

**Student Selection, Attrition,
and Replacement in KIPP
Middle Schools**

**Working Paper
Presented at the 2011
Annual Meeting of the
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I. STUDENT SELECTION, ATTRITION, AND REPLACEMENT AT KIPP

The Knowledge Is Power Program (KIPP) is a network of charter schools designed to improve the educational opportunities available to low-income families. KIPP schools seek to boost their students' academic achievement and, ultimately, prepare them to enroll and succeed in college. To achieve these objectives, KIPP schools operate under a group of standards known as the "Five Pillars." These principles encompass (1) high expectations, (2) choice and commitment, (3) more time, (4) power to lead, and (5) a focus on results.¹ In practice, this translates into middle schools that begin in grade 5, require longer school days and school on Saturdays, and contracts between students, parents, and teachers. The KIPP Foundation is a nonprofit organization that guides this effort by selecting and training school leaders, promoting the program model, and supporting the KIPP network schools.

KIPP has grown from two middle schools established in the mid-1990s to a nationwide network of 99 schools in 20 states and the District of Columbia. In the wake of this growth, the KIPP Foundation, its funders, and other stakeholders are eager to rigorously assess the effectiveness of the program and identify which school practices may have a positive effect on student outcomes. The Foundation is sponsoring the National Evaluation of KIPP Middle Schools, conducted by Mathematica Policy Research, to examine the impacts of KIPP on the achievement and attainment of its students.

In the first report from that evaluation, "Student Characteristics and Achievement in 22 KIPP Middle Schools" (Tuttle et al. 2010a), we presented preliminary findings from a matched, longitudinal analysis designed to estimate KIPP's effect on student achievement in a nationwide sample, the first study of its kind. Students entering these 22 KIPP middle schools typically had prior achievement levels that were lower than the average for the local school districts. Still, for most of the KIPP schools studied, quasi-experimental impacts² on students' state assessment scores in mathematics (18 of 22) and reading (15 of 22) were positive, statistically significant, and educationally substantial.

In response to these findings of positive impacts of KIPP on student achievement, critics wondered about attrition from KIPP schools: that is, the rate at which students leave KIPP before completing the program and whether they are replaced after they leave. Kahlenberg (2011) wrote in *The Washington Post* that "the big difference between KIPP and regular public schools...is that whereas struggling students come and go at regular schools, at KIPP, students leave but very few new students enter. Having few new entering students is an enormous advantage not only because low-scoring transfer students are kept out but also because in later grades, KIPP students are surrounded only by successful peers..." Miron (2011) offered a similar critique of KIPP related to attrition.

¹ <http://www.kipp.org/about-kipp/five-pillars> (accessed March 1, 2011).

² A future study report, scheduled for completion in 2012, will compare experimental impact estimates based on lotteries with the quasi-experimental estimates.

Our first report directly addressed this potential concern in two ways. First, and most importantly, our impact estimates reflect the effect of ever having enrolled at KIPP, even if a student subsequently withdraws. “This approach—under which all students who spend a year in a KIPP school continue to count as part of the ‘treatment group,’ even if they withdraw from KIPP prior to completing eighth grade—is necessary to ensure that impact estimates are not inflated by relying exclusively on students who remain enrolled, given that those who stay are likely to be doing better than those who leave” (Tuttle et. al 2010a, p. xiv).

Second, the report examined rates of attrition from KIPP schools relative to attrition from nearby traditional public schools. The data in that report showed that students do not leave KIPP middle schools before completion (finishing eighth grade) at higher rates than do students in local district schools. The cumulative attrition rate (defined below) in KIPP was 34 percent, compared to 33 or 35 percent, depending on how one defines the comparison group of “local district schools.” Cumulative rates of attrition varied widely among KIPP schools, but we did not find levels of attrition among these KIPP middle schools systematically higher (or lower) than those of other schools within their districts.

Our first report, however, did not examine the issue of the extent to which KIPP schools replace students who leave with new students who transfer in from other schools. As suggested above, student attrition and replacement create an opportunity for student selection. If struggling students leave KIPP schools and are not replaced, as suggested by Kahlenberg et al. (2011), then the average achievement levels of still-enrolled students will increase, creating the potential for positive peer effects. If struggling students who leave KIPP schools are replaced by incoming struggling students from other schools, however, there will be no selection effects arising from attrition/replacement.

Since the release of our first report, we conducted analyses, presented in this paper, that clarify the issues of selective entry, attrition, and replacement as they relate to KIPP schools. We used detailed, student-level data collected for the National Evaluation of KIPP Middle Schools. Specifically, we address the following research questions:

- 1. What are the characteristics of students entering KIPP schools, and how do they compare with characteristics of students attending nearby district schools?**
- 2. What does attrition look like from KIPP, and how does it compare with attrition in district schools? Are attrition rates different across student subgroups—by race, poverty status, or baseline achievement?**
- 3. To what extent do KIPP schools admit students “late” to fill empty slots?**

The answers to the first two questions reinforce the findings from our 2010 report. Students entering KIPP middle schools are not more advantaged than other students in their communities, as measured by poverty and prior achievement levels. Some KIPP schools include an underrepresentation of English-language learners and students with special needs, however. Subsequent to entering KIPP schools, attrition rates for KIPP students are not systematically different from those of students in local district schools, overall or for at-risk subgroups.

The answer to the third question is complex. KIPP middle schools typically begin at grade 5 and continue to admit a substantial number of new students at grade 6. In grades 7 and 8, local district schools generally admit more new students than do KIPP schools. Nonetheless, across all

grade levels, the proportion of students who are new arrivals in the current year is similar at KIPP schools and local district schools.

A. Defining Mobility: Attrition and “Late Arrivals”

The debate over attrition from KIPP schools has sometimes been muddled by unclear or conflicting definitions of attrition. In this report, we use the following definitions:

Student mobility captures the movement of students into and out of schools—regardless of the reason or motivation—at grades other than standard entry and exit points (such as between the last year of elementary school and the first year of middle school). Mobility encompasses both attrition from a given school or set of schools (early leavers) and late arrivals.

Attrition is the rate at which students leave a school during or immediately after a given year, provided they are not enrolled in that school’s culminating grade. Specifically, this rate is defined as the difference between the number of students we observe in school x in year 1 and the subset of those same students we still observe in school x in year 2, divided by the number observed in year 1. Cumulative attrition is defined as the probability that a student in fifth grade in school x will leave that school before completing eighth grade: this probability is derived from the attrition rates in school x observed in grades 5, 6, and 7. These attrition rates can further be separated into two substantively different types of attrition:

- **Within-district movers** are students who attend a different school within their local school district (possibly a local charter school) in year 2 than they attended in year 1.³ The mobility of movers has a number of potential causes, but many movers are likely motivated by school fit or satisfaction and therefore at least partially influenced by the schools themselves. The mobility of these students might be considered “endogenous” attrition.
- **Out-of-district leavers** are students observed in year 1 who are no longer observed in the data in year 2. They include students who (1) begin attending a private school, (2) leave the district entirely, or (3) drop out. These circumstances represent a mix of potentially positive and negative outcomes for students. Without being able to identify the cause of the attrition, we might collectively consider these types of transfers to be “neutral” attrition, in many cases outside the control of the schools.

Late arrivals represent the other aspect of student mobility. “Late arrivals” are students identified in a given school in year 2 who were *not* enrolled in that school in year 1. In this report, using samples and data from Tuttle et al. 2010a, we analyze both components of student mobility—attrition and late arrival—to estimate **rates of replacement** in KIPP and district schools.

³ In the case of KIPP, we defined the “local school district” to be the traditional public school district in which a KIPP school is geographically located. In some cases, charter schools such as KIPP are actually part of this school district. In other cases, they form their own school district. In the latter situation, we defined the local school district to be the district or districts in which most students attended elementary school before applying to enroll in KIPP, including all geographically contiguous charter schools.

B. Sample and Data

This report presents additional analyses using the same 22 KIPP middle schools included in Tuttle et al. 2010a. These data represented a sample that met two criteria. First, all schools had to be established in the 2005-2006 school year or earlier to ensure that a minimum of two cohorts⁴ of students per school would be observed for multiple years. Second, the KIPP schools had to be located in jurisdictions (states or school districts) that provided at least three consecutive years of complete, longitudinally linked student-level data for traditional public and charter schools.⁵ Student-level longitudinal data are essential to be able to accurately account for, and disentangle, student mobility.

Within each jurisdiction, we requested data for all available school years beginning two years before KIPP first opened a middle school. We were able to obtain data that met the two criteria for inclusion for 22 of the 35 KIPP middle schools that were open by 2005. All of the data obtained from jurisdictions were de-identified; each student received a unique identifier code to permit longitudinal analyses. The key variables obtained from the jurisdictions' administrative data systems for these analyses included test scores in reading and mathematics (used to measure baseline achievement), demographic characteristics, and schools attended.⁶

Table 1 identifies the full set of 22 schools in the sample, the year each school opened, and the years of administrative data included in each obtained data set. Of the jurisdictions from which we collected data for the 2010 report, several listed multiple schools for students in a single school year without specifying the enrollment dates associated with each school. In these cases, we developed a process to select the first and last school attended each year by inference, based on the school enrollment information from the preceding and following years for that student. This approach was not successful in all cases, however. Oklahoma City Public Schools provided multiple-enrollment data in a format that did not support analyses of within-year transfer and attrition pattern; therefore, Tuttle et al. 2010a and this report exclude its KIPP school (Reach College Preparatory) from the attrition analysis. Our analysis further excludes two schools that were in operation for a limited number of years before losing their KIPP affiliation.

⁴ Throughout this report, a “cohort” is defined as the group of students who first enrolled in a KIPP middle school at the beginning of a given school year.

⁵ Some states were unable or unwilling to provide de-identified student-level data at the time of data collection. In these cases, we collected records from the school *districts* in which KIPP schools were located; however, not all of these districts maintain data for their resident charter schools (including KIPP). Although we are collecting records from KIPP schools to merge with data provided by districts, we omitted these schools from the first round of analyses.

⁶ See Appendix A of Tuttle et al. 2010a for more detail on data collection procedures.

Table 1. Sample for Descriptive Analyses

State	Jurisdiction Supplying Data	KIPP School, Year Opened	Number of KIPP Cohorts in Data (School Years)
AR	Arkansas Dept. of Education	Delta College Prep, 2002	3 (2005-06 to 2007-08)
CA	San Francisco Public Schools	Bayview Academy, 2003	6 (2003-04 to 2008-09)
		SF Bay Academy, 2003	6 (2003-04 to 2008-09)
DC	Washington, DC, Public Schools	DC KEY Academy, 2001	8 (2001-02 to 2008-09)
		DC AIM Academy, 2005	4 (2005-06 to 2008-09)
GA	Atlanta Public Schools	WAYS Academy, 2003	4 (2004-05 to 2007-08)
		Achieve Academy, ^a 2004 <i>Closed in 2007</i>	3 (2004-05 to 2006-07)
GA	Fulton County School District	South Fulton Academy, 2003	5 (2003-04 to 2007-08)
IL	Chicago Public Schools	Ascend Charter, 2003	5 (2003-04 to 2007-08)
		Youth Village Academy, ^a 2003 <i>Closed in 2006</i>	3 (2003-04 to 2005-06)
MA	Massachusetts Dept. of Education	Academy Lynn, 2004	4 (2004-05 to 2007-08)
NY	New York City Public Schools	Academy NY, 1995	5 (2003-04 to 2007-08)
		STAR College Prep, 2003	5 (2003-04 to 2007-08)
		AMP Academy, 2005	5 (2003-04 to 2007-08)
		Infinity Charter, 2005	5 (2003-04 to 2007-08)
OK	Oklahoma City Public Schools	Reach College Prep, ^a 2002	6 (2002-03 to 2007-08)
PA	Philadelphia School District	Philadelphia Charter, 2003	5 (2003-04 to 2007-08)
TX	Texas Education Agency	3D Academy, 2001	5 (2003-04 to 2007-08)
		Aspire Academy, 2003	5 (2003-04 to 2007-08)
		Austin College Prep, 2002	5 (2003-04 to 2007-08)
		Academy Middle School, 1995	5 (2003-04 to 2007-08)
		TRUTH Academy, 2003	5 (2003-04 to 2007-08)

^aThree schools omitted from the attrition and replacement analysis due to insufficient data.

II. SELECTION INTO KIPP SCHOOLS

Our first report described the type of students who attend KIPP, including their demographic characteristics, poverty level, special education status, and test scores prior to enrolling in middle school. One concern is that KIPP schools “cream,” or attract, the best students; we explore this issue by comparing the demographic characteristics and (pre-KIPP) elementary school test scores of KIPP middle school students with those of their district counterparts.

To investigate how KIPP middle school students may differ from other public school students based on observable traits, we examined a set of five characteristics of fourth graders who went on to attend KIPP and others who did not. These characteristics included: (1) race, (2) eligibility for free or reduced-price lunch (FRPL), (3) limited English proficiency (LEP), (4) special education status, and (5) prior achievement on state assessments. We compared KIPP students first with the districtwide student population,⁷ and then with students observed at the subset of district elementary schools (“feeder” elementary schools) attended by future KIPP students (Table 2). This approach addresses two related issues: (1) baseline differences between KIPP students and non-KIPP students in the same district; and (2) whether KIPP attracts a different type of student within the elementary schools from which the network draws its student population. In all comparisons, the KIPP sample includes anyone ever observed to attend a KIPP school in our sample: students who begin in grade 5, students who leave early, and the students who replace them in later grades.

The concentration of racial minorities at every KIPP middle school in the sample was significantly higher than that found in the KIPP host districts. Across our sample, KIPP schools were 64 percent black and 32 percent Hispanic (96 percent minority overall), on average. District schools were 42 percent black and 30 percent Hispanic (72 percent minority overall), on average.

Eligibility for FRPL is a useful proxy for the level of poverty experienced by KIPP students and their families. Where FRPL data were available in obtained administrative records, we observed that a high proportion of KIPP middle school students were eligible for FRPL in fourth grade (82 percent, on average), and that these FRPL rates were significantly higher than those found in KIPP host districts (64 percent, on average). FRPL rates at 13 of 15 of the KIPP feeder elementary schools were also higher than districtwide rates, but this finding does not fully explain the high FRPL levels found at KIPP schools. On average, the FRPL rate at feeder elementary schools was 72 percent—significantly lower than the average FRPL rate at KIPP. At 11 KIPP schools the students had significantly higher FRPL rates than students from the same elementary schools who did not attend KIPP; in only two schools, the FRPL rates of KIPP students were significantly lower than the FRPL rates of students from feeder elementary schools (see Tuttle et al. 2010a).

The baseline proportion of students in special education or with limited English proficiency was significantly lower at KIPP schools than both districtwide levels and levels in KIPP’s feeder elementary schools. The proportion of students enrolled in special education was 9 percent at KIPP

⁷ Where statewide data were available, the comparison group for the KIPP sample includes all students in the district where the KIPP school is geographically located, as well as students in contiguous districts that encompass elementary schools attended by KIPP students.

versus 12 percent in the district, on average. KIPP enrolled a significantly lower proportion of LEP students than did districts: on average, 6 versus 12 percent, respectively.

Table 2. Characteristics of KIPP Students Relative to Comparison Schools and District

Characteristics	KIPP (1)	Feeder Schools (2)	District (3)
Racial Minority (%)			
Black	64	51**	42**
Hispanic	32	30**	30**
Overall	96	81**	72**
Eligible for FRPL (%)	82	72**	64**
Limited English Proficiency (%)	6	11**	12**
Special Education (%)	9	12**	12**
Baseline Achievement (difference in mean z-score)			
Mathematics	-0.10	-0.08	0.03**
Reading	-0.08	-0.07	0.03**

Note: Each column includes mean values for the subset of the 22 study sites with valid data on the relevant characteristic. All sites were weighted equally. The KIPP sample (column 1) includes all students who ever attended KIPP in any grade. The feeder school sample, (column 2) includes all students who attended the same elementary schools as KIPP students. The district sample (column 3) includes all students in the sample districts. Statistical significance was derived from two-tailed t-tests applying the pooled variance from all sample sites and represents the significance of the difference between the group in question and the KIPP group.

FRPL = free or reduced-price lunch.

*Statistically significant at the five percent level.

**Statistically significant at the one percent level.

Finally, we compared the baseline test scores of KIPP students with their host districts and feeder elementary schools. Across the 22 middle schools in the sample, the pattern of baseline test scores varied greatly by school (see Appendix A.3), but on average, KIPP schools in our sample were more likely to enroll students who were significantly lower-achieving than district averages. On average, KIPP students scored 0.13 standard deviations lower than the district mean in mathematics at baseline, and 0.11 standard deviations lower in reading. Restricting the comparison group to students attending the same elementary schools as KIPP students reveals a more evenly mixed pattern of schools enrolling both higher- and lower-scoring students. The average baseline achievement is not significantly different; students enrolling in KIPP schools score 0.02 standard deviations lower than the feeder comparison group in mathematics and 0.01 standard deviations lower in reading at baseline.

