Minority 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 exhibit some decline and growing numbers of black children are attending middle-class suburban schools. There has been an especially rapid movement to suburban schools by the black residents of the seven largest Texas metropolitan areas. These trends, moreover, are generally associated with decreased school segregation within both the inner cities and suburbs.

In nearly all cases, suburban schools are of higher quality than the inner city schools that continue to serve a disproportionate share of black children. The paper provides significant evidence that overall school quality has a large impact on the achievement of individual students, holding constant the effects of prior test scores and various individual, family and program characteristics. While this result holds for all race/ethnic groups, it is particularly large for African Americans.

School quality effects on individual achievement are cumulative. Each year's gain in individual achievement from attending a higher quality school affects achievement in the following year by raising the previous year's achievement score, which has a large positive effect on the current year's achievement.

For a black student attending a school of mean suburban quality rather than one of mean inner city quality for grades 5-7, these cumulative effects could close a large portion of the black-white gap in test scores. In the case of the Dallas PMSA, the cumulative effect is 0.48 of a standard deviation, which is 75 percent of mean seventh grade difference in Anglo and black test scores. These same figures for the Houston PMSA are 0.28 of a standard deviation and 44 percent of the mean black-white gap in composite scores.

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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 African American children to "higher quality" suburban schools, that Kain and Persky (1969) suggested nearly 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 particularly pronounced in Texas. Because of a history of extensive African American participation in agriculture, particularly cotton cultivation, the suburban rings of several Texas metropolitan areas have long had significant black populations. Overbuilding and the collapse of petroleum prices at the end of the 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 as been fueled by large-scale migration from other parts of the United States (Frey, 1998).

This paper briefly summarizes findings of earlier analyses on the extent and growth of African American suburbanization in large Texas metropolitan areas and of the probable effect of these trends on the achievement of African American children. In addition, it adds new material on the extent and rate of change of Hispanic suburbanization. Hispanics are numerically very important in Texas and share the burden of low school performance with African Americans. This paper also presents new analyses of the extent of racial and ethnic segregation within both inner cities and suburbs. Finally, it complements earlier analyses of the effects of campus/grade mean achievement scores on the achievement of individual African American children with comparable analyses for other race/ethnic groups.

Like our earlier analysis, the analyses presented in this paper are based principally on micro panel data from the Texas Schools Microdata Panel (TSMP). The paper examines five questions: (1) How much minority suburbanization occurred between 1992 and 1997 in Texas' largest metropolitan areas; (2) What is the extent of racial/ethnic school segregation 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 black children on standardized tests; and (5) Does school quality have a similar effect on the achievement of individual Asian, Hispanic and Anglo children? We begin with a brief description of TSMP and the data that are used for this analysis.

The Texas Schools Microdata Panel (TSMP)

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 (we follow the convention of identifying the 1989-90 school year as

1990) through 1997. The youngest of these cohorts were in pre-K and the oldest in the 3rd grade in 1990. The database starts with 1990 because the Texas Education Agency (TEA) implemented its PEIMS (Public Education Information Management System) system in that year. TSMP also contains 26 years/grades of standardized test data for three different standardized tests that were administered by TEA during this period.

Composite (Math and Reading) Performance by Race/Ethnicity and Grade

Before considering the extent and nature of black suburbanization, we pause briefly to consider how the composite (reading and math) scores of African Americans compare to those of other race/ethnicity groups in Texas. Performance is measured using z scores (the mean of reading and math) for five standardized tests given to students in the center (third) cohort. This cohort includes all students who were enrolled in the 3rd grade in 1992 plus those who were enrolled in Texas public schools in at least one of the following additional grades/years: 1/1990, 2/1991, 4/1993, 5/1994, 6/1995 and 7/1996.[1] 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 - 1996.[2] Z scores are the number of correct answers for each student

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[1] 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.

[2] We have obtained, but have not yet incorporated the 1997 TAAS tests into TSMP. In addition to TAAS,

minus the mean number of correct answers divided by the standard deviation of all students' scores. Use of z scores 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.[3] The z 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.

As the mean z scores in Table 1 reveal, African Americans, with composite mean z scores between .34 and .46 of a standard deviation below the statewide average for all students, have the lowest scores of any of the five race/ethnic groups in every grade. Hispanics also perform poorly on these tests. Their mean z scores, which are higher than African Americans, nonetheless lag far behind the remaining three race/ethnic groups. These data also support the widely held perception that Asian Americans are currently America's highest performing students. They have the highest mean composite in every grade and, while it is not shown, their advantage is particularly large in math.

Significant fractions of students who were enrolled in Texas schools when TAAS was given do not have test scores, either because they did not take the test or because their tests were not scored. As the bottom panel of Table 1 reveals, the percentage of

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we also have two years of individual student data for NAPT (Normed-referenced Assessment Program for Texas), which was given in the 3rd and 4th grades.

[3] 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."

students without scores varies widely across racial/ethnic groups and grades. Hispanics, many of whom arrive at school with limited English language skills, have the highest no-score rates in every grade. These no-score rates vary from a high of 24 percent for the 5th grade to a low of 15 percent for 7th grade.

