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The Geography of Inequality: Why Separate Means Unequal in American Public Schools*

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Abstract

Persistent school segregation does not only mean that children of different racial and ethnic backgrounds attend different schools, but their schools are also unequal in their performance. This study documents nationally the extent of disparities in school performance between schools attended by whites and Asians compared to blacks, Hispanics, and Native Americans. It further examines the geography of school inequality in two ways. First it analyzes the segregation of students between different types of school profiles based on racial composition, poverty and metropolitan location. Second it estimates the independent effects of these and other school and school district characteristics on school performance, identifying which aspects of school segregation are the most important sources of disadvantage. A focus on schools at the bottom of the distribution as in No Schools Left Behind would not ameliorate wide disparities between groups that are found run across the whole spectrum of school performance.

The principal question raised by most research on racial segregation in schools is whether children of different racial and ethnic background attend different schools. Many studies have traced the trends in segregation, which persists at fairly high levels despite substantial desegregation of schools in the 1970s in the wake of the *Brown* decision (Clotfelter 2004; Logan, Oakley, & Stowell, 2008). While documenting trends, researchers emphasize that segregation is important not only because it separates children but because it leaves minority children in inferior schools (Orfield and Yun 1999). If many children are being “left behind” in public schools, one hard fact is that those children are disproportionately minorities. Yet until recently it has not been possible to measure these inequalities at a national level. That is our purpose here. We ask what schools minority children attend and how those schools are performing.

The assumption is that, all else equal, it is advantageous to attend a school where more students are successful. This is why, for example, the No Child Left Behind Act (NCLB) signed into law in 2002 introduced mechanisms to identify “failing schools” (Borman et al., 2004). We take advantage of the testing requirements of that legislation to offer a national-level accounting of the performance disparities in the schools attended by white and minority children. We then explore the sources of these disparities, examining what kinds of schools are children of different race/ethnicity attending and how various school characteristics are associated with overall school performance.

There is no doubt about the extent of racial/ethnic disparities in educational outcomes for individual students (Jencks & Phillips, 1998; Hallinan, 2001; Henderson, 2002; Maruyama, 2003; and Rumberger & Palardy, 2005). One review of recent results from the National

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Assessment of Educational Progress (NAEP) showed that nationwide only 54 percent of black students performed at or above the basic level on the 2003 eighth grade reading exam compared to 87 percent of white students (Stiefel et al., 2008, p. 527). Drop out rates are much higher among black and Hispanic students than among white and Asian students (Mickelson, 2003). It is less clear how these differences may be related to the characteristics of the schools that children attend. There has long been a suspicion that school segregation is somehow a factor. In the landmark 1954 case of *Brown v Board of Education of Topeka*, the U.S. Supreme Court officially declared that the 'separate but equal" doctrine established 58 years earlier in *Plessy v Ferguson* had no place in the field of public education (Whitman, 1998). Racially segregated schools, according to the Court, were inherently unequal. There was little empirical basis at the time for this claim. We provide new evidence based on schools' performance in standardized tests, taking into account racial composition as well as other characteristics of schools such as poverty, location in central city, suburban or non-metropolitan settings, and the demographic composition of local residents.

What schools do minority students attend?

It is widely reported that minority students attend worse schools than non-Hispanic whites (Bankston & Caldas, 1998; Roscigno, 1998), though few studies have had direct measures of school-level outcomes. An exception is Crosnoe (2005) who analyzed data on a national sample of kindergarten students, finding that Mexican kindergarteners were in schools with more minorities, higher student poverty levels, lower teacher experience, larger size, and worse community locations than white and Asian students, even after controlling for individual-level characteristics that might have been expected to produce such disparities. Hanushek and Rivkin (2009), drawing on the extensive data base of the Texas Schools Project, found that black students attend schools with a less experienced teaching staff than white students, and that this factor has a significant impact on widening black-white performance differentials between elementary and middle school.

There is more evidence that minority children are more likely to be in high poverty schools. Saporito and Sohoni (2007) found that unlike the typical white child, who attends a public school in which most of the children are above the poverty line, the typical black or Hispanic child attends a public school in which most of the children are below the poverty line. Orfield & Lee (2005) pointed out that more than 60 percent of black and Hispanic students attend high poverty schools (defined as more than 50 percent poor). Only 18 percent of white students and 30 percent of Asian students attend high poverty schools. Logan (2002) reported that non-Hispanic whites on average attended public elementary schools where 30% of students qualified for free/reduced price lunches, compared to 65% for schools attended by the average black student and 66% for the average Hispanic student.

Black and Hispanic students are also more likely to attend city schools. The 24 largest central cities (with 4.5 million students) have an enrollment that is more than 70 percent black and Hispanic (Orfield & Lee, 2005). In 20 of these districts the student population is 90 percent black.

Which schools have higher student performance?

A considerable literature examines how various aspects of the school population, the school district, and school organization affect learning outcomes. Several key factors are highly inter-related: the racial/ethnic composition of the school, poverty level, location in the central city or suburbs, and immigration. In addition some research has focused on how schools are organized: their size and grade levels. The most sophisticated studies use multilevel analyses, evaluating contextual effects on individual children's outcomes after controlling for their personal characteristics. For our purpose, even simpler designs based on school-level data are relevant.

