachers. Strategies for advancing this goal include alternative teacher preparation and certification, recruitment bonuses for serving in hard-to-staff schools or subjects, intensive mentoring and professional development, and performance-based pay. These strategies have been implemented with funding from the federal government, state and local governments, and nongovernment sources. Some have also been implemented in the context of research intended to gauge their effectiveness (Glazerman et al. 2006; Glazerman et al. 2010; Glazerman and Seifullah 2010; Springer et al. 2011). But to date, there is little rigorous evidence of any of these strategies demonstrating clear success in raising student achievement in the U.S.

This report describes the implementation and intermediate impacts of an intervention designed to provide incentives for a school district's highest-performing teachers to work in its lowest-achieving schools. The report is part of a larger study in which random assignment was used to form two equivalent groups of classrooms organized into teacher "teams" that are composed of teachers in the same grade level and subject (math, reading, or both in the case of an elementary school grade). Teams were assigned to either a treatment group that had the chance to participate in the intervention described below and or a control group that did not. Intermediate outcomes, measured for both the treatment and control teams, include the mix of teachers who make up the team, the climate of collaboration and cooperation in the team, and the way in which resources are allocated within the teacher team. A future report will focus on the impacts of the intervention on student achievement and other outcomes like retention.

A Test of Using Transfer Incentives for Highest-Performing Teachers

One strategy that has not been studied in sufficient detail is the use of monetary recruitment incentives targeted specifically to teachers who have demonstrated success in raising student test scores ("value added"). The U.S. Department of Education's Institute of Education Sciences (IES) has sponsored the current study that tests the effectiveness of an intervention based on this strategy. The intervention is known to participating school districts as the Talent Transfer Initiative (TTI). The TTI offers $20,000 to highest-performers within certain categories of teachers if they agree to transfer and remain for at least two years in one of the selected low-achieving schools in the district.

The intervention was designed to proceed as follows. The first step is to conduct a value-added analysis of student test scores to identify the highest-performing teachers, defined as the top 20 percent based on a value added measure of teachers in tested grades and subjects in each district.[2] The TTI relies on at least two years—and typically three, depending on district data—of student achievement growth data for each teacher.

The second step is to classify schools as "potential receiving" or "potential sending" schools. Potential receiving schools are those with the lowest achievement in the district and which the district leaders intend to help through the intervention. As discussed below, selected teaching positions in these schools, or "vacancies," are eligible for the transfer incentive. The rest of the schools in the district, with rare exceptions for special schools that are exempted, are potential sending schools.

The third step is final selection and recruitment of eligible sending school teachers and receiving school principals. An implementation team determines which of the highest-performing teachers (identified in the first step) are in potential sending schools and offers them a series of transfer incentive payments, totaling $20,000 over two years, to transfer into and remain in one of the receiving schools in their district. The offer is made to these teachers, known as "transfer candidates," in the spring, at which point they are invited to apply to the program. At the same time, principals of potential receiving schools are invited to an information session and asked to identify likely teaching vacancies in the targeted grades and subjects. Selected teaching vacancies are then designated to be eligible for the transfer incentive. A site manager in each district matches transfer candidates to principals with eligible receiving school vacancies, assisting both teachers and principals in arranging interviews to fill the targeted vacancies.

Next, applicants must interview with and be accepted by the principal at the receiving school and then voluntarily transfer in order to qualify for the transfer incentive. In order to improve the probability of finding a successful match, the study implementation team worked with each district to finalize offers and acceptances by early summer.

Finally, the transfer teachers are given a half-day orientation just before the start of the school year. Because they are selected on the basis of their performance in the classroom, it is assumed that they do not require additional formal support. To facilitate the transition, however, the site manager provides informal support and answers any questions as needed during the two school years that constitute the intervention period. During that time, teachers who remain in their originally assigned positions receive incentive payments at the end of each semester, in December and June.

[2] Value-added analysis is the statistical approach intended to determine the unique contribution each teacher makes to student achievement, holding constant factors that are outside the teacher's control. The cutoff for a teacher to be deemed "highest performing" in a district was typically 20 percent, but the cutoff varied across districts and pools (middle school math teachers, middle school English/language arts teachers, and elementary multiple-subject teachers). It was lowered to 18 percent for elementary teachers in two districts and raised to 25 percent for middle school teachers in another district. Another district set the cutoff for middle school at 23 percent for math teachers.

Teachers in the highest-performing group who are already teaching in low-achieving schools are not eligible to transfer under the program. Instead, they automatically qualify for a retention bonus of $10,000, which is also paid in installments over two years, as long as they remain in their schools.

The intervention was implemented in elementary and middle schools in a pilot district starting in 2008 and expanded to include the pilot site and six other districts in five states in 2009 (cohort 1). Three more districts were added in 2010 (cohort 2). This report focuses on the seven cohort 1 districts; a future report will incorporate information from all 10 districts in cohorts 1 and 2.