No-score rates for Native Americans, Asian Americans and African Americans are similar and substantially below the Hispanic rates, while those for Anglos (non-Hispanic whites) in every grade are lower than those for any of the remaining four groups. The higher no-score rates of Hispanics and Asian Americans are due largely to their large number of excuses for students with limited English proficiency (LEP). Hardly any Anglos or African Americans are LEP; in this cohort only one percent of blacks and 0.9 percent of Anglos were ever classified as LEP. The fractions for Hispanics and Asian Americans who were ever LEP, by comparison, 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 Asian Americans are nearly as high as for Hispanics, their no-score rates are much lower. Asian American 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 are excused from or do not take TAAS, and the low scores of those that have scores, it is legitimate to ask why our earlier analyses did not pay more attention to Hispanics. The explanation is that while African Americans and Hispanics share low academic achievement, the causes appear to be very different. An exception is shared poverty. As earlier analyses make clear, the low incomes and persistent poverty of both blacks and Hispanics are strongly related to their low achievement. At the same time, there are important differences that 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 the children of these immigrant groups arrive at school with few English language skills and limited oral vocabularies in either Spanish or English. While we are agnostic on the issue, many critics argue that well intentioned, but mistaken, bilingual education programs that offer these children 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). 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).[4] Greene (1998) disputes Rossell and Baker's (1996) conclusions in a

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[4] Rossell and Baker (1996, p. 1-2) in a review of 300 evaluations of bilingual programs observe that, "Bilingual education as it is practiced in the public schools of the United States means teaching non-English speaking students in their native tongue, and gradually transitioning them to English over a period of several years." They note further "that the avowed goal" of bilingual education, which they contend "its supporters have not disputed, is to transition non-English speaking students from their native tongue to English and to produce the highest possible achievement both in the English class itself and in other subjects." Their evaluation of these programs indicates that "transitional bilingual education (TBE) is never better than structured immersion, a special program for limited English proficient children where the children are in a self-contained classroom composed solely of English learners, but the instruction is in English at a pace they can understand." Finally, they, conclude that "the research evidence does not

recent meta-analysis based on the same data. What impresses us about bilingual education programs in Texas, however, is that they differ greatly and that no one really knows what actually goes on in bilingual classrooms. There exists no systematic information on such fundamental questions as the amount of English versus Spanish language instruction in various subjects in each grade.

Long lags and the persistent 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 appear to be related to the low achievement of blacks (Anderson, 1988; Card and Kruger, 1992; Kain, 1992; Margo, 1990). While Hispanics have experienced discrimination in both labor and housing markets, they were not enslaved, were not required by law to attend vastly inferior, separate schools and their residential segregation is not, and never has been, as great as those of African Americans (Farely and Frey, 1993; Massey and Denton, 1993). In contrast to Hispanics, where housing market discrimination and segregation are, we suspect, relatively unimportant contributors to their achievement gap, the intense and persistent segregation of African Americans may be a major reason for their low achievement. Texas offers a particularly promising setting to assess its role and to consider how much black Americans in other parts of the country could expect to benefit from increased access to higher quality suburban schools.

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support transitional bilingual education as a superior form of instruction for limited English proficient children."

The Extent of African American Suburbanization

Table 2 uses data for the five cohorts included in TSMP to quantify the extent of total black enrollment in suburban schools in 1992 and 1997. These data are available beginning in 1990, but we use 1992 as the starting point for this analysis because in 1990 and 1991 some of the cohorts include Pre K and kindergarten. Since a relatively small fraction of children attend publicly provided Pre K classes (mostly children from low-income families) and not all children attend kindergarten, including these grades/years would overstate enrollment growth and possibly provide a biased picture of enrollment by race/ethnic category. As we are dealing with student cohorts, different grades are represented in the two years. Thus, the 1992 data are for grades 1-5. By 1997, these same students are enrolled in grades 6-10, excepting some that are retained-in-grade, double-promoted, move out of the state or transfer to private schools.

The African American enrollment data in Table 2 illustrate several important points. First, in spite of the fact that large numbers of Texas blacks were historically employed in agriculture, 71 percent of all black public school pupils in grades 6-10 in 1997 were attending a public school in one of the state's seven largest metropolitan areas. Second, in a pattern that is dramatically different from northern metropolitan areas, by 1997, more black students attending school in the seven largest metropolitan areas were enrolled in suburban districts than in the principal inner-city district in these metropolitan areas. As a fraction of the total black enrollment in the seven largest PMSAs, 54 percent of black children went to suburban schools and 46 percent were enrolled in one of the seven inner city districts. In San Antonio, 72 percent of African American students are enrolled in districts we have classified as suburban. Similarly, in Houston, 59 percent of the CMSA's African American enrollment occurred in suburban districts in 1997; if Exurban Houston (Brazoria and Galveston Counties) are included as Houston' suburbs, this figure is 63 percent. Texas school districts are not coterminous with either city or county boundaries. As a result, central city residents frequently attend more than one district. When more than one district enrolls central city residents, we refer to the district that has the greatest concentration of low income and minority students as the inner city district. The remaining "suburban" districts that enroll central city residents tend to have much smaller fractions of low income and minority students and tend to be suburban in character.

The substantial concentrations of black students in suburban school districts are a legacy of Texas' role as a major cotton producer and the heavy participation of first black slaves and then freedmen in its cultivation. Large numbers of blacks lived in the agricultural communities surrounding the central cities of what have become large metropolitan areas and significant numbers remained as these areas were converted from agricultural to urban use. Before Texas schools were desegregated following Brown, the children of these black families attended all-black schools. Since then they have attended integrated schools, although they tend to be concentrated in a few schools within each district. From this base, black enrollment in suburban schools has grown rapidly. The number of black children attending school in the suburban districts of the seven largest Texas metropolitan areas increased by 24 percent during 1992-1997, while black enrollment in the inner city districts of the same seven metropolitan areas declined by nine percent during the same period.

The Extent of Hispanic Suburbanization

The same data as were used to describe African American suburbanization are used below to describe Hispanic suburbanization during 1992-1997. Inspection of Table 3, however, quickly reveals an important difference relating to the different experiences of Ever Limited English Proficient (ELEP) and Never Limited English Proficient (NLEP) students. Because students who start school with limited English proficiency often learn enough English to lose their LEP designation, we define ELEP students as those who were classified as limited English proficient during any one of the six years from 1992 through 1997.