III. ATTRITION FROM KIPP SCHOOLS

Attrition is an important potential pathway for student selection. If a KIPP middle school does not retain a large portion of each entering student cohort, lower performing students may be exiting the school at a higher rate. If an impact analysis of the school was based solely on the sample of the students who remain enrolled through the end of middle school, this type of attrition pattern would bias the estimated KIPP effects.

To compare attrition rates at KIPP middle schools with rates at other public schools, we defined attrition as school transfers (either within-district movers or out-of-district leavers) occurring during or immediately after each grade served by KIPP. To measure the cumulative attrition rate between grades 5 and 8, we calculated a rate of student attrition at each grade level, and used these grade-specific attrition rates to derive the cumulative probability that a given student will change schools before completing eighth grade.⁸ We considered school-specific grade ranges, and disregarded school transfers between schools in the same district when the transfers were caused by a normal grade progression (such as a move from an elementary school at the end of fifth grade to a middle school in sixth grade). All transfers out of the district or to private schools were counted as attrition.

To define the sample of students included in the attrition analyses, KIPP students were required to be enrolled in a KIPP school in either grade 5 or grade 6; district students were also required to appear in a district school in grade 5 or grade 6. To make the district student population more comparable to the KIPP student population, we also limited the district data to students who attended middle schools accepting a high (above-median) number of students from KIPP's feeder elementary schools.⁹ This limited sample will be referred to below as the "district comparison group." We also present attrition results for the full district data.

Given KIPP's unique grade span, comparing cumulative attrition rates in this manner may overstate the levels of attrition at KIPP relative to the rest of the district schools. While some non-KIPP students also attend schools serving grades 5 through 8 (such as K-8, K-12, or other 5-8 schools), most attend an elementary school through fifth grade and begin middle or secondary school the following year. Averaging across all sites in the study, 70 percent of students in the district comparison group were expected to transfer out of elementary school following grade 5 (see Appendix Table A.4). For these students, our definition of attrition does not allow for the possibility of within-district attrition in the year the student completed fifth grade and moved on to sixth grade in another school. In other words, disregarding the "forced" school transfers occurring over the

⁸ Because many districts did not provide data on midyear school transfers, these attrition calculations do not include student transfers that take place during the eighth-grade school year.

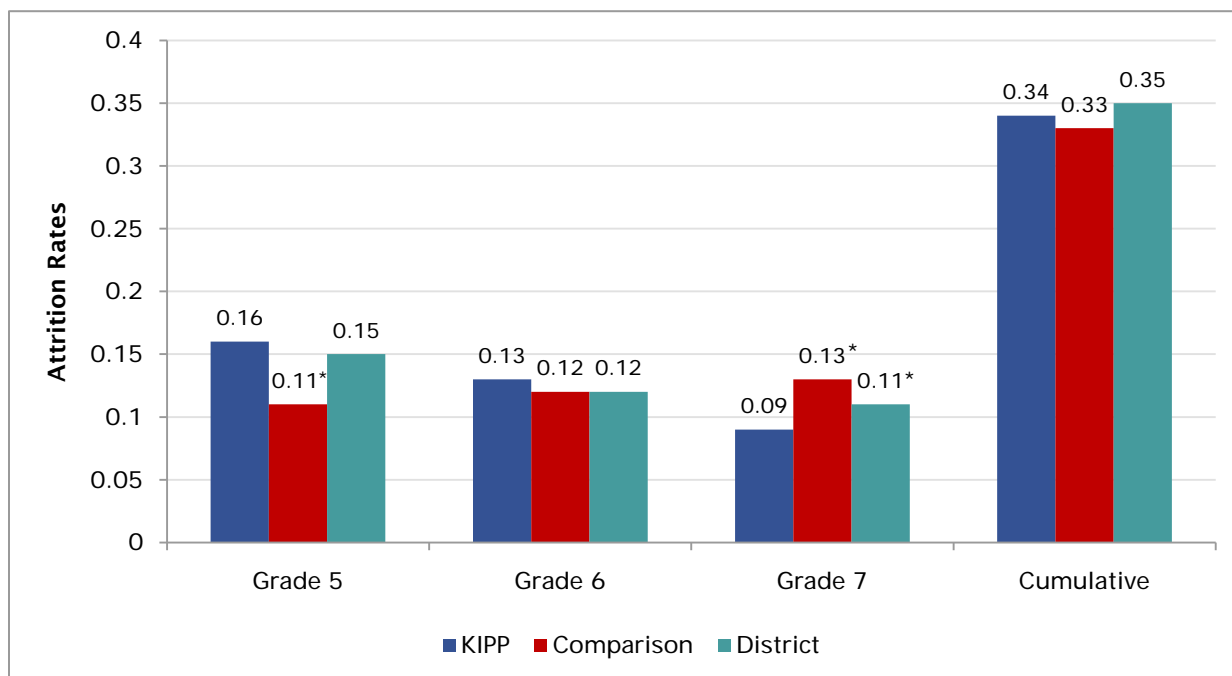
⁹ As defined in Chapter II, feeder elementary schools are those attended by any KIPP student at baseline (prior to KIPP entry). Although we restricted the middle schools in the district comparison group to those accepting a high number of students from these feeder elementary schools, the district comparison group sample includes all students attending these middle schools, not just those who also attended KIPP feeder elementary schools. The above-median schools in the comparison group were selected from the pool of middle schools accepting at least one student from a feeder elementary school.

grades covered by our analyses may mean overlooking the attrition that would have otherwise occurred.¹⁰

A. Overall Attrition Patterns

Our analyses did not find a consistent pattern of differences between attrition at KIPP schools and attrition in corresponding districts. In Figure 1 we present the full attrition results, averaged across sites, for KIPP students, the district comparison group, and the full district sample. The table includes KIPP and district attrition rates for grades 5, 6, and 7, and then cumulatively over the full course of middle school. Attrition rates by site may be found in Appendix Table A.5. Averaging the grade-specific attrition rates for all schools with available data, KIPP’s rate of attrition tends to decline moderately over the course of middle school. KIPP’s average grade 5 attrition rate of 0.16 declines to an average of 0.13 in grade 6 and an average of 0.09 in grade 7.

Figure 1. Middle School Attrition Rates, Cumulative and by Grade



Note: This figure represents the average cumulative rate of attrition at all sites with valid data. The grade 5 and grade 6 rates include 19 sites, and the grade 7 and cumulative rates include the 16 sites with data available through the end of middle school. Tests of statistical significance compared the KIPP attrition rate to the rate at comparison schools and the district as a whole, using two-tailed t-tests that pooled variance across all sites included in each sample.

*Statistically significant at the five percent level.

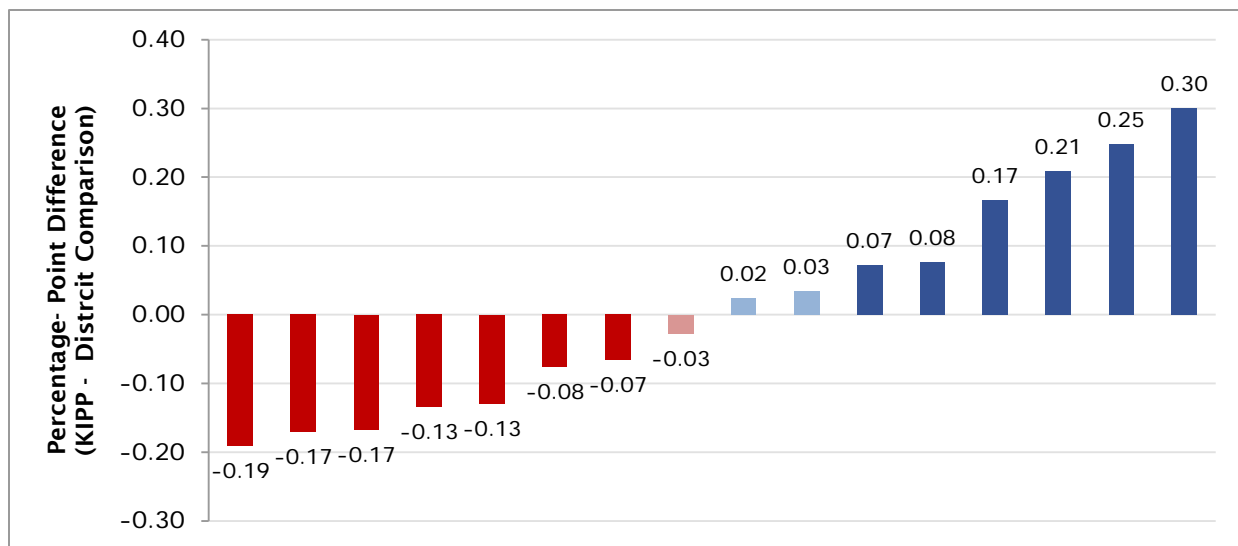
¹⁰ Similarly, attrition rates include students who leave the district after completing elementary school. Only expected within-district transfer at natural points of transition between elementary and middle school are ignored.

Unlike the pattern for KIPP, where average attrition tends to decline somewhat over the course of middle school, the average grade-specific attrition rates in the district comparison group do not change substantially in grades 5, 6, and 7, with average rates of 0.11, 0.12, and 0.13, respectively. Attrition rates in the entire district fall somewhere between the KIPP schools and district comparison schools in each grade.

Over the entire course of middle school, cumulative attrition rates at KIPP schools in our sample are similar to those of schools in their surrounding district, on average. In the average site, the attrition rate at KIPP is 34 percent, compared with 33 percent in the district comparison group, and 35 percent in the district as a whole. We also examined the range across schools in attrition rates—that is, the proportions of entering fifth and sixth graders who finish eighth grade at a different school. Across KIPP schools, attrition rates vary from a low of 11 percent to a high of 50 percent. Across comparison schools, attrition rates vary from a low of 12 percent to a high of 49 percent.

As shown in Figure 2, there is also a great deal of variation when comparing attrition levels at KIPP middle schools with their respective district public schools. Each bar of the chart represents the difference between one KIPP school and its district comparison group. Nearly one-half (7 of 16) of the KIPP schools with data recorded attrition rates that were significantly lower than those of district rates in most grades. However, six schools showed the reverse pattern, with traditional public schools recording significantly lower attrition rates than KIPP schools in most grades. Three KIPP schools had attrition rates that were not significantly different from those of their counterpart district schools.

Figure 2. Distribution of Differences in Cumulative Attrition: KIPP vs. District Comparison Group



Note: Each bar represents the difference in the cumulative attrition rate between one KIPP school and its district comparison group. The cumulative attrition rates were derived from grade-specific attrition rates during middle school. The dark red and blue bars indicate that differences are significant at the five percent level.

B. Attrition Within Student Subgroups

Although we do not find systematic differences in total attrition levels when comparing KIPP and district schools, attrition rates may differ within important subgroups. To investigate this issue, we calculated grade-specific and cumulative attrition levels within subgroups: black students (both overall and for males only); Hispanic students (overall and for males only); male students; students receiving free or reduced-price lunch (FRPL); students with below-median test scores in grade 4; and students with above-median test scores in grade 4. Appendix tables A.6 through A.14 present the full school-level results for each of these subgroups. Table 3 shows summary results for each subgroup and reports the cross-site average attrition rates for KIPP, district comparison students, and the full district sample. To obtain the cross-site averages, the results were weighted by the proportion of the relevant subgroup present in each sample.¹¹

Table 3. Weighted Average Attrition Levels, by Subgroup

Characteristics	KIPP (1)	Feeder Schools (2)	District (3)
Black	0.37	0.42**	0.42**
Male	0.38	0.41	0.43*
Hispanic	0.24	0.29**	0.30**
Male	0.27	0.30	0.30
FRPL	0.34	0.33	0.35
Below Median			
Math	0.38	0.36	0.36
Reading	0.37	0.35	0.36
Above Median			
Math	0.26	0.27	0.27
Reading	0.27	0.27	0.28
Overall	0.34	0.33	0.35

Note: All reported values are average attrition rates for all sites with available data. Sites were weighted by the proportion of the relevant subgroup in each sample. Sites were excluded from the reported average when fewer than 10 KIPP students or district comparison group students appeared in a given subgroup. In addition, six sites did not provide reliable or consistent data on FRPL status. Tests of statistical significance were conducted using two-tailed t-tests, pooling variance for all sites included in a given sample.

FRPL = free or reduced-price lunch.

*Statistically significant at the five percent level.

**Statistically significant at the one percent level.

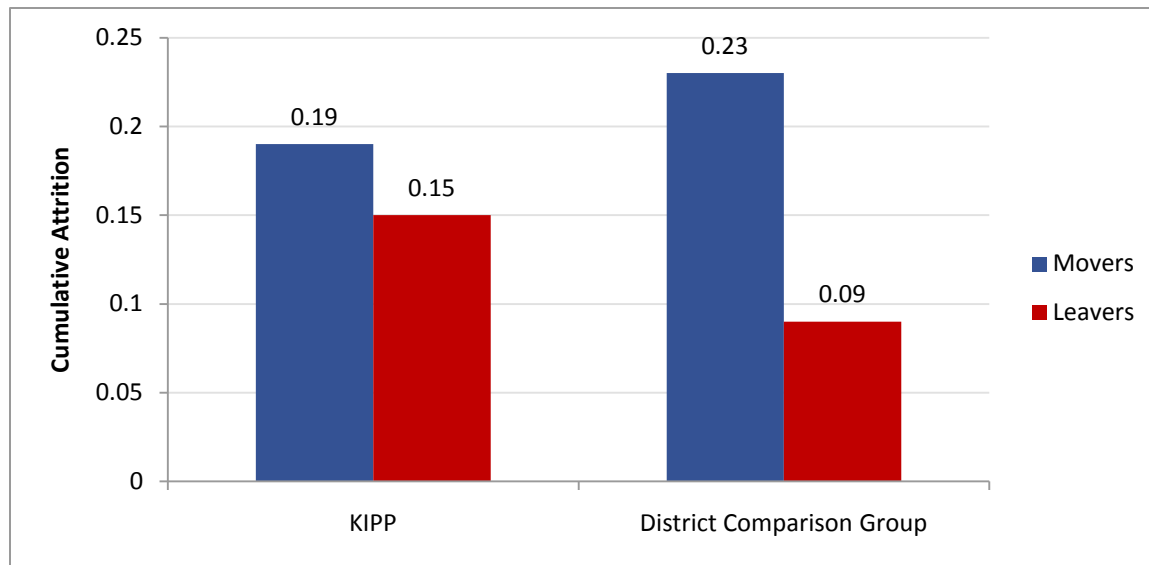
¹¹ As a robustness check, we also estimated subgroup attrition rates using unweighted averages. Under this alternate approach, every KIPP school received an equal weight (although schools with fewer than 10 students in a given subgroup sample were disregarded). This approach did not appreciably change any of the point-estimates for attrition rate averages. However, the statistical significance of attrition rate differences did change for three subgroup comparisons. Using unweighted estimates, the following comparisons moved from non-significant (under the weighted approach in Table 3) to significant: 1) FRPL students at KIPP show slightly higher attrition (0.35) than the district comparison group (0.32); 2) black male students at KIPP show lower attrition (0.36) than comparison group (0.40); and 3) Hispanic male students show lower attrition at KIPP (0.26) than the district-wide group (0.30).

None of KIPP's subgroup-specific attrition rates were substantially different than the average attrition rates in the district comparison group; in all cases, the rates were not more than five percentage points apart. The attrition rates for black students and Hispanic students, however, were lower in KIPP schools than in comparison schools by statistically significant margins. Attrition rates for black males and Hispanic males are not significantly different from the rates at comparison schools. Relative to district schools, however, KIPP's average attrition rate for black males (0.38) is significantly lower than the districtwide average (0.43). There do not appear to be any notable differences between KIPP and district schools in attrition rates for FRPL students, students with above-median baseline achievement, or students with below-median baseline achievement. These comparisons suggest that KIPP's attrition patterns are broadly similar to district patterns within each of the examined subgroups.

C. Differences in Attrition Types

In the available data, it is possible to distinguish between two attrition types: (1) students who move between public schools (students who remain in the data set); and (2) students who leave to attend private schools or other school districts (students who leave the data set). KIPP and district schools may have more influence over within-district attrition to nearby schools than over out-of-district attrition because leaving the data set is more likely the result of a residential move. Note, however, that students who transfer to a private school also count as leavers in these analyses. Parents who enroll their children in a charter school may be more likely to find private schools an attractive alternative to traditional public schools. To investigate these issues, we compared the two attrition types separately. Further, to investigate whether either type of attrition represents a form of student selection, we compared the baseline (grade 4) test scores of students who transfer with the scores of students who stay at the same middle school through eighth grade.