Many scholars have sought to evaluate the effect of racial segregation on performance (Mercer & Scout, 1974; Wells & Crain, 1994; Schofield, 1995; Cutler & Glaeser, 1997; Rumberger & Palardy, 2005; Bilfulco & Ladd, 2006; Armor 1995; Orfield & Eaton, 1996). Several studies suggest a direct and independent effect of racial composition on student performance. Bankston and Caldas (1996, 1997) and Rumberger and Williams (1992) showed that minority concentration is associated with lower achievement on standardized tests. Academic outcomes are generally better for blacks in racially integrated schools (Dawkins & Braddock, 1994; Armor, 2002). Stiefel finds that the achievement gap between white and non-white school children is greatest between racially segregated schools (Stiefel et al., 2008). Card and Rothstein (2005) concluded that segregation continues to be a major obstacle to equal educational opportunities for minority children and a source of gaps in academic achievement.

Of course the racial composition of schools is strongly correlated with other school characteristics, such as class composition. The classic study of school effects, the Coleman Report (Coleman et al., 1966) provided evidence that the racial isolation of black children in majority minority schools is associated with lower academic achievement. But Coleman demonstrated that these racial differences were primarily attributable to socioeconomic differences between races. He argued that predominantly white schools tended to enroll students from higher socioeconomic backgrounds and it was for this reason that these schools' academic performance was better than that of predominantly minority schools. He found, in short, that apparent contextual effects were really compositional (see also Hauser, Sewell & Alwin, 1976). If there was a contextual effect, in Coleman's view, it was the effect of class composition. A recent study of this question (Chaplin, 2002) found that the concentration of poverty within a school is negatively associated with student performance and later outcomes, even after controlling for a student's own family background (see also a number of prior studies, including Chubb & Moe, 1990; Jencks & Mayer, 1990; Gamoran, 1996; and Lee & Smith, 1997).

Another relevant factor is metropolitan location, which is related to both racial and class composition and strongly associated with educational outcomes. For example, Swanson (2008) found that high school graduation rates are 15 percentage points lower in the nation's urban schools compared with those located in the suburbs. And in 12 cities, nine of which are in the Northeast and Midwest, the city-suburban graduation gap exceeds 25 percentage points. In addition to the contextual effects of concentrated poverty, it is argued that poor central city schools are more likely to have inadequate resources and funding as well as a less qualified teaching staff compared to suburban school systems (Hochschild & Scovronick, 2003; Eaddy et al., 2003).

There has been considerable discussion of whether immigration has an independent effect on school performance, apart from the observed differences related to the Hispanic and Asian shares of the student population. Most studies have been conducted at the individual level, but they have clear implications for school level relationships. Immigration appears to be a positive factor, as immigrant youth or those with immigrant parents tend to perform better than otherwise similar native-born students (Fuglini, 1997; Zhou and Bankston, 1998; Portes and Rumbaut, 2001; Glick and White, 2003). Schwartz and Stiefel (2006) reported an immigrant advantage over native-born students on test scores in New York City. A subsequent analysis (Conger, Schwartz and Stiefel 2007) found that they also have higher attendance rates and are less likely to be enrolled in special education classes. Scholars point to strong traditional family and community ties among some immigrant groups as well as a strong emphasis on education as a means of advancement as protective factors (Zhou and Bankston, 1998; Portes and Zhou 1993).

Research design

This study includes all public schools in the United States for which relevant data are available from national sources. It draws on school results on statewide standardized tests for 2004, data about public elementary schools gathered by the National Center for Education Statistics, and data about the school district populations from the 2000 census.

The testing data are from reading and mathematics tests for elementary, middle and high school grades. Data are drawn from the state school report cards assembled by the School Matters project of the National Education Data Partnership. This is a collaborative effort of the Council of Chief State School Officers, Standard & Poor's School Evaluation Services, the CELT Corporation, the Broad Foundation, the Bill & Melinda Gates Foundation and the U.S. Department of Education to provide school-level performance data for every public school in the country (http://www.schoolmatters.org). In most cases the elementary tests are for the fourth grade; where that is not available, we selected the closest available grade. Middle school test scores in most cases are for the eighth grade, and high school test scores for grade ten. It is well known that the content and scoring of tests varies widely across states. For the purpose of making comparisons across states, it would be necessary to use other sources such as the National Assessment of Educational Progress (NAEP). However NAEP includes only a limited sample of U.S. schools and a sample of students within those schools. In order to describe patterns across the universe of schools, we have recalibrated these data as percentiles of school performance within each state. This allows us to make comparisons across schools in different states, because the reference point in every case is how the school's performance ranks in relation to other schools in the same state.[1] We cannot say that students in a school at the 80th percentile in one state are learning at the same level as those in a school at the 80th percentile in another state, because these scores are based on different tests. But being at the 80th percentile has a similar meaning in relation to peer schools in every state, and in this sense the performance measures are standardized.

NCES (http://nces.ed.gov/ccd) provides several requisite characteristics for each individual public school. Data on the number of students by race/ethnicity and grade are used to compute total school size, whether elementary students (grades K-6) are in the same school with students in higher grades, and the racial/ethnic composition of the grade for which test results are used. Race/ethnicity is reported in the following categories: non-Hispanic white, black, Hispanic, Asian, and Native American/other races. NCES also reports for most states the number of students who are eligible for free or reduced price lunches, which we use as an indicator of poverty.