Research Questions and Study Design

The study addresses implementation and impact. This report focuses primarily on the implementation and intermediate impacts, the first two questions listed below. The third question listed below will be the focus of a future report.

- What was the TTI implementation experience with respect to the teacher recruitment process?
- What were the teacher placement results and intermediate impacts of TTI? For example, who filled the vacancies compared to those who would have filled the vacancies in the absence of the intervention? How did the intervention affect collaboration? How did it affect the allocation of resources within the school, such as assignment of students to teachers, teacher mentoring, and teacher leadership?
- What was the impact of TTI on teacher retention and student achievement?[3]

The methods for answering these questions include descriptive tabulations (for implementation questions) and causal analysis (for impact questions). The causal analysis relies on a random assignment procedure discussed next.

Random Assignment

To answer the impact questions, we implemented a randomized controlled trial. The study focuses on teacher "teams" composed, as mentioned above, of all the regular classroom teachers in a given grade level and subject within a school, starting with teams that had at least one teaching vacancy. For elementary school grades, in which teachers are often responsible for both math and reading instruction, we considered the whole grade level to be a team. For middle school grades, teacher teams were composed of either math or English language arts (ELA) teachers. For example, all teachers responsible for teaching seventh-grade math in the same school would make up one team. All teachers in the school who were responsible for eighth-grade language arts would be considered another team. We randomly assigned teacher teams to either a treatment status, defined as the chance to fill the team's vacancy with a TTI teacher, or a

[3] This question is not addressed in the current report but will be addressed in a future report.

control status, in which vacancies were filled through whatever process the school would normally use.

This process created two groups that were, on average, similar in terms of student characteristics and school context. The only systematic difference between the two groups was whether the person filling the vacancy was eligible for the $20,000 transfer incentive. Comparing outcomes for these groups will generate unbiased estimates of the impact of TTI on student achievement and other outcomes.

We expect much of the impact of TTI to operate through the teachers who filled the vacancies in the treatment and control teacher teams. We refer to them as "focal" teachers. Therefore, in addition to the team-level analysis, we are interested in the comparison between focal treatment and focal control teachers. We refer to the other teachers on the teams as "non-focal" teachers.

Data Collection

The data for the study come from survey and administrative records data as well as program implementation records. Surveys were conducted with teachers who were transfer candidates, regardless of whether they transferred ("Candidate Survey"); with teachers in teams with vacancies, including both treatment and control teams of teachers ("Teacher Background Survey"); and with their principals ("Principal Survey"). The administrative data include student test scores linked to teachers, demographic data, and teacher rosters. All surveys described in this report were administered during the 2009–2010 school year.

We obtained response rates of 83, 80, and 95 percent on the Candidate Survey, Teacher Background Survey, and Principal Survey, respectively. We received teacher roster data for 100 percent of the schools in the study at baseline (fall 2009) and followup (fall 2010).

Study Sample

We selected school districts that were large and economically diverse. They had to have at least 40 elementary schools, at least 10 of which had to be low-poverty schools and at least 15 of which had to be high-poverty schools. Low- and high-poverty schools were defined as having less than 40 percent or more than 70 percent of students eligible for free or reduced-price lunch (FRL), respectively. In addition to these quantitative criteria, we selected districts on the basis of a variety of qualitative factors related to feasibility of implementation, including test score availability, data quality, hiring/transfer practices, and the local political environment. The resulting set of districts was not a random sample of a well-defined population of districts, so findings from this study cannot necessarily be generalized to other districts.

While we excluded school districts in which existing or planned teacher incentive programs would have duplicated the intervention under study, we did come across some existing policy initiatives in each of the seven participating school districts. These programs included performance incentives and signing bonuses for teachers. In each case, we determined that the existing programs were different enough, isolated to a few schools that could be excluded from our study, or involved small enough dollar amounts that they would not interfere with the study design. Teachers and schools receiving more than $5,000—an arbitrary threshold we used to

identify substantial bonus programs—were excluded in order to avoid complicating the study by changing the effective differential in the TTI transfer incentives relative to the counterfactual.

The sample for this report comprises seven districts in five states. Five of the seven districts are county districts, so they include urban centers as well as suburban and rural areas. Together, the seven districts range in size from 55 to 218 elementary and middle schools. Hispanic students make up the majority of students in two of the districts. African American students make up the majority of students in one district. Another district has a majority white student body, and the remaining three do not have a majority of any one racial/ethnic group (Hispanic, African American, white, or other).

Working with each district, the implementation team divided the elementary and middle schools in the district into potential sending or potential receiving schools according to academic ranking; the potential receiving schools were those targeted to benefit from the intervention. Schools were ranked by their students' average prior achievement level, which was determined by the prior three years of achievement data or by the past year's achievement data, depending on the district leaders' preferences.[4] The lowest-ranking schools were designated as potential receiving schools, and the rest were potential sending schools. Some schools were removed from both pools and referred to as exempt schools because they served a special population of students or were already implementing a program that was meant to address the problem that TTI is intended to address. In the end, 21 percent of the schools were classified as potential receiving schools, 70 percent were potential sending schools, and the remaining 9 percent were exempt.

