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ABSTRACT

Suburban schools are generally of higher quality than the inner city schools that continue to serve a disproportionate share of black children. This study provided significant evidence that school quality, measured by the mean test scores for individual grades/campuses, has a large impact on the achievement of individual students. The analysis used data from the Texas Schools Microdata Panel, a panel database with more than two million students attending Texas public schools between 1990 and 1997. This result was obtained using two kinds of econometric models. In the first, school quality is included as a right side variable in value-added equations in which prior test scores and other socio-economic and program variables are used as control variables in ordinary least squares regressions. In the second, achievement gains are used as the dependent variable in individual fixed effects regressions for children who change schools. In these equations, changes in school quality and other time variant variables are included as right side explanatory variables. The estimates presented in this paper indicate that enabling the average black student to attend schools of average suburban quality rather than average inner city quality would eliminate between 12% and 30% of the current black-white achievement gap. An appendix contains additional data tables. (Contains 18 tables and 16 references.) (Author/SLD)

Black Suburbanization in Texas Metropolitan Areas and Its Impact on Student Achievement

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Abstract

After several decades of little or no change, America's persistent and stubborn pattern of black-white racial segregation has exhibited some decline and growing numbers of black children are attending middle-class suburban schools. There has been an especially rapid movement to suburban schools in large Texas metropolitan areas. These trends, moreover, have been generally associated with decreased school segregation within both inner city and suburban districts.

Suburban schools are generally of higher quality than the inner city schools that continue to serve a disproportionate share of black children. This paper provides significant evidence that school quality, measured by mean test scores for individual grades/campuses, has a large impact on the achievement of individual students. This result is obtained using two kinds of econometric models. In the first, school quality is included as a right side variable in value-added equations in which prior test scores and other socio-economic and program variables are used as control variables in OLS regressions. In the second, achievement gains are used as the dependent variable in individual fixed effects regressions for children who change schools. In these equations, changes in school quality and other time variant variables are included as right side explanatory variables.

The estimates presented in this paper indicate that enabling the average black student to attend schools of average suburban quality rather than average inner city quality would eliminate between 12 and 30 percent of the current black-white achievement gap.

Black Suburbanization in Texas Metropolitan Areas and Its Impact on Student Achievement

Introduction

After several decades of little or no change, America's persistent and stubborn pattern of black-white racial segregation has exhibited some decline (Farley and Frey, 1993). One important consequence has been increased access by black children to "higher quality" suburban schools, an outcome that Kain and Persky (1969) suggested 30 years ago would be a major benefit of increased black access to suburban housing markets. The decline in racial segregation has been particularly notable in southern and western metropolitan areas, and black suburbanization is especially pronounced in Texas. Because of a history of extensive black participation in agriculture, the suburban rings of several Texas metropolitan areas have long had significant black populations. Overbuilding and the collapse of petroleum prices in the early and mid 1980s made individual homeowners and landlords less sensitive to skin color and have contributed to rapid suburbanization of black households in Texas metropolitan areas. More recently, black suburban population growth in Texas metropolitan areas has been fueled by large-scale migration from other parts of the United States (Frey, 1998).

This paper describes the extent and growth of black suburbanization in large Texas metropolitan areas and considers the probable effect of these trends on the achievement of black children. It considers five questions: (1) How much black suburbanization occurred between 1992 and 1997 in Texas' largest metropolitan areas; (2) What is the racial balance of inner city and suburban schools in these same metropolitan areas and has it been increasing or decreasing, (3) Are the suburban schools, where growing numbers of black children are enrolled, of higher quality than inner city schools in the same metropolitan area; (4) Does access to "higher quality" schools, more often found in suburban areas, affect the performance of individual black children on standardized tests; and (5) Does school quality have a similar effect on the achievement of individual Asian, Hispanic and Anglo children?

Performance on Standardized Tests by Race/Ethnicity and Grade

Before considering the extent and nature of black suburbanization, we pause briefly to consider how the mean composite (reading and math) scores of blacks compare to those of other race/ethnicity groups in Texas. This analysis uses data from TSMP (Texas Schools Microdata Panel), a panel database with more than two million students attending Texas public schools between 1990 and 1997.[1] Throughout the paper we follow the convention of identifying school years by the spring date, e.g. the 1989-90 school year is 1990. The statewide test used in these analyses, the Texas Assessment of Academic Skills (TAAS), is a criterion-referenced test, which was administered in grades three through seven during 1992 - 1997.

[1] TSMP includes up to eight years of panel data for more than two million students and more than 350,000 teachers as well as extensive data for nearly 6,000 campuses and more than 1,000 school districts for the same eight-year period. The student data, which are the basis of the analyses presented in this paper, are for five cohorts of students beginning in 1990 and ending in 1997. The youngest of these cohorts were in pre-K and the oldest were in the 3rd grade in 1990. TSMP starts with 1990 because the Texas Education Agency (TEA) implemented its PEIMS (Public Education Information Management System) system in that

We transform the composite scores into standardized scores with a mean of zero and variance equal to one. This makes comparisons across tests with different numbers of questions possible and sidesteps most questions relating to norm referencing or to the differential level of difficulty of tests given in different years to different grades.[2] The score for each student indicates how well he/she did on a particular test relative to the average performance of all students taking the same test in the same year.

The relative performances by race/ethnic group for the cohort of students who were enrolled in the 3rd grade in 1992 plus at least one of the following additional grades/years: 1/1990, 2/1991, 4/1993, 5/1994, 6/1995 and 7/1996 appear in Table 1.[3] As these data reveal, blacks have the lowest scores of any of the five race/ethnic groups in every grade. Hispanics also perform poorly. Their mean scores, which are higher than blacks, nonetheless lag far behind the remaining three race/ethnic groups. These data also support the widely held perception that Asians are currently America's highest performing students.

Significant fractions of students belonging to this cohort do not have test scores, either because they were excused from taking the test or because their tests were not scored. As the bottom panel of Table 1 reveals, the percentage of students without scores

year. TSMP also includes 26 years/grades of standardized test data for three different standardized tests administered by TEA during this period.

[2] In a recently completed analysis of the fourth, eighth and tenth grade TAAS reading tests, Sandra Stotsky (1998) concluded "that the tests given from 1995 through 1998 were not of comparable difficulty to each other in any of the grade levels tested." She stated further that "The 1995 tests are longer and more difficult than the 1998 tests at all grade levels."

[3] We centered the cohort definition on the 3rd grade because it was the earliest grade in which a statewide-standardized test was given. By defining the cohort in this way we maximized the number of records with both 3rd grade and subsequent year tests while including those students who were retained in grade or double promoted in the remaining years. In all, 387,236 children were members of this cohort in one or more years.

varies widely across race/ethnic groups and grades. Hispanics, many of whom arrive at school with few English language skills, have the highest no-score rates in every grade.

No-score rates for Native Americans, Asians and blacks are similar and are substantially below those of Hispanics, while no-score rates for Anglos (non-Hispanic whites) in every grade are lower than the rates of any of the remaining four groups. The higher no-score rates of Hispanics and Asians are due largely to large numbers of excuses for limited English proficiency (LEP). Hardly any Anglos or blacks are LEP. The fractions for Hispanics and Asians who were ever LEP, in contrast, are 47 percent and 43 percent. Finally, five percent of Native Americans were classified as ever LEP. In spite of the fact that the LEP fractions for Asians are nearly as high as for Hispanics, their no-score rates are much lower. Asian no-score rates, however, are considerably higher than those of Anglos, a fact that should be kept in mind when assessing their mean scores.

Given the high fractions of Hispanic children who do not take TAAS, and the low scores of those who do, it is legitimate to ask why we do not pay more attention to Hispanics. The explanation is that while blacks and Hispanics share low academic achievement, the causes appear to be very different. An exception is shared poverty, which is strongly related to the low achievement of both blacks and Hispanics. At the same time, important differences argue for separate and distinct analyses of the two groups.

In contrast to Texas' blacks, which include few recent immigrants from non-English speaking nations, the number of recent immigrants from Spanish speaking countries is large and growing. A very large fraction of children from these immigrant groups arrive at school with few English language skills and limited oral vocabularies in either Spanish or English. Critics of existing bilingual education programs argue that these programs, which provide little, or no, instruction in English in the early grades insure that the initial disadvantages of Hispanic children from non-English speaking backgrounds will persist (Farkas 1996 and 1997).[4]

Hispanics did not experienced the long-lasting impacts of slavery, decades of separate and unequal black schools in the South and more recent patterns of racial segregation in both northern and southern metropolitan areas, factors that have contributed to the low achievement of blacks (Anderson, 1988; Card and Krueger, 1992; Kain, 1992; Margo, 1990). While they have experienced discrimination in both labor and housing markets, before racial segregation in Texas schools ended, Hispanics attended white schools and their residential segregation is not, and never has been, as great as those of blacks (Farely and Frey, 1993; Massey and Denton, 1993). Texas offers a particularly promising setting to assess the contribution of racial residential segregation to the black-white achievement gap and to consider how much black Americans in other parts of the country might benefit from increased access to higher quality suburban schools. Indeed this is the primary goal of this paper.