Census 2000 included tabulations of population characteristics for school districts that are not available for individual schools. We use the percentage of district residents who are foreign-born as the indicator of immigrant population for each school in the district. We make use of two other population measures at the district level: the share of residents over age 25 with at least some college education, and the share of single-parent households.

[1]There are other ways to assess relative ranking within a state. Compared to percentiles, the alternative of using z-scores (standardizing by the mean and standard deviation within the state) would tend to reduce differences between schools with similar scores near the middle of the distribution and accentuate the high or low values at either tail. It is likely that our approach is therefore somewhat conservative in measuring the disparities across groups, since whites/Asians and other groups tend to lie at opposite ends of the distribution. One disadvantage of using z-scores is that school test scores are not normally distributed. For example, for 4th grade reading in Texas, the state with the largest sample of elementary schools, scores have a significant negative skewed. However choice of statistic is unlikely to have much effect on the results: the correlation between z-scores and percentiles in this case is .935.

Finally the metropolitan location of the school (central city, suburban, or non-metropolitan) was coded based on the school's zip code using the Census Bureau's geographic definitions as of 2000.

We report only for schools with valid test score data, and this sample is different for reading and math tests. Some states did not report test scores. We are missing high school reading and math for Arkansas, Connecticut, Maryland, North Carolina, Oklahoma, Oregon, South Carolina, and Tennessee. We are missing middle school and elementary math for Ohio. Because the reading scores at the elementary level are available for the largest share of schools, we use these scores for some of the more detailed analyses presented below. Test scores are not made public for the smallest schools, and they are most often missing for special schools and charter schools. Nevertheless this study has very complete coverage of the nation's public schools, as shown in Table 1: approximately 45,000 elementary schools, 21,000 middle schools, and 14,000 high schools. Of 93,050 schools in the NCES Common Core of Data for 1999–2000, this study analyzes reading scores for 81,437 schools and math scores for 78,320 schools. Test scores for schools are grade-specific, as are the number of students by race and ethnicity. Other school characteristics (e.g., eligibility for reduced price lunches) are for the entire school. Many schools (such as K-12 schools) include a wide range of grade levels and they are included in the analysis as separate cases for the elementary, middle, and high school grades for which they provide test data. This does not cause problems of autocorrelation because no school is included more than once in any model estimate.

Disparities in outcomes in the schools attended by different groups

Table 1 displays the average percentile rankings of schools in which students of different backgrounds are enrolled. These are average values for schools, weighted by the number of students of a given group in the grade level that was tested. They are equivalent to p* exposure indices: the value for the school that the average group member attends. These data show a high level of disparities across groups at every grade level and in both reading and mathematics. Note that these scores are not group-specific but are a characteristic of the school as a whole.

The reading scores for elementary students reflect the general pattern. The highest values are for white and Asian students, who on average attend schools at close to the 60th percentile in their state. Values for Native Americans and Hispanics are considerably lower, around the 40th percentile, and black students on average attend schools at the 35th percentile. There is only small variation on different measures. For example, for high school mathematics, Asians attend schools that score five points higher than those attended by white students. But on every measure whites and Asians are found to be in the best performing schools, and black students in the worst, with Hispanics and Native Americans closer to the black values than to those of whites or Asians.

A more complete portrait of the disparities across groups is provided in Figure 1, which shows the distribution of students in each group across schools by the schools' percentile on the elementary reading test. The curves for mathematics tests and for other grade levels are quite similar. Note that the non-Hispanic white and Asian curves are very close to one another and contrast sharply with the curves for blacks, Hispanic, and Native Americans. One can read from this figure, for example, that the only about 8% of non-Hispanic white students and 12% of Asian students are in schools below the 20th percentile while nearly 30% of them are in schools above the 80th percentile. The strongest contrast is to black students, about 40% below the 20th percentile and less than 10% in schools above the 80th

percentile. The space between the curves represents the disparity between groups across the whole distribution of students.

Table 2 returns to using the mean value to represent performance of schools attended by students in each group. It introduces controls for two variables that have been prominent in the literature on school disparities: the level of poverty in the school (divided into three similar-sized categories) and the school's location in city, suburban, or non-metropolitan areas. To limit the size of the table, values are only shown for elementary schools, but similar patterns are found for middle schools and high schools. The sample size for this table is reduced due to missing data on poverty; it covers 40,917 schools for reading and 39,155 schools for math. The table shows the number of schools for each combination of location and poverty. Note that although these attributes are strongly related (e.g., higher poverty schools tend to be found in the central cities) there are nonetheless many low-poverty central city elementary schools and many high-poverty suburban elementary schools in the nation.

Both of these factors clearly are related to disparities across groups in school performance, but the key role is played by poverty. Looking only at schools in the same metropolitan location, there are very strong differences associated with the poverty level. Consider for example the math performance of schools attended by Asians in the suburbs. Their highest poverty schools are at the 38th percentile, compared to the 55th percentile for medium poverty schools and the 77th percentile for low poverty schools. This gap of 39 points is even greater than the overall difference between black and Asian students' schools (less than 30 points).

In contrast, once controlling for poverty level, there are much smaller and very inconsistent differences between city, suburban and non-metropolitan schools. In some comparisons the suburban schools are actually the worst performing. In many cases, especially among high poverty schools, it is the non-metropolitan ones that have the highest scores. Of course (not shown here), suburban schools are the least likely to be high-poverty, and so on average they have higher performance. But this result seems to be a byproduct of the relative affluence of suburban zones.