The potential receiving schools were more disadvantaged than the potential sending schools, as measured by the proportion of students eligible for FRL. In the elementary schools, 78 percent of students in the average receiving schools were eligible for FRL, compared with 64 percent of students in the sending schools, a statistically significant difference of 14 percentage points.[5] In middle schools, the difference is also statistically significant, equal to 20 percentage points (74 versus 54 percent).

Not every potential sending school had a teacher transfer out, and not every potential receiving school had a teacher transfer in. To become an actual receiving school, principals of potential receiving schools first had to voluntarily submit at least one vacancy to the study team for randomization and it had to have been assigned by the researchers to the treatment group.

[4] Achievement data from the year prior to the implementation of TTI were used for all but two districts, where three prior three years of achievement data were used.

[5] The discussion of "significant differences" here and throughout the report refers to statistical significance. We used a 0.05 significance level, which means that a significant difference is highly unlikely (less than five percent of the time) to be observed in a sample if the population difference was zero. Statistical significance does not imply that the difference is meaningful to policy, nor does a lack of statistical significance imply that the difference is not meaningful for policy.

Finally, there had to be at least one eligible TTI candidate who applied to, interviewed at, and successfully transferred to one of the receiving school positions.[6]

Across the seven districts, teachers who transferred through TTI came from 51 out of 512 (10 percent) of the potential sending schools. This percentage is relevant for districts concerned that a transfer program like TTI might be disruptive to many of its sending schools. The finding that 90 percent of the schools identified as potential sending schools did not lose a single teacher suggests that sending schools in these districts did not face widespread disruption as a result of the intervention.

The TTI teachers transferred into 48 potential receiving schools. These schools represent 91 percent of the 53 schools with at least one treatment team. The other 101 potential receiving schools included 68 non-study schools (those with no vacancies submitted for random assignment) and 33 schools with only control teams.

The impact study focuses on the teacher teams in the 53 schools with at least one team assigned to the treatment group and the 33 schools with teams assigned to the control group. Each team included all teachers in the grade and subject of the randomly assigned vacancy. Because schools could submit more than one vacancy for randomization, some schools included multiple study teams. The final sample of treatment and control teachers and schools for this report consisted of 451 teachers in 124 teacher teams. Eighty percent of the teachers were in elementary schools (grades 3 to 5), and the other 20 percent were in middle schools (grades 6 to 8).[7]

The differences between the treatment and control teams in terms of baseline characteristics such as student background and teacher professional background were not statistically significant. We examined students' prior achievement, race/ethnicity, English language learner status, FRL status, and special education status. For teachers who were already teaching in the study teams before TTI (i.e., not including TTI transfers and other new hires), we examined their experience level in the profession, in the district, and in their schools as well as their degrees and certifications. With regard to teachers' personal characteristics, we found no statistically significant differences at baseline except for marital status (45 percent of treatment teachers versus 65 percent of control teachers were married) and presence of children in the home (40 percent of treatment teachers versus 56 percent of controls).

Summary of Findings

The main findings from this first phase of the study primarily focuses on eligible transfer teachers, teachers who choose to transfer, and the experiences of principals and teachers in the study schools. In addition, this report includes intermediate outcomes related to some measures of collaboration and school resource allocation.

[6] A team and a school were in the study if a vacancy was submitted and randomly assigned even if no teachers transferred to that school. Random assignment occurred after principals voluntarily submitted vacancies (consented).

[7] There were 137 vacancies in 124 teacher teams because 11 teams had 2 vacancies, and one team had 3 vacancies. In the treatment group alone, there were 6 teams with 2 vacancies and no teams with more than 2.