The Extent of Black Suburbanization

Reflecting their heavy participation in agriculture, large numbers of blacks lived in agricultural communities surrounding the central cities of what have become large metropolitan areas; significant numbers remained as these areas shifted from agricultural

[4] Some support for this position is provided by surveys of bilingual education programs that conclude that, at best, bilingual programs do no better than English immersion programs in developing competency in English (Cziko, 1992; Rossell and Baker, 1996). Greene (1998) disputes Rossell and Baker's (1996)

to urban use. Black children living in these areas attended all-black schools prior to school desegregation. Since Texas schools were desegregated, circa 1975, these children have attended integrated schools, although they are not evenly distributed among schools within each district. From this base, black enrollment in suburban schools has grown rapidly.

Texas has liberal annexation laws and the central cities in its metropolitan areas have annexed large amounts of land since World War II. Consequently, the central city suburban distinction that works well in describing socio-economic differences in most parts of the country is not very meaningful in Texas. Much of the development in areas annexed to the central city is suburban in character and the children living in these areas are often served by pre-existing independent school districts.

The largest and most central of the independent school districts serving central city residents in each of the seven largest metropolitan areas are similar in terms of income and race/ethnicity to the large central city school districts in other parts of the country that have figured strongly in debates on school policy. Thus, we designate Houston ISD (HISD), Dallas ISD (DISD), Ft. Worth ISD (FWISD), Austin ISD (AISD), San Antonio ISD (SAISD), Corpus Christi ISD (CCISD), and El Paso ISD (EPISD) as inner city districts. As Table 2, which provides summary statistics for these inner city districts, reveals more than two-thirds of the students enrolled in HISD, DISD, SAISD and EPISD are economically disadvantaged (eligible for free or reduced priced lunches). AISD has the smallest proportion of disadvantaged students and CCISD and FWISD are next. These data also reveal that all seven inner city districts have large minority

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conclusions in a recent meta-analysis based on the same data.

enrollments. AISD, which is 37 percent Anglo, has the smallest fraction of disadvantaged minorities and SAISD has the largest. At the same time, the composition of these minority populations differs greatly among the seven areas. SAISD, EPISD and CCISD are overwhelming Hispanic, while more than a third of HISD, DISD and FWISD enrollments are black. Even in these districts, however, Hispanics outnumber blacks.

All of the remaining districts in the seven metropolitan areas are designated suburban districts, although, as noted above, a number of them serve some central city residents and a few are similar to the seven inner city districts in terms of the percentages disadvantaged and minority.[5]

Levels and changes in black enrollment for five cohorts of students enrolled in inner city and suburban schools in 1992 and 1997 are displayed in Table 3. While TSMP includes data for 1990 and 1991, two of the five cohorts include Pre K (Pre Kindergarten) and kindergarten in these years. Since few children attend publicly provided Pre K classes (mostly children from low-income families) and not all children attend kindergarten, including these grades/years overstates enrollment growth and may provide a biased picture of enrollment by race/ethnic category. The 1992 data are for grades 1-5, while the 1997 data are for grades 6-10.

These data illustrate several important points. First, 71 percent of all black public school pupils in grades 6-10 in 1997 attended school in one of the state's seven largest metropolitan areas. Second, in a pattern that is dramatically different from northern

[5] San Antonio is the most extreme case. As Table 2 indicates, only 11 percent of SAISD's students in 1997 were black, while 84 percent were Hispanic. Five other San Antonio districts had a higher percentage black than SAISD. They were East Central (12 percent), Ft. Sam Houston (33), Judson (22 percent), Lackland (20 percent) and Randolph Field (18 percent). San Antonio has several large military installations. As the names of the above districts indicate, this fact has had a pronounced impact on the

metropolitan areas, by 1997, more black students attended suburban districts than attended the principal inner-city districts in the seven largest metropolitan areas.

Using the preceding definition of inner city and suburban districts, 54 percent of black children attending public schools in the seven largest metropolitan areas went to a suburban school and 46 percent went to an inner city school in 1997. During 1992-97, the number of black children attending school in the suburban districts of the seven largest Texas metropolitan areas increased by 24 percent, while black enrollment in the inner city districts of the same metropolitan areas declined by nine percent during the same period. In Fort Worth, 41 percent of black students attended districts we have classified as suburban in 1997. The suburban fraction for Houston in 1997 is 59 percent.

Black Enrollment in Suburban Districts

The number of suburban districts varies greatly by metropolitan area. As the data in Table 4 reveal, the Dallas metropolitan area, with 76 suburban districts, has the most and San Antonio, with 24 suburban districts, has the least. If the Dallas-Fort Worth Consolidated metropolitan Statistical Area is viewed as a single entity, it has two inner city and 112 suburban districts. Table 4 also reveals that only 14 of the 179 suburban districts, including seven in the Forth Worth metropolitan area and six in the Dallas metropolitan area had no black 3rd to 7th graders in 1995. At the opposite extreme, seven of the 179 suburban districts had more than 2,000 black 3rd to 7th graders in 1995 and 12 had between one and two thousand.

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geographic distribution of black children in San Antonio.

Table 5 gives the shares of black enrollment in grades 3-7 in 1995 for inner city and suburban districts classified by black enrollment size. The last column, which gives combined shares for all four metropolitan areas, reveals that nearly half of all 3rd to 7th grade black students in these metropolitan areas in 1997 were enrolled in inner city schools and just over half were enrolled in suburban schools. Row one, moreover, reveals that a minority of San Antonio and Houston black students enrolled in these grades in 1995 attended inner city districts, while in the other two districts a majority were enrolled in inner city districts.

These share data also demonstrate that the four Houston suburban districts with more than 2,000 black students enrolled 31 percent of the metropolitan area's black students. If the 1,000 black students' cutoff is used, this number becomes 43 percent. The single Fort Worth suburban district with more than 2,000 black students, Arlington ISD, served 20 percent of the metropolitan area's black 3rd to 7th grade students in 1995. None of the Fort Worth's suburban districts had between one and two thousand black 3rd to 7th graders. The Dallas metropolitan area has 16 districts with at least 500 black 3rd to 7th graders in 1995; in combination, these 16 suburban districts account for 39 percent of the metropolitan areas 3rd to 7th graders.

Campus Level Changes in Contact by Race and Ethnicity

While the data presented above demonstrate that rapidly growing shares of both Black and Hispanic students are enrolled in suburban schools in the seven largest Texas metropolitan areas, these trends could mask extensive segregation by race and ethnicity.

The exposure indexes in Table 6, which give the campus racial/ethnic composition for the average member of each race/ethnic group, address this question.

The Top panel presents campus level exposure indexes for the seven largest Texas metropolitan areas combined and for the inner city and suburban districts in these same areas. The 1992 indexes for blacks indicate that the average black student attending public school in one of the seven largest metropolitan areas was enrolled in a school that was 2 percent Asian, 48 percent black, 22 percent Hispanic and 28 percent Anglo. Between 1992 and 1997 the representative campus attended by blacks, moreover, became less black (from 48 percent in 1992 to 42 percent in 1997) and more Hispanic. In assessing these trends, it should be kept in mind that the 1992 data are for grades 1-5 while the 1997 data are for grades 6-10. Since elementary schools are much smaller and serve smaller residential areas than middle and high schools, they are likely to be more segregated by race/ethnicity. Thus, the trend towards lower levels of racial/ethnic concentration shown in Table 6 may be somewhat overstated.

Comparison of exposure indexes for inner city districts and suburban districts for the seven largest metropolitan areas combined, reveal that black exposure to other race/ethnic groups is much higher in suburban than in inner city districts. Thus, inner city black exposure to Anglos was 11 percent in both 1992 and 1997; the same figure for the suburbs was 46 percent in 1992 and 42 percent in 1997. The decline in suburban black exposure to Anglos between 1992 and 1997 resulted from an increased exposure to Asians and Hispanics; the average black student enrolled in a suburban school attends a school that was 29 percent black in both years.

The exposure rates for the seven largest metropolitan areas, not surprisingly, hide substantial variation among individual areas. The variation in mean exposure rates is much less for the three PMSA included in the lower panel. Black exposure rates in these areas in 1997 varied from 42 percent in Fort Worth to 46 percent in both Houston and Dallas. Black exposure to Hispanics ranged from 19 percent in Fort Worth to 26 percent in San Antonio.

How Much Better are Suburban than Inner City Schools?