KIPP schools experience similar amounts of attrition by within-district movers and out-of-district leavers. However, at district comparison schools, attrition appears more likely to involve a transfer to another public school in the same district. Figure 3 presents summary results from these comparisons. (See Appendix Table A.15 for a detailed comparison of these attrition types in each KIPP school.) Averaging across sites, KIPP's cumulative attrition rate of within-district movers is 0.19 (compared with 0.23 in the district comparison group), and KIPP's cumulative attrition rate of out-of-district leavers is 0.15 (compared with 0.09 in the district comparison group). These results suggest that students who leave to attend private school or another school district (or leave school entirely) represent a somewhat greater proportion of total attrition at KIPP, relative to the district comparison group.

Figure 3. Average Cumulative Attrition, by Attrition Type

Note: Bars represent the average cumulative attrition rate for all sites with complete data for grade 5 through grade 8 (n=16). This aggregate figure does not reflect tests of statistical significance.

Students who leave their schools tend to have had lower fourth-grade test scores than students who stay, but this is true for both KIPP and district comparison schools (Table 4). At KIPP schools, on average, transfers scored 0.25 and 0.22 standard deviations below the mean in math and reading (or the 40th percentile and the 41st percentile, respectively) at baseline; students who stayed scored 0.02 below the mean (or the 49th percentile) in both subjects. In the district, transfers scored 0.23 and 0.21 standard deviations below the mean in math and reading; students who stayed scored 0.01 above the mean in math and at the mean in reading. All of these differences are statistically significant. This general pattern also holds for the site-specific results. For KIPP, the baseline scores of students transferring within their district were significantly lower at 10 schools (in at least one subject); none of the KIPP schools recorded higher baseline scores for students transferring within their district. The pattern at non-KIPP schools was even more pronounced: Compared with those who did not transfer, students transferring in their district had baseline scores that were significantly lower in at least one subject in 17 of the 19 sites. Appendix Tables A.16 and A.17 detail scores for each KIPP school and comparison group.

For out-of-district transfers (leavers), the school-level pattern is mixed. Of the 17 KIPP schools with sufficient data, leavers at 14 sites had test scores that were not significantly different from the scores of those who stayed. For the comparison group, leavers had significantly lower baseline scores in 13 sites and significantly higher scores in 2 sites. Averaging across sites, KIPP and the district comparison group both show lower baseline scores among students leaving through within-district and out-of-district attrition. Overall, these descriptive findings suggest that lower-performing students are more likely to transfer schools before completing eighth grade; at KIPP schools, this likelihood is especially evident for in-district transfers. However, there is little evidence that the transfer pattern of low-performing KIPP students differs from the pattern at comparison district schools.

Table 4. Average Baseline Test Scores, by Attrition Type

Attrition Types	KIPP		District Comparison Group	
	Math (1)	Reading (2)	Math (3)	Reading (4)
Stayers	-0.02	-0.02	0.01	0.00
Transfers	-0.25**	-0.22**	-0.23**	-0.21**
Movers	-0.33**	-0.26**	-0.24**	-0.22**
Leavers	-0.16**	-0.16**	-0.14**	-0.15**

Note: All reported values are average baseline z-scores in math or reading. Values were averaged across sites that had complete data. Sites were excluded from the reported average when fewer than 10 students with baseline scores appeared in a grade-specific attrition calculation. Tests of statistical significance compared the test scores of stayers to transferring students, within KIPP and then within the district comparison group, using two-tailed t-tests that pooled variance across all sites with valid data.

*Statistically significant at the five percent level.

**Statistically significant at the one percent level.

IV. REPLACEMENT OF STUDENTS WHO LEAVE KIPP SCHOOLS

In addition to student attrition, late-arriving students represent another potentially important pathway for changes in a school's overall enrollment. This analysis defines a "late arrival" as a student entering a given school for the first time at any point other than that school's normal entry grade. For example, in the case of a KIPP middle school beginning in grade 5, the population of late arrivals comprises students who enroll for the first time in grade 6, grade 7, or grade 8.¹²

The prevalence of late arrivals may affect students in several ways. As with "normal" enrollment in a school's initial grade, each late arrival creates the potential for student selection; enrolling higher- (or lower-) performing students as late arrivals may change the distribution of overall achievement levels within the student body. The key issue is whether the average achievement level of new students coming into the school is higher or lower than that of those who leave early. Consider a school in which students who leave early and students who arrive late both tend to be lower achieving, on average. A school could increase the average achievement of enrolled students by encouraging attrition and not admitting new students to replace those who left early. In addition, there may be instructional or administrative burdens associated with accommodating students who did not follow a complete grade progression in a given school (for example, due to differences in curricula or operating environments). Finally, the prevalence of late arrivals may lead to higher (or lower) total enrollments at later grade levels, potentially affecting average class sizes.

To describe late-arrival patterns at KIPP middle schools, we calculated the average number of new students entering each KIPP school in grades 6, 7, and 8. Table 5 presents the results, along with the total average enrollment in each grade for the 19 KIPP middle schools and their district comparison schools in our sample. To define a relevant comparison sample, as noted previously, we limited the data to district middle schools that accept a high (above-median) number of students from KIPP's feeder elementary schools.¹³ The enrollment and attrition averages in this table contextualize each grade's new arrival count. Note, however, that it may be misleading to compare measures presented in the table of KIPP's average total enrollment in grade 6 with the average total enrollment in grade 7 or grade 8, and ascribe those differences to the pattern of attrition and late arrivals. In newly opened KIPP schools, the first student cohort may be the smallest cohort, because recruitment levels tend to rise as a school becomes more established. In our data set, the first cohort makes up more of the grade 8 sample than the samples from earlier grades, because later cohorts may not have reached grade 8 at the time we collected data. In a school where the first cohort was smaller than later cohorts, this pattern will tend to decrease KIPP's average grade 8 enrollment,

¹² For school districts that provided data on within-year transfers, students who transferred into a KIPP school after the beginning of the academic year in grade 5 were also classified as late arrivals. In a school's first year of operation, no student enrollment was counted as a late arrival. A school's normal entry grade was usually defined as the minimum observed grade, unless total enrollment in the school more than doubled between the minimum grade and a subsequent expanded grade. In these cases, the expanded grade was also treated as a normal entry grade.

¹³ The district comparison group here is defined at the school-level; all observations outside the comparison schools were dropped from the sample, making it possible to obtain average per-school enrollment counts. This definition is slightly different than the sample definition used in the attrition analysis. In the attrition-rate calculations, the district comparison group was defined at the student-level; the sample in all years included all students who ever attended a comparison middle school, regardless of their school in a given grade or year.

relative to average enrollment at earlier grade levels. Additionally, KIPP's relatively high levels of grade repetition in grades 5 and 6 will also tend to increase the average total enrollment levels observed in these earlier grade levels, all other things being equal (Tuttle et al. 2010a).

We did not find evidence that KIPP schools restrict enrollment to “normal” student entries in grade 5. All KIPP schools admit students after the normal entry grade, and most KIPP schools continue to admit a least some new students in every grade throughout middle school. However, the number of new enrollees substantially declines after grade 6. Averaging across all sites, KIPP schools in the sample enrolled 13 new students per year in grade 6 (accounting for 19 percent of average total enrollment in that grade), 7 new students per year in grade 7 (12 percent of total enrollment), and 3 new students per year in grade 8 (6 percent of total enrollment).

KIPP admits more new students in grade 6 than the number of students who left through attrition in grade 5. Part of the explanation for this trend is the comparatively high rate of students retained in grade 5 at KIPP schools. In later grades, the trend reverses, and KIPP admits slightly fewer new students, compared with the number of students who left in the prior grade. This finding suggests that after grade 6, KIPP schools are less likely to replace students who leave through attrition.¹⁴

We sought to compare these late-arrival patterns at KIPP schools with the prevalence of late arrivals at other public schools. Given KIPP's unique grade span, it is not possible to directly compare KIPP's grade 6 late-arrival rates with the rates at other public middle schools (many of which begin in grade 6). Within these comparison middle schools, we calculated average attrition, late arrival, and total enrollment levels in grades 7 and 8 (Table 5).

Table 5. Average Attrition and New Arrivals, KIPP vs. District Comparison

	Grade 5-6 Transition		Grade 6-7 Transition		Grade 7-8 Transition	
	KIPP	District Comparison Schools	KIPP	District Comparison Schools	KIPP	District Comparison Schools
Attrition in initial grade	11	NA	9	20	5	24
New arrivals in subsequent grade	13	NA	7	29	3	35
Ratio of new arrivals to prior attrition (replacement ratio)	1.18	NA	0.78	1.45	0.60	1.46

NA = not applicable

Like KIPP, the district comparison schools also consistently admit students after the normal entry grade. However, the district schools in our sample do not show any decline in new enrollment levels in grade 8 compared with grade 7. This differs from KIPP middle schools, where the number of late arrivals in grade 8 is smaller than the number in grade 7, and the number in grade 7 is smaller than the number in grade 6. In addition, district schools in our sample consistently admitted more

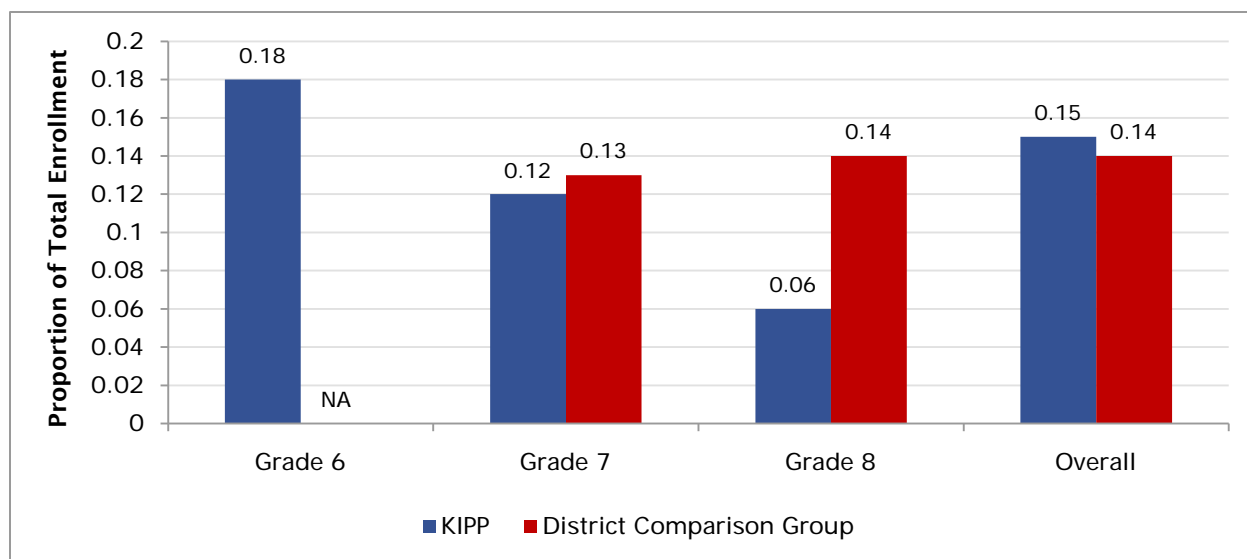
¹⁴ Note, however, that counts of attrition and late arrivals in each grade vary substantially among different KIPP schools. For example, the average number of new arrivals in grade 6 ranges from 3 students per year at one KIPP school (4 percent of grade 6 enrollment), to 28 new arrivals per year at a different school (35 percent of grade 6 enrollment).

new students, on average, than the number of students who exited through attrition in the prior grade. In an average school, 29 new arrivals in grade 7 replaced 20 grade 6 students who left by attrition, and 35 grade 8 arrivals replaced 24 grade 7 students who left by attrition. This data pattern differs from the pattern at KIPP schools, where the number of new arrivals slightly exceeded prior attrition in grade 6, but not in grade 7 or grade 8. This finding suggests that in grades 7 and 8, district middle schools are more likely than KIPP schools to replace the students who leave through attrition.

An additional approach to analyzing grade-specific late-arrival patterns is to calculate the overall proportion of middle school late arrivals, relative to total enrollment in all offered grades. This statistic compares the number of late arrivals in eligible grades with the total number of students observed in those grades. To calculate the overall proportion of late arrivals at each school, we accounted for the unusual middle school grade span at KIPP. For KIPP, the proportion divides the number of late arrivals in grades 6, 7, and 8 by the total number of students enrolled in the school during those grades. To adjust for the most common middle school grade span at district schools, the non-KIPP proportion disregards grade 6. As a result, the district ratio divides the number of late arrivals in grades 7 and 8 by the total number of students enrolled in grades 7 and 8.

Figure 4 shows the prevalence of overall late arrivals for our sample of KIPP schools and comparison districts. As discussed above, the grade-specific proportion of late arrivals at KIPP declines substantially after grade 6. Averaging across sites, late arrivals at KIPP account for 18 percent of total enrollment in grade 6, 12 percent of enrollment in grade 7, and only 6 percent of enrollment in grade 8. In contrast, schools in the district comparison group show no appreciable change in the portion of late arrivals in grade 7 (13 percent) relative to grade 8 (14 percent).

Figure 4. Late Arrivals as a Proportion of Total Enrollment

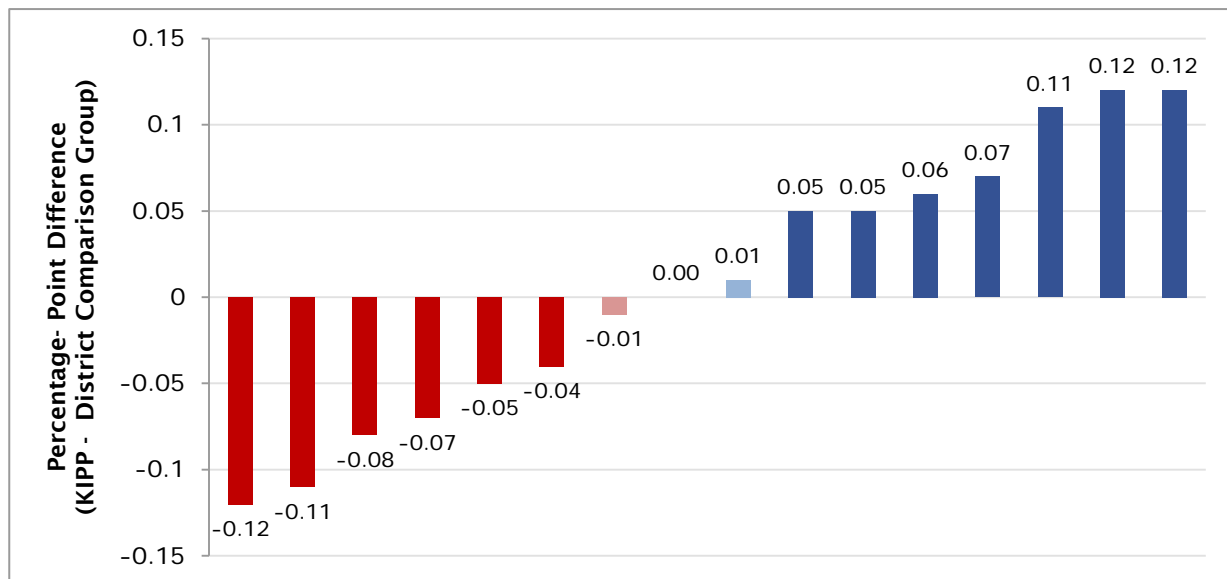


Note: This figure represents the average proportion of late arrivals relative to grade-specific and total enrollment at all sites with valid data. The proportion of grade 6 late arrivals could not be calculated for the district comparison group, due to the grade spans at these schools. A two-tailed t-test with pooled variance for all sites in the sample was performed to compare the overall proportion of late arrivals at KIPP to the proportion at district comparison schools. The difference was not statistically significant at the five percent level.

Pooling the results across all offered middle school grades, there is no systematic pattern of differences in the prevalence of late arrivals at KIPP schools and comparison district schools. The overall proportion of late arrivals, relative to total enrollment, varies greatly at both KIPP and district schools. The overall proportion within KIPP schools ranges from 0.03 to 0.30. There is a similar degree of variation in the overall proportion of late arrivals in the district comparison group, where the site-specific proportion of late arrivals ranges from 0.04 to 0.28. Averaging the results across sites, the overall proportion of late arrivals at KIPP (15 percent) is similar to the overall proportion in the district comparison group (14 percent).