- **Filling vacancies by using transfer incentives was shown to be feasible.** The implementation of TTI demonstrated that it is possible to implement a transfer incentive program as designed for this study. The highest-performing teachers were identified by using value added analysis in approximately the first three months of the calendar year, followed by two to three months of intensive recruitment of receiving schools and transfer candidates, after which 90 percent of vacancies were filled.
- **A large pool of candidates was needed to yield the desired number of successful transfers.** We found that an average of six percent of each district's highest-performing teachers in non-low-performing schools ultimately transferred to low-performing schools. Over one-third (38 percent) of eligible transfer candidates attended an information session, and 24 percent completed an application. There were 1,012 candidates identified for the 63 who ultimately transferred, a ratio of 16 candidates per slot.
- **Transfer teachers came from sending schools and classrooms with significantly different characteristics, on average, than the receiving schools they transferred to.** The average transfer was from a school in the 60th percentile for average test scores to one in the 18th percentile. In districts where data were available, we found that 64 percent of the transfer teachers' students were low-income, defined as eligible for FRL, versus 89 percent of their students after they transferred. Before these teachers transferred, their average student scored in the 48th percentile on prior math tests compared to the rest of the district, but after they transferred, their average student had scored in the 32nd percentile on prior math tests compared to the rest of the district.
- **The transfer teachers were more experienced than teachers normally tapped for the positions filled by TTI teachers.** The average difference in teaching experience was five years. There was also a significant difference in the percentage of teachers with a post-graduate (master's or doctoral) degree (48 percent of focal treatment teachers and 21 percent of focal control teachers).
- **Survey data suggest that there are no statistically significant differences in school climate or in how students were assigned to teachers as a result of TTI.** Treatment-control differences in how principals rated their teaching teams in terms of collaboration and the sharing of ideas were not statistically significant. Treatment-control differences in the patterns of student characteristics and in principal or teacher survey responses regarding the assignment of students to classrooms were not statistically significant either.
- **TTI transfers used less mentoring but provided more mentoring than their control group counterparts.** Treatment focal teachers were less likely to have a mentor than were control focal teachers (39 versus 66 percent), but they spent more time mentoring their colleagues (25 more minutes per week, on average).

Detailed Findings on the Teacher Recruitment Process

How Were Transfer Candidates Identified and Recruited?

Transfer candidates were identified through value-added analysis of teachers in all schools in the district. The analysis was conducted separately for the three grade-subject pools within

each district: middle school math teachers, middle school ELA teachers, and elementary multiple-subject teachers (grades 3 to 5). Teachers in the top 20 percent of value-added ranking in their grade-subject pool were considered to be the highest performing teachers in the district and were designated as transfer candidates. The 20 percent cutoff was chosen so as to be selective while providing enough transfer candidates to yield enough program applicants to fill all of the vacancies identified in the receiving schools.

The selective nature of the 20 percent cutoff is reflected in the estimates of the performance difference between transfer candidates and all other teachers. We found that transfer candidates, who were identified as highest performing, contributed 16 percent of a standard deviation more to student reading achievement in a year than did the average teacher in the district; they also contributed 24 percent of a standard deviation more to math achievement. Value-added differences of this magnitude are consistent with an average transfer candidate raising a median student 6 percentile points in language arts and 11 percentile points in math relative to all other teachers in the value-added analysis.

To assess the adequacy of the 20 percent cutoff in identifying a large enough group of transfer candidates, we conducted a pilot study of TTI in one of the districts starting in 2008. From that experience, we estimated that we would need at least 10 transfer candidates per position that the transfer incentive was meant to fill. For the seven districts that implemented the TTI in 2009, 1,385 transfer candidates were identified (including 373 who turned out to be ineligible), and 63 positions were filled, at a ratio of almost 22 to 1.

Transfer candidates were recruited by the site manager in each district. The site managers held information sessions separately for potential receiving-school principals and for transfer candidates. They also followed up with every teacher and principal by telephone, email, or regular mail. Once vacancies were identified and the teaching teams were assigned to a treatment or a control group, the site manager encouraged transfer candidates to interview for specific TTI incentive-eligible openings and facilitated the scheduling of those interviews.

According to site managers, the success of the intervention depended a great deal on recruiting transfer candidates early in the process, so they worked with principals to determine, as early as possible, when they would have a teaching vacancy eligible for the transfer incentive. The bulk of vacancies in the seven TTI districts were identified and filled in May and June 2009; 75 percent of vacancies were identified, and 70 percent were filled in these two months.[8] The time between identifying and filling a vacancy varied, with site managers reporting that vacancies were filled as quickly as two days after being assigned. Among the 70 vacancies assigned to treatment, 63 (90 percent) were filled with a TTI candidate by the end of the summer recruitment season.

Transfer candidate recruitment and placement, including interactions with receiving-school principals, took place between March and September 2009, and it was the most labor-intensive

[8] In this case, "identifying" a vacancy meant assigning it by lottery to the treatment group. Since the study required pairs or groups of vacancies in the same grade to be considered at the same time, identifying TTI positions may have taken longer than it would have in the absence of a study. In addition, the need to identify vacancy *pairs* matched on grade and subject within the same time frame limited the number of vacancies relevant to the study.

part of implementing the intervention. The whole process required the efforts of a site manager who spent about one-third to one-half of a full-time equivalent per district, depending on their experience, the number of transfers, and the responsiveness of the teachers and principals.

How Did Teachers and Principals React to the Talent Transfer Incentives?