Adding these controls also diminishes the differences across groups. Most often but not always white and Asian students are still found to be in higher performing schools within every combination of poverty and location. Typically the gap between the highest and lowest group is no more than 10 or 15 points. (An exceptional case is for reading scores in low-poverty city schools. In this category of schools, Hispanics are found on average in schools at the 48th percentile, 31 points below Asians, 29 points below whites and Native Americans, and 16 points below blacks.) Hence table 2 seems to suggest that most racial-ethnic disparities are linked not so much to the racial composition of schools as to their levels of poverty.[2]

School profiles and test scores

In order to understand the disadvantages faced by black, Hispanic, and Native American children in the schools that they attend, we could consider each of these findings separately. What is the average racial composition of their schools, or poverty level, or some other

[2]These observations are supported by an analysis of covariance (not shown) in which the percentage of black, Hispanic, Asians, and Native American students are included as covariates along with the direct effects of the categories of poverty and location. The joint effects of all predictors taken together (treating racial composition as a set of covariates, the percentage of students in each minority category) are powerful, explaining 32–34% of the variance in schools' test scores. Because the predictors are strongly intercorrelated, no single variable by itself (entered as the last predictor in the model) explains a large portion of variance. However in models for both reading and math, the largest direct effects are for poverty (responsible for 4–5% of the variance), percent black (6%), and % Hispanic (4%). Much smaller shares are explained by the remaining predictors, although all are statistically significant.

distinct factor? We could then add up the disadvantages. But these predictive factors are not actually independent but tend to cluster together. Our approach is to investigate the typical profiles of school characteristics that result from this clustering.

An appropriate method for this purpose is latent class (LC) models in which it is assumed that observed variables are indicators of discrete unobserved (or latent) variables. In exploratory LC analysis, schools are assumed to belong to one of a set of K latent classes, with the number of classes and their sizes not known a priori. Each school is assumed to belong to one class or cluster, and its class-membership probabilities are computed from the estimated model parameters and the observed scores. We employ the program Latent GOLD (Vermunt and Madison 2000). Model selection is based on BIC, computed using the log-likelihood value and the number of parameters.

Latent GOLD can be used with both discrete variables (metropolitan location) and continuous variables (the share of students in each racial/ethnic group and poverty). We limit the analysis to elementary schools. The best fitting model has six clusters, and these are described in Table 3. The table lists the proportion of schools that fall into each cluster, and provides descriptive information about the schools in each one. For convenience, at the bottom of the table is a brief summary of these profiles.

Several of these clusters seem both to confirm widely used stereotypes of disadvantaged schools and also to add complexity to them. Cluster 3 corresponds well to the profile of a poor inner-city black school, with the proviso that such schools are not only found in the central city but also in some suburban and non-metropolitan locations. Cluster 1 may reflect the impact of heavy immigration into some formerly black schools and also in some non-black suburban areas, resulting in predominantly Hispanic schools with high proportions of black and white students and high poverty rates. Cluster 6 corresponds to a situation of disadvantage that is less often discussed, the poverty of predominantly non-metropolitan schools with unusually large shares of Native American students.

There are also two profiles of apparently advantaged schools (low poverty rates) that enroll mostly white students, Clusters 2 and 5. Cluster 2 is mainly suburban (72%), with few minority students (less than 5% of any racial/ethnic group). Cluster 5 is exclusively white and found mainly in non-metropolitan locations (50%), but also in some suburban areas (47%).

The remaining profile (Cluster 4) is also relatively affluent but not so exclusively white. Its Asian share is disproportionately high in relation to the size of the Asian population overall. Since it is still majority white, but with substantial shares of blacks, Hispanics and Asians, this cluster appears to be the type that offer most opportunities for minority students to enroll in non-poverty, non-central city schools.

Who attends which schools?

Table 3 offers strong hints about how children of different racial/ethnic backgrounds are distributed across schools, since racial/ethnic composition is a component of the profiles. We do this calculation more directly in Table 4, and if anything the result magnifies the disparities across groups. Table 4 shows what share of elementary children of each group attend each type of school.

Most striking are the concentrations of black, Hispanic and Native American students in one or two high-poverty school clusters. Almost three-fourths of black students are in the high-poverty schools with the profiles of Clusters 1 and 3, and more than half of Hispanic students are in Cluster 1. Approximately three-fourths of Native Americans are in the remaining high-poverty Cluster 6 schools.

In contrast, half of Asian children are in the low-poverty Cluster 4, and most of the rest are evenly distributed between the lowest-poverty Cluster 2 and the high-poverty Cluster 1 schools. White children are spread across more types of schools, nearly a third in the somewhat diverse Cluster 4 schools, but 50% in Clusters 2 and 5 that have relatively few black and Hispanic students.

How are these characteristics related to school performance?

These analyses provide a basis for understanding why black, Hispanic, and Native American students' schools perform so much worse than those attended by whites and Asians. They are highly concentrated in the three types of schools with the highest levels of poverty despite some diversity in terms of metropolitan location.