The number of students attending school in the seven largest metropolitan areas increased by 11.2 percent during 1992-97. This is nearly twice the rate of increase for black students. As Table 3 indicates, the number of Hispanic ELEP students grew by 15%, while the number of Hispanic NLEP students grew by 8 percent during the same period. The suburban share data (the last four columns) clearly show differences between the residential and schooling choices of Hispanic ELEP and NLEP families. The fraction of Hispanic students attending suburban schools rose by 28 percentage points for ELEP students and 14 percentage points for NLEP students. By 1997, fully 61% of Hispanic ELEP students and 65% of Hispanic NLEP students lived in the suburbs.

The second panel provides these same data for individual PMSAs. As they clearly demonstrate, the differences in the suburbanization of ELEP and NLEP students are quite different for each metropolitan area. For example in Houston, 51% of Hispanic ELEP students and 68% of Hispanic NLEP students live in the suburbs in 1997. In contrast, only 34% of Hispanic ELEP students and 59% of Hispanic NLEP students live in the suburbs of Fort Worth.

Suburban Districts by Black Enrollment

Tables 4 and 5 present further information on black suburbanization in Texas' four largest metropolitan areas. In contrast to the mobility data in Tables 2 and 3, which are for 1992 or 1997 and refer to grades 1-5 or 6-10, these estimates are based on TSMP data for grades 3-7 in 1995. As the data in Table 4 reveal, there are a total of 179 "suburban" districts in the four largest PMSAs.

The number of suburban districts varies greatly. Dallas PMSA, with 76 suburban districts, has the most and San Antonio, with 24 suburban districts, has the least. If the Dallas-Fort Worth CMSA is viewed as a single entity, it has two inner city districts and 112 suburban districts. Table 4 also reveals that only 14 of the 179 suburban districts, including seven in the Forth Worth PMSA and six in the Dallas PMSA 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 and 12 had between one and two thousand.

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 contains these shares for all four PMSAs combined, reveals that nearly half of all 3rd to 7th grade black students attending school in these PMSAs in 1997 were enrolled in inner city schools and half were enrolled in suburban schools. Examination of row one 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 PMSA'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, enrolls 20 percent of the PMSA's black 3rd to 7th grade students in 1995. None of the Fort Worth PMSA suburban districts have between one and two thousand black 3rd to 7th graders. The Dallas PMSA 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 PMSA's 3rd to 7th graders.

Changes in Racial/Ethnic Contact at the Campus Level

While the data presented above make it clear that rapidly growing shares of both African American and Hispanic students are enrolled in suburban schools in the seven largest Texas metropolitan areas, they could still mask extensive segregation by race and ethnicity. The exposure indexes in Table 6 provide important information relevant to this point. This index gives the campus racial/ethnic composition for the average member of each race/ethnic group. It should be noted that we have calculated exposure indexes for both all Hispanics and for Hispanic ELEP and Hispanic NLEP students separately. In comparing the exposure indexes for 1992 and 1997, it should be recalled that the 1992 data are for grades 1-5 while the 1997 data are for grades 6-10. Since, elementary schools are much smaller than middle schools and high schools and serve smaller residential areas, they are more likely to be segregated by race/ethnicity than middle schools and high schools. As a result, the trend towards lower levels of racial/ethnic concentration described below may be somewhat overstated.

The first panel in Table 6 presents campus level exposure indexes for the seven largest Texas metropolitan areas in the aggregate, as well as for the combined inner city districts and suburban districts in the same areas. The 1992 indexes for Asian Americans shown in the upper right hand corner of the table may be used to illustrate the interpretation of these figures. These data indicate that the average Asian-American attending public school in one of the seven largest metropolitan areas was enrolled in a school that was 9 percent Asian American, 15 percent African American, 20 percent Hispanic and 55 percent Anglo. When Hispanics are subdivided into ELEP and NLEP, nine percent of the students in are ELEP and 11 percent are NLEP. Comparisons of 1992 and 1997 indicate that on average schools attended by Asian American students became more African American, more Hispanic and less Anglo during this period.

The data for African Americans attending public schools in the seven largest metropolitan areas indicate that the school attended by the average African American in 1992 was 2 percent Asian American, 48 percent African American, 22 percent Hispanic and 28 percent Anglo. Between 1992 and 1997 the representative campus attended by African Americans, moreover, became less African American (from 48 percent in 1992 to 42 percent in 1997) and more Hispanic. A similar 1992-97 trend in exposure rates is evident for Hispanics. Mean Hispanic exposure to other Hispanics fell from 66 percent to 62 percent, while their exposure to Asian Americans, African Americans and Anglos all increased.

The bottom two panels in Table 6 present exposure rates for each race/ethnicity group separately for the inner cities and suburbs of the same seven large metropolitan areas. As these data clearly show, African Americans in suburban schools are much less likely to attend predominantly African American schools than those attending inner city schools. The average African American enrolled in a suburban district attended a school that was 29 percent black and 42 percent Anglo in 1997; the average African American enrolled in a inner city school, by comparison, attended a campus that was 56 percent black and only 11 percent Anglo.

The exposure rates for the seven largest metropolitan areas, not surprisingly, hide substantial variation among individual areas. Exposure rates for the same six race/ethnicity groups are shown in Table 7 for each of the four largest metropolitan areas. The exposure rates for African Americans in 1997 vary from an average African American concentration of 21 percent in San Antonio to 46 percent in both Houston and Dallas. African American exposure to Hispanics exhibits even greater variation ranging from 19 percent in Fort Worth to 46 percent in San Antonio. These differences are due principally to the large differences in overall Hispanic share among metropolitan areas.