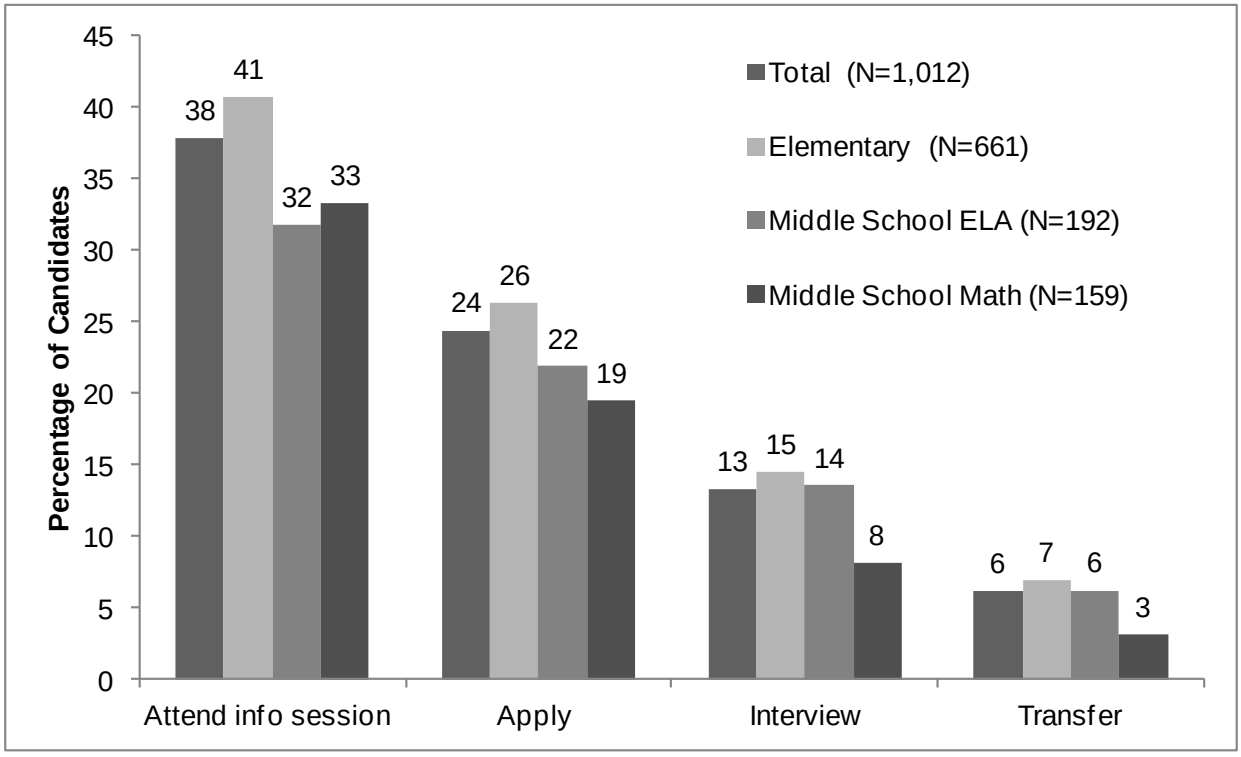
We measured the behavioral response of teachers by observing the percentages of the 1,012 transfer candidates we identified who came to an information session, applied to the program, interviewed for a position, and accepted a transfer offer from receiving school principals. We refer to these percentages as "take-up rates."

Figure ES.1 shows the take-up rates by grade span and subject. Transfer candidates were invited to a "recognition event" that also served as an information session and a recruitment opportunity; an average of 38 percent of candidates attended the event. Approximately one-quarter of all transfer candidates applied to the program, which involved completing a one-page online form; 13 percent interviewed for at least one vacancy, and 6 percent ultimately transferred. Given that 90 percent of the designated slots were filled, these transfer rates could be a useful guide for implementing an intervention like TTI in the future.

Which Teachers Apply to Transfer and Do So Successfully?

We examined both the pre-transfer student characteristics and the value-added scores of transfer candidates who did and did not apply to TTI to determine whether there were any patterns. We also conducted a multivariate (regression) analysis of transfer applications to better estimate the relationship between the transfer candidates' circumstances and their probability of applying to transfer. The analysis showed that transfer candidates with a higher percentage of disadvantaged students (measured by FRL status) and transfer candidates with the very highest value-added rank (in the top 10 percent, as opposed to all in the top 20 percent) were significantly more likely to apply to TTI than were the rest of the transfer candidates. If we look at actual transfers as the outcome, only transfer candidates who were satisfied with their current school students were significantly more likely to transfer. No other characteristics of candidates or their students were significantly associated with whether the candidate transferred.

Figure ES.1. Take-Up Rates Among Transfer Candidates in the Seven Cohort 1 Districts



Source: TTI program records.

Note: Transfer candidates are the teachers we identified as highest performing in their pool and within their district who were also teaching in potential sending schools. We considered three pools: elementary, middle school English/language arts (ELA), and middle school math.

Where Do TTI Transfers Come From?

If we establish a discrete and somewhat arbitrary dividing line between low-achieving schools, which the intervention is meant to help, and all other schools, it is possible for a teacher to transfer from a school just above the threshold to one just below it. We call these moves "lower-contrast transfers" because the difference in rank between the sending and receiving schools is small. Lower-contrast transfers might be counterproductive if the sending school is itself in need of strong teachers and has difficulty filling the vacancy created by the transfer.