A more complete examination of predictors of performance of schools is offered in the multivariate analysis in Table 5. This method seeks to sort out the relative effects of each predictor after controlling for others. A significant "effect" does not, however, show that there is a causal relationship. Here we include the school characteristics used in the cluster analysis, and add some additional variables. The district's percentage of foreign-born residents, education level (age 25 and over), and the share of single parent households (of all households with children under 18) are of interest as dimensions of socioeconomic status that are associated with poverty but may have independent effects. Two organizational factors, school size and grade configuration, have been postulated to affect school performance. It has often been speculated that large schools are less effective, and there is some evidence for this hypothesis especially for schools with larger shares of low-income students (Weiss and Kipnes 2006; McMillen 2004; Bickel, Willams and Glascock 2001; Friedkin and Necochea 1988). Another concern of educators is whether mixing elementary students with older youth (as in a K-9 or K-12 school) is educationally disruptive. However Weiss and Kipnes (2006) found that once school size was taken into account, grade configuration had no significant effect on student outcomes.

The t-tests show that many but not all of the predictors are statistically significant (robust standard errors are used to correct for clustering of schools within districts). The models explain 35–37% of the variance in schools' test scores. Racial/ethnic composition matters substantially (the white share of students is omitted from the model to avoid multi-collinearity). The larger the share of black, Hispanic or Native American students, the lower the performance of the school. To take examples of large but not uncommon differences, comparing two otherwise equivalent schools in which one is 10% minority and 90% white and the other is 90% minority and 10% white, the latter school is predicted to be about 15 points lower in its reading and mathematics percentile standing.

Of course schools with such different racial compositions are unlikely to be equivalent in other respects, especially the concentration of poverty. Poverty has a strong independent association with test scores that is even greater than the effect of racial composition. Compare, for example, the case of a school were 30% of students are eligible for the free/reduced price lunch program (which is a typical value for white students) vs. a school where 65% are eligible (the value for the average black or Hispanic student). This 35-point difference in poverty predicts about a 10-point difference in the school's test percentile.

Having controlled for racial/ethnic composition and poverty, we find no effects of being a central city or non-metropolitan (vs. suburban) school. Metropolitan location is only related to school test performance by virtue of its usual association with poverty or racial composition. School size has a significant but small effect. Another school characteristic that has received much less attention, the range of grades in the school, has larger effects. Schools that include non-elementary grades (such as K-8 or K-12 schools) are predicted to be about 2 points lower in performance.

These models also take into account some characteristics of the district population that are not available for the school. There is a significant effect of the share of adults in the district who are college educated, in addition to the school poverty effect that was already noted. Single parent households also have a negative impact, though much smaller. And there is no net effect of foreign-born population, negating previous findings about human capital in immigrant communities.

Discussion and conclusion

This is the first national-level study at all grade levels to look beyond the racial segregation of schools to the question of inequalities in performance of schools that children of different race and ethnicity attend. Our concern is the geography of opportunity. We have no information on group-specific test scores. Rather we are identifying the schools that children are taught in. In the unlikely event that school test scores are a function only of the ability or willingness to learn of the students who attend them, these results would have little interest. However our assumption is that attending a school in the 60^{th} percentile of the distribution provides a significant advantage for the educational future of a child in comparison to attending a school in the 35^{th} percentile. And that is the order of magnitude of differences that we find here. Public schools are not only separate but also unequal.

The key result is the simple accounting of disparities presented in Table 1. Disparities are clear already in the elementary grades, where black, Hispanic and Native American children attend schools that are on average at the 35^{th} to 40^{th} percentile of performance compared to other schools in the same state. White and Asian children are in schools at close to the 60^{th} percentile. The degree of disparity is not much different at higher grades, and there is almost no change across grades in relative reading scores. At higher grade levels there is noticeable improvement in mathematics scores in the schools attended by Hispanics, Asians, and Native Americans, which could result from the larger attendance zones of middle and high schools. But this trend is not found for blacks.

The multivariate analyses provide more information about the sources of these disparities which are deeply rooted in differences that are linked to race. Because we are working with cross-sectional data with no information on educational processes within schools the results should be viewed as descriptive of patterns rather than as an effort to find the causes of differences. Our first step, the latent cluster analysis, is a search for patterns in the data. It leads us to identify six types of schools. This result is more complex than the simple model of affluent-white-suburban vs. poor-minority-central city schools, although that dichotomy is part of the story. We found three kinds of high poverty schools. One of these is disproportionately located in central cities, although a considerable share is also in suburbs and it is more Hispanic than black. Another is more heavily black but is quite mixed in location. The third type of high-poverty school is also in mixed locations and they also are mixed in racial composition. What most distinguishes them from other high-poverty schools is that nearly three-quarters of Native American children attend them. These three types of high poverty schools are the usual venue for minority children; together they account for about 27% of white students in public elementary schools across the nation and 29% of Asian students, but a very large majority of black, Hispanic, and Native American students.

The remaining three school types all have lower levels of poverty but they differ among themselves in other respects. Closest to the stereotype of white exclusion is the second cluster, schools that nearly 90% white, lowest in poverty and predominantly in suburbs. Another similar type, the fifth cluster, is even more exclusively white but is most commonly found in non-metropolitan areas. Non-metropolitan schools tend to be overlooked in the segregation literature, but they are an important component of the educational system. More challenging to the usual stereotype is the fourth cluster. It represents relatively affluent and disproportionately suburban schools with a clear white majority but with non-trivial shares of other groups. These are the schools where black and Hispanic students are likely to find more access to educational advantage, and they are also the schools where most white and Asian students have opportunities to encounter other groups. About a quarter of white students and nearly half of Asian students attend these schools. A quarter of Native Americans are also found here. But less than 10% of black and Hispanic students have access to this resource.