After testing for statistical significance in each site, we did not find any systematic pattern of differences in the proportion of late arrivals at KIPP, compared with district schools. Some KIPP schools admit significantly more late arrivals, other schools admit significantly fewer late arrivals, and several schools are not statistically different from the comparison group. As shown in Figure 5 (where each bar represents the difference between a single KIPP school and its district comparison group), six KIPP schools have a significantly lower proportion of late arrivals, relative to their respective district comparison schools. However, seven KIPP schools have a significantly higher proportion of late arrivals relative to their respective district comparison group. At three KIPP schools, the proportion is not significantly different.

Figure 5. Differences in the Overall Proportion of Late Arrivals: KIPP vs. District Comparison Group



Note: Each bar represents the difference in the overall proportion of late arrivals during middle school, relative to total enrollment, between one KIPP school and its district comparison group. The dark red and blue bars indicate that the difference is statistically significant at the five percent level.

V. SUMMARY

KIPP's apparent success in producing positive student achievement results naturally leads to questions about the kinds of students who can benefit from a KIPP education. To be sure, KIPP's success is not simply a mirage that is based on the results of a select number of high achievers who persist through eighth grade. Our 2010 report found evidence (using quasi-experimental methods) of large positive achievement effects even when students who had transferred out were counted as part of the KIPP treatment group. Nonetheless, student flows into and out of KIPP schools remain of interest. Funders and policymakers wonder how much of the student population KIPP might grow to serve, and critics ask whether KIPP's results depend on excluding students who are the most disadvantaged or the most difficult to serve, either in admissions or subsequent attrition (see, for example, Miron et al. 2011; Kahlenberg 2011). To address these issues, this paper provides the most thorough analysis to date of the characteristics of students entering and departing KIPP schools, making use of longitudinal, student-level data from 22 KIPP middle schools and district schools in their surrounding communities.

In Chapter II, we show that, on average, KIPP students are more likely to be black or Hispanic and have lower incomes than students in the surrounding school districts, but they are less likely to be English language learners or students with disabilities. Baseline achievement levels of incoming KIPP students are, on average, lower than the average baseline achievement levels of students in schools of the local district, and equivalent to those of students from the same feeder schools

Chapter III addresses attrition from KIPP schools. Students who transfer out of KIPP schools tend to have lower achievement than students who remain, but this is also true for nearby district schools: transferring students tend to be more disadvantaged than persisting students, regardless of what schools they attend. Moreover, cumulative rates of exit are not consistently higher or lower at KIPP schools than at nearby district schools. Compared to nearby district schools, attrition rates at KIPP schools are moderately lower for blacks and Hispanics (by a statistically significant margin) and not consistently different for black or Hispanic males, FRPL students, or low-achieving students. In short, rates of exit are high for students in the disadvantaged populations that KIPP serves, regardless of whether the students are in KIPP schools or other public schools. The comparative data do not suggest that there is anything unusual (or unusually selective) about transfers out of KIPP schools.

Chapter IV describes patterns of late arrival across the 22 KIPP middle schools in our sample. The number of late arrivals as a proportion of enrollment is similar at KIPP schools and district schools. But most of KIPP's late arrivals enter in grade 6; fewer students typically enter KIPP schools in grades 7 and 8 than enter nearby district schools in those grades.

These findings together provide a picture of KIPP's student population from several key angles. KIPP schools generally admit students who are disadvantaged in ways similar to their peers in local public schools. These disadvantaged populations have high rates of educational mobility, but rates of exit from KIPP schools are no higher than rates at nearby district schools. Students exiting KIPP schools look much like students exiting other nearby schools. KIPP schools admit a substantial number of late entrants in sixth grade, but admit fewer students in seventh and eighth grades than do nearby public schools.

This is a working paper, and we will conduct additional analyses in the coming months to shed further light on student flows into and out of KIPP middle schools. We will, for example, examine the characteristics of late-arriving KIPP students separately from those who arrive in fifth grade. The late arrivals are already included in our analyses of the characteristics of KIPP entrants described in Chapter II, but those analyses do not distinguish between late arrivals and fifth-grade arrivals. We will also examine the net effect of attrition and replacement in KIPP schools by describing the baseline (pre-entry) characteristics of KIPP's eighth-grade students. These additional analyses, like the analyses conducted for this paper, cannot affect the validity of the achievement analyses, which include students who leave KIPP alongside KIPP stayers. But they may be relevant to the interpretation of the achievement results and the extent to which KIPP schools might serve a wider population of students.

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APPENDIX A

SUPPLEMENTAL TABLES

In this appendix we provide supplementary tables for the descriptive analyses of KIPP middle school characteristics and enrollment patterns in Chapters II, III, and IV. These tables present the underlying characteristics of each school in terms of baseline demographics, baseline test scores, attrition, and late arrival patterns. In each supplemental table, there is one table row assigned to each KIPP school and its corresponding district comparison groups. To preserve the anonymity of each school, the names of the study sites and schools have been removed—each appendix table also orders the study schools in a different way. The bottom row of each table presents the cross-site averages for KIPP and the relevant district comparison samples.

1. Ethnicity and Other Demographic Characteristics

As discussed in Chapter II, KIPP middle schools enroll a higher proportion of racial minorities than other middle schools in the same districts. Table A.1 reports the percentage of black and Hispanic student enrollment at KIPP middle schools, and compares those figures to the district-wide middle school population and also the pool of students who attended the same elementary schools as KIPP students. The table reports sample means in baseline years for students with at least one observation during any grade middle school (the KIPP sample, therefore, includes both normal enrollees in grade 5 and all late arrivals). All baseline student characteristics are taken from fourth grade observations.

Where data was available, the study also compared KIPP enrollment levels of students who were eligible for free or reduced price lunch, enrolled in special education programs, or of limited English proficiency. The results of the comparison differed for each of these variables. Compared to district public schools and feeder elementary schools, KIPP schools in the study were more likely to enroll students eligible for free and reduced price lunch (FRPL), but less likely to enroll students enrolled in special education or students of limited English proficiency. Table A.2 compares the enrollment percentages of KIPP schools across each of these characteristics to the percentages found at district middle schools and the percentages among the pool of students who attended KIPP's feeder elementary schools. The table reports sample means in baseline years for students with at least one observation during middle school.

2. Baseline Test Scores

As discussed in Chapter II, the baseline scores of KIPP students are significantly lower than the district average, but there is no systematic pattern comparing the baseline scores of KIPP students to students who attended the same feeder elementary schools. Table A.3 reports the mean baseline test scores at each KIPP school in the study, and compares those scores to the average at district schools and among feeder elementary school students. The results are reported for both mathematics and reading. The table reports sample means in baseline years for students with at least

one observation during middle school. Mean mathematics scores and reading scores represent raw test scores that have been standardized by grade, subject, and year.¹⁵

3. Middle School Attrition Table

To compare transfer rates at KIPP middle schools to other public schools, we defined attrition as follows: school transfers (either in-district “movers” or out-of-district “leavers”) occurring during or immediately after each grade offered. Each middle school was analyzed using its specific grade range, allowing the attrition analysis to disregard the school transfers of movers caused by a normal grade progression. This adjustment was necessary because, as shown in Table A.4, many district elementary schools end after grade 5. After this adjustment, for example, the fifth grade attrition rate represents the proportion of students leaving their school, unexpectedly, during or immediately after fifth grade. To measure the cumulative attrition rate during all of middle school, we first calculated a rate of attrition at each grade level for students beginning in fifth grade. Then, we used each grade level’s observed attrition rate to derive the cumulative probability that a student in fifth grade will leave that school before completing eighth grade.¹⁶ Table A.5 presents the results of these attrition calculations, comparing the transfer rates at KIPP schools to the transfer rates at district middle schools. As discussed in Chapter III, we did not find a systematic pattern of higher or lower attrition rates at KIPP schools as compared to non-KIPP schools.

4. Subgroup Attrition Rates

Tables A.6 through A.14 repeat this attrition analysis for the following subgroups: blacks (A.6); black males (A.7); Hispanics (A.8); Hispanic males (A.9); FRPL students (A.10); students with below-median scores in math (A.11) or reading (A.12); and students with above-median scores in math (A.13) or reading (A.14). As discussed in Chapter III, none of KIPP’s subgroup-specific attrition rates were substantially different than the average attrition rates in the district comparison group. However, KIPP’s attrition rates for black and Hispanic students were moderately lower than the district rates, and these differences are statistically significant. Attrition rates for black males and Hispanic males are not significantly different from the rates at comparison schools. Relative to district schools, however, KIPP’s average attrition rate for black males (0.38) is significantly lower than the district-wide average (0.43). There do not appear to be any notable differences between KIPP and district schools in attrition rates for FRPL students, students with above-median baseline achievement, or students with below-median baseline achievement.

5. Attrition Status and Baseline Test Scores

Almost all of the KIPP and district cumulative attrition rates were approximately evenly divided between within-district movers and out-of-district leavers. Movers were defined as attrition transfers to another public school in the same district. All other transfers were classified as leavers; these are comprised of transfers to other districts, transfers to private schools, or students dropping out of the

¹⁵ In cases where students repeated their baseline grade, only the most recent test score was kept; dropping older test scores of grade repeaters caused the district-wide average standardized test score to be slightly above zero in some cases.

¹⁶ Because many districts did not provide data on mid-year school transfers, these attrition calculations do not include student transfers that take place during the eighth-grade school year.

school system. Table A.15 presents the cumulative attrition rates for all of these attrition types at KIPP schools and at district middle schools.

To further investigate whether attrition represents a form of student selection, we compared the baseline test scores of students who transfer to students who stay at the same middle school through eighth grade. As discussed in Chapter III, transferring students have significantly lower baseline test scores than students who do not transfer at all. This general pattern holds for both movers and leavers. For KIPP, the baseline scores of movers were significantly lower at 12 schools (in at least one subject); none of the KIPP schools recorded higher baseline scores for movers. The pattern at non-KIPP schools was even more pronounced: compared to those who do not transfer, movers had baseline scores that were significantly lower in at least one subject in all 19 sites. For leavers, the cross-site average baseline scores are also lower than students who do not transfer. Full comparisons of baseline scores by attrition status are shown in Appendix Table A.16 (mathematics) and Appendix Table A.17 (reading).

6. Late Arrival Patterns

To describe late arrival patterns at KIPP middle schools, we calculated the average number of new students entering each KIPP school in grade 6, grade 7, and grade 8. Table A.18 presents the results for KIPP, and Table A.19 presents the results for schools in the district comparison group. In each grade, both of these tables also include the average total enrollment and prior-grade attrition for the 19 KIPP middle schools and their district comparison schools in our sample. The enrollment and attrition averages in this table contextualize each grade's new arrival count. Note, however, that it may be misleading to compare measures presented in the table of KIPP's average total enrollment in grade 6 to the average total enrollment in grade 7 or grade 8, and ascribe those differences to the pattern of attrition and late arrivals. In newly opened KIPP schools, the first student cohort to enroll may be smaller than later student cohorts, because recruitment levels tend to rise as a school becomes more established. In our data set, the first cohort makes up a greater proportion of the grade 8 sample than the samples from earlier grades. This is because later cohorts may not have reached grade 8 at the time we collect data. In a school where the first cohort was smaller than later cohorts, this pattern will tend to decrease KIPP's average grade 8 enrollment, relative to average enrollment at earlier grade levels. Additionally, KIPP's relatively high levels of grade repetition in grades 5 and 6 will also tend to increase the average total enrollment levels observed in these earlier grade levels, all else equal (Tuttle et al., 2010).

As an alternate approach to measuring late arrivals, we also calculated the proportion of late arrivals relative to total middle school enrollment (Table A.20). As discussed in Chapter IV, the number of late arrivals as a proportion of enrollment was similar at KIPP schools and district schools. But most of KIPP's late arrivals entered in grade 6; the number of students entering KIPP schools in grades 7 and 8 was smaller, and typically less than the number entering nearby district schools in those grades.

Table A.1 Ethnicity and Gender Characteristics

Hispanic			Black			Female		
KIPP (1)	Feeder (2)	District (3)	KIPP (4)	Feeder (5)	District (6)	KIPP (7)	Feeder (8)	District (9)
.00 N=156	.01** N=1,052	.01** N=1,058	.97 N=156	.83** N=1,052	.84** N=1,058	.62 N=156	.51* N=1,052	.51* N=1,058
.00 N=146	.03** N=8,899	.04** N=14,509	.99 N=146	.94** N=8,899	.84** N=14,509	.56 N=146	.49 N=8,899	.49 N=14,509
.00 N=329	.03** N=11,431	.04** N=14,509	1.00 N=329	.94** N=11,431	.84** N=14,509	.53 N=329	.49 N=11,431	.49 N=14,509
.00 N=630	.05** N=28,590	.09** N=37,008	.99 N=630	.92** N=28,590	.85** N=37,008	.54 N=630	.51 N=28,679	.50 N=37,106
.00 N=413	.24** N=11,594	.34** N=17,256	.97 N=413	.42** N=11,594	.31** N=17,256	.53 N=413	.48 N=11,594	.49 N=17,256
.01 N=144	.05** N=20,942	.33** N=303,902	.99 N=144	.88** N=20,942	.55** N=303,902	.51 N=144	.51 N=20,942	.50 N=303,902
.01 N=284	.04** N=18,220	.09** N=37,008	.99 N=284	.95** N=18,220	.85** N=37,008	.51 N=284	.51 N=18,220	.50 N=37,106
.01 N=423	.09** N=10,082	.10** N=25,031	.96 N=423	.69** N=10,082	.36** N=25,031	.51 N=423	.49 N=10,082	.49 N=25,031
.01 N=403	.20** N=61,629	.35** N=302,166	.99 N=403	.74** N=61,629	.53** N=302,166	.50 N=403	.50 N=61,629	.50 N=302,166
.04 N=159	.13** N=29,925	.40** N=357,106	.94 N=159	.80** N=29,925	.33** N=357,106	.50 N=159	.50 N=29,925	.49 N=357,106
.10 N=387	-.50* N=5,174	.23** N=26,798	.70 N=387	-.76 N=2,705	.13** N=26,798	.53 N=387	.49 N=18,294	.49 N=26,798
.21 N=376	.19 N=49,979	.16* N=88,888	.79 N=376	.72** N=49,979	.65** N=88,888	.51 N=376	.49 N=49,979	.49 N=88,888
.35 N=223	.55** N=54,191	.54** N=83,827	.65 N=223	.36** N=54,191	.30** N=83,827	.53 N=223	.50 N=54,191	.50 N=83,827
.35 N=346	.54** N=47,478	.40 N=357,106	.64 N=346	.39** N=47,478	.33** N=357,106	.51 N=346	.49 N=47,478	.49 N=357,106
.40 N=409	-.49 N=5,695	.23** N=26,798	.43 N=409	-.74 N=2,864	.13** N=26,798	.50 N=409	.48 N=23,994	.49 N=26,798
.54 N=274	.59 N=46,779	.40** N=357,106	.43 N=274	.33** N=46,779	.33** N=357,106	.55 N=274	.49* N=46,779	.49* N=357,106
.54 N=338	.30** N=5,734	.24** N=11,159	.23 N=338	.13** N=5,734	.09** N=11,159	.49 N=338	.49 N=5,734	.49 N=11,159
.75 N=202	.68* N=24,927	.40** N=357,106	.22 N=202	.27 N=24,927	.33** N=357,106	.52 N=202	.49 N=24,927	.49 N=357,106
.87 N=371	.50** N=155,479	.48** N=229,458	.13 N=371	.23** N=155,479	.22** N=229,458	.57 N=371	.50** N=155,479	.50** N=229,458
.90 N=384	.57** N=127,745	.48** N=229,458	.10 N=384	.26** N=127,745	.22** N=229,458	.52 N=384	.50 N=127,745	.50 N=229,458
.94 N=381	.45** N=43,116	.42** N=48,296	.06 N=381	.11** N=43,116	.10** N=48,296	.54 N=381	.50 N=43,116	.50 N=48,296
.98 N=365	.87** N=28,650	.73** N=67,476	.01 N=365	.04** N=28,650	.05** N=67,476	.49 N=365	.50 N=28,650	.50 N=67,476
.32	.23**	.29**	.64	.43**	.42**	.53	.50**	.49**

* Statistically significant at the five percent level.