One way to address the question, "where do transfers come from?" is to compare the ranking of the sending schools that the transfer teachers left to the receiving schools to which they transferred. In terms of achievement rank, the average transfer represents a 42-percentile point change from the 60th percentile school (with 100 percent being highest performing in the district) to the 18th percentile school. In terms of income, the average transfer represents a change from the 55th to the 18th percentile of percent FRL.

Another way to address the question is to compare the characteristics of students taught by TTI transfer teachers in their sending schools before they transfer to the students in their receiving schools after they transfer. On average, we found statistically significant differences between students taught by TTI transfer teachers in their original schools and students they taught in the schools to which they transferred. Table ES.1 shows the average student

characteristics before and after transfer for the 33 transfer teachers who came from the four districts for which we had detailed individual student data for both sending and receiving schools. (We cannot say whether we would have achieved the same result for the other three districts had data been available.)

On average, TTI teachers moved to classrooms with a lower percentage of white students (12 versus 30 percent) and a higher percentage of Hispanic students (42 versus 31). They also moved to classrooms with a higher percentage of low-income students, as measured by FRL eligibility (89 versus 64 percent). The percentage of students who were designated as special education students decreased by 8 percentage points from 19 to 11, although we could not distinguish from the district data how much of that decrease could have been due to a drop in the percentage of gifted and talented students, who were labeled by two districts as special education.

Table ES.1. Characteristics of Selected Transfer Teachers' Students Before and After Transferring

Characteristic of Average Student (percentages unless noted)	In Sending Schools 2007–2009	In Receiving Schools 2009–2010	Difference (Receiving Minus Sending)	P-value
Race/Ethnicity				
White	30.1	12.1	-18.0*	0.002
African American	32.2	40.1	7.9	0.091
Hispanic	30.8	41.8	11.0*	0.001
Low income (percent FRL)	63.6	89.3	25.7*	0.000
Special education[a]	19.0	11.2	-7.9*	0.032
Limited English proficient	12.9	7.8	-5.1	0.125
Average reading score[b]	-0.11	-0.39	-0.28*	0.021
Average math score[b]	-0.06	-0.47	-0.41*	0.000

Source: Administrative data.

Note: Data pertain to a subgroup consisting of four districts that provided student-level data. N = 33 teachers who transferred in the four districts and for whom detailed student data were available. Because of missing data, the sample size was 26 teachers for FRL and LEP, 25 for reading scores, and 23 for math scores. Not all teachers taught both math and reading.

[a] The special education category in two of the four districts includes gifted students.
[b] Average reading and math scores are given in fraction of a standard deviation computed within district and grade.
* Difference is statistically significant at the 0.05 level, using a two-sided test based on the teacher sample.

Test score differences between the transfer teachers' sending and receiving schools were also statistically significant for this group of teachers. The average student in the transfer teachers' classrooms scored 0.11 standard deviations below the district average in reading, placing them in the 46th percentile. The same teachers' students in the schools to which they transferred scored 0.39 standard deviations below the district average, placing them in the 35th percentile. For math, the differences were -0.06 standard deviations (48th percentile) and -0.47 standard deviations (32nd percentile).

Detailed Findings on Teacher Transfer Placement and Intermediate Outcomes

Who Filled the Vacancies?

The treatment group tells us who eventually filled the positions through the transfer incentive, but the control group tells us what might have happened in the absence of the incentive. Most treatment group vacancies (90 percent of the 70 positions assigned) were indeed filled through TTI, but 6 percent were filled outside the program. The remaining 4 percent of positions were "lost."[9] The 67 control group vacancies were filled through a variety of means, including new hires (21 percent), transfers (19 percent), and reassignments from within the school (27 percent). The remaining 31 percent of positions were either lost or filled by the same teacher who left (10 percent), or the status could not be determined (21 percent).

As a result of this mix of teachers filling study positions, the treatment group teachers were more experienced, on average, than the control group teachers, but the differences were less than they might have been had 100 percent of the vacancies in the control teams had been filled by beginning teachers. The five-year difference in average experience in teaching (13 years versus 8 years) was statistically significant. Treatment focal teachers were also more likely than control focal teachers to have an advanced degree (48 percent versus 21 percent) and were five years older on average. The comparison of teacher groups is shown in Table ES.2.

What Was the Impact on Collaboration and Resource Allocation?

One possible concern about an intervention that offers large stipends to teachers for having produced high value-added scores is that it could undermine collegiality and weaken collaboration and trust within the teaching team. Such phenomena are difficult to measure, but we posed a variety of questions to principals about these aspects of school climate. The Principal Survey asked respondents to rate each of their teaching teams from 1 to 5 on the level of collaboration, the extent to which teachers trust and mutually respect one another, and the extent to which teachers seek ideas from one another. They were then asked how this rating compared to the same dimension at the beginning of the school year and in the previous school year.