How Much Better are Suburban than Inner City Schools?

Having established that large numbers of black and Hispanic 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. This question is difficult to answer, primarily because there is very little agreement about what constitutes a "better" school. Earlier analyses developed and assessed three measures of school quality: one was based on mean unadjusted test scores for each campus, while the other two attempted to correct these unadjusted scores for campus differences in socioeconomic composition.

The analysis of the effect of campus/grade mean achievement levels on the achievement of individual African American students presented at a later point in this paper use the mean unadjusted composite (math plus reading) z scores as its measure of school quality. These unadjusted mean scores probably come closest to what the general public relies on in making quantitative assessments of school quality. TEA makes mean campus and district passing and mastery rates for TAAS widely available and metropolitan and local papers routinely publish them as soon as they are released.

The most obvious objection to using unadjusted mean z 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. We present only the unadjusted measure here both to simplify the presentation and because earlier analyses suggest the inner city – suburban differences in unadjusted scores have a larger impact on the achievement of individual students inner city – suburban differences in adjusted scores.[5]

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[5] 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.

Suburban-Inner City Differences in Campus/Grade Composite Scores

Even though nearly half of the African American students attending public schools in Texas' seven largest metropolitan areas are enrolled in suburban schools, large numbers remain in low achieving inner city schools or, less frequently, in low achieving suburban schools. The upper part of Table 8 presents mean composite z scores by grade for inner city schools, in suburban schools and suburban-inner city differences for each of the states' four largest PMSAs. The lower panels provide these same statistics for inner city and suburban schools in the states seven largest PMSAs, in small metropolitan areas and for all rural and non-Metropolitan areas.

Suburban, inner city differences in mean composite scores 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 Dallas PMSA results from a combination of low DISD scores and high suburban scores. In contrast to the largest PMSA's, suburban-inner city differences, on average at least, are smaller for small metropolitan areas, ranging from .02 to .12 standard deviations. Mean rural scores range from .07 to .15 standard deviations while 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 mean campus/grade composite scores within both suburbs and inner cities. This conclusion holds in general and for the schools attended by African American students. One indication of this variability is demonstrated by Figure 1, which shows the percentages of inner city and suburban campuses for each of six fifth grade mean z score categories for the seven largest metropolitan areas. As these data reveal, only three percent of suburban campuses have mean z scores below –0.5, while 29 percent of inner city campuses fall below this level. At the opposite extreme, 12 percent of suburban campuses, but only five percent of inner city campuses, have mean unadjusted composite scores that exceed .5.

Table 9 provides more extensive information on the extent of inner city and suburban variation in school quality. The upper panel gives the percentages of black fifth grade students who attended schools of a given quality level for the seven largest PMSAs combined and individually for the four largest. The six school quality categories are intervals of campus mean composite z 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 PMSA's, 38 percent of blacks enrolled in suburban districts are enrolled at campuses with mean composite z scores below –0.5 as contrasted with only 6 percent of suburban blacks. The shares for all students are fairly similar. On the upper end, 8 percent of blacks enrolled in inner city districts studied at campuses with mean composite z scores above .25 as contrasted to only 21 percent of those attending suburban districts.

The figures for all PMSA's combined, not surprisingly, mask important differences among the seven largest PMSAs. Comparing the two largest PMSAs, Houston and Dallas, 53 percent of blacks enrolled in DISD attended schools in the lowest quality category as contrasted to 20 percent for Houston. In terms of access to higher quality schools, 52 percent of all black students enrolled in Dallas suburban districts attended schools with positive mean composite z scores as compared to only seven percent of black students enrolled in DISD. These same figures for the Houston PMSA are 43 percent and 28 percent.

The bottom panel of Table 9 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 five 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 PMSAs. In the case of Houston, blacks were 51 percent of all students in the worst Houston suburban schools and 54 percent of all students in the worst inner city schools. These 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 heterogeneity 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, as the inner city district. The shares for the San Antonio provide a reminder of the large differences in ethnic/racial composition among regions and metropolitan areas in Texas. African Americans are only 6 percent of fifth grade suburban enrollments in San Antonio and only 12 percent of San Antonio ISD enrollments. In contrast, African Americans were 17 percent and 11 percent of fifth grade suburban enrollments in Houston and Dallas and 40 percent and 53 percent of HISD and DISD fifth grade enrollments in 1994.

School Quality and Black Achievement

Preceding analyses have demonstrated that in 1997 there were more African

Americans enrolled in the suburban school districts of the seven largest Texas metropolitan areas than in their inner city districts and that the suburban share grew rapidly during 1992-1997. Second, the analyses confirmed the widely held impression that suburban schools are "better" than inner city schools. As earlier estimates demonstrate, their superiority is less when measured by either level or value added adjusted quality measures, which consider the characteristics of their individual students. We now consider whether blacks attending suburban schools do better than otherwise identical blacks enrolled in inner city schools.

To assess whether blacks benefit from attending higher quality suburban schools, we include our measure of school quality, the campus/grade composite mean z score, in the value added regressions for individual black students shown in Table 10. The campus composite scores used in these equations exclude each individual's score in calculating the campus mean for that individual.[6]

students with valid scores in both the current and previous year and predicted composite scores for those students who had valid scores in the current year, but not in the previous one. Most, but not all, of those 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 school quality coefficient is highly significant statistically in all four equations and tends 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. According to these estimates, a one standard deviation increase in the campus mean composite score for all black students would increase an individual African American's fourth grade score by .44 of a standard deviation and their seventh grade score by .22 of a standard deviation.