The implications of this pattern of segregation across types of schools are brought home in the analysis of predictors of school performance. Consider first the finding that the racial composition of schools matters in itself – schools with more minorities do worse. Because race and poverty are highly correlated in the U.S., we would expect some racial differences even if race in itself didn't matter. However we find substantial race differences even after controlling for poverty and other factors. One interpretation is the one put forward by the Supreme Court, that segregation alone creates inequality. Another is that minority students under current social conditions bring down a school's average test score. If that were true, creating more diverse schools would improve school quality for minorities at the expense of whites. Yet another possibility is that parents of white children take into account both the race/class composition of schools and their reputation for performance when deciding where to live, and that their selectivity contributes to the disparities that we have measured. In that case, of course, one would have to explain why black and Hispanic parents don't make the same calculations. Possibly they have fewer choices, even taking into account their own income and education (a point often made in the literature on residential segregation).

Poverty has as large an effect as the black or Hispanic share of students. This could also be a simple compositional effect – poor students (perhaps because of their home or neighborhood situation or parental background) are known to perform worse than students from affluent families. It could also be a contextual effect, as some other studies have suggested – the overall composition of the school could affect all students, or high-poverty schools might in some cases have offer less educational resources. But regardless of the reason, this finding implies that independent of racial segregation, class segregation is associated with lower quality of schools available to minority students. It supports the view of some policy analysts that race-neutral school assignment based on equalizing the class composition of schools could have strong positive effects. Here, too, such a policy could have a negative impact on students who are currently in advantaged positions.

Family background in the community is another powerful factor, but our results show that adults' educational level matters much more than issues of family disruption. Another community characteristic, the percent foreign-born, has no significant positive or negative effect. This finding should alleviate concerns about whether immigration itself is a risk factor for schools. We might expect these variables to work more strongly at the individual level, if we knew performance of each child and had information on his or her parents' immigration status, education, or marital situation.

Finally there is no evidence that metropolitan location independently affects school performance. Low performing schools may be found in every zone of the metropolis, depending on the other factors identified here. This result is a reminder of the increasing heterogeneity of suburban regions, where the disparities between communities can be as great as the overall difference between city and suburb.

Taken together these data show that racial inequalities in education are large and deeply entrenched in the society. When the typical black, Hispanic, and Native American children are assigned to schools that perform so much below the median, few can be in above average schools and a substantial share are in schools well below the 30th percentile. Attacking this pattern by focusing on a few low achieving schools (the No Child Left Behind policy to close failing schools at the very bottom of the distribution) can have only marginal results. To drive this point home, we have calculated a simulation of what the distribution of students would be across schools under a scenario that represents a very successful implementation of NCLB school closures (see Appendix Figure 1). Suppose we could close all the schools that perform under the 10th percentile. Suppose we could reassign these students to other schools in proportion to white students' presence in the remaining schools. This would be a stunning change because black, Hispanic and Native American children would gain much greater access to the resources of predominantly white schools. More than a quarter of them would be in schools that are currently above the 80th percentile.

So what is the result? Less than 20% of white and Asian students but about 35% of black and Hispanic students would still be in schools below the 31st percentile. About 15% of black and Hispanic students but close to 30% of white and Asian students would be in schools above the 81st percentile. This is because the disparities across groups are not only the result of minorities' concentration in the worst schools, but they are found across the whole distribution of "non-failing" schools. The simulation is simply a way to emphasize the depth of disparities.

Aside from dealing with failing schools, trends in residential segregation will not soon move many black children into more diverse neighborhood schools, and residential changes are exacerbating rather than solving the isolation of Hispanic children. Since progress in school desegregation has come to a halt in most parts of the country, partly due to the strong boundaries between school districts, and court rulings are creating obstacles to existing desegregation plans, there is little chance for improvement from this source. Efforts at equalization of poverty rates across schools, which could make a strong contribution, will also run up against the barrier of district boundaries. Decades after the Brown v. Board desegregation order, separate and unequal continues to be the pattern in American public education.