We did not find evidence of a breakdown of morale or any significant impacts on the way that teachers worked together. There were no statistically significant impacts on principals' opinions of the degree of collaboration, trust, and sharing of ideas within grade teams. Treatment-control differences in the principals' ratings of teacher teams were not statistically significant for the three dimensions of school climate: the level of collaboration, the extent to which teachers trust and mutually respect one another, and the extent to which teachers seek ideas from one another.

[9] Positions were lost when class size increased, enrollment declined, teachers who had been laid off were recalled to their original positions, or when planned exits by retirees or transfers were canceled.

Table ES.2. Characteristics of Teachers Who Filled Treatment and Control Vacancies (Percentages)

Characteristic	Treatment Focal	Control Focal	Treatment-Control Difference
Professional Background			
Years of experience in teaching (average years)	12.9	8.0	4.9*
Has a master's or doctorate degree	47.6	21.1	26.6*
Has National Board Certification	23.0	11.8	11.2
Transferred via TTI	95.0	0.0	95.0*
Personal Background			
Race/ethnicity			
White, non-Hispanic	45.9	55.3	-9.4
African American, non-Hispanic	31.1	25.0	6.1
Hispanic or Latino	16.4	17.1	-0.7
Age (years)	42.3	37.1	5.2*
Married or living with a partner	60.3	61.8	-1.5
Home owner	82.5	51.3	31.2*
Sample Size (number of teachers)[a]	**63**	**41**	

Source: 2009–2010 Mathematica Teacher Background Survey.

Note: Consistent with the study design, we compare all focal teachers in the treatment group to all focal teachers in the control group, regardless of how the positions were filled.

[a] The treatment group has 63 teachers instead of the 70 assigned because three transfer teachers changed grades, one vacancy was lost, and three teachers were nonrespondents. The smaller sample of control focal teachers resulted from a combination of survey nonresponse, indeterminate focal teacher status, or a combination of both.

* Difference between treatment focal mean and control focal mean is statistically significant at the 0.05 level using a two-sided test.

How Were Students Assigned?

We hypothesized that a transfer incentive could change the way schools assign resources within the teacher team. For example, a principal might try to leverage the experience and skill of a transfer teacher by assigning that teacher more difficult students and assigning the less-challenging students to the remaining teachers in the grade. Therefore, we sought to understand the relationship between students assigned to focal teachers and non-focal teachers and to compare the focal/non-focal difference between treatment teams and control teams.

We used three data sources to examine student assignment differentials: (1) administrative data on student characteristics, (2) teacher perceptions in the Teacher Background Survey, and (3) principal perceptions from the Principal Survey. The administrative data provide objective information on a few easily observed traits. The teacher survey data are subjective, but they capture differences not only in demographic characteristics but in students' behavioral challenges. The principal survey data are also subjective, but they allow us to focus specifically on the assignment process and allow respondents to tell us directly how they intended to assign students.

None of the treatment/control differences was statistically significant. When we look at the distribution of student characteristics in the focal teachers' classrooms relative to their non-focal peers, we found no significant difference between the treatment group and the control group. We examined their students' math and reading pretest scores, race/ethnicity, FRL status, English language learner status, and special education status. We also compared treatment and control teachers' responses to direct survey questions about whether their own students were more or less challenging than those of their peers and found no statistically significant differences there either. Finally, the results from the Principal Survey did not reveal statistically significant differences in the method principals said they used to assign students to classrooms.

How Were Mentoring Resources Allocated?

A TTI teacher can create opportunities to assign students strategically, but another approach might be to realign mentoring resources. Presumably, a teacher with a high value-added ranking and years of experience would require less mentoring than the typical teacher who fills a new position. If mentors spent less time with teachers in treatment teams, then they might have more time to spend elsewhere. To measure this outcome, we asked teachers to report on whether they had a mentor, from whom they received mentoring, and how much time they spent with a mentor.