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 that the student received a free lunch. Students who received neither a reduced or free lunch 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. One year's increase in the age of black children in a particular grade reduces their composite score by between –0.06 (grade 7) and –0.11 (grade 4) of a standard deviation.

All four equations include two mobility variables. Within district moves are coded one for all students who attended a different campus in the same district in the previous year and zero for all others. District to district moves are coded one for all students who attended school in a different district and zero for all others. The signs of the coefficients of the two mobility variables are negative in all four equations and all but 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.

Earlier analyses 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 less often may result from parents' or students' dissatisfaction with a particular campus or disciplinary problems. In value added equations for reading obtained in earlier analyses for grades 4 through 7, transfers had a larger negative impact in the grade 5 and 7 equations and had the same quite large impact for grade 6. The opposite result was obtained for the remaining two grades. These equations also divided district to district and into-sample moves and as well as a variable for the number of within year moves. All of these types of mobility had a negative impact on individual student achievement.

As noted previously, very few black students are classified as LEP. Nonetheless, we include an LEP dummy in the black equations and it is large, 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, which is 0.5. The absolute value of the coefficient of ever special education tends to increase as grade level increases when the two special education coefficients are added together. Taking seventh grade as an example, adding the two coefficients (-.05 and –0.20) results in a combined special education effect of –0.25 of a standard deviation, while the combined special education effect is only .17 (-.22 + .05) for the fourth grade.

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 z scores in all four equations. In contrast to the consistent and statistically significant retained in grade coefficients, the coefficient of ever double promoted is only statistically different from zero for students in grade 4. Average days absent are 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 effects of absences on achievement tend to become smaller as grade level increases.

While there are numerous issues that might be raised about the school quality equations, they provide a strong prima facie case that the individual achievement of black children is strongly affected by differences in school quality. As earlier analyses demonstrate this result holds whether unadjusted or adjusted z scores are used.[7] We now turn to the question of how large and impact the previously discussed differences in mean composite scores have on black student achievement.

Estimated Impacts of Attending a Suburban Quality School on Black Achievement

The black school quality equations discussed in the preceding section provide what we described as a strong prima facie case that differences in school quality have a substantial effect on black student achievement. We now consider whether greater access by African American children to suburban quality schools would increase their achievement. To be more precise, we ask by how much the composite score of a representative black student would increase if he/she was able to attend a school with a mean composite score that is equal to the suburban average for his/her metropolitan area

[7] A recent paper by Rivkin, Hanushek and Kain (1997), that also employs data from TSMP, indicates, there appear to be large differences in standardized achievement gains within schools. The campus/grade mean composite scores used to measure school quality in this paper, however, are highly correlated across grades within the same campus. Thus, third grade versus fourth grade correlation for the 2,796 campuses with both grades 3 and 4 and more than nine students in the same grade is .75 and the correlation between fourth and fifth grade scores for the 2,721 campuses with both fourth and fifth grades and more than nine students in each grade is 0.79. About 1,100 campuses have both fifth and sixth grades and the correlation between their composite scores is 0.73. The number of campuses with seventh grade classes is much smaller. Only 1,384 campuses have more than nine seventh grade students. The number with both seventh grade classrooms and lower grades declines from 828 campuses with both seventh and sixth grade students, to 246 with both seventh and fifth grade students, to 201 with both seventh and fourth grade students and to 192 with both seventh and third grade students.

instead of one that was equal to the inner city average. This suburban quality school could, in principle, be located in the inner city, but, as Table 9 indicates, there are few inner city schools of this quality. In addition, if there were no constraints on black residential choice, we would expect many, if not most, African American parents with an interest in obtaining better schooling for their children to move to the suburbs before their children enter school, just as most Anglo parents do. In this regard, less than 20 percent of the 4,425 black cohort three children enrolled in Dallas suburban schools in 1997 attended DISD schools in 1992, more than half attended Dallas suburban schools in both 1992 and 1997 and 20 percent were not in the sample in 1992. The latter presumably lived in other states in 1992 or were enrolled in private schools.

Column 4 of Table 11 provides estimates of the composite achievement gains an individual black student would obtain by attending a school whose quality is equal to the suburban average for his/her PMSA instead of a school whose quality is equal to the inner city average. These estimates, which are net of the impacts of mobility on achievement, are obtained by multiplying the difference in mean suburban and mean inner city quality for a particular PMSA (column 2) times the school quality coefficients (column 3). The school quality coefficients are from Table 10, while the differences in mean suburban and inner city quality for each metropolitan area are from Table 8.

Taking this exercise at face value, it suggests that .30 of a standard deviation increase in composite achievement would accrue to black fourth graders who attend a school whose quality is equal to the Dallas suburban average rather than a school whose quality is equal to the DISD average. The smallest increase, 0.08 of a standard deviation increase in composite scores, is obtained for fifth graders who move to a school whose quality is equal to the Houston suburban average from one whose quality is equal to the average HISD school. Once again, these hypothetical moves do not take into account any decreases in achievement scores that might be due to changing schools. As indicated previously, the school quality equations in Table 10 include two mobility variables, which demonstrate that the impacts of mobility on individual achievement are significant. The negative impact of a within district move, for example, varies from 0.08 of a standard deviation (grade 5) and 0.20 standard deviations (grade 6). The impact of district to district moves is nearly as large, and for the seventh grade it is actually slightly larger, than for within campus moves.

The Impact of Campus/Grade Mean Scores on the Individual Achievement of Other Race/Ethnic Groups

The finding that an increase in school quality, as measured by the mean composite z scores of each campus/grade, increases the individual achievement of African American students by a significant amount leads to the obvious question of whether this result holds for other race/ethnic groups. As Table 12, which presents fifth grade school quality equations for Asian, black, Hispanic and Anglo children, reveals the answer is indisputably yes. The same school quality measure is included in the equations for all four race/ethnic groups. As in the black equations, individual z scores are netted out in calculating the mean campus/grade z score for each observation.