** Statistically significant at the one percent level.

A.2. Other Demographic Characteristics

FRL			SPED			LEP		
KIPP (1)	Feeder (2)	District (3)	KIPP (4)	Feeder (5)	District (6)	KIPP (7)	Feeder (8)	District (9)
.60 N=630	.65* N=28,679	.62 N=37,106	.07 N=630	.15** N=28,679	.16** N=37,106	.00 N=630	.03** N=28,679	.05** N=37,106
.71 N=423	.65** N=10,082	.36** N=25,031	.22 N=423	.24 N=10,082	.20 N=25,031	.00 N=423	.04** N=10,082	.05** N=25,031
.71 N=284	.69 N=18,220	.62** N=37,106	.14 N=284	.16 N=18,220	.16 N=37,106	.01 N=284	.02* N=18,220	.05** N=37,106
.72 N=409	.63** N=23,994	.61** N=26,798	.11 N=409	.13 N=23,994	.13 N=26,798	.32 N=409	.35 N=23,994	.34 N=26,798
.74 N=387	.65** N=18,294	.61** N=26,798	.14 N=387	.13 N=18,294	.13 N=26,798	.10 N=387	.34** N=18,294	.34** N=26,798
.74 N=329	.84** N=11,431	.76 N=14,509	.00 N=329	.00 N=11,431	.01 N=14,509	.00 N=329	.02** N=11,431	.03** N=14,509
.82 N=338	.65** N=5,734	.52** N=11,159	.19 N=338	.17 N=5,734	.18 N=11,159	.16 N=338	.16 N=5,734	.11* N=11,159
.86 N=413	.82* N=11,594	.85 N=17,256	.12 N=413	.20** N=11,594	.19** N=17,256	.01 N=413	.18** N=11,594	.26** N=17,256
.87 N=223	.78** N=54,191	.73** N=83,827	.01 N=223	.02 N=54,191	.02 N=83,827	NR	NR	NR
.88 N=146	.85 N=8,899	.76** N=14,509	.00 N=146	.00** N=8,899	.01** N=14,509	.00 N=146	.02** N=8,899	.03** N=14,509
.91 N=371	.63** N=155,479	.59** N=229,458	.01 N=371	.02** N=155,479	.02** N=229,458	NR	NR	NR
.92 N=381	.46** N=43,116	.43** N=48,296	.01 N=381	.04** N=43,116	.04** N=48,296	NR	NR	NR
.92 N=365	.82** N=28,650	.65** N=67,476	.04 N=365	.05 N=28,650	.04 N=67,476	NR	NR	NR
.94 N=384	.75** N=127,745	.59** N=229,458	.01 N=384	.02 N=127,745	.02 N=229,458	NR	NR	NR
.96 N=156	.93 N=1,052	.93 N=1,058	.06 N=156	.11* N=1,052	.11* N=1,058	.00 N=156	.00 N=1,052	.00 N=1,058
NR	NR	NR	.07 N=274	.17** N=46,779	.16** N=357,106	.08 N=274	.16** N=46,779	.12* N=357,106
NR	NR	NR	.09 N=159	.14* N=29,925	.16** N=357,106	.00 N=159	.04** N=29,925	.12** N=357,106
NR	NR	NR	.09 N=202	.15** N=24,927	.16** N=357,106	.20 N=202	.22 N=24,927	.12** N=357,106
NR	NR	NR	.11 N=376	.14 N=49,979	.14* N=88,888	.04 N=376	.07** N=49,979	.07** N=88,888
NR	NR	NR	.11 N=346	.16** N=47,478	.16** N=357,106	.05 N=346	.15** N=47,478	.12** N=357,106
NR	NR	NR	.14 N=403	.19** N=61,629	.19** N=302,166	.00 N=403	.06** N=61,629	.10** N=302,166
NR	NR	NR	.30 N=144	.17** N=20,942	.19** N=303,902	.00 N=144	.01** N=20,942	.10** N=303,902
.82	.72**	.64**	.09	.12**	.12**	.06	.11**	.12**

* Statistically significant at the five percent level.

** Statistically significant at the one percent level.

A.3. Baseline Test Scores

Reading			Math		
KIPP (1)	Feeder (2)	District (3)	KIPP (4)	Feeder (5)	District (6)
-.63 N=379	-.08** N=17,560	.04** N=25,863	-.71 N=378	-.07** N=17,697	.04** N=26,027
-.45 N=401	.02** N=23,125	.04** N=25,863	-.52 N=401	.01** N=23,277	.04** N=26,027
-.42 N=423	-.32* N=10,072	.05** N=24,965	-.39 N=423	-.29* N=10,076	.05** N=25,021
-.30 N=334	-.12** N=5,550	.04** N=10,937	-.27 N=334	-.10** N=5,556	.03** N=10,945
-.25 N=138	.18** N=20,863	.12** N=302,295	-.38 N=139	.11** N=20,782	.13** N=301,580
-.23 N=142	-.11 N=8,588	.00** N=13,999	-.23 N=143	-.12 N=8,600	.01** N=14,031
-.22 N=273	.01** N=35,834	.04** N=40,559	-.24 N=272	.01** N=34,655	.04** N=39,263
-.18 N=183	-.23 N=21,517	.03** N=326,389	-.11 N=201	-.26** N=24,700	.03* N=351,816
-.11 N=322	-.11 N=25,043	.03* N=59,627	.03 N=312	-.10** N=24,281	.03 N=58,030
-.09 N=335	-.17 N=42,791	.03** N=326,389	-.06 N=343	-.16* N=46,963	.03* N=351,816
-.08 N=403	-.11 N=61,476	.02* N=301,516	-.09 N=403	-.14 N=61,349	.02** N=300,987
-.07 N=208	.05* N=5,119	.01 N=7,669	-.17 N=205	.03** N=5,136	.02** N=7,718
-.02 N=213	-.03 N=50,020	.04 N=75,679	-.02 N=209	-.04 N=49,105	.04 N=74,243
-.01 N=185	-.10 N=10,866	.01 N=22,835	-.05 N=185	-.11 N=10,929	.01 N=23,012
.01 N=361	-.08 N=41,221	.01 N=72,394	-.03 N=362	-.10 N=41,761	.01 N=73,097
.06 N=284	-.06* N=100,505	.04 N=190,364	.07 N=276	-.07** N=98,483	.04 N=186,588
.15 N=156	.02 N=1,052	.02 N=1,058	.07 N=156	.03 N=1,052	.03 N=1,058
.15 N=265	.03** N=126,833	.04* N=190,364	.14 N=265	.03* N=124,572	.04 N=186,588
.15 N=158	.01 N=28,794	.03 N=326,389	-.02 N=158	-.08 N=29,554	.03 N=351,816
.20 N=323	-.10** N=11,028	.00** N=13,999	.20 N=322	-.10** N=11,046	.01** N=14,031
.23 N=368	-.04** N=17,518	.01** N=22,835	.32 N=373	-.03** N=17,670	.01** N=23,012
.32 N=264	-.22** N=42,176	.03** N=326,389	.26 N=273	-.22** N=46,300	.03** N=351,816
-.08	-.07	.03**	-.10	-.08	.03**

* Statistically significant at the five percent level.

** Statistically significant at the one percent level.

A.4. Comparison Students Expected to Transfer Schools Following Grade 5

Comparison	District
(1)	(2)
.04	.04
.16	.23
.21	.22
.22	.39
.26	.27
.59	.69
.61	.67
.62	.67
.73	.69
.77	.79
.81	.79
.83	.79
.94	.89
.98	.52
.98	.89
.98	.96
.98	.96
.99	.89
1.00	1.00
.70	.65

Note: Reported figures represent the proportion of non-KIPP, fifth grade students who are in their school's highest offered grade in a given school year.

A.5. Middle School Attrition Rates

Grade 5			Grade 6			Grade 7			Cumulative		
KIPP (1)	Comparison (2)	District (3)	KIPP (4)	Comparison (5)	District (6)	KIPP (7)	Comparison (8)	District (9)	KIPP (10)	Comp. (11)	District (12)
.05 N=378	.12** N=183,459	.14** N=453,383	.05 N=368	.12** N=170,863	.10** N=347,632	.02 N=274	.10** N=134,030	.08** N=264,655	.11	.30**	.29**
.08 N=314	.12* N=2,900	.14** N=9,617	.06 N=246	.13** N=2,760	.10** N=6,610	.02 N=130	.06** N=1,733	.04* N=4,148	.15	.28**	.26**
.08 N=368	.14** N=146,453	.15** N=372,524	.05 N=293	.12** N=136,003	.11** N=273,926	.07 N=211	.10 N=100,879	.08 N=195,584	.18	.31**	.31**
.11 N=447	.05** N=128,203	.13 N=320,539	.08 N=458	.13** N=121,328	.12** N=228,064	.06 N=337	.15** N=100,078	.13** N=176,759	.23	.29**	.33**
.17 N=309	.30** N=6,853	.25** N=17,904	.07 N=240	.11* N=5,967	.15** N=11,502	.07 N=135	.10 N=4,362	.10 N=6,954	.27	.44**	.43**
.13 N=342	.19** N=37,008	.16 N=77,300	.10 N=278	.19** N=31,290	.14* N=56,975	.08 N=172	.18** N=24,277	.14** N=41,093	.29	.46**	.38**
.14 N=361	.01** N=9,287	.11 N=23,852	.13 N=353	.06** N=9,167	.07** N=17,394	.10 N=227	.05* N=7,135	.07 N=13,398	.33	.12**	.23**
.18 N=340	.01** N=28,740	.13* N=79,804	.12 N=269	.14 N=26,707	.13 N=51,556	.08 N=169	.13* N=20,123	.12 N=37,475	.34	.26**	.33
.20 N=337	.04** N=4,962	.19 N=16,737	.16 N=348	.23** N=4,810	.21* N=9,472	.08 N=189	.12 N=2,965	.10 N=5,544	.39	.35	.43
.18 N=428	.06** N=130,790	.13** N=320,523	.14 N=410	.14 N=122,814	.12 N=228,050	.14 N=272	.16 N=102,199	.13 N=176,761	.39	.32**	.33**
.23 N=393	.20 N=72,735	.16** N=145,119	.16 N=296	.19 N=54,802	.15 N=104,309	.09 N=159	.14* N=40,409	.11 N=74,606	.41	.44	.36
.17 N=611	.19 N=18,134	.22** N=39,814	.17 N=553	.12** N=16,977	.19 N=30,201	.16 N=382	.29** N=15,338	.29** N=23,132	.42	.49**	.55**
.22 N=340	.01** N=9,073	.11** N=23,849	.18 N=314	.07** N=8,944	.07** N=17,401	.11 N=179	.06* N=6,954	.07 N=13,415	.44	.14**	.23**
.33 N=241	.26* N=35,996	.26* N=99,412	.15 N=123	.07* N=32,646	.11 N=62,654	.05 N=55	.19** N=27,533	.14** N=46,938	.46	.44	.43
.23 N=372	.01** N=9,470	.11** N=29,459	.24 N=319	.18* N=9,248	.13** N=19,620	.10 N=144	.14 N=6,101	.10 N=13,127	.47	.30**	.31**
.20 N=329	.03** N=26,320	.13** N=69,255	.27 N=282	.12** N=24,719	.12** N=47,175	.14 N=133	.12 N=19,428	.12 N=36,675	.50	.25**	.33**
.19 N=155	.05** N=332	.12* N=1,150	.23 N=109	.06** N=319	.09** N=683	N/A	N/A	N/A	NR	NR	NR
.08 N=178	.11 N=71,479	.14** N=216,383	.02 N=114	.07** N=65,404	.08** N=132,488	N/A	N/A	N/A	NR	NR	NR
.06 N=209	.13** N=69,356	.14** N=216,370	.03 N=132	.09** N=60,747	.08** N=132,476	N/A	N/A	N/A	NR	NR	NR
0.16	0.11**	0.15	0.13	0.12	0.12	0.09	0.13**	0.11**	0.34	0.33	0.35

Note: For KIPP schools where attrition data was not available in grade 7, the cumulative attrition rates in columns 10, 11, and 12 were not reported.

* Statistically significant at the five percent level.

** Statistically significant at the one percent level.

A.6. Attrition Rates for Black Students

Grade 5			Grade 6			Grade 7			Cumulative		
KIPP (1)	Comparison (2)	District (3)	KIPP (4)	Comparison (5)	District (6)	KIPP (7)	Comparison (8)	District (9)	KIPP (10)	Comp. (11)	District (12)
.06 N=115	.14** N=45,133	.16** N=114,296	.01 N=77	.14** N=41,986	.13** N=84,941	.05 N=56	.12* N=31,779	.10 N=61,060	.12	.35**	.34**
.09 N=203	.14** N=54,325	.16** N=114,274	.05 N=154	.13** N=50,563	.13** N=84,918	.08 N=107	.11 N=37,957	.10 N=61,047	.20	.34**	.34**
.11 N=70	.11 N=393	.15 N=770	.09 N=54	.14 N=375	.13 N=528	.03 N=33	.06 N=227	.05 N=313	.22	.28	.30
.12 N=230	.20** N=22,660	.16* N=46,239	.06 N=183	.20** N=19,524	.15** N=35,026	.07 N=121	.20** N=15,618	.15** N=25,654	.23	.49**	.40**
.16 N=219	.30** N=5,679	.25** N=13,161	.07 N=170	.11 N=4,987	.14** N=8,740	.06 N=83	.10 N=3,588	.10 N=5,374	.27	.44**	.42**
.20 N=250	.03** N=4,238	.15* N=11,935	.14 N=187	.22** N=4,111	.21* N=7,353	.05 N=98	.11** N=2,584	.11* N=4,398	.35	.34	.40
.18 N=443	.19 N=15,005	.21 N=29,876	.17 N=398	.12** N=14,061	.18 N=23,398	.15 N=272	.30** N=12,652	.29** N=18,440	.42	.50**	.54**
.23 N=309	.22 N=40,868	.19 N=67,701	.16 N=225	.21 N=30,856	.18 N=49,998	.10 N=123	.16* N=22,234	.14 N=35,273	.42	.48	.42
.35 N=40	.09** N=18,439	.14** N=48,637	.14 N=21	.18 N=17,565	.15 N=34,415	.00 N=12	.19** N=14,393	.17** N=25,964	.44	.39	.39
.21 N=125	.04** N=712	.15 N=2,689	.23 N=124	.18 N=681	.19 N=1,889	.15 N=74	.23 N=553	.22 N=1,440	.48	.39	.46
.22 N=289	.01** N=4,721	.12** N=8,847	.24 N=225	.21 N=4,599	.20 N=5,721	.10 N=105	.17* N=3,018	.16 N=3,720	.48	.36**	.41
.23 N=196	.05** N=893	.15** N=2,717	.25 N=173	.18* N=837	.19 N=1,897	.13 N=100	.23** N=691	.22* N=1,459	.50	.40*	.46
.39 N=116	.30 N=10,536	.27** N=23,951	.17 N=54	.08 N=9,429	.11 N=15,900	.16 N=19	.24 N=8,181	.19 N=12,541	.57	.51	.47
.16 N=128	.04** N=291	.10 N=892	.20 N=88	.05** N=281	.09* N=549	N/A	N/A	N/A	NR	NR	NR
.08 N=132	.12 N=29,247	.14** N=65,539	.02 N=82	.09** N=25,631	.10** N=40,269	N/A	N/A	N/A	NR	NR	NR
.12 N=42	.15 N=20,695	.14 N=65,522	.00 N=19	.12** N=18,212	.10** N=40,256	N/A	N/A	N/A	NR	NR	NR
.38 N=26	.11** N=22,830	.14* N=48,643	.17 N=12	.18 N=21,533	.15 N=34,416	NR	NR	NR	NR	NR	NR
.56 N=18	.05** N=1,928	.14** N=4,593	NR	NR	NR	NR	NR	NR	NR	NR	NR
NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
0.18	0.14**	0.17	0.14	0.15	0.15	0.09	0.17**	0.16**	0.37	.42**	.42**

Note: For KIPP schools where attrition data was not available in grade 7, the cumulative attrition rates in columns 10, 11, and 12 were not reported. Results were also not reported when grade-specific sample sizes were less than 10.

* Statistically significant at the five percent level.
 ** Statistically significant at the one percent level.