Having established that large numbers of black children attend suburban schools in Texas' largest metropolitan areas and that these numbers are rapidly increasing, we now consider how much better suburban schools are than inner city schools. The analyses of the effect of school quality on individual achievement presented subsequently in this paper use the mean unadjusted composite (math plus reading) scores for each campus/grade to measure school quality. These unadjusted mean scores probably come closest to what the public relies on in making quantitative assessments of school quality. TEA publishes mean campus and district TAAS passing and mastery rates on their website and metropolitan and local papers routinely publish them as soon as they are released.

The most obvious objection to using unadjusted mean scores to measure school quality is that the family backgrounds of children strongly influence their performance in school. If unadjusted test scores are used as the measure of school quality, schools with high fractions of children with better-educated and higher income parents will always appear "better." Arguably these differences in family background should be taken into account in assessing school performance. Kain and O'Brien (1998a) developed and assessed three measures of school quality: one was based on mean unadjusted test scores for each campus, while the other two correct these unadjusted scores for campus differences in socioeconomic composition. We use the unadjusted measure in this paper to simplify the presentation and because Kain and O'Brien (1998a) conclude that inner city – suburban differences in unadjusted scores have a larger impact on the achievement of individual students than inner city – suburban differences in adjusted scores.[6]

Suburban-Inner City Differences in School Quality

Even though more than half of the black students attending public schools in Texas' seven largest metropolitan areas are enrolled in suburban schools, disproportionate numbers remain in low achieving inner city schools or, less frequently, in low achieving suburban schools. The upper part of Table 7 presents our measure of school quality by grade for inner city and suburban schools and suburban-inner city differences for the state's seven largest Metropolitan areas and all other metropolitan areas combined, as well as for all rural and non-metropolitan areas. The bottom panel provides these same statistics for inner city and suburban schools in the Houston, Dallas and Fort Worth metropolitan areas.

Suburban, inner city differences in our index of school quality for the large metropolitan areas vary from a low of 0.26 standard deviations for grade five in Houston to 0.67 for grade four in Dallas. The large gap in inner city and suburban scores in the

[6] The size and statistical significance of the school quality coefficients in equations using adjusted mean scores are larger than those obtained for the unadjusted scores. The impacts on individual achievement from attending a school of mean inner city quality to one of mean suburban quality is larger because the inner city, suburban differences are much larger for the unadjusted scores than for the adjusted ones.

Dallas metropolitan area results from a combination of low DISD scores and high suburban ones. In contrast to the seven largest metropolitan areas, suburban-inner city differences, on average at least, are smaller for small metropolitan areas. Mean rural scores range from .07 to .15 standard deviations and those for cities and towns located outside metropolitan areas (NonMetro) are .01 to .08 standard deviations higher than the state average.

There is, of course, considerable variability in school quality within both suburbs and inner cities. This conclusion, which applies to all schools and to the schools attended by black students, is documented by summary statistics included in Table 8. The upper panel gives the percentages of black fifth grade students who attended schools of a given quality level for the seven largest metropolitan areas combined and individually for the Houston, Dallas and Fort Worth metropolitan areas. The six school quality categories are intervals of campus/grade mean composite scores. The suburban, inner city differences in the shares of both black and all students who attend schools of different quality levels are highly revealing. Starting with the first two columns, which provide totals for the seven largest metropolitan areas, 38 percent of blacks enrolled in inner city districts are enrolled at campuses with mean composite scores below –0.5 as contrasted with only six percent of suburban blacks. On the upper end, eight percent of blacks enrolled in inner city districts studied at campuses with mean composite scores above .25 as contrasted to only 21 percent of those attending suburban districts.

The figures for all metropolitan areas combined mask important differences. Comparing the inner city districts for Houston and Dallas, 53 percent of blacks enrolled in DISD attended schools in the lowest quality category as contrasted to 20 percent for

HISD. Similarly, in the Dallas metropolitan area, 52 percent of all black students enrolled in suburban districts went to schools with positive mean composite scores as compared to only seven percent of black students enrolled in the inner city district. These figures for Houston are 43 percent and 28 percent.

The bottom panel of Table 8 gives black shares (black enrollment/total enrollment) by school quality level. These data demonstrate that even though blacks enrolled in suburban districts are much more likely to attend higher quality schools than blacks enrolled in one of the seven inner city districts, they, nonetheless, are heavily over-represented in the poorest quality schools in both inner city and suburban districts. This result is most evident in the Houston and Dallas metropolitan areas. In the case of Houston, blacks were 51 percent of all students in the worst suburban schools and 54 percent of all students in the worst inner city schools. The same statistics for Dallas are 45 percent and 73 percent. The finding that blacks are heavily over-represented in the worst suburban schools reflects the within district racial and economic segregation of suburban districts and the fact that in both Dallas and Houston there are suburban districts that are as poor and black, if not poorer and blacker, than the inner city district.

School Quality and Black Achievement

This paper presents the results of two kinds of analyses that seek to determine whether individual students benefit (obtain higher test scores) from attending higher quality suburban schools. The first uses value added regressions for all students to determine whether students attending higher quality schools score higher on standardized tests, holding constant the effects of their prior scores and all available individual characteristics on individual achievement. The second exploits the panel nature of the data and uses individual fixed effects to determine whether moving to a better/worse (higher or lower mean scores) school produces larger/smaller achievement gains. The use of individual fixed effects removes all time invariant characteristics of individual students. The latter equations, which are estimated for students who changed schools, are estimated with and without campus fixed effects. The campus fixed effects equations remove any variation in individual achievement that is associated with current year school level variables, either school inputs or systematic school/grade differences in student characteristics. For both the value added and individual fixed effects estimates, observations for students attending campuses with fewer than nine students in the grade/year being considered are omitted.

Value-added regressions for individual black students by grade are shown in Table 9. The school quality variables exclude each individual's score in calculating school quality (campus mean composite score) for each student.[7] These equations, which are estimated by ordinary least squares (OLS), include all black students who ever attended school in one of the seven largest metropolitan areas and had more than eight other students in their grade. They explain between 46 percent (fourth grade) and 65 percent (seventh grade) of the variation in composite scores.

All four of the school quality equations include the same explanatory variables. In addition to school quality, each equation includes two prior test scores. They are actual lagged composite scores for students with valid scores in both the current and

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[7] In earlier analyses of this kind, we estimated separate math and reading equations. Since, parents seldom have the opportunity to send their children to one school for math instruction and another one for reading, we determined that the composite score should be used in these school quality equations (Kain and O'Brien, 1998a, and 1998b).

previous year and predicted composite scores for those students who had valid scores in the current year, but not in the previous one. Most students with predicted scores were missing from the sample in the previous year and were primarily transfers from other states or private schools. The parameter estimates for both actual and predicted prior scores are both large and highly significant in all four equations.

The equations also include two income measures for each student; low-income indicates the student received a reduced price lunch and very low-income indicates the student received a free lunch. Students who qualify for neither are the base case. Of the eight income coefficients, only one is positive and it is not significantly different from zero. The male variable, which is negative and statistically different from zero in all four equations varies from –0.13 (grade seven) to –0.03 (grades 5 and 6) of a standard deviation. The coefficient of student age is negative and surprisingly large in all eight equations. A one year increase in the age of black children in a particular grade reduces their composite score by between –0.06 (grade 7) to –0.11 (grade 4) of a standard deviation.

All four equations include two mobility variables.[8] Within district moves are coded one for all students who attended a different campus in the same district in the previous year. District to district moves are coded one for all students who attended school in a different district or were not in the sample in the previous year. The signs of the coefficients of the two mobility variables are negative in all four equations and all but

[8] Kain and O'Brien (1998b) used five dummy variables to represent between year student mobility. They divided within district moves into two categories, transfers and voluntary moves. Transfers are situations where all students attending a particular campus move en masse to another campus. A frequent example is transfers that arise from completion of elementary school and the beginning of middle school. Voluntary moves most often result from within district residential moves, but they may result from parents' or students' dissatisfaction with a particular campus or disciplinary problems. All of these types of mobility had a negative impact on individual student achievement.

one (district to district moves in grade 4) are statistically significant. Within district moves have as least as large a negative impact on black student achievement as between district moves in all four equations.

Very few black students are classified as LEP. Nonetheless, we include an LEP dummy in the black equations and it is large and positive in one equation, large and negative in one and not significantly different from zero in the remaining two equations. The regressions also include two dummy variables that identify students who currently, or ever, participated in special education programs. All but one of the eight coefficients is negative. The exception is the now special education coefficient for fourth grade students. When the two special education coefficients are added together, the absolute values of the combined coefficients tend to increase as grade level increases.

The last three explanatory variables are ever-retained in grade, ever double promoted and average days absent. Students who have been retained in grade have lower scores in all four equations. The coefficient of ever double promoted is only statistically different from zero for students in grade 4. Average days absent is negative in all four equations. It indicates that the performance of a black student who was absent for 10 days was between -0.04 (grade 5) and –0.08 (grade 4) standard deviations below an otherwise comparable black student. The effect of absences on achievement tends to become smaller as grade level increases.