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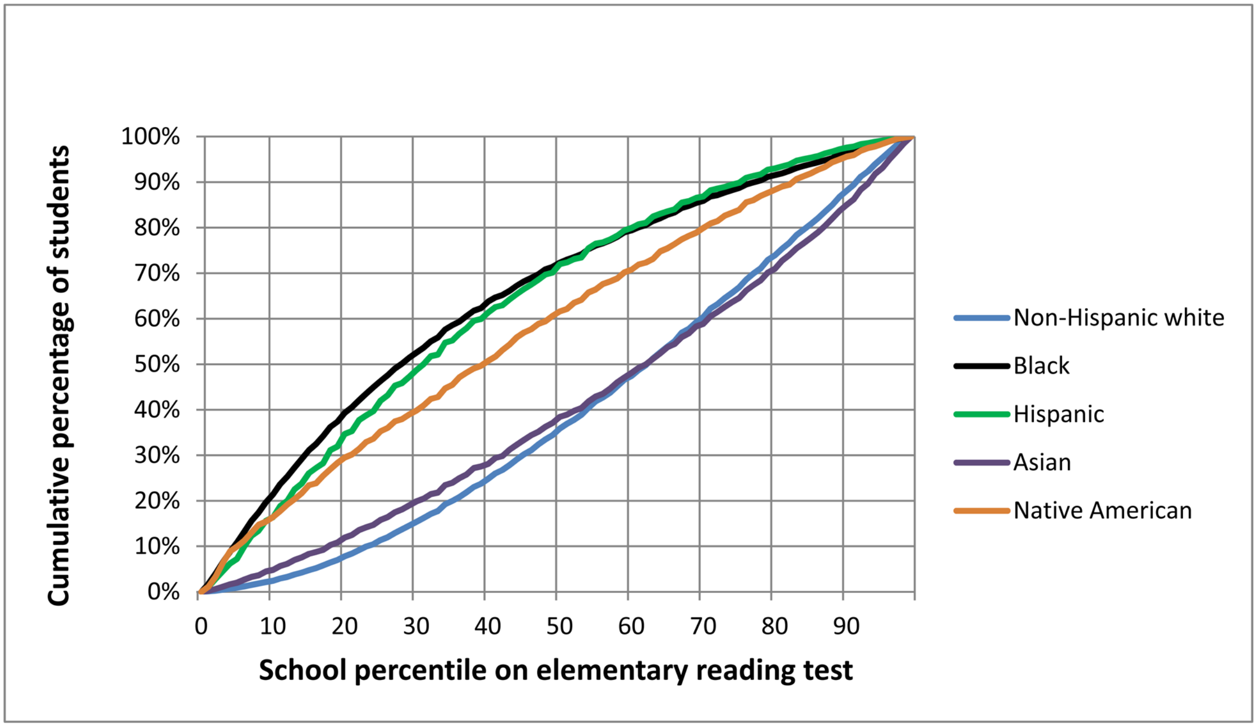
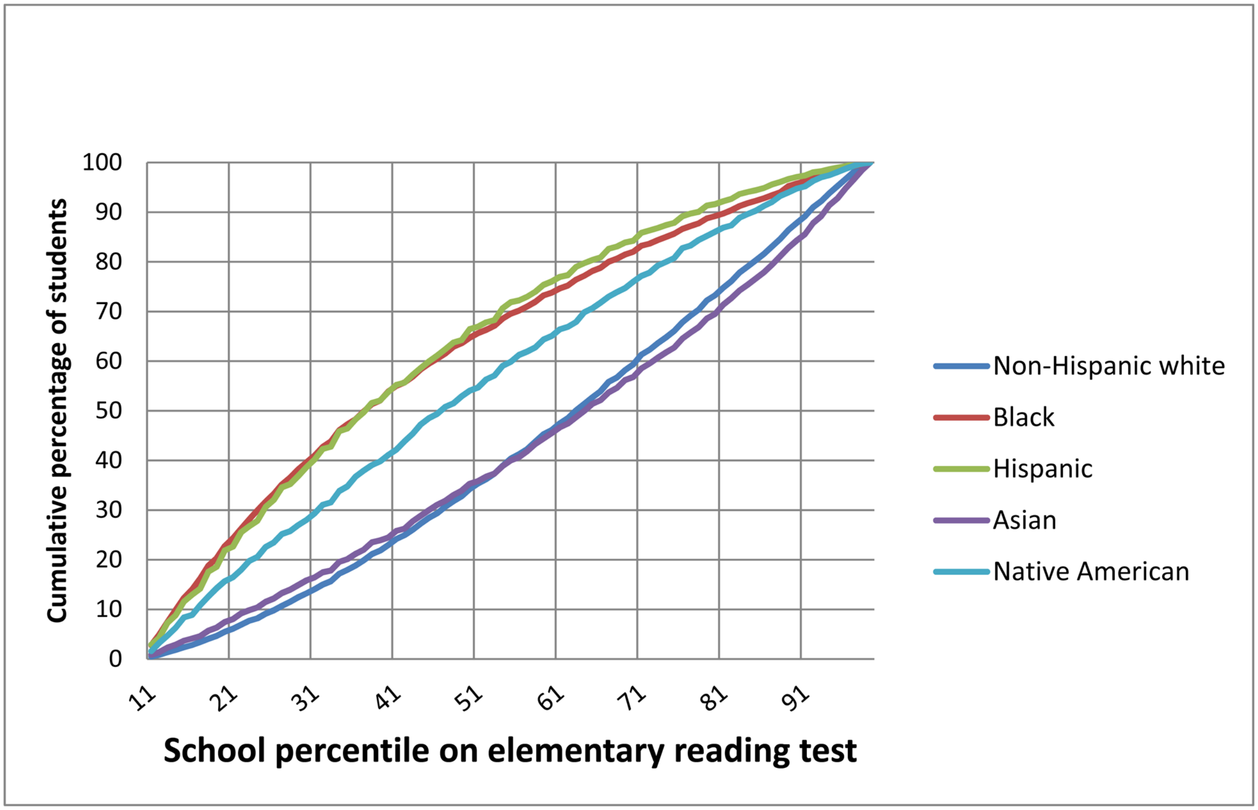


Figure 1.
Distribution of students by percentile ranking of school reading test score: Elementary students by race and ethnicity



Appendix Figure 1.
Simulation results: If students below the 10th percentile could be redistributed

Table 1

Average Test Scores in Schools (Percentiles within States) by Race/Ethnicity and Grade Level