A.7. Attrition Rates for Black Male Students

Grade 5			Grade 6			Grade 7			Cumulative		
KIPP (1)	Comparison (2)	District (3)	KIPP (4)	Comparison (5)	District (6)	KIPP (7)	Comparison (8)	District (9)	KIPP (10)	Comp. (11)	District (12)
.06 N=31	.09 N=203	.15 N=406	.00 N=22	.00** N=195	.12** N=280	.00 N=14	.07** N=117	.06** N=163	.06	.26**	.30**
.07 N=54	.14 N=22,793	.17* N=57,496	.03 N=37	.00** N=21,166	.14** N=42,439	.07 N=28	.13 N=15,931	.11 N=30,296	.16	.36**	.36**
.07 N=104	.15** N=26,888	.17** N=57,480	.05 N=82	.00** N=25,012	.14** N=42,421	.08 N=52	.12 N=18,680	.11 N=30,286	.18	.35**	.36**
.14 N=114	.21* N=11,664	.17 N=23,421	.08 N=79	.00** N=10,009	.16** N=17,649	.08 N=53	.21** N=7,996	.16* N=12,864	.27	.50**	.41**
.19 N=113	.30** N=2,840	.25 N=6,588	.09 N=82	.36 N=2,468	.14 N=4,314	.08 N=40	.10 N=1,759	.11 N=2,633	.32	.44*	.42*
.21 N=112	.03** N=2,130	.15 N=6,084	.16 N=92	.06 N=2,064	.23 N=3,722	.07 N=43	.12 N=1,292	.11 N=2,223	.38	.35	.42
.25 N=154	.22 N=20,382	.19 N=33,742	.21 N=106	.99 N=15,281	.18 N=24,709	.07 N=56	.17** N=10,898	.15* N=17,278	.45	.49	.43
.21 N=63	.05** N=363	.16 N=1,357	.18 N=56	.90 N=350	.20 N=934	.18 N=34	.24 N=281	.23 N=700	.46	.41	.49
.19 N=208	.19 N=7,134	.21 N=14,782	.23 N=177	.00** N=6,625	.18 N=11,380	.18 N=114	.32** N=5,945	.31** N=8,976	.49	.52	.56
.25 N=139	.01** N=2,373	.12** N=4,440	.29 N=106	.19 N=2,316	.22 N=2,890	.18 N=44	.17 N=1,511	.16 N=1,865	.57	.37**	.43**
.29 N=89	.06** N=442	.16* N=1,365	.29 N=70	.03* N=421	.20 N=938	.17 N=35	.24 N=347	.23 N=713	.58	.40**	.48
NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
.57 N=14	.11** N=11,075	.14** N=23,810	NR	NR	NR	NR	NR	NR	NR	NR	NR
NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
.45 N=55	.30* N=5,194	.27** N=11,695	.13 N=24	.61 N=4,566	.12 N=7,597	NR	NR	NR	NR	NR	NR
.14 N=49	.04 N=143	.09 N=428	.29 N=35	.00** N=138	.08* N=266	N/A	N/A	N/A	NR	NR	NR
.12 N=66	.13 N=14,592	.15 N=32,956	.02 N=42	.00** N=12,724	.10** N=20,008	N/A	N/A	N/A	NR	NR	NR
.09 N=23	.15 N=10,411	.15 N=32,947	.00 N=12	.00** N=9,149	.10** N=19,998	N/A	N/A	N/A	NR	NR	NR
.21	.14**	.16**	.15	.21**	.15	.13	.17	.16	.38	.41	.43*

Note: For KIPP schools where attrition data was not available in grade 7, the cumulative attrition rates in columns 10, 11, and 12 were not reported. Results were also not reported when grade-specific sample sizes were less than 10.

* Statistically significant at the five percent level.
 ** Statistically significant at the one percent level.

A.8. Attrition Rates for Hispanic Students

Grade 5			Grade 6			Grade 7			Cumulative		
KIPP (1)	Comparison (2)	District (3)	KIPP (4)	Comparison (5)	District (6)	KIPP (7)	Comparison (8)	District (9)	KIPP (10)	Comp. (11)	District (12)
.01 N=136	.11** N=71,050	.14** N=139,487	.04 N=114	.11** N=65,179	.10** N=102,833	.01 N=71	.09** N=47,736	.08** N=73,555	.07	.29**	.29**
.03 N=101	.12** N=64,876	.14** N=139,458	.04 N=97	.11** N=59,966	.10** N=102,809	.03 N=73	.09** N=44,268	.08** N=73,528	.10	.29**	.29**
.03 N=254	.05* N=43,770	.09** N=107,092	.04 N=224	.11** N=42,295	.09** N=76,545	.05 N=155	.11** N=33,697	.10** N=55,968	.11	.25**	.26**
.07 N=153	.15** N=884	.16** N=2,083	.08 N=119	.16** N=817	.13* N=1,411	.00 N=56	.06** N=528	.05** N=893	.14	.33**	.30**
.08 N=121	.01** N=1,349	.14* N=5,139	.04 N=104	.10** N=1,308	.10** N=3,571	.06 N=66	.09 N=990	.09 N=2,703	.17	.19	.29**
.16 N=50	.25 N=18,047	.22 N=43,958	.11 N=44	.06 N=16,991	.09 N=29,845	.00 N=25	.16** N=14,293	.12** N=21,862	.26	.41*	.38
.12 N=25	.01 N=1,929	.14 N=5,112	.12 N=25	.08 N=1,900	.10 N=3,568	.07 N=14	.09 N=1,438	.09 N=2,701	.28	.17	.30
.14 N=254	.02** N=21,352	.07** N=47,978	.11 N=218	.13 N=20,419	.12 N=33,492	.09 N=143	.12 N=15,384	.11 N=24,471	.30	.25	.27
.15 N=289	.06** N=49,115	.09** N=107,086	.12 N=229	.11 N=47,326	.09 N=76,545	.14 N=133	.11 N=37,891	.10 N=55,972	.35	.26**	.26**
.10 N=200	.04** N=7,160	.10 N=19,786	.17 N=193	.13 N=6,763	.11* N=13,502	.13 N=96	.14 N=5,094	.12 N=9,912	.35	.28	.30
.15 N=65	.19 N=7,195	.15 N=11,363	.26 N=53	.16 N=5,909	.14 N=8,237	.18 N=28	.15 N=4,332	.13 N=5,777	.49	.42	.37
NR	NR	NR	NR	NR	NR	N/A	N/A	N/A	NR	NR	NR
NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
NR	NR	NR	NR	NR	NR	N/A	N/A	N/A	NR	NR	NR
.04 N=137	.12** N=35,281	.12** N=81,646	.04 N=102	.09* N=30,639	.07 N=50,120	N/A	N/A	N/A	NR	NR	NR
.09	.10	.12**	.09	.11	.10	.07	.11**	.10**	.24	.29**	.30**

Note: For KIPP schools where attrition data was not available in grade 7, the cumulative attrition rates in columns 10, 11, and 12 were not reported. Results were also not reported when grade-specific sample sizes were less than 10.

* Statistically significant at the five percent level.
 ** Statistically significant at the one percent level.

A.9. Attrition Rates for Hispanic Male Students

Grade 5			Grade 6			Grade 7			Cumulative		
KIPP (1)	Comparison (2)	District (3)	KIPP (4)	Comparison (5)	District (6)	KIPP (7)	Comparison (8)	District (9)	KIPP (10)	Comp. (11)	District (12)
.00 N=57	.11** N=36,189	.14** N=70,962	.04 N=45	.02* N=33,127	.11* N=52,252	.00 N=30	.09** N=24,096	.08** N=37,184	.04	.29**	.30**
.02 N=44	.12** N=32,847	.14** N=70,939	.02 N=42	.00** N=30,323	.11** N=52,232	.03 N=32	.09 N=22,277	.08 N=37,163	.08	.29**	.30**
.03 N=116	.06* N=21,993	.09** N=53,439	.04 N=106	.00** N=21,143	.09** N=37,908	.07 N=74	.11 N=16,764	.10 N=27,578	.13	.26**	.26**
.10 N=78	.16 N=432	.16 N=1,049	.09 N=55	.05* N=395	.14 N=707	.00 N=22	.06** N=254	.05** N=442	.18	.35**	.32*
.07 N=60	.02 N=700	.13* N=2,678	.06 N=51	.35 N=677	.09 N=1,873	.13 N=31	.09 N=511	.10 N=1,420	.23	.18	.29
.17 N=133	.02** N=10,525	.08** N=23,889	.12 N=103	.62 N=9,991	.12 N=16,542	.13 N=69	.12 N=7,577	.11 N=12,136	.36	.25*	.27
.11 N=92	.04* N=3,571	.10 N=9,899	.24 N=89	.02* N=3,352	.11** N=6,679	.09 N=43	.13 N=2,540	.12 N=4,860	.38	.27	.30
.21 N=34	.18 N=3,655	.15 N=5,779	.23 N=26	.44 N=2,983	.14 N=4,145	.00 N=12	.16** N=2,192	.14** N=2,911	.39	.43	.37
.15 N=143	.06** N=24,600	.09 N=53,434	.15 N=107	.29 N=23,559	.10 N=37,909	.18 N=55	.11 N=18,804	.10 N=27,585	.41	.26**	.26**
.26 N=27	.25 N=9,199	.22 N=22,096	.20 N=20	.14 N=8,611	.09 N=14,943	.00 N=13	.16** N=7,222	.13** N=10,979	.41	.41	.39
NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
.21 N=14	.01 N=1,002	.13 N=2,664	.23 N=13	.24 N=984	.09 N=1,872	NR	NR	NR	NR	NR	NR
NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
NR	NR	NR	NR	NR	NR	N/A	N/A	N/A	NR	NR	NR
NR	NR	NR	NR	NR	NR	N/A	N/A	N/A	NR	NR	NR
.03 N=62	.12** N=17,982	.12** N=41,542	.08 N=48	.95 N=15,581	.08 N=25,468	N/A	N/A	N/A	NR	NR	NR
.12	.10	.14	.13	.26**	.11	.13	.11	.10	.27	.30	.30

Note: For KIPP schools where attrition data was not available in grade 7, the cumulative attrition rates in columns 10, 11, and 12 were not reported. Results were also not reported when grade-specific sample sizes were less than 10.

* Statistically significant at the five percent level.
 ** Statistically significant at the one percent level.

A.10. Attrition Rates for Students Eligible for Free or Reduced Price Lunch

Grade 5			Grade 6			Grade 7			Cumulative		
KIPP (1)	Comparison (2)	District (3)	KIPP (4)	Comparison (5)	District (6)	KIPP (7)	Comparison (8)	District (9)	KIPP (10)	Comp. (11)	District (12)
.06 N=270	.07 N=52,909	.11** N=131,084	.04 N=230	.13** N=50,634	.12** N=92,518	.05 N=158	.14** N=40,746	.13** N=68,157	.14	.31**	.32**
.09 N=235	.13* N=1,977	.16** N=4,566	.08 N=183	.14** N=1,864	.12* N=3,152	.01 N=96	.05** N=1,177	.05** N=1,951	.16	.29**	.29**
.18 N=151	.31** N=4,352	.25* N=10,846	.08 N=116	.11 N=3,903	.14* N=7,272	.05 N=56	.11 N=2,864	.10 N=4,618	.28	.45**	.42**
.14 N=238	.02** N=18,995	.09* N=42,449	.10 N=203	.14* N=18,057	.13 N=29,248	.10 N=133	.13 N=13,542	.12 N=21,403	.30	.27	.31
.15 N=296	.08** N=62,709	.11 N=131,090	.11 N=238	.14 N=59,749	.12 N=92,526	.12 N=139	.14 N=48,012	.13 N=68,172	.33	.32	.32
.13 N=216	.01** N=5,217	.09 N=13,663	.16 N=193	.06** N=5,144	.08** N=10,228	.10 N=118	.05 N=4,022	.07 N=7,898	.34	.12**	.22**
.12 N=196	.05** N=6,991	.13 N=20,153	.17 N=190	.17 N=6,447	.14 N=13,232	.10 N=90	.17* N=4,863	.15 N=9,764	.34	.34	.37
.22 N=190	.03** N=3,911	.14* N=10,888	.16 N=140	.22 N=3,813	.20 N=6,822	.05 N=73	.11 N=2,384	.10 N=3,997	.38	.33	.39
.21 N=212	.01** N=5,409	.09** N=13,661	.22 N=179	.07** N=5,334	.07** N=10,236	.12 N=92	.07 N=4,172	.07 N=7,913	.45	.14**	.22**
.32 N=145	.28 N=24,981	.25 N=59,281	.13 N=91	.07 N=23,206	.10 N=39,397	.08 N=40	.19* N=19,314	.15 N=28,973	.45	.46	.43
.21 N=260	.20 N=10,577	.21 N=22,134	.20 N=235	.11** N=9,945	.17 N=17,175	.15 N=164	.31** N=8,936	.30** N=13,560	.47	.51	.54*
.24 N=218	.01** N=4,501	.12** N=8,906	.26 N=170	.21 N=4,396	.21 N=5,824	.12 N=81	.17 N=2,840	.17 N=3,702	.51	.36**	.42*
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NR	NR
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NR	NR
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NR	NR
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NR	NR
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NR	NR
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NR	NR
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NR	NR
.16 N=124	.04** N=306	.11 N=990	.20 N=83	.06** N=297	.09* N=596	N/A	N/A	N/A	NR	NR	NR
.17	.10**	.15*	.14	.12*	.13	.09	.14**	.13**	.34	.33	.35

Note: For KIPP schools where attrition data was not available in grade 7, the cumulative attrition rates in columns 10, 11, and 12 were not reported. Results were also not reported when grade-specific sample sizes were less than 10.

* Statistically significant at the five percent level.
 ** Statistically significant at the one percent level.

A.11. Attrition Rates for Students with Below- Median Baseline Math Scores

Grade 5			Grade 6			Grade 7			Cumulative		
KIPP (1)	Comparison (2)	District (3)	KIPP (4)	Comparison (5)	District (6)	KIPP (7)	Comparison (8)	District (9)	KIPP (10)	Comp. (11)	District (12)
.06 N=80	.13* N=66,912	.15** N=146,919	.04 N=54	.13** N=61,545	.12** N=107,668	.03 N=35	.12** N=44,717	.10* N=75,736	.12	.33**	.33**
.09 N=149	.13 N=67,259	.15* N=150,169	.03 N=117	.13** N=62,307	.12** N=110,634	.07 N=81	.11 N=45,765	.10 N=78,573	.18	.33**	.33**
.07 N=99	.07 N=33,337	.12 N=89,700	.08 N=74	.15* N=31,978	.12 N=62,552	.07 N=46	.14* N=25,467	.13 N=46,219	.20	.32*	.32**
.13 N=160	.13 N=1,237	.14 N=3,605	.09 N=119	.14 N=1,203	.11 N=2,523	.00 N=60	.06** N=771	.04** N=1,590	.21	.30*	.27
.21 N=67	.35** N=1,943	.27 N=5,196	.08 N=66	.08 N=1,651	.11 N=3,152	.00 N=22	.03** N=946	.04** N=1,546	.27	.42*	.37
.15 N=124	.20 N=16,204	.16 N=30,976	.09 N=97	.20** N=13,638	.15* N=22,679	.11 N=54	.21* N=10,392	.17 N=15,914	.31	.49**	.41*
.15 N=245	.02** N=4,277	.12 N=12,561	.14 N=224	.08* N=4,206	.10 N=9,021	.10 N=145	.08 N=3,222	.10 N=6,846	.34	.17**	.28
.19 N=109	.09** N=33,735	.12 N=79,546	.13 N=84	.16 N=32,041	.13 N=55,462	.06 N=49	.16** N=25,581	.13* N=41,044	.34	.35	.33
.18 N=101	.02** N=10,476	.10* N=26,761	.13 N=84	.15 N=9,964	.14 N=17,382	.08 N=53	.14 N=7,354	.13 N=12,231	.34	.28	.32
.16 N=129	.03** N=7,215	.11 N=20,093	.21 N=101	.12* N=6,875	.11* N=13,575	.14 N=43	.13 N=4,971	.12 N=9,593	.43	.26**	.30*
.24 N=227	.02** N=4,138	.12** N=11,339	.23 N=200	.10** N=4,058	.11** N=8,151	.13 N=105	.10 N=3,050	.11 N=6,110	.49	.20**	.30**
.43 N=81	.30* N=13,943	.26** N=32,989	.11 N=28	.08 N=12,914	.11 N=21,441	.00 N=10	.19** N=10,428	.16** N=14,983	.49	.48	.45
.23 N=98	.04** N=2,144	.14* N=6,140	.26 N=53	.24 N=2,093	.23 N=3,704	.14 N=22	.12 N=1,329	.11 N=2,206	.51	.36*	.41
.26 N=164	.22 N=32,217	.19* N=56,391	.23 N=111	.21 N=24,370	.18 N=41,571	.15 N=53	.17 N=17,572	.14 N=29,411	.51	.49	.43
.23 N=173	.02** N=3,826	.12** N=9,224	.30 N=130	.21* N=3,729	.18** N=5,971	.13 N=53	.16 N=2,402	.13 N=3,834	.53	.34**	.37**
.25 N=105	.23 N=4,589	.24 N=10,838	.28 N=82	.11** N=4,253	.15* N=7,842	.23 N=44	.35 N=3,587	.34 N=5,732	.58	.56	.58
.24 N=62	.05** N=157	.11* N=549	.29 N=42	.07** N=152	.11* N=327	N/A	N/A	N/A	NR	NR	NR
.04 N=69	.11* N=34,023	.13** N=105,517	.00 N=46	.09** N=30,795	.09** N=64,596	N/A	N/A	N/A	NR	NR	NR
.08 N=89	.13 N=33,243	.13 N=88,839	.02 N=52	.11** N=28,997	.09** N=54,575	N/A	N/A	N/A	NR	NR	NR
.18	.12**	.15**	.15	.13	.13	.09	.14**	.13*	.38	.36	.36

Note: For KIPP schools where attrition data was not available in grade 7, the cumulative attrition rates in columns 10, 11, and 12 were not reported. Results were also not reported when grade-specific sample sizes were less than 10.