School quality is highly significant statistically in all four equations and its effects tend to decrease between the fourth and seventh grades. The smallest value (.22) is for the seventh grade and the largest (.44) is for the fourth grade. These estimates imply that a one standard deviation increase in school quality would increase an individual black's fourth grade score by .44 of a standard deviation and their seventh grade score by .22 of a standard deviation.

The finding that an increase in school quality increases the individual achievement of black students by a significant amount leads to the obvious question of whether this result holds for other race/ethnic groups. As Appendix Tables A-1 through A-3, which present value added, school quality equations for Asian, Hispanic and Anglo children reveal, the answer is indisputably yes.

The most notable difference in the black equations and those for the remaining three race/ethnic groups, given the focus of this paper, is the larger size of the black school quality coefficient. This difference is evident from the top panel of Table 10, which gives the school quality coefficients for all four race/ethnic categories and grades. These comparisons are even more evident in the bottom panel, which expresses the coefficients for Asians, Hispanics and Anglos as a proportion of the black coefficient for the same grade and test. The left side of the table provides estimates of the school quality coefficients for the sample of students who ever attended school in one of the seven largest metropolitan areas, while the right side provides the same estimates for the entire sample.

The difference in the size of the school quality coefficients is particularly large between blacks and Asians. For the seven largest metropolitan areas, the ratio of the Asian and black school quality coefficients varies from 0.59 for grade 7 to 0.94 for grade 6. Smaller, but still significant differences are obtained for Hispanics and Anglos. The sole exception, in the case of the seven metropolitan areas sample, is a ratio of 1.02 for fourth grade Hispanic students. The estimate of this coefficient may have been affected by the fact that a significant number of Hispanic fourth graders took Spanish language versions of TAAS in the third grade. The lesser importance of school quality for Asians may reflect cultural differences and particularly the strong influence of Asian families. As the top panel indicates there is a strong tendency for the coefficient of school quality to decline as grade level increases. One possible explanation is the greater heterogeneity of middle schools and the greater likelihood that middle schools track their students.

As noted above, the right panel provides estimates for the school quality coefficients and coefficient ratios for all students. The principal difference in the two sets of estimates is the result that three out of four of the Hispanic school quality coefficients are larger than the same coefficients for blacks. It is also true that the largest difference in the two samples is a large increase in the number of Hispanics. Finally, the school quality coefficients for blacks exceed those of the other race/ethnic and grade combinations in eight of the 12 comparisons.

Estimates with Individual Fixed Effects

Use of a sub-sample of students who changed schools and individual fixed effects (with and without campus fixed effects) provide alternative estimates of the effects of school quality on individual student achievement. As noted previously, the use of individual student fixed effects removes all time invariant influences, while the use of campus fixed effects eliminates campus/grade effects.

The value-added adjustment in these equations is accomplished by subtracting last year's score from this year's score to provide an estimate of gains. Individual fixed effects then are obtained by subtracting last year's gains from this year's gains, last year's school quality from this year's school quality and last year's value of all time variant student level variables from this year's. This procedure is equivalent, but computationally more efficient, to using a series of dummy variables to identify each individual student.

Table 11 shows the individual and campus fixed effect coefficients for school quality and other relevant statistics for the individual and campus fixed effects equations. Few students who changed schools changed LEP, special education or economic status from one year to the next and few of the individual coefficients for the dummy variables representing these changes are significantly different from zero at the five percent level. In the pooled equation just over 10 percent of students in each year changed their income status, less than two percent changed LEP status and just over two percent changed special education status. Of the 72 coefficients for these variables in the 12 equations by race/ethnicity and year, only nine coefficients had t statistics equal to or greater than two. For the three pooled equations, the t statistics for seven of 19 of these coefficients were greater than two. The coefficients and t statistics for these variables are provided in Appendix Tables A-4 and A-5. Appendix Tables A-6 and A-7 similarly provide the complete estimates for individual fixed effects equations without campus fixed effects.

The school quality estimates in Table 11 and in the several appendix tables are for students who changed schools between the prior and current year/grade. The much larger number of observations for grades six and seven in the third panel are due to the large numbers of students who complete elementary school and transfer to junior high in either the sixth or seventh grade.

The school quality coefficients are highly significant statistically. Of the 15 coefficients only one has a t statistic of less than two and, with the exception of the smaller Asian sample, all are larger than 11. The magnitudes of these coefficients are also quite large. Only one of the school quality coefficients (Asian grade 6) is less than .37 and the coefficient values for school quality in the pooled equations are .58 (grade 5), .39 (grade 6) and .43 (grade 7). The effect of school quality is largest in the earliest grade for all five groups.

As the ratios in the bottom panel of Table 11 illustrate, the effect of school quality is especially large for black students. In all but one instance, Hispanic students in grade 6, the black coefficient exceeds that for any other race/ethnicity group and for all students. The largest differences are between black and Asian students. For sixth grade Asian students, the estimated effect of school quality is only 45 percent as large as for black students in the same grade. Comparison of Table 11 and Table 10 reveals that the school quality estimates obtained from the individual and campus fixed effects equations are generally larger than those obtained from the value added equations. In comparing the estimates from the value added and individual fixed effects equations, it should be kept in mind that the samples used in estimating the two sets of equations are very different and that those used to estimate the individual fixed effects equations are considerably smaller. The much smaller sample sizes for the individual fixed effects equations is due to the fact that only students who change schools are included in the analysis and the requirement that they must attend school for three consecutive years.

Impacts of Attending a Suburban Quality School on Black Achievement

We now consider how much attending a school whose quality was equal to the suburban average instead of one that was equal to the inner city average would increase the achievement of a representative black student.[9] In principle, this suburban quality school could be located in the inner city, but, as Table 8 indicates, few inner city schools are at or above this level of quality. In addition, if there were no constraints on black residential choice, many, if not most, black parents interested in obtaining better schooling for their children would move to the suburbs before their children entered school, as many Anglo parents do. There is evidence that suggests this is already a common pattern. Less than 20 percent of the 4,026 black cohort three children enrolled in Dallas suburban schools in 1996 attended DISD schools in 1990. More than half went to Dallas suburban schools in both 1990 and 1996 and 20 percent lived in other states or attended private schools in 1990.

The top panel of Table 12 presents estimates, based on the value added equations, of gains in school quality that would result from attending a school of average suburban quality versus a school of average inner city quality by area and grade. These estimates, which are shown in the next to last column and which ignore the impacts of mobility on achievement, are obtained by multiplying the difference in mean suburban and mean inner city quality for a particular metropolitan area (column 2) times the school quality coefficients (column 3). The school quality coefficients are from Table 9, while the

[9] A caveat is in order. The mean scores we refer to as school quality are actually campus/grade measures. A recent paper by Rivkin, Hanushek and Kain (1997), that also employs TSMP data, however, finds there are large differences in achievement gains among grades within schools.

differences in mean suburban and inner city quality for each metropolitan area are from Table 7. The last column expresses the estimated gains from attending a suburban quality schools by the grade-specific gap in black and Anglo mean composite scores from Table 1. For the seven largest metropolitan areas combined, the gains from attending suburban schools would eliminate between 12 percent (grade 7) and 20 percent (grade 4) of the black-white achievement gap. Because the value-added equations include lagged scores, these effects would be cumulative.

The bottom panel of Table 12 presents the same estimates of gain, based on the school quality coefficients obtained from the individual/campus fixed effects equations. There are no estimates for Grade 4 because two lagged scores are required; scores for grades 3 and 4 are needed to calculate 4^{th} grade gains while scores from grades 2 and 3 would be required to calculate the 3rd grade gains. The estimates of gains using individual fixed effects equations, without campus fixed effects, are somewhat larger than those obtained from the value added equations.

For the seven largest metropolitan areas combined, the achievement score gains from attending the average suburban quality school rather than the average inner city quality school is 0.22 for grade 5, .18 for grade six and .23 for grade 7. As the estimates in the last column reveal this change would close nearly 30 percent of the black-white achievement gap for both fifth and seventh graders and nearly 22 percent of the black-white achievement gap for six graders. The gains are even larger for black residents of the Dallas metropolitan area because of the larger difference in inner city and suburban school quality. As the estimates in the last column reveal, attending a school of average suburban quality would eliminate nearly 58 percent of the black-white achievement gap for fifth graders, 27 percent of the black-white achievement gap for sixth graders and nearly 38 percent of the black white achievement gap for seventh graders.

Conclusions

In sharp contrast to most northern metropolitan areas where very few black students attend suburban schools, more than one half of the black children living in the seven largest Texas metropolitan areas in 1997 and attending grades 6 through 10 were enrolled in suburban districts. This high rate resulted from high 1992 levels, rapid growth in the number of blacks attending suburban schools, and a substantial decline in the numbers attending inner city schools. Between 1992 and 1997 suburban black enrollment in this cohort increased by 24 percent and inner city enrollment declined by nine percent. Campus level exposure indexes, moreover, provide clear-cut evidence that between 1992 and 1997 racial balance has improved in both individual inner city and suburban schools.