The results for Asians, Hispanics and Anglos are very similar to those presented in Table 10 for blacks. The fifth grade black equations are repeated to facilitate comparisons. The same equations for grades four, six and seven are included as

Appendix Tables A-1 through A-3. The most notable difference in the fifth grade equations, given the focus of this paper, is the larger size of the black school quality coefficient.

The next four variables are the two dummy variables for household income, the male dummy and student age. The coefficients for the low-income variables are not significantly different from zero in the black, Asian or Hispanic equations. Only in the case of Anglos are both of the income variables statistically significant, correct in sign and in of the expected relative magnitudes.

The results for the remaining variables are both consistent among race/ethnic groups and with expectations. The coefficient of the gender dummy is negative for all four race/ethnic, but is significantly different from zero for only two, blacks and Anglos. Older fifth grade students perform less well for all groups, even when retention in grade is included as a control variable. With the exception of Asians, both within and between district mobility, reduces student achievement. Asian, Hispanic and Anglo students who are LEP have lower achievement than those that are not. The LEP coefficient is identical in all three equations, -0.07, but has greater statistical significance in the Hispanic equation (t = -6.4) than in the Asian equation (t = -1.8) or Anglo equation (t = -1.0).

The equations include two special education dummy variables, ever-special special education and special education in the current year. Six of the eight coefficients are negative and significant statistically. Of the last three explanatory variables, ever retained and average days absent produce highly consistent results. The sign of ever retained is negative in all four equations and ranges from –0.01 (Hispanic) to –0.17 (Asian). Average days absent is highly significant and negative in all four equations, but its effect is small. Finally, ever double promoted is statistically significant in only the Anglo equation, where its coefficient is .17.

School quality coefficients for all four race/ethnic groups and grade are presented in the top panel of Table 13. The bottom panel expresses the coefficients for Asians, Hispanics and Anglos as a proportion of the black coefficient for the same grade and test (reading and math). 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 PMSAs The right side provides these estimates for the entire sample.

The difference in the size of the school quality coefficients is particular large for blacks and Asians. For the seven largest PMSAs, 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 PMSAs sample, is a ratio of 1.02 for fourth grade Hispanic students. 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 the ratios shown in the bottom panel of Table 12 demonstrate, the black school quality coefficient is larger than those for all other race/ethnic and grade categories except one, fourth grade Hispanic students. The estimates 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.

Conclusions

In sharp contrast to most northern metropolitan areas where very few black students attend public schools outside of inner cities, substantial numbers of black children living in the five largest Texas metropolitan areas (Houston, Dallas, Fort Worth, San Antonio and Austin) attend suburban schools. Indeed in 1997 almost one half of the black children enrolled in grades 6 through 10 in these metropolitan areas attended suburban schools. 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.

The paper also presents estimates of campus level exposure indexes for Asian Americans, African Americans, Hispanics (both all Hispanics and LEP and EP Hispanics separately) and Anglos. These estimates provide rather striking evidence that, in addition to the rapid suburbanization of minorities in large Texas metropolitan areas, racial balance has improved in both individual inner city districts and in the suburban districts that surround them.

Using standardized test data for a single cohort of students attending Texas public schools between 1992 and 1997, this paper provides information on the variation in school quality, where school quality is measured by grade/campus specific mean composite z scores. This index confirms the widely recognized fact that suburban schools on average are "better" than inner city schools, although 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 campus/grade mean composite scores. These analyses indicate that school quality (based on standardized test data for all students) has a substantial impact on the scores of individual 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 black achievement.

These school quality effects described above are cumulative. Each year’s gain in individual achievement from attending a higher quality school impacts achievement in the following year through the lagged achievement score, which has a large positive effect on the current year’s achievement. If the student continues to be enrolled in a higher quality school, he/she obtains a further gain through this year’s school quality coefficient. Because the suburban, inner city differences in mean composite scores vary among metropolitan areas, the size of these cumulative gains differs as well. In the case of the Dallas PMSA, the cumulative effect over a three year period (grades 5-7) of a black student attending a school with a mean composite score equal to the suburban average rather than the inner city average is 0.48 of a standard deviation. This is 75 percent of mean seventh grade difference in Anglo and black test scores. These same figures for the Houston PMSA are 0.28 of a standard deviation and 44 percent of the mean black-white gap in composite scores.

The paper’s final section 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 the effects appear in general to be smaller than the effects of school quality on the achievement of individual African-American students. The principal exception is the math scores of Hispanic students, where mean campus grade math scores have a larger effect on Hispanic scores than on black scores in all but the fourth grade.