* Statistically significant at the five percent level.
 ** Statistically significant at the one percent level.

A.12. Attrition Rates for Students with Below- Median Baseline Reading Scores

Grade 5			Grade 6			Grade 7			Cumulative		
KIPP (1)	Comparison (2)	District (3)	KIPP (4)	Comparison (5)	District (6)	KIPP (7)	Comparison (8)	District (9)	KIPP (10)	Comp. (11)	District (12)
.06 N=69	.13* N=59,811	.15** N=129,983	.02 N=52	.13** N=55,168	.12** N=95,976	.00 N=35	.12** N=41,219	.10** N=68,891	.08	.33**	.33**
.08 N=144	.13* N=61,296	.15** N=135,560	.03 N=117	.13** N=56,956	.12** N=101,073	.06 N=79	.11 N=43,225	.10 N=73,714	.16	.33**	.33**
.10 N=167	.13 N=1,264	.14* N=3,544	.08 N=123	.13 N=1,213	.11 N=2,429	.00 N=67	.06** N=799	.04** N=1,533	.17	.29**	.27**
.08 N=110	.06 N=34,125	.11 N=93,792	.05 N=81	.14** N=32,633	.12** N=63,639	.08 N=51	.14 N=25,555	.13 N=45,991	.20	.31**	.32**
.21 N=63	.35** N=1,881	.27 N=5,152	.06 N=63	.08 N=1,600	.11 N=3,105	.00 N=21	.04** N=927	.05** N=1,511	.26	.43**	.37
.14 N=130	.19 N=15,964	.15 N=31,007	.07 N=98	.19** N=13,430	.15** N=22,691	.11 N=55	.20* N=10,106	.16 N=15,722	.29	.48**	.40*
.16 N=243	.01** N=4,309	.11 N=12,344	.15 N=213	.08** N=4,246	.10* N=9,075	.10 N=134	.08 N=3,257	.10 N=6,915	.36	.16**	.27**
.19 N=124	.08** N=34,150	.12* N=82,770	.12 N=82	.15 N=32,304	.12 N=56,013	.09 N=44	.16 N=25,507	.13 N=40,711	.36	.34	.33
.18 N=116	.02** N=10,927	.10* N=26,570	.15 N=102	.15 N=10,281	.13 N=17,487	.11 N=63	.14 N=7,790	.13 N=12,803	.38	.28*	.32
.27 N=153	.22 N=31,309	.18* N=55,222	.17 N=103	.20 N=23,948	.17 N=41,260	.10 N=52	.17 N=17,317	.14 N=29,290	.45	.48	.42
.13 N=128	.03** N=7,202	.11 N=20,560	.22 N=107	.13* N=6,817	.11** N=13,617	.18 N=49	.13 N=5,097	.11 N=9,960	.45	.26**	.30**
.39 N=82	.29 N=14,130	.26* N=32,721	.14 N=37	.08 N=13,005	.12 N=20,984	.00 N=18	.19** N=10,865	.16** N=15,483	.47	.47	.45
.22 N=221	.02** N=4,184	.11** N=11,186	.24 N=196	.09** N=4,107	.10** N=8,202	.13 N=102	.09 N=3,166	.10 N=6,285	.49	.19**	.28**
.26 N=81	.04** N=2,106	.14* N=6,014	.27 N=56	.25 N=2,056	.23 N=3,668	.10 N=29	.12 N=1,287	.11 N=2,166	.51	.36*	.41
.27 N=107	.23 N=4,573	.23 N=10,788	.22 N=74	.12 N=4,244	.16 N=7,817	.22 N=46	.35* N=3,599	.35* N=5,751	.55	.56	.58
.23 N=167	.01** N=3,768	.12** N=8,796	.33 N=124	.20** N=3,676	.18** N=5,769	.19 N=42	.16 N=2,329	.14 N=3,688	.58	.34**	.37**
.23 N=62	.04** N=158	.12 N=516	.28 N=40	.08* N=156	.11* N=309	N/A	N/A	N/A	NR	NR	NR
.10 N=62	.10 N=31,566	.13 N=94,832	.02 N=41	.09* N=28,696	.09* N=58,279	N/A	N/A	N/A	NR	NR	NR
.07 N=81	.14* N=28,526	.13 N=77,651	.04 N=48	.11* N=24,852	.09 N=47,943	N/A	N/A	N/A	NR	NR	NR
.18	.12**	.15**	.15	.13	.13	.10	.14**	.13*	.37	.35	.36

Note: For KIPP schools where attrition data was not available in grade 7, the cumulative attrition rates in columns 10, 11, and 12 were not reported. Results were also not reported when grade-specific sample sizes were less than 10.

* Statistically significant at the five percent level.
 ** Statistically significant at the one percent level.

A.13. Attrition Rates for Students with Above-Median Baseline Math Scores

Grade 5			Grade 6			Grade 7			Cumulative		
KIPP (1)	Comparison (2)	District (3)	KIPP (4)	Comparison (5)	District (6)	KIPP (7)	Comparison (8)	District (9)	KIPP (10)	Comp. (11)	District (12)
.03 N=118	.10** N=1,332	.13** N=4,951	.04 N=98	.12** N=1,247	.08 N=3,415	.03 N=60	.04 N=800	.03 N=2,200	.10	.24**	.22**
.03 N=176	.10** N=67,356	.13** N=198,676	.05 N=139	.10* N=62,819	.08 N=147,447	.03 N=90	.08* N=47,213	.06 N=106,512	.11	.25**	.25**
.05 N=155	.12** N=68,486	.13** N=195,304	.04 N=134	.09** N=64,119	.08* N=144,347	.05 N=100	.07 N=47,867	.06 N=103,578	.13	.26**	.25**
.09 N=117	.03* N=34,142	.08 N=90,403	.04 N=95	.09* N=33,664	.08 N=65,490	.03 N=67	.09** N=26,224	.08* N=48,030	.15	.20	.22
.19 N=74	.42** N=2,073	.27 N=6,662	.03 N=67	.07 N=1,763	.09** N=3,951	.03 N=30	.03 N=1,061	.03 N=1,836	.24	.47**	.36*
.07 N=46	.01 N=4,438	.09 N=9,185	.12 N=49	.03 N=4,402	.03 N=7,016	.09 N=33	.02 N=3,495	.02 N=5,554	.25	.06**	.14
.15 N=147	.02** N=2,107	.18 N=7,638	.10 N=130	.19** N=2,034	.17* N=4,446	.03 N=74	.10** N=1,250	.08** N=2,600	.26	.29	.37**
.11 N=111	.05* N=34,373	.08 N=100,881	.07 N=91	.10 N=33,789	.08 N=72,899	.12 N=58	.10 N=26,959	.08 N=53,211	.27	.23	.22
.12 N=119	.01** N=10,568	.07 N=29,519	.09 N=98	.11 N=10,381	.10 N=21,663	.09 N=64	.09 N=7,741	.09 N=15,657	.27	.20	.24
.11 N=160	.16* N=16,432	.14 N=37,217	.12 N=133	.17 N=14,196	.13 N=28,143	.08 N=92	.15* N=11,349	.11 N=20,919	.28	.40**	.33
.10 N=42	.01 N=4,319	.09 N=10,397	.15 N=39	.03* N=4,287	.03* N=7,886	.11 N=27	.03 N=3,451	.03 N=6,299	.32	.06**	.14*
.20 N=148	.16 N=31,966	.13 N=69,915	.10 N=117	.16* N=25,592	.12 N=53,745	.06 N=72	.10 N=19,634	.08 N=39,641	.32	.37	.30
.20 N=75	.23 N=13,890	.19 N=38,590	.10 N=58	.05 N=13,318	.08 N=27,342	.11 N=28	.15 N=11,230	.11 N=20,499	.36	.38	.34
.18 N=170	.24* N=4,637	.24 N=11,080	.10 N=176	.10 N=4,315	.16* N=7,731	.15 N=112	.28** N=3,592	.28** N=5,201	.38	.51**	.54**
.21 N=126	.00** N=3,992	.08** N=15,311	.19 N=106	.12 N=3,939	.08** N=10,865	.07 N=58	.10 N=2,698	.07 N=7,502	.40	.21**	.21**
.05 N=37	.02 N=7,213	.07 N=17,717	.22 N=36	.07* N=7,116	.07* N=12,502	.22 N=18	.06 N=5,132	.06 N=8,945	.43	.14**	.19**
.09 N=66	.03 N=154	.11 N=511	.13 N=47	.05 N=149	.06 N=320	N/A	N/A	N/A	NR	NR	NR
.12 N=69	.09 N=32,682	.12 N=96,221	.05 N=40	.05 N=30,410	.06 N=59,259	N/A	N/A	N/A	NR	NR	NR
.03 N=94	.10** N=31,804	.12** N=114,757	.03 N=72	.07* N=28,253	.06 N=70,964	N/A	N/A	N/A	NR	NR	NR
.11	.10	.13	.09	.09	.09	.07	.09	.08	.26	.27	.27

Note: For KIPP schools where attrition data was not available in grade 7, the cumulative attrition rates in columns 10, 11, and 12 were not reported. Results were also not reported when grade-specific sample sizes were less than 10.

* Statistically significant at the five percent level.
 ** Statistically significant at the one percent level.

A.14. Attrition Rates for Students with Above-Median Baseline Reading Scores

Grade 5			Grade 6			Grade 7			Cumulative		
KIPP (1)	Comparison (2)	District (3)	KIPP (4)	Comparison (5)	District (6)	KIPP (7)	Comparison (8)	District (9)	KIPP (10)	Comp. (11)	District (12)
.04 N=181	.10** N=61,368	.13** N=189,342	.06 N=133	.10* N=56,680	.09 N=136,504	.05 N=88	.08 N=42,295	.06 N=98,277	.14	.26**	.25**
.05 N=153	.12** N=62,452	.13** N=183,557	.05 N=128	.10** N=57,951	.08 N=131,247	.05 N=98	.07 N=42,540	.06 N=93,262	.14	.26**	.25**
.07 N=113	.10 N=1,306	.12* N=4,990	.05 N=96	.13** N=1,239	.08 N=3,490	.04 N=54	.04 N=775	.03 N=2,257	.15	.24*	.22
.08 N=106	.03 N=34,398	.08 N=89,981	.07 N=88	.09 N=33,902	.08 N=66,938	.02 N=60	.09** N=26,110	.08** N=48,426	.15	.20	.22
.12 N=111	.01** N=10,812	.07 N=31,078	.06 N=87	.11* N=10,619	.10 N=22,417	.05 N=58	.10 N=7,777	.10 N=15,811	.21	.21	.25
.06 N=49	.01 N=4,428	.10 N=9,414	.08 N=59	.03 N=4,385	.03 N=7,002	.09 N=43	.02 N=3,480	.03 N=5,520	.22	.06**	.15
.15 N=164	.02** N=2,110	.18 N=7,695	.09 N=128	.20** N=2,035	.17** N=4,425	.03 N=69	.11** N=1,262	.09** N=2,604	.24	.30	.38**
.19 N=77	.41** N=2,131	.27 N=6,665	.04 N=69	.07 N=1,811	.09 N=3,978	.03 N=31	.02 N=1,080	.03 N=1,860	.25	.47**	.36
.11 N=106	.05* N=35,150	.08 N=101,246	.06 N=97	.11 N=34,492	.08 N=74,789	.11 N=64	.10 N=27,212	.08 N=53,932	.26	.24	.22
.12 N=153	.17 N=16,191	.14 N=36,604	.11 N=132	.17 N=13,971	.13 N=27,682	.08 N=92	.15* N=11,148	.11 N=20,490	.28	.41**	.33
.19 N=48	.01** N=4,338	.10 N=10,658	.09 N=44	.03 N=4,301	.04 N=7,958	.13 N=30	.03 N=3,395	.03 N=6,243	.36	.07**	.16**
.19 N=159	.17 N=33,254	.14 N=71,740	.15 N=126	.16 N=26,373	.13 N=54,645	.09 N=74	.11 N=20,184	.08 N=40,268	.38	.38	.31
.22 N=129	.00** N=4,014	.07** N=15,633	.17 N=107	.12 N=3,957	.08* N=11,015	.06 N=63	.10 N=2,748	.07 N=7,629	.39	.21**	.21**
.17 N=166	.24* N=4,615	.24* N=11,049	.14 N=181	.09 N=4,287	.15 N=7,701	.16 N=107	.28** N=3,545	.27** N=5,140	.40	.51**	.53**
.14 N=37	.02 N=7,668	.08 N=18,340	.22 N=27	.07 N=7,563	.07 N=13,192	.13 N=15	.06 N=5,580	.07 N=9,674	.42	.14**	.20*
.23 N=77	.24 N=14,212	.20 N=40,139	.13 N=54	.05 N=13,609	.08 N=28,561	.14 N=22	.15 N=11,144	.11 N=20,623	.42	.39	.34
.10 N=68	.04 N=151	.10 N=546	.14 N=49	.04 N=144	.06 N=336	N/A	N/A	N/A	NR	NR	NR
.06 N=77	.09 N=31,064	.11 N=93,151	.02 N=45	.05 N=28,536	.06 N=54,289	N/A	N/A	N/A	NR	NR	NR
.02 N=86	.10** N=28,943	.11** N=110,310	.02 N=63	.08** N=25,184	.06** N=64,600	N/A	N/A	N/A	NR	NR	NR
.12	.10	.13	.09	.09	.09	.07	.10	.08	.27	.27	.28

Note: For KIPP schools where attrition data was not available in grade 7, the cumulative attrition rates in columns 10, 11, and 12 were not reported. Results were also not reported when grade-specific sample sizes were less than 10.

* Statistically significant at the five percent level.
 ** Statistically significant at the one percent level.

A.15. Cumulative Middle School Attrition, by Attrition Type

KIPP			Feeder			District		
Overall Transfers (1)	Movers (2)	Leavers (3)	Overall Transfers (4)	Movers (5)	Leavers (6)	Overall Transfers (7)	Movers (8)	Leavers (9)
0.11	0.05	0.06	0.30	0.24	0.07	0.29	0.18	0.11
0.15	0.10	0.05	0.28	0.19	0.09	0.26	0.13	0.13
0.18	0.07	0.11	0.31	0.23	0.08	0.31	0.17	0.14
0.23	0.12	0.11	0.29	0.22	0.07	0.33	0.17	0.16
0.27	0.15	0.12	0.44	0.35	0.09	0.43	0.24	0.19
0.29	0.19	0.09	0.46	0.35	0.11	0.38	0.24	0.14
0.33	0.16	0.17	0.12	0.06	0.06	0.23	0.07	0.17
0.34	0.20	0.14	0.26	0.18	0.08	0.33	0.14	0.19
0.39	0.24	0.15	0.35	0.22	0.13	0.43	0.14	0.29
0.39	0.21	0.18	0.32	0.24	0.08	0.33	0.17	0.16
0.41	0.25	0.16	0.44	0.28	0.16	0.36	0.20	0.16
0.42	0.22	0.20	0.49	0.41	0.08	0.55	0.30	0.26
0.44	0.21	0.23	0.14	0.07	0.06	0.23	0.07	0.17
0.46	0.23	0.23	0.44	0.37	0.07	0.43	0.21	0.22
0.47	0.33	0.14	0.30	0.17	0.13	0.31	0.10	0.21
0.50	0.27	0.23	0.25	0.16	0.09	0.33	0.13	0.19
NR	NR	NR	NR	NR	NR	NR	NR	NR
NR	NR	NR	NR	NR	NR	NR	NR	NR
NR	NR	NR	NR	NR	NR	NR	NR	NR
0.34	0.19	0.15	0.33	0.23	0.09	0.35	0.16	0.18

Note: For KIPP schools where attrition data was not available in grade 7, cumulative attrition rates were not reported.