Estimates of school quality, grade/campus means of composite reading and math scores, included in the paper, confirm the widely recognized fact that suburban schools are on average "better" than inner city schools. At the same time, there is considerable variation among campus school quality in both the inner cities and the suburbs.

This paper also presents the results of analyses in which the composite scores of individual black students attending grades four through seven are regressed on both individual characteristics and on school quality. These analyses indicate that school quality has a substantial impact on the scores of individual black students. The paper also considers whether school quality has a significant impact on the performance of individual Asian, Hispanic and Anglo students. The answer is a clear yes, although for most grades and race/ethnic groups the effects appear to be smaller than for black students.

Using the results of these equations and the mean differences in school quality for suburban and inner city schools suggests that increased access to "better" suburban schools could have a substantial positive effect on closing the black-white gap in achievement.

References

Anderson, James D. 1988. *The Education of Blacks in the South, 1860-1935.* Chapel Hill and London: The University of North Carolina Press.

Card, David and Alan B. Krueger. 1992. "School Quality and Black-White Relative Earnings: A Direct Assessment," *The Quarterly Journal of Economics* CVII, 1, (February): 151-200.

Cziko, Gary. 1992. "The Evaluation of Bilingual Education." *Educational Researcher* 21: 10-15.

Farkas, George. 1996. *Human Capital or Cultural Capital? Ethnicity and Poverty Groups in an Urban School District.* New York: Aldine de Gruyter.

Farkas, George. 1997. "Ten Propositions About Schooling, The Inheritance of Poverty, and Interventions to Reduce this Inheritance," in *Research in Social Problems and Public Policy*, Volume 6: 125-169.

Farley, Reynolds and William H. Frey. 1993. "Changes in the Segregation of Whites from Blacks during the 1980s: Small Steps toward a More Integrated Society," Population Studies Center, University of Michigan, Research Report No. 93-285, (August).

Frey, William H. 1998. "Black Movement to the South, and Regional Concentration of the Races," *Population Today* (February).

Greene, Jay P. 1998. "A Meta-Analysis of the Effectiveness of Bilingual Education," Department of Political Science, University of Texas at Austin.

Kain, John F. and Joseph J. Persky. 1969. "Alternatives to the Gilded Ghetto," *The Public Interest* (Winter).

Kain, John F. and Daniel M. O'Brien. 1998a. "Has Moving to the Suburbs Increased African American Educational Opportunities?" Paper prepared for the meetings of the American Economic Association Meetings, Chicago, Illinois, January 5.

Kain, John F. and Daniel M. O'Brien. 1998b. "A Longitudinal Assessment of Reading Achievement: Evidence from the UTD Texas Schools Project," Paper prepared for "Achieving Universal Literacy." Conference sponsored by the Cecil and Ida Green Center for the Study of Science and Society, The University of Texas at Dallas, April 2-4.

Margo, Robert. 1990. *Race and Schooling in the South, 1880-1950: An Economic History*. Chicago: University of Chicago Press.

Massey, Douglas S. and Nancy A. Denton. 1993. *American Apartheid: Segregation and the Making of the Underclass*. Cambridge: Harvard University Press.

Rivkin, Steven G., Eric A. Hanushek and John F. Kain. 1998. "Teachers, Schools and Academic Achievement," paper presented at the meetings of the Econometric Society, Chicago, Illinois, (January 4).

Rossell, Christine and Keith Baker. 1996. "The Educational Effectiveness of Bilingual Education," *Research in the Teaching of English* 30 (no. 1): 7-74.

Stotsky, Sandra. "Analysis of the Texas Reading Tests, Grades 4, 8 and 10, 1995-1998."

Independent report prepared for the Tax Research Foundation, Houston, Texas

(November).

Table 1. Mean Composite (Reading plus Math) Standardized Scores and Percent without Scores by Race/Ethnicity and Grade

Categories and Grades	Native American	Asian	Black	Hispanic	Anglo
Mean Z Scores					
Grade 3 (1992)	-0.01	0.35	-0.34	-0.29	0.26
Grade 4 (1993)	-0.02	0.44	-0.46	-0.31	0.32
Grade 5 (1994)	-0.04	0.50	-0.46	-0.26	0.28
Grade 6 (1995)	0.07	0.48	-0.45	-0.30	0.34
Grade 7 (1996)	0.08	0.47	-0.39	-0.27	0.34
Percent Without Scores					
Grade 3 (1992)	12%	14%	9%	22%	7%
Grade 4 (1993)	16%	14%	15%	23%	10%
Grade 5 (1994)	14%	16%	14%	24%	8%
Grade 6 (1995)	13%	13%	13%	19%	7%
Grade 7 (1996)	11%	9%	12%	15%	6%

Table 2. Summary Statistics for Inner City Districts in the Seven Largest Metropolitan Areas in 1998

	Inner City Districts						
Student Characteristics	Houston	Dallas	Ft. Worth	Austin	San Antonio	El Paso	Corpus Christi
Percent of Total Students							
Economically Disadvantaged	73	73	58	50	89	68	55
Race/Ethnicity							
Black	34	41	33	18	10	5	6
Hispanic	52	47	40	43	84	77	68
Anglo	11	10	25	37	5	18	24
Asian and Native American	3	2	3	3	0	1	1
Programs							
Special Education	10	9	12	12	12	9	15
Bilingual/ESL	24	30	22	13	13	24	6
Total Enrollment	210,988	157,622	76,901	76,606	61,112	63,909	40,975

Table 3. Changes in Black Enrollment 1992-1997 for Inner City and Suburban Districts by Area

PMSA/CMSA	Area	Number 1992	Number 1997	1997 minus 1992	Percentage Change	Shares(percent) 1992	Shares(percent) 1997
Seven Largest Metro Areas	Suburban	65,733	81,474	15,741	24	46	54
	Inner City	76,439	69,345	-7,094	-9	54	46
	All	142,172	150,819	8,647	6	100	100
Other Metro Areas	Suburban	6,671	7,231	560	8	24	25
	Inner City	21,277	21,491	214	1	76	75
	All	27,948	28,722	774	3	100	100
Rest of state		31,865	31,893	28	0	N/A	N/A
Entire State		201,985	211,434	9,449	5	N/A	N/A
Individual Metro Areas							
Houston	Suburban	30,242	37,482	7,240	24	50	59
	Inner City	30,255	25,845	-4,410	-15	50	41
	All	60,497	63,327	2,830	5	100	100
Dallas	Suburban	16,523	20,948	4,425	27	39	47
	Inner City	25,515	24,073	-1,442	-6	61	53
	All	42,038	45,021	2,983	7	100	100
Fort Worth	Suburban	4,887	6,505	1,618	33	33	41
	Inner City	10,141	9,484	-657	-6	67	59
	All	15,028	15,989	961	6	100	100

Notes: These data are for the five TSMP cohorts. Students in these cohorts were enrolled in grades 1-5 in 1992 and grades 6-10 in 1997.

Table 4. Number of Suburban Districts by Black Enrollment in 1995 by Metropolitan Area

(All Five Cohorts, Grades 3-7).

Black Enrollment	Number of Suburban Districts				
	Houston	Dallas	Fort Worth	San Antonio	Total
0	1	6	7		14
0-25	5	32	13	9	59
26-100	9	14	7	7	37
101-250	10	5	4	4	23
251-500	4	3	3	1	11
501-1000	5	10	1		16
1001-2000	5	4		3	12
2000+	4	2	1		7
Total	43	76	36	24	179

Table 5. Share of Metropolitan Area Black Enrollment in the Inner City District and in Suburban Districts by Black Enrollment in 1995 (All Five Cohorts, Grades 3-7).