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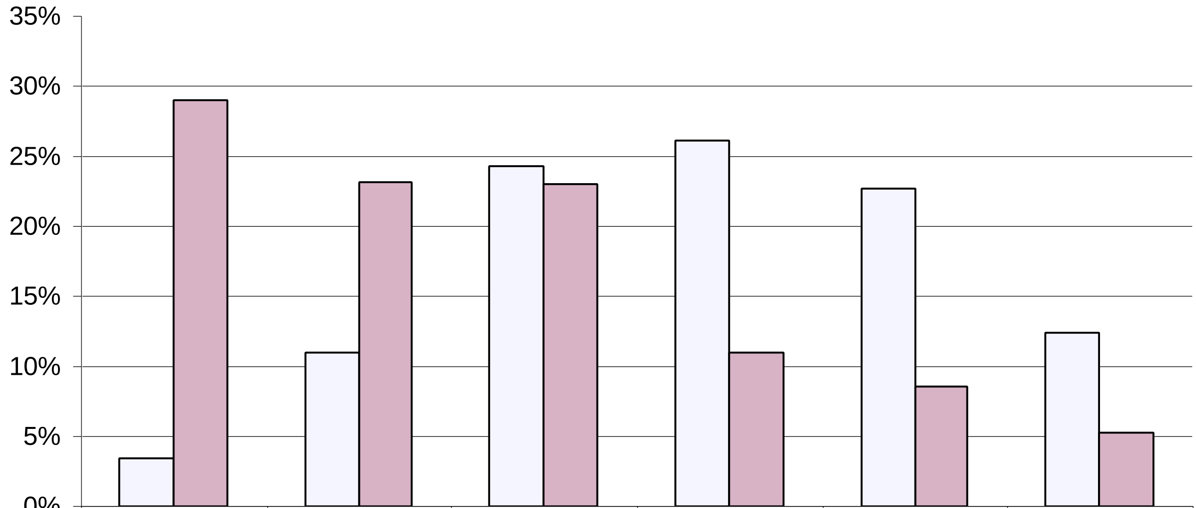
Figure 1. Share of Campuses by Fifth Grade 1994 Campus Average z-Scores by Type of District



	Less Than -.5	-.5 to -.25	-.25 to 0	0 to .25	.25 to .5	Greater Than .5
Suburbs	3%	11%	24%	26%	23%	12%
Central Cities	29%	23%	23%	11%	9%	5%

Table 1. Mean Composite z Scores and Percent without Scores by Ethnicity and Grade

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

Table 2. Changes in African American Enrollment 1992-1997 for Inner City and Suburban Districts in the Seven Largest Metropolitan Areas

PMSA/CMSA	Area	Number				Shares(percent)	
		1992	1997	1997 minus 1992	Percentage Change	1992	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
Houston CMSA	Suburban	30,242	37,482	7,240	24	50	59
	Inner City	30,255	25,845	-4,410	-15	50	41
	ExUR	5,777	6,049	272	5		
	All	66,274	69,376	3,102	5	100	100
Dallas PMSA	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 PMSA	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
San Antonio PMSA	Suburban	5,004	6,314	1,310	26	64	72
	Inner City	2,876	2,475	-401	-14	36	28
	All	7,880	8,789	909	12	100	100
Small PMSAs	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
Total		201,985	211,434	9,449	5	N/A	N/A

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

Table 3. Enrollment of Ever Limited English Proficient (ELEP) and Never Limited English Proficient (NLEP)Hispanic Students in 1992 and 1997, Percentage Changes and Shares by Area

PMSA/ CMSA	Area	Number in 1997		Percent Change 1992-1997		Shares(percent)			
		ELEP	NLEP			ELEP		NLEP	
				ELEP	NLEP	1992	1997	1992	1997
Seven Largest Metro Areas	Sub	74,722	114,826	28%	14%	45%	61%	51%	65%
	CC	72,637	61,713	4%	-3%	55%	39%	49%	35%
	All	147,359	176,539	15%	8%	100%	100%	100%	100%
Houston CMSA	Sub	26,247	26,404	39%	17%	41%	51%	62%	68%
	CC	25,493	12,471	-5%	-10%	59%	49%	38%	32%
	ExUR	2,789	5,834	30%	11%	NA	NA	NA	NA
	All	54,529	44,709	14%	8%	100%	100%	100%	100%
Dallas PMSA	Sub	11,160	12,900	44%	23%	33%	38%	61%	67%
	CC	18,084	6,432	15%	-3%	67%	62%	39%	33%
	All	29,244	19,332	25%	13%	100%	100%	100%	100%

Table 4. Number of Suburban Districts by Black Enrollment in 1995 for the Four Largest PMSAs

(All Five Cohorts, Grades 3-7).

	Number of Suburban Districts				
Black Enrollment	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 PMSA Black Enrollment in Inner City and in Suburban Districts by Black Enrollment in 1995

(All Five Cohorts, Grades 3-7).

	Share (Percent) of All African American Students				
Black Enollment	Houston	Dallas	Fort Worth	San Antonio	All
Central City	44%	55%	61%	30%	49%
Suburbs by Number of Blacks Enrolled					
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%

2.4858.5.48

Table 8. Mean Composite z Scores by Inner City District and Suburban District by Area

Central City and Suburbs by PMSA	Mean Composite M&R (z) Scores			
	Grade 4	Grade 5	Grade 6	Grade 7
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
San Antonio				
Suburbs	-0.07	-0.05	-0.06	0.00
SAISD	-0.67	-0.52	-0.66	-0.53
Sub-CC	0.60	0.47	0.60	0.53
Largest Seven				
Suburbs	0.14	0.12	0.15	0.17
Inner City	-0.25	-0.20	-0.27	-0.25
Sub-CC	0.39	0.32	0.42	0.42
Other Areas				
SmMetSub	-0.03	-0.01	0.04	0.01
SmMetCC	-0.08	-0.03	-0.07	-0.11
Rural	0.10	0.07	0.18	0.15
NonMetro	0.03	0.01	0.03	0.08

Table 9. Percent Distribution and Black Shares of Fifth Grade Suburban and Inner City Students by Campus Composite Z Scores by PMSA and for the Seven Largest PMSAs in 1994

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

Table 10. Black School Composite Quality Regressions by Grade for Seven Largest PMSAs (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 11. Predicted Differences in Individual African American Composite Z Scores Due to Differences in Campus/grade Composite Scores for the Four Largest Metro Areas

(Suburban minus Inner City for the Same Metropolitan Area)