A.16. Baseline Math Scores by Attrition Status

Non-Transfers			Within-District Movers			Out-of-District Leavers			All Transfers		
KIPP (1)	Comp. (2)	District (3)	KIPP (4)	Comp. (5)	District (6)	KIPP (7)	Comp. (8)	District (9)	KIPP (10)	Comp. (11)	District (12)
0.13 N = 217	0.01 N = 54,251	0.10 N = 150,067	-0.26** N = 35	-0.18** N = 12,955	-0.11** N = 19,301	-0.01 N = 24	-0.22** N = 3,312	-0.26** N = 16,366	-0.16** N = 59	-0.20** N = 16,845	-0.19** N = 36,521
-0.04 N = 282	-0.06 N = 101,555	0.07 N = 267,404	-0.21 N = 34	-0.22** N = 28,003	-0.15** N = 47,409	-0.01 N = 27	-0.14** N = 8,138	0.01** N = 34,554	-0.12 N = 61	-0.20** N = 37,618	-0.09** N = 84,408
0.30 N = 235	-0.14 N = 3,132	0.01 N = 9,832	-0.09** N = 61	-0.35** N = 811	-0.34** N = 1,365	-0.04* N = 26	-0.16 N = 380	0.18** N = 2,765	-0.07** N = 87	-0.29** N = 1,234	0.00 N = 4,199
0.10 N = 240	0.02 N = 17,674	0.08 N = 46,362	-0.24* N = 47	-0.12** N = 3,087	-0.01** N = 5,112	-0.07 N = 25	-0.11** N = 972	-0.28** N = 6,336	-0.18* N = 72	-0.12** N = 4,191	-0.16** N = 11,668
0.17 N = 231	0.12 N = 55,359	0.10 N = 150,067	-0.05 N = 16	-0.11** N = 11,386	-0.11** N = 19,301	-0.09 N = 18	-0.12** N = 3,093	-0.26** N = 16,366	-0.07 N = 34	-0.12** N = 14,922	-0.19** N = 36,521
-0.04 N = 277	-0.04 N = 79,183	0.07 N = 166,733	-0.29* N = 84	-0.19** N = 20,093	-0.17** N = 28,207	-0.09 N = 42	-0.23** N = 7,032	-0.11** N = 14,949	-0.22* N = 126	-0.22** N = 28,751	-0.16** N = 45,325
-0.02 N = 287	0.00 N = 22,767	0.06 N = 52,480	-0.14 N = 56	-0.22** N = 10,013	-0.19** N = 12,774	0.13 N = 19	-0.13** N = 2,444	0.05 N = 6,777	-0.07 N = 75	-0.21** N = 13,210	-0.11** N = 20,497
0.41 N = 246	0.03 N = 4,976	0.00 N = 12,875	0.11** N = 75	-0.01 N = 4,028	-0.07** N = 5,886	0.20 N = 52	0.14* N = 512	0.20** N = 3,872	0.15** N = 127	0.01 N = 4,698	0.03* N = 10,111
-0.05 N = 148	-0.08 N = 5,957	0.00 N = 14,398	-0.19 N = 26	-0.05 N = 3,471	-0.08** N = 5,163	0.24 N = 11	0.12** N = 256	0.19** N = 1,404	-0.06 N = 37	-0.04* N = 3,752	-0.03 N = 6,632
0.17 N = 117	0.02 N = 279	0.04 N = 903	NR	NR	NR	-0.24 N = 17	-0.27 N = 10	0.03 N = 126	-0.20* N = 39	-0.41 N = 18	-0.04 N = 155
0.11 N = 143	0.00 N = 18,089	0.10 N = 51,128	-0.23 N = 43	-0.09** N = 9,628	-0.04** N = 13,105	-0.40 N = 23	-0.12** N = 1,011	-0.20** N = 9,108	-0.29* N = 66	-0.10** N = 11,099	-0.11** N = 23,114
-0.22 N = 296	-0.09 N = 2,781	0.05 N = 8,704	-0.77** N = 28	-0.33** N = 561	-0.12** N = 1,254	-0.47 N = 10	0.01 N = 177	0.02 N = 789	-0.69** N = 38	-0.25** N = 749	-0.07** N = 2,084
-0.30 N = 270	-0.13 N = 6,194	0.14 N = 19,869	-0.53** N = 119	-0.49** N = 1,101	-0.39** N = 1,579	-0.59* N = 34	-0.44** N = 721	-0.18** N = 3,516	-0.54** N = 153	-0.48** N = 1,866	-0.25** N = 5,152
-0.20 N = 200	0.16 N = 12,709	0.10 N = 32,111	-0.22 N = 48	-0.15** N = 1,526	-0.16** N = 3,071	-0.60 N = 24	-0.09** N = 767	-0.29** N = 3,944	-0.35 N = 72	-0.14** N = 2,362	-0.23** N = 7,152
-0.45 N = 300	0.31 N = 9,595	0.12 N = 21,267	-0.79** N = 55	-0.44** N = 496	-0.59** N = 1,240	-0.63 N = 46	-0.16** N = 395	-0.17** N = 3,022	-0.72** N = 101	-0.32** N = 919	-0.30** N = 4,333
-0.64 N = 245	0.18 N = 9,183	0.12 N = 21,267	-0.96** N = 77	-0.52** N = 596	-0.59** N = 1,240	-0.66 N = 56	-0.29** N = 403	-0.17** N = 3,022	-0.83* N = 133	-0.43** N = 1,037	-0.30** N = 4,333
0.25 N = 245	-0.09 N = 101,460	0.07 N = 267,405	-0.35* N = 11	-0.28** N = 26,472	-0.15** N = 47,412	0.66* N = 17	-0.19** N = 8,472	0.01** N = 34,554	0.26 N = 28	-0.26** N = 36,307	-0.09** N = 84,411
-0.01 N = 141	0.09 N = 117,690	0.06 N = 289,537	-0.32 N = 13	-0.21** N = 17,698	-0.23** N = 35,151	NR	NR	NR	-0.09 N = 17	-0.20** N = 19,629	-0.17** N = 48,297
-0.07 N = 181	-0.09 N = 108,581	0.06 N = 289,537	-0.42 N = 13	-0.32** N = 19,782	-0.23** N = 35,151	NR	NR	NR	-0.43* N = 20	-0.31** N = 22,130	-0.17** N = 48,297
- 0.02	0.01	0.07	- 0.33**	- 0.24**	- 0.21**	- 0.16**	- 0.14**	- 0.07**	- 0.25**	- 0.23**	- 0.14**

Note: Tests of statistical significance in this table compared the baseline scores of KIPP's within-district transfers (4) and out of district transfers (7) to the baseline scores of non-transferring students (1). Separate significance tests compared baseline scores of the district comparison group's within-district transfers (5) and out of district transfers (8) to the baseline scores of non-transferring students (2). For the full district sample, significance tests also compared within-district transfers (6) and out of district transfers (9) to the baseline scores of non-transferring students (3).

* Statistically significant at the five percent level.
 ** Statistically significant at the one percent level.

A.17. Baseline Reading Scores by Attrition Status

Non-Transfers			Within-District Movers			Out-of-District Leavers			All Transfers		
KIPP (1)	Comp. (2)	District (3)	KIPP (4)	Comp. (5)	District (6)	KIPP (7)	Comp. (8)	District (9)	KIPP (10)	Comp. (11)	District (12)
-0.09 N = 278	-0.07 N = 92,802	0.06 N = 248,384	-0.15 N = 33	-0.22** N = 26,085	-0.15** N = 44,038	-0.05 N = 24	-0.13** N = 7,469	0.04** N = 31,675	-0.11 N = 57	-0.21** N = 34,938	-0.08** N = 78,001
0.31 N = 236	-0.13 N = 3,122	0.01 N = 9,806	-0.17** N = 61	-0.36** N = 812	-0.34** N = 1,365	0.06 N = 26	-0.17 N = 380	0.18** N = 2,759	-0.10** N = 87	-0.30** N = 1,235	0.00 N = 4,193
-0.08 N = 277	-0.05 N = 79,273	0.06 N = 166,939	-0.11 N = 84	-0.17** N = 20,159	-0.14** N = 28,303	-0.06 N = 42	-0.20** N = 7,045	-0.08** N = 14,976	-0.09 N = 126	-0.19** N = 28,837	-0.13** N = 45,459
0.01 N = 290	-0.01 N = 22,483	0.05 N = 52,046	-0.03 N = 55	-0.19** N = 9,870	-0.16** N = 12,622	0.10 N = 16	-0.11** N = 2,381	0.04 N = 6,681	0.00 N = 71	-0.18** N = 12,986	-0.10** N = 20,227
-0.01 N = 148	-0.06 N = 5,906	0.00 N = 14,294	-0.03 N = 26	-0.05 N = 3,447	-0.09** N = 5,133	0.13 N = 11	0.05 N = 255	0.15** N = 1,388	0.01 N = 37	-0.04 N = 3,727	-0.04** N = 6,586
0.15 N = 231	0.10 N = 56,458	0.09 N = 152,639	0.10 N = 16	-0.09** N = 11,653	-0.09** N = 19,700	0.15 N = 18	-0.13** N = 3,224	-0.26** N = 17,133	0.13 N = 34	-0.10** N = 15,331	-0.17** N = 37,725
0.31 N = 242	0.02 N = 4,928	0.00 N = 12,782	-0.01** N = 75	-0.01 N = 3,988	-0.08** N = 5,835	0.21 N = 51	0.11 N = 513	0.19** N = 3,846	0.08* N = 126	0.00 N = 4,656	0.02 N = 10,028
0.24 N = 117	-0.05 N = 279	0.04 N = 903	NR	NR	NR	-0.22 N = 17	-0.36 N = 10	-0.02 N = 126	-0.13* N = 39	-0.35 N = 18	-0.06 N = 155
-0.28 N = 296	-0.10 N = 2,787	0.06 N = 8,700	-0.55 N = 28	-0.37** N = 560	-0.16** N = 1,254	-0.23 N = 10	-0.01 N = 176	0.06 N = 785	-0.47 N = 38	-0.29** N = 747	-0.07** N = 2,080
0.35 N = 236	-0.11 N = 91,621	0.06 N = 248,380	-0.11* N = 11	-0.30** N = 24,401	-0.15** N = 44,046	0.29 N = 17	-0.21** N = 7,698	0.04** N = 31,674	0.13 N = 28	-0.28** N = 33,369	-0.08** N = 78,009
0.13 N = 221	0.01 N = 55,454	0.09 N = 152,639	-0.08 N = 35	-0.14** N = 13,223	-0.09** N = 19,700	-0.30 N = 28	-0.23** N = 3,455	-0.26** N = 17,133	-0.18* N = 63	-0.16** N = 17,279	-0.17** N = 37,725
0.10 N = 145	-0.02 N = 18,481	0.10 N = 51,955	-0.19 N = 43	-0.08** N = 9,747	-0.03** N = 13,268	-0.38 N = 25	-0.15** N = 1,063	-0.20** N = 9,524	-0.26* N = 68	-0.10** N = 11,289	-0.11** N = 23,723
-0.17 N = 200	0.16 N = 13,121	0.10 N = 33,000	-0.34 N = 49	-0.11** N = 1,586	-0.12** N = 3,182	-0.40 N = 24	-0.12** N = 814	-0.31** N = 4,229	-0.36 N = 73	-0.12** N = 2,474	-0.23** N = 7,559
-0.04 N = 247	-0.01 N = 18,298	0.08 N = 47,396	-0.28 N = 47	-0.08** N = 3,188	0.02** N = 5,261	-0.40 N = 28	-0.17** N = 1,054	-0.28** N = 6,743	-0.33* N = 75	-0.10** N = 4,384	-0.15** N = 12,231
-0.31 N = 270	-0.15 N = 6,191	0.13 N = 19,829	-0.65** N = 119	-0.52** N = 1,101	-0.39** N = 1,577	-0.53 N = 34	-0.46** N = 722	-0.18** N = 3,502	-0.63** N = 153	-0.50** N = 1,867	-0.25** N = 5,136
-0.56 N = 246	0.14 N = 9,151	0.09 N = 21,139	-0.92** N = 77	-0.45** N = 588	-0.51** N = 1,220	-0.53 N = 56	-0.23** N = 402	-0.08** N = 3,023	-0.76* N = 133	-0.36** N = 1,028	-0.21** N = 4,314
-0.37 N = 300	0.27 N = 9,569	0.09 N = 21,139	-0.76** N = 55	-0.35** N = 490	-0.51** N = 1,220	-0.58 N = 46	-0.09** N = 395	-0.08** N = 3,023	-0.68** N = 101	-0.24** N = 913	-0.21** N = 4,314
0.18 N = 141	0.10 N = 110,266	0.05 N = 269,163	-0.22 N = 13	-0.20** N = 16,734	-0.23** N = 32,421	NR	NR	NR	-0.08 N = 17	-0.18** N = 18,534	-0.16** N = 44,218
-0.16 N = 165	-0.11 N = 98,193	0.05 N = 269,163	-0.25 N = 12	-0.33** N = 18,156	-0.23** N = 32,421	NR	NR	NR	-0.31 N = 18	-0.31** N = 20,206	-0.16** N = 44,218
- .02	0.00	0.06	- 0.26**	- 0.22**	- 0.19**	- 0.16**	- 0.15**	- 0.06**	- 0.22**	- 0.21**	- 0.12**

Note: Tests of statistical significance in this table compared the baseline scores of KIPP's within-district transfers (4) and out of district transfers (7) to the baseline scores of non-transferring students (1). Separate significance tests compared baseline scores of the district comparison group's within-district transfers (5) and out of district transfers (8) to the baseline scores of non-transferring students (2). For the full district sample, significance tests also compared within-district transfers (6) and out of district transfers (9) to the baseline scores of non-transferring students (3).

* Statistically significant at the five percent level.
 ** Statistically significant at the one percent level.

A.18. Average KIPP Attrition, New Arrivals, and Total Enrollment

Grade 6			Grade 7			Grade 8		
Prior Attrition (1)	New Arrivals (2)	Total Enrollment (3)	Prior Attrition (4)	New Arrivals (5)	Total Enrollment (6)	Prior Attrition (7)	New Arrivals (8)	Total Enrollment (9)
13	20	63	12	2	47	5	0	42
9	20	71	9	4	61	6	0	45
4	4	62	3	1	57	1	0	55
7	13	82	5	1	65	1	1	55
6	7	76	5	2	74	6	1	69
9	14	70	7	4	61	5	1	50
8	3	76	6	4	74	4	2	69
16	6	31	5	4	21	1	2	20
13	6	68	10	6	51	7	2	50
12	14	67	8	11	64	5	4	59
17	20	87	14	6	68	5	4	54
13	16	79	13	14	77	12	5	67
17	28	80	19	23	67	7	5	48
18	16	76	13	9	63	6	5	56
11	16	56	15	11	44	7	7	36
13	17	80	5	16	81	5	9	71
10	14	55	13	13	46	N/A	N/A	N/A
6	5	62	2	0	57	N/A	N/A	N/A
5	5	68	4	2	66	N/A	N/A	N/A
11	13	69	9	7	60	5	3	53

A.19. Average District Comparison Group Attrition, New Arrivals, and Total Enrollment

Grade 7			Grade 8		
Prior Attrition (1)	New Arrivals (2)	Total Enrollment (3)	Prior Attrition (4)	New Arrivals (5)	Total Enrollment (6)
10	9	68	8	7	66
14	16	135	12	10	137
14	18	132	13	11	133
16	18	371	11	14	368
15	17	301	12	15	299
7	15	116	26	16	120
6	16	130	26	24	135
20	24	144	21	24	149
22	31	254	19	25	254
30	44	267	27	47	283
41	62	275	25	53	214
31	51	344	28	53	352
39	55	370	46	62	376
39	55	402	45	64	410
42	74	255	15	67	260
13	12	368	52	71	380
3	8	99	N/A	N/A	N/A
12	12	164	N/A	N/A	N/A
12	14	133	N/A	N/A	N/A
20	29	228	24	35	246

Note: Each row corresponds to a district comparison group site, linked to a given KIPP school.

A.20. Late Arrivers as a Proportion of Total Enrollment

KIPP				District Comparison Group		
Grade 6 (1)	Grade 7 (2)	Grade 8 (3)	Overall (4)	Grade 7 (5)	Grade 8 (6)	Overall (7)
.06	.02	.00	.03	.14	.09	.11**
.07	.01	.01	.04	.12	.07	.09**
.04	.05	.03	.04	.14	.16	.15**
.08	.12	.04	.09	.15	.17	.16**
.16	.02	.02	.10	.12	.10	.11
.20	.07	.02	.13	.17	.16	.17**
.28	.07	.01	.16	.05	.04	.04**
.20	.19	.08	.16	.12	.18	.15
.23	.09	.08	.16	.29	.26	.28**
.31	.04	.00	.17	.06	.05	.05**
.21	.14	.08	.17	.13	.11	.12**
.20	.17	.08	.17	.03	.19	.11*
.21	.17	.06	.17	.17	.17	.17
.21	.16	.13	.18	.13	.14	.13**
.29	.24	.21	.26	.15	.15	.15**
.35	.34	.10	.30	.22	.25	.23**
.25	.28	N/A	N/A	.05	N/A	N/A
.03	.00	N/A	N/A	.07	N/A	N/A
.08	.03	N/A	N/A	.11	N/A	N/A
.18	.12	.06	.15	.13	.14	.14

Note: Tests of statistical significance were performed only for the two shaded columns.

* Statistically significant at the five percent level.

** Statistically significant at the one percent level.

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