Category	Percent of All Students Who Are African American				
	Houston	Dallas	Fort Worth	San Antonio	All
Inner City	44%	55%	61%	30%	49%
Suburban Districts by Black Enrollment					
0-25	0%	1%	1%	1%	0%
26-100	1%	2%	2%	5%	2%
101-250	3%	2%	4%	8%	3%
251-500	2%	2%	7%	4%	3%
501-1000	6%	16%	5%		9%
1001-2000	12%	12%		52%	13%
2000+	31%	11%	20%		21%
All	100%	100%	100%	100%	100%

Table 6. Exposure Indexes by Race/Ethnicity and Area in 1992 and 1997: Entire Metro Areas, Inner Cities and Suburbs for the Seven Largest Metro Areas Combined and Individual Estimates for the Houston, Dallas and Fort Worth Metro Areas

(Grades 1-5 in 1992 and Grades 6-10 in 1997)

	Asian		Black		Anglo		Hispanic	
PMSAs	1992	1997	1992	1997	1992	1997	1992	1997
Seven Largest Metro Areas								
Asian	9	9	2	3	3	4	2	2
Black	15	16	48	42	9	10	11	12
Hispanic	20	24	22	27	18	20	61	58
Anglo	55	50	28	28	70	66	26	27
Inner Cities								
Asian American	6	5	1	2	3	3	2	2
African American	23	26	64	56	16	18	15	18
Hispanic	39	45	23	30	34	42	72	69
Anglo	32	23	11	11	48	37	11	11
Suburbs								
Asian American	10	10	4	5	3	4	2	3
African American	13	15	29	29	8	9	9	11
Hispanic	16	20	21	24	15	18	59	54
Anglo	61	55	46	42	73	70	30	31
Individual Metro Areas								
Houston								
Asian	12	12	3	4	4	5	3	4
Black	18	20	51	46	11	11	16	18
Hispanic	21	25	21	26	17	19	52	49
Anglo	49	44	24	23	68	65	29	29
Dallas								
Asian	9	9	2	2	3	4	2	3
Black	13	13	52	46	10	12	18	20
Hispanic	15	19	17	22	12	14	45	43
Anglo	63	59	29	30	74	70	35	34
Fort Worth								
Asian	6	6	2	3	3	3	2	4
Black	12	15	50	42	7	8	13	15
Hispanic	14	18	14	19	10	11	41	40
Anglo	68	60	34	36	80	77	43	41

Table 7. School Quality by Grade for Inner City District and Suburban Districts by Metropolitan Area

Central City and Suburbs by Metro Area	School Quality (Mean Composite Scores)			
	Grade 4	Grade 5	Grade 6	Grade 7
Largest Seven Metro Areas				
Suburbs	0.14	0.12	0.15	0.17
Inner City Districts	-0.25	-0.20	-0.27	-0.25
Sub-CC	0.39	0.32	0.42	0.42
Other Metro Areas				
Suburbs	-0.03	-0.01	0.04	0.01
Inner City Districts	-0.08	-0.03	-0.07	-0.11
Sub-CC	0.05	0.02	0.12	0.12
Other Areas				
NonMetro	0.03	0.01	0.03	0.08
Rural	0.10	0.07	0.18	0.15
Individual Metro Areas				
Houston				
Suburbs	0.16	0.16	0.12	0.15
HISD	-0.19	-0.10	-0.25	-0.23
Sub-CC	0.34	0.26	0.37	0.38
Dallas				
Suburbs	0.29	0.21	0.26	0.26
DISD	-0.38	-0.40	-0.25	-0.28
Sub-CC	0.67	0.62	0.51	0.53
Fort Worth				
Suburbs	0.18	0.17	0.25	0.23
FWISD	-0.27	-0.17	-0.25	-0.24
Sub-CC	0.45	0.34	0.49	0.46

Table 8. Percent Distribution and Black Shares of Fifth Grade Suburban and Inner City Students by School Quality or the Seven Largest Metro Areas and for Individual Metro Areas in 1994

	Seven Largest		Houston		Dallas		Fort Worth	
School Quality	Suburbs	Inner City	Suburbs	Inner City	Suburbs	Inner City	Suburbs	Inner City
Black Distribution								
Less Than -.5	6	38	5	20	8	53	2	38
-.5 to -.25	15	23	18	25	6	21	14	24
-.25 to 0	33	22	34	27	34	18	31	24
0 to .25	24	9	24	14	24	5	30	7
.25 to .5	15	6	13	10	19	2	19	5
Greater Than .5	6	2	6	4	9	0	3	1
Total	100	100	100	100	100	100	100	100
Black Shares								
Less Than -.5	13	49	51	54	45	73	33	68
-.5 to -.25	17	30	26	44	13	42	23	43
-.25 to 0	16	30	24	44	19	49	10	29
0 to .25	10	20	18	34	13	26	5	23
.25 to .5	7	17	9	29	7	37	5	15
Greater Than .5	5	10	5	19	6	12	2	9
Total	11	31	17	40	11	53	7	36

Table 9. School Quality Value Added Regressions for Black Students by Grade for the Seven Largest Metropolitan Areas
(Huber-White adjusted t statisics)

Variables	Grade 4		Grade 5		Grade 6		Grade 7	
	Coef	t	Coef	t	Coef	t	Coef	t
Lagged Score	-0.68	-15.3	0.96	17.9	0.23	5.5	0.90	21.1
Lagged Score Sq	0.12	28.6	-0.02	-4.2	0.05	11.9	-0.01	-2.7
Pred Lag Score	-0.71	-11.2	0.82	11.1	0.15	2.5	0.84	14.1
Pred Lag Score Sq	0.13	13.6	0.00	0.1	0.05	6.4	-0.01	-0.9
School Quality	0.44	40.6	0.31	27.6	0.31	30.2	0.22	19.9
Low Income	-0.02	-1.2	0.02	1.1	-0.04	-2.8	-0.04	-2.7
Very Low Income	-0.02	-2.3	-0.01	-1.4	-0.02	-2.3	-0.02	-2.7
Male	-0.05	-5.0	-0.03	-3.8	-0.03	-3.7	-0.13	-17.3
Age	-0.11	-10.6	-0.08	-6.9	-0.10	-11.2	-0.06	-6.6
Within Dist Move	-0.09	-7.8	-0.08	-7.6	-0.20	-23.8	-0.11	-13.7
Dist to Dist Move	-0.02	-0.9	-0.04	-2.1	-0.16	-10.4	-0.11	-7.4
LEP	0.07	0.8	0.20	1.7	-0.35	-3.9	0.00	0.0
Ever Special Ed	-0.22	-10.8	-0.18	-9.0	-0.09	-5.0	-0.05	-3.1
Now Special Ed	0.05	1.9	-0.02	-0.7	-0.07	-2.8	-0.20	-7.8
Ever Retained	-0.16	-8.4	-0.08	-3.4	-0.06	-2.7	-0.05	-2.2
Ever Dbl Promoted	0.16	2.6	0.00	0.0	-0.03	-0.6	0.01	0.2
Avg. Days Absent	-0.01	-8.5	0.00	-4.4	0.00	-5.6	0.00	-3.7
Constant	4.19	25.4	0.02	0.1	2.48	14.5	0.63	3.5
R Square	0.46		0.54		0.60		0.65	
Observations	22,440		23,031		22,950		22,725	

Note: Students attending campuses with fewer than nine students in their grade are omitted from the analysis.

Table 10. School Quality Coefficients and Indexes by Grade and Race/Ethnicity

	Seven Largest Metro Areas				Entire Sample			
Grade	Black	Asian	Hisp	Anglo	Black	Asian	Hisp	Anglo
Coefficients								
Grade 4	0.44	0.37	0.45	0.38	0.42	0.39	0.46	0.37
Grade 5	0.31	0.19	0.29	0.29	0.29	0.18	0.31	0.28
Grade 6	0.31	0.29	0.30	0.29	0.30	0.32	0.33	0.29
Grade 7	0.22	0.13	0.21	0.16	0.21	0.13	0.20	0.16
Indexes								
Grade 4	1.00	0.84	1.02	0.86	1.00	0.89	1.05	0.84
Grade 5	1.00	0.61	0.94	0.94	1.00	0.58	1.01	0.92
Grade 6	1.00	0.94	0.97	0.94	1.00	1.03	1.07	0.92
Grade 7	1.00	0.59	0.95	0.73	1.00	0.59	0.91	0.71

Table 11. Summary Statistices for School Quality Regressions Estimated for Students Who Changed Schools Using Individual/Campus Fixed Effects by Race/Ethnicity and Grade

	Pooled		Asian		Black		Hispanic		Anglo	
Category by Grade	Coef	t	Coef	t	Coef	t	Coef	t	Coef	t
School Quality Coefficient										
Grade 5	0.58	27.8	0.45	1.8	0.69	12.0	0.57	12.7	0.59	19.5
Grade 6	0.39	33.1	0.19	2.6	0.42	13.4	0.51	23.5	0.37	20.6
Grade 7	0.43	28.1	0.45	4.2	0.55	14.6	0.50	17.6	0.38	16.5
R-squared										
Grade 5	0.16		0.49		0.26		0.25		0.17	
Grade 6	0.10		0.21		0.13		0.13		0.09	
Grade 7	0.09		0.32		0.13		0.12		0.10	
Observations										
Grade 5	40,248		634		6,411		10,290		22,646	
Grade 6	119,083		2,882		15,925		37,359		62,696	
Grade 7	80,865		1,507		12,296		23,788		43,242	
Number of Campuses										
Grade 5	2,746		287		1,230		1,813		1,092	
Grade 6	1,820		456		1,006		1,324		1,543	
Grade 7	1,377		308		749		1,012		1,247	
Ratio to African American Coefficients										
Grade 5	0.83		0.65		1.00		0.82		0.84	
Grade 6	0.94		0.45		1.00		1.22		0.88	
Grade 7	0.78		0.82		1.00		0.89		0.68	