Metropolitan Area and Grade	Difference in School Quality (Suburban minus Inner City)	Composite Scores	
		School Quality Cofficients	Gains
Houston			
Grade 4	0.36	0.44	0.16
Grade 5	0.27	0.31	0.08
Grade 6	0.38	0.31	0.12
Grade 7	0.39	0.22	0.09
Dallas			
Grade 4	0.68	0.44	0.30
Grade 5	0.62	0.31	0.19
Grade 6	0.51	0.31	0.16
Grade 7	0.54	0.22	0.12
Ft. Worth			
Grade 4	0.45	0.44	0.20
Grade 5	0.34	0.31	0.10
Grade 6	0.50	0.31	0.15
Grade 7	0.47	0.22	0.10
San Antonio			
Grade 4	0.61	0.44	0.27
Grade 5	0.48	0.31	0.15
Grade 6	0.60	0.31	0.19
Grade 7	0.54	0.22	0.12

Table 12. Regressions on Fifth Grade Composite Scores for All Students by Race Ethnicity (Huber-White adjusted t statistics)

Variables	Black		Asian		Hispanic		Anglo	
	Coef.	t	Coef.	t	Coef.	t	Coef.	t
Lagged Score	0.96	17.9	1.05	6.0	0.89	21.1	0.58	15.7
Lagged Score Sq	-0.02	-4.2	-0.03	-2.0	-0.01	-3.9	0.01	4.1
Pred Lag Score	0.82	11.1	0.65	3.0	0.74	14.0	0.31	6.6
Pred Lag Score Sq	0.00	0.1	0.03	1.3	0.01	0.9	0.05	9.7
School Quality	0.31	27.6	0.19	7.3	0.29	34.4	0.29	45.7
Low Income	0.02	1.1	0.02	0.6	-0.01	-1.0	-0.03	-3.2
Very Low Income	-0.01	-1.4	0.02	0.9	0.00	-0.2	-0.05	-6.5
Male	-0.03	-3.8	-0.01	-0.7	-0.01	-1.2	0.02	4.1
Age	-0.08	-6.9	-0.03	-1.7	-0.09	-12.4	-0.07	-13.1
Within Dist Move	-0.08	-7.6	0.03	1.4	-0.05	-6.4	-0.06	-11.3
Dist to Dist Move	-0.04	-2.1	0.05	1.5	-0.03	-2.9	-0.02	-3.2
LEP	0.20	1.7	-0.07	-1.8	-0.07	-6.4	-0.07	-1.0
Ever Special Ed	-0.18	-9.0	-0.10	-2.1	-0.15	-1.1	-0.06	-8.0
Now Special Ed	-0.02	-0.7	-0.18	-2.4	-0.14	-6.6	-0.14	-11.6
Ever Retained	-0.08	-3.4	-0.17	-2.1	-0.01	-0.9	-0.10	-5.7
Ever Dbl Promoted	0.00	0.0	0.14	0.8	-0.02	-0.4	0.17	3.2
Avg. Days Absent	0.00	-4.4	-0.01	-1.9	-0.01	-13.7	0.00	-7.2
Constant	0.02	0.1	0.19	0.3	0.52	3.4	1.22	8.9
R Square	0.54		0.57		0.57		0.59	
Observations	23,031		4,299		41,894		76,356	

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

Table 13. Campus/Grade Composite Score Coefficients from the Individual Composite Quality Equations by Grade and Race/Ethncity for All Students

(Ever in One of the Seven Largest PMSAs and the Entire Sample)

Grade	One of Seven Largest PMSAs				Entire Sample			
	Black	Asian	Hisp	Anglo	Black	Asian	Hisp	Anglo
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
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 A-1. Asian School Composite Quality Regressions by Grade
(Seven Largest PMSAs)
(Huber-White adjusted t statisics)

Variables	Grade 4		Grade 5		Grade 6		Grade 7	
	Coef	t	Coef	t	Coef	t	Coef	t
Lagged M&R	-0.16	-1.0	1.05	6.0	0.39	2.8	1.14	8.3
Lagged M&R Sq	0.08	5.6	-0.03	-2.0	0.03	2.6	-0.04	-3.6
Pred Lagged M&R	-0.11	-0.6	0.65	3.0	-0.06	-0.4	0.66	4.2
Pred Lag M&R 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 PMSAs)

(Huber-White adjusted t statisics)

	Grade 4		Grade 5		Grade 6		Grade 7	
Variables	Coef	t	Coef	t	Coef	t	Coef	t
Lagged M&R	-0.77	-22.3	0.89	21.1	0.05	1.7	0.85	27.1
Lag M&R Sq	0.13	41.2	-0.01	-3.9	0.06	21.5	-0.01	-3.0
Lag Span M&R	-0.81	-23.0						
Lag Span M&R Sq	0.12	32.8						
Pred Lagged M&R	-0.67	-14.6	0.74	14.0	-0.02	-0.6	0.74	18.2
Pred Lag M&R 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	-0.01	-1.3
Constant	4.24	34.5	0.52	3.4	2.82	21.8	0.90	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 PMSAs)

(Huber-White adjusted t statisics)

	Grade 4		Grade 5		Grade 6		Grade 7	
Variables	Coef	t	Coef	t	Coef	t	Coef	t
Lagged M&R	-0.71	-18.5	0.58	15.7	0.21	6.9	0.99	3.8
Lagged M&R Sq	0.13	39.8	0.01	4.1	0.05	18.4	-0.02	-8.4
Pred Lagged M&R	-0.76	-16.3	0.31	6.6	-0.13	-3.4	0.66	16.3
Pred Lag M&R 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	6.0
R Square	0.52		0.59		0.63		0.67	
Observations	75,390		76,356		77,423		77,444	