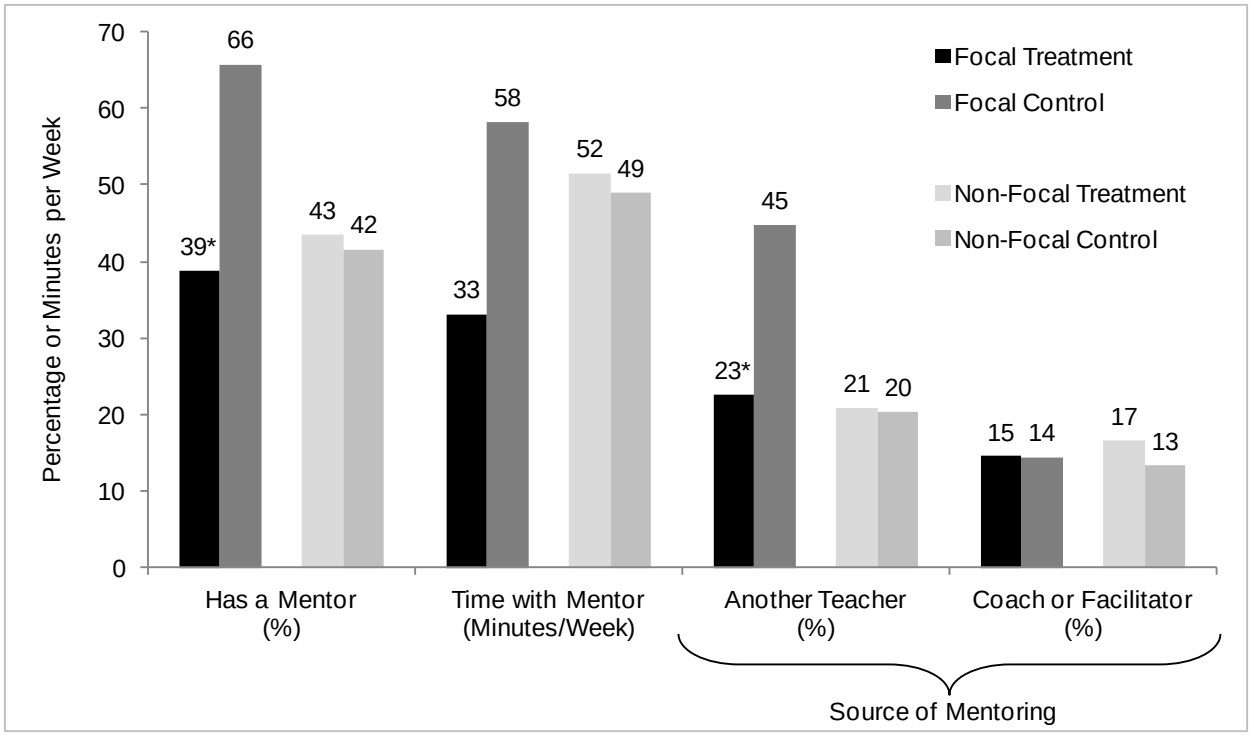
Focal teachers in treatment teams received less mentoring than did focal teachers in control teams. As shown in Figure ES.2, treatment focal teachers (made up of TTI transfers and whoever else filled the targeted vacancies) reported having a mentor at a significantly lower rate than did control focal teachers (39 versus 66 percent, p-value = 0.007). The time spent with a mentor per week on average was 33 minutes and 58 minutes for treatment and control focal teachers, respectively (the difference was not statistically significant, p-value = 0.105). The peer teachers (non-focal), both treatment and control, reported receiving levels of support that were in between that of their teams' focal teacher: 43 percent had a mentor with whom they spent an average of 50 minutes per week.

We did not find evidence that the impact on focal teachers was offset by an equivalent opposite impact on non-focal teachers, which would happen if the resources were simply shifted within the team. Figure ES.2 also indicates that TTI teachers reported receiving less mentoring from other teachers in the school than did their counterparts (23 percent vs. 45 percent, p-value = 0.024), which suggests that the reduced use of mentors by TTI teachers largely reflects a reduction in the reliance on other teachers in the school.

Were TTI Teachers Used in Mentoring or Leadership Roles or Given Other Duties?

Yet another way for a school to take advantage of the expertise of TTI teachers might be to assign them additional duties or responsibilities. The design of the intervention did not require principals to create or require that teachers perform any special duties or roles as a condition of being hired or receiving the TTI bonus, but principals were not restricted from imposing such a condition or from simply assigning the teacher to, or requesting that the teacher fill, such a role.

Figure ES.2. Mentoring Support, by Treatment and Focal Status



Source: 2009–2010 Mathematica Teacher Background Survey.

Note: N = 62 treatment focal, 41 control focal, 115 treatment non-focal, and 113 control non-focal teachers.

* Treatment-control difference (within focal status) is statistically significant at the 0.05 level using a two-sided test.

We found that treatment focal teachers provided more mentoring to their peers than did control focal teachers (25 minutes versus less than one minute per week spent providing such assistance).The differences were statistically significant. Of the non-focal teachers, 18 and 20 percent of treatment and control group teachers reported providing mentoring for just over half an hour per week. These differences for non-focal teachers were not statistically significant, so there is not enough evidence that the amount of mentoring provided by the treatment focal teachers resulted in an offsetting decrease in the amount of mentoring provided by their peers. None of the treatment/control differences in the rates at which focal or non-focal teachers played leadership roles were statistically significant.

Next Steps

A future report will present estimates of the impacts of TTI on achievement test scores and on the retention of the highest-performing teachers. That report will also update the findings from this report with findings from a second cohort of school districts, which is composed of a greater percentage of middle schools and will increase the overall sample size.