Table 12. Predicted Differences in Individual Black Scores Due to Suburban and Inner City Differences in School Quality Obtained from Value Added and Individual/Campus Fixed Effects Regressions

(Seven Largest Combined, Houston and Dallas Metro Areas)

Estimating Equation, Metro Area and Grade	School Quality			Percent of Black-White Test Score Gap
	Suburbs minus Inner City	Coefficients	Gains	
Value Added				
Seven Largest				
Grade 4	0.39	0.44	0.17	22.0%
Grade 5	0.32	0.31	0.10	13.4%
Grade 6	0.42	0.31	0.13	16.5%
Grade 7	0.42	0.22	0.09	11.7%
Houston				
Grade 4	0.36	0.44	0.16	20.0%
Grade 5	0.27	0.31	0.08	11.3%
Grade 6	0.38	0.31	0.12	14.7%
Grade 7	0.39	0.22	0.09	10.9%
Dallas				
Grade 4	0.68	0.44	0.30	38.1%
Grade 5	0.62	0.31	0.19	25.8%
Grade 6	0.51	0.31	0.16	19.8%
Grade 7	0.54	0.22	0.12	14.9%
Individual and Campus Fixed Effects				
Seven Largest				
Grade 5	0.32	0.69	0.22	29.8%
Grade 6	0.42	0.42	0.18	22.3%
Grade 7	0.42	0.55	0.23	29.2%
Houston				
Grade 5	0.27	0.69	0.19	25.2%
Grade 6	0.38	0.42	0.16	20.2%
Grade 7	0.39	0.55	0.21	27.2%
Dallas				
Grade 5	0.62	0.69	0.43	57.8%
Grade 6	0.51	0.42	0.21	27.1%
Grade 7	0.54	0.55	0.30	37.6%

Table A-1. Asian School Composite Quality Regressions by Grade
(Seven Largest Metropolitan Areas)
(Huber-White adjusted t statisics)

Variables	Grade 4 Coef	t	Grade 5 Coef	t	Grade 6 Coef	t	Grade 7 Coef	t
Lagged Score	-0.16	-1.0	1.05	6.0	0.39	2.8	1.14	8.3
Lagged Score Sq	0.08	5.6	-0.03	-2.0	0.03	2.6	-0.04	-3.6
Pred Lagged Score	-0.11	-0.6	0.65	3.0	-0.06	-0.4	0.66	4.2
Pred Lag Score Sq	0.07	3.3	0.03	1.3	0.10	5.5	0.03	1.9
School Quality	0.37	14.8	0.19	7.3	0.29	13.0	0.13	5.8
Low Income	-0.01	-0.4	0.02	0.6	-0.04	-1.2	-0.04	-1.4
Very Low Income	0.03	1.1	0.02	0.9	0.00	0.1	-0.05	-2.8
Male	-0.01	-0.8	-0.01	-0.7	0.02	1.4	-0.07	-6.2
Age	-0.06	-2.7	-0.03	-1.7	-0.03	-1.5	-0.01	-0.9
Within Dist Move	-0.02	-0.7	0.03	1.4	-0.05	-3.2	-0.05	-3.9
Dist to Dist Move	-0.04	-1.0	0.05	1.5	-0.04	-1.1	-0.01	-0.4
LEP	-0.13	-4.1	-0.07	-1.8	-0.09	-3.1	-0.20	-5.6
Ever Special Ed	-0.04	-0.7	-0.10	-2.1	0.00	0.1	-0.04	-1.2
Now Special Ed	-0.08	-1.1	-0.18	-2.4	-0.19	-2.9	-0.17	-2.4
Ever Retained	-0.11	-1.6	-0.17	-2.1	-0.15	-2.0	-0.07	-1.1
Ever Dbl Promoted	0.06	0.4	0.14	0.8	-0.19	-1.1	0.08	0.8
Avg. Days Absent	-0.02	-6.7	-0.01	-1.9	-0.01	-5.1	0.00	-1.8
Constant	2.78	4.8	0.19	0.3	1.39	2.5	0.28	0.5
R Square	0.52		0.57		0.60		0.65	
Observations	4,235		4,299		4,708		5,086	

Table A-2. Hispanic School Composite Quality Regressions by Grade
(Seven Largest Metropolitan Areas)
(Huber-White adjusted t statisics)

Variables	Grade 4 Coef	t	Grade 5 Coef	t	Grade 6 Coef	t	Grade 7 Coef	t
Lagged Score	-0.77	-22.3	0.89	21.1	0.05	1.7	0.85	27.1
Lag Score Sq	0.13	41.2	-0.01	-3.9	0.06	21.5	-0.01	-3.0
Lag Span Score	-0.81	-23.0						
Lag Span Score Sq	0.12	32.8						
Pred Lagged Score	-0.67	-14.6	0.74	14.0	-0.02	-0.6	0.74	18.2
Pred Lag Score Sq	0.11	17.5	0.01	0.9	0.07	12.9	0.00	0.7
School Quality	0.46	56.9	0.29	34.4	0.30	39.2	0.21	25.6
Low Income	-0.01	-0.8	-0.01	-1.0	0.01	1.4	0.02	2.6
Very Low Income	-0.01	-0.9	0.00	-0.2	-0.03	-4.4	0.00	0.4
Male	-0.01	-1.4	-0.01	-1.2	0.01	2.3	-0.11	-3.0
Age	-0.10	-14.9	-0.09	-12.4	-0.08	-11.9	-0.06	-9.6
Within Dist Move	-0.03	-3.8	-0.05	-6.4	-0.19	-3.8	-0.07	-12.0
Dist to Dist Move	-0.04	-3.0	-0.03	-2.9	-0.18	-15.9	-0.05	-5.1
LEP	-0.11	-10.4	-0.07	-6.4	-0.09	-10.0	-0.14	-15.8
Ever Special Ed	-0.19	-13.1	-0.15	-1.1	-0.06	-4.9	-0.04	-3.7
Now Special Ed	-0.01	-0.7	-0.14	-6.6	-0.23	-12.4	-0.25	-14.3
Ever Retained	-0.19	-13.7	-0.01	-0.9	0.00	0.1	0.00	-0.1
Ever Dbl Promoted	0.02	0.5	-0.02	-0.4	-0.08	-1.7	-0.02	-0.4
Avg. Days Absent	-0.01	-17.3	-0.01	-13.7	-0.01	-15	-0.01	-1.3
Constant	4	34.5	1	3.4	3	21.8	1	6.9
R Square	0.51		0.57		0.60		0.66	
Observations	42,048		41,894		45,246		46,377	

Table A-3. Anglo School Quality Regressions by Grade
(Seven Largest Metropolitan Area+A23s)
(Huber-White adjusted t statisics)

	Grade 4		Grade 5		Grade 6		Grade 7	
Variables	Coef	t	Coef	t	Coef	t	Coef	t
Lagged Score	-0.71	-18.5	0.58	15.7	0.21	6.9	0.99	3.8
Lagged Score Sq	0.13	39.8	0.01	4.1	0.05	18.4	-0.02	-8.4
Pred Lagged Score	-0.76	-16.3	0.31	6.6	-0.13	-3.4	0.66	16.3
Pred Lag Score Sq	0.14	24.5	0.05	9.7	0.10	2.8	0.03	5.6
School Quality	0.38	58.3	0.29	45.7	0.29	46.7	0.16	24.5
Low Income	-0.03	-2.6	-0.03	-3.2	-0.02	-2.0	-0.04	-4.3
Very Low Income	-0.07	-9.1	-0.05	-6.5	-0.07	-1.1	-0.05	-7.1
Male	-0.01	-3.2	0.02	4.1	0.05	13.1	-0.09	-28.0
Age	-0.07	-5.2	-0.07	-13.1	-0.06	-13.0	-0.05	-1.7
Within Dist Move	-0.02	-3.5	-0.06	-11.3	-0.08	-2.0	-0.05	-16.2
Dist to Dist Move	0.00	0.1	-0.02	-3.2	-0.06	-8.5	-0.04	-5.7
LEP	-0.14	-2.4	-0.07	-1.0	-0.04	-0.6	-0.16	-2.6
Ever Special Ed	-0.14	-15.4	-0.06	-8.0	-0.03	-3.6	-0.04	-5.7
Now Special Ed	-0.03	-2.4	-0.14	-11.6	-0.19	-16.6	-0.22	-19.4
Ever Retained	-0.21	-12.0	-0.10	-5.7	-0.05	-3.0	-0.06	-3.3
Ever Dbl Promoted	0.02	0.3	0.17	3.2	0.10	1.9	0.00	0.0
Avg. Days Absent	-0.01	-13.7	0.00	-7.2	0.00	-5.8	0.00	-3.8
Constant	4.20	21.2	1.22	8.9	2.30	19.4	0.77	6
R Square	0.52		0.59		0.63		0.67	
Observations	75,390		76,356		77,423		77,444	

Table A-4. Pooled Individual Fixed Effects School Quality Regressions with Campus Fixed Effects by Race/Ethnicity and Grade

Variable	Grade 4-5		Grade 5-6		Grade 6-7	
	Coef.	t	Coef.	t	Coef.	t
School Quality	0.57	27.1	0.40	33.4	0.53	19.9
Asian	0.00	0.1	-0.05	-3.7	0.01	0.3
African American	0.13	7.8	-0.12	-11.9	0.02	1.0
Hispanic	0.06	3.7	-0.11	-15.1	0.03	2.5
To LEP	0.02	0.2	0.07	1.9	0.21	2.3
From LEP	-0.12	-2.2	-0.33	-12.9	-0.23	-4.8
To Special Education	0.13	2.2	0.12	3.1	-0.15	-3.2
From Special Education	0.05	1.1	0.02	0.9	-0.05	-1.8
To Free/Reduced Lunch	0.06	2.5	-0.01	-0.8	0.03	1.4
From Free/Reduced Lunch	0.02	0.7	-0.03	-2.7	0.04	2.8
Constant	-0.02	-2.2	0.06	15.0	-0.11	-12.5
N	39,602		118,206		80,560	
R-squared =	0.16		0.10		0.09	
Adj R-squared =	0.10		0.08		0.07	
Campuses	2,729		1,816		1,374	

Table A-5. Individual Fixed Effects School Quality Regressions with Campus Fixed Effects by Race/Ethnicity and Grade

Grades. Variables and Summary Statistics	Asian		African American		Hispanic		Anglo	
	Coef	t	Coef	t	Coef	t	Coef	t
Grade 5								
School Quality	0.45	1.8	0.69	12.0	0.57	12.7	0.59	19.5
to LEP	0.37	0.7			-0.03	-0.3		
from LEP	0.53	1.7			-0.14	-2.0		
to Special Education	-0.59	-0.9	0.01	0.0	0.03	0.2	0.17	2.2
from Special Education	1.16	1.4	-0.08	-0.6	0.07	0.6	0.10	2.0
to Free/reduced Lunch	-0.05	-0.2	0.12	1.8	0.00	0.0	0.07	1.9
from Free/reduced Lunch	0.28	1.1	0.03	0.4	-0.01	-0.3	0.00	0.1
Constant	-0.09	-2.1	0.19	12.5	0.07	6.6	-0.05	-7.2
N	634		6,411		10,290		22,646	
R-squared =	0.49		0.26		0.25		0.17	
Adj R-squared =	0.06		0.08		0.09		0.09	
Campuses	287		1,230		1,813		1,092	
Grade 6								
School Quality	0.19	2.6	0.42	13.4	0.51	23.5	0.37	20.6
to LEP	-0.02	-0.2			0.10	1.9		
from LEP	-0.18	-1.7			-0.35	-12.5		
to Special Education	0.25	1.1	0.22	1.5	0.24	3.2	0.06	1.3
from Special Education	0.16	0.9	-0.01	-0.1	0.08	1.7	0.01	0.4
to Free/reduced Lunch	0.03	0.3	0.01	0.2	0.01	0.3	-0.04	-1.6
from Free/reduced Lunch	-0.02	-0.3	-0.04	-1.3	-0.02	-0.8	-0.04	-2.2
Constant	-0.03	-1.6	-0.07	-8.7	-0.06	-11.6	0.07	22.2
N	2,882		15,925		37,359		62,696	
R-squared =	0.21		0.13		0.13		0.09	
Adj R-squared =	0.06		0.07		0.10		0.07	
Campuses	456		1,006		1,324		1,543	
Grade 7								
School Quality	0.45	4.2	0.55	14.6	0.50	17.6	0.38	16.5
to LEP	0.59	1.4			0.22	3.5		
from LEP	-0.11	-1.2			-0.25	-7.5		
to Special Education	-0.27	-0.6	-0.07	-0.6	-0.17	-1.7	-0.10	-1.7
from Special Education	0.15	0.6	-0.18	-2.1	0.04	0.6	-0.07	-2.0
to Free/reduced Lunch	0.13	1.3	-0.06	-1.4	0.00	0.1	-0.03	-1.0
from Free/reduced Lunch	0.07	1.1	0.03	1.0	0.03	1.2	0.01	0.6
Constant	-0.12	-6.6	-0.09	-9.6	-0.08	-12.4	-0.12	-29.0
N	1,507		12,296		23,788		43,242	
R-squared =	0.32		0.13		0.12		0.10	
Adj R-squared =	0.15		0.08		0.08		0.07	
Campuses	308		749		1,012		1,247	

Table A-6. Pooled Individual Fixed Effects School Quality Regressions without Campus Fixed Effects by Grade

Variable	Grade 5		Grade 6		Grade 7	
	Coef.	t	Coef.	t	Coef.	t
School Quality	0.59	23.6	0.57	23.8	0.53	19.9
Asian	0.01	0.3	-0.07	-3.9	0.01	0.3
African American	0.24	12.1	-0.14	-10.6	0.02	1.0
Hispanic	0.11	6.0	-0.13	-11.3	0.03	2.5
To LEP	0.10	1.2	0.09	1.5	0.21	2.3
From LEP	-0.14	-2.2	-0.32	-8.7	-0.23	-4.8
To Special Education	0.12	1.9	0.11	3.0	-0.15	-3.2
From Special Education	0.05	1.1	0.03	1.3	-0.05	-1.8
To Free/Reduced Lunch	0.07	2.7	-0.02	-1.1	0.03	1.4
From Free/Reduced Lunch	0.02	0.6	-0.04	-2.9	0.04	2.8
Constant	-0.05	-4.1	0.07	11.4	-0.11	-12.5
N	39,602		118,206		80,560	
R-squared =	0.05		0.05		0.03	

Table A-7. Individual Fixed Effects School Quality Regressions without Campus Fixed Effects by Race/Ethnicity and Grade

Grades. Variables and Summary Statistics	Asian		African American		Hispanic		Anglo	
	Coef	t	Coef	t	Coef	t	Coef	t
Grade 5								
School Quality	0.47	4.5	0.62	13.6	0.55	13.8	0.62	19.6
to LEP	0.34	1.2			0.07	0.7		
from LEP	0.17	1.1			-0.17	-2.6		
to Special Education	-0.32	-1.5	0.05	0.3	0.00	0.0	0.17	2.3
from Special Education	1.10	1.7	-0.14	-1.5	-0.01	-0.1	0.11	2.3
to Free/reduced Lunch	0.12	0.7	0.12	1.8	-0.01	-0.3	0.09	2.9
from Free/reduced Lunch	0.05	0.4	0.07	1.3	-0.03	-0.7	0.02	0.6
Constant	-0.06	-1.8	0.18	9.8	0.08	4.2	-0.05	-4.4
N	634		6,411		10,290		22,646	
R-squared	0.06		0.05		0.04		0.04	
Grade 6								
School Quality	0.33	6.0	0.53	11.6	0.64	17.0	0.53	21.1
to LEP	-0.01	-0.2			0.13	1.8		
from LEP	-0.23	-2.0			-0.33	-8.7		
to Special Education	0.26	1.4	0.22	1.8	0.25	3.1	0.05	1.1
from Special Education	0.20	1.1	0.01	0.1	0.10	2.1	0.01	0.2
to Free/reduced Lunch	0.03	0.3	0.00	0.1	-0.01	-0.3	-0.04	-1.6
from Free/reduced Lunch	-0.05	-0.7	-0.06	-1.5	-0.02	-1.1	-0.05	-2.4
Constant	-0.01	-0.8	-0.07	-5.0	-0.05	-4.7	0.08	11.5
N	2,882		15,925		37,359		62,696	
R-squared	0.03		0.04		0.06		0.03	
Grade 7								
School Quality	0.53	6.9	0.52	9.6	0.54	14.5	0.54	17.9
to LEP	0.33	0.6			0.21	2.4		
from LEP	-0.09	-1.4			-0.25	-4.7		
to Special Education	-0.38	-0.7	-0.15	-1.4	-0.21	-2.1	-0.12	-2.0
from Special Education	0.27	1.4	-0.15	-1.9	0.01	0.3	-0.07	-1.8
to Free/reduced Lunch	0.12	1.1	-0.03	-0.7	0.08	1.6	0.01	0.4
from Free/reduced Lunch	0.09	1.5	0.03	1.1	0.05	2.1	0.03	1.4
Constant	-0.12	-6.2	-0.09	-5.4	-0.08	-6.3	-0.11	-12.3
N	1,507		12,296		23,788		43,242	
R-squared	0.05		0.03		0.04		0.03	

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