	Elementary		Middle		High School	
	Reading	**Mathematics**	**Reading**	**Mathematics**	**Reading**	**Mathematics**
White	59.9	59.2	61.0	61.2	60.5	60.8
Black	35.1	35.5	36.5	36.4	38.4	36.4
Hispanic	36.4	38.9	37.9	40.8	43.5	45.7
Asian	58.9	59.2	59.6	61.5	61.3	63.6
Native American	42.0	42.5	43.3	44.4	47.0	49.3
Number of schools	**45,248**	**43,305**	**21,800**	**20,579**	**14,389**	**14,436**

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Table 2

Test Scores (Percentiles at the National Level) by Race/Ethnicity, School Poverty and Metropolitan Location - Elementary Grades

	Reading			Mathematics		
% Poor:	***City***	***Suburban***	***Non-Metro***	***City***	***Suburban***	***Non-Metro***
High (over 55.0%)						
White	33.3	40.5	45.0	35.4	41.3	45.4
Black	22.4	28.4	34.5	24.0	28.8	34.3
Hispanic	25.6	28.8	37.6	29.6	32.7	39.3
Asian	31.9	34.0	36.0	36.0	38.4	38.3
Native American	29.1	31.3	31.7	31.4	33.5	33.5
Number of schools	**7,308**	**5,056**	**3,682**	**6,968**	**4,948**	**3,614**
Medium (25.0–55.0 %)						
White	57.5	55.6	53.1	56.3	55.2	52.4
Black	52.2	49.9	54.3	50.9	49.7	54.1
Hispanic	51.7	52.0	49.1	51.6	52.7	48.7
Asian	59.8	54.7	52.3	59.7	54.7	51.6
Native American	57.2	56.4	51.6	55.4	54.6	49.3
Number of schools	**2,881**	**6,400**	**4,272**	**2,792**	**6,077**	**4,064**
Low (below 25.0%)						
White	78.8	73.2	63.8	77.0	72.1	60.9
Black	65.9	68.5	60.6	63.2	67.2	56.8
Hispanic	53.4	66.4	51.5	56.3	66.9	52.7
Asian	83.9	77.3	69.6	83.2	76.8	65.7
Native American	78.5	71.1	66.8	76.4	69.2	60.4
Number of schools	**2,029**	**8,228**	**1,061**	**1,997**	**7,741**	**954**

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Table 3

Contextual Profiles of Elementary Schools by Cluster (6 cluster solution)

	Cluster1	Cluster2	Cluster3	Cluster4	Cluster5	Cluster6
Indicators used in the analysis						
Metropolitan location						
Central city	49.1	13.5	42.3	23.8	2.6	40.2
Suburb	40.5	71.5	30.2	58.1	47.3	31.5
Non-metropolitan	10.4	15.1	27.5	18.1	50.1	28.3
Race/ethnic composition						
Non-Hispanic white %	30.2	87.0	37.8	74.8	97.0	40.4
Black %	26.7	4.5	51.9	7.2	0.9	21.4
Hispanic %	39.1	4.1	8.7	7.1	0.9	24.0
Asian %	3.5	3.4	0.0	8.7	0.0	1.7
Native American %	0.0	0.0	0.0	1.9	0.0	12.3
Poverty % (free/reduced price lunch)	59.9	20.9	68.9	31.4	34.5	66.2
Cluster share of schools	0.187	0.187	0.186	0.170	0.167	0.104
Mean reading score percentile	40.0	68.6	34.5	61.6	58.4	37.6
Mean math score percentile	41.6	67.5	35.0	61.5	57.7	38.9

1. Predominantly Hispanic, poor and central city
2. White, affluent and suburban
3. Black and Hispanic, very poor, mixed location
4. Majority white, significant Asian presence, affluent and suburban
5. Exclusively white low-poverty, mixed suburban and non-metropolitan
6. Racially mixed, high Native American presence, high poverty, mixed location

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Table 4

Distribution across cluster types by race and Hispanic origin

	Cluster1	Cluster2	Cluster3	Cluster4	Cluster5	Cluster6	Total
% White	11.0	30.2	9.4	23.8	19.1	6.5	100.0
% Black	30.2	5.2	43.3	7.5	0.6	13.2	100.0
% Hispanic	56.4	5.6	8.6	9.1	0.7	19.5	100.0
% Asian	23.1	21.6	0.0	49.2	0.0	6.1	100.0
% Native American	0.0	0.0	0.0	25.2	0.0	74.8	100.0

Table 5

Predictors of elementary school reading and mathematics scores

	Reading			Math		
	b	**Robust SE**	**t**	**b**	**Robust SE**	**t**
School characteristics:						
Race						
% Black students	−0.214	0.021	−10.3***	−0.233	0.019	−12.5***
% Hispanic students	−0.216	0.023	−9.5***	−0.206	0.018	−11.4***
% Asian students	−0.072	0.067	−1.1	0.074	0.075	1.0
% Native American students	−0.187	0.027	−7.0***	−0.151	0.027	−5.7***
Poverty share	−0.303	0.024	−12.9***	−0.284	0.024	−11.8***
Metropolitan location (ref=suburban)						
City	−1.435	0.779	−1.8	−1.330	0.841	−1.6
Non-metropolitan	0.883	0.664	1.3	0.478	0.842	0.6
School size (100s)	0.006	0.001	5.4***	0.005	0.001	3.7***
Non-elementary grades	−2.049	0.456	−4.5***	−2.354	0.466	−5.1***
District characteristics:						
% College educated	0.324	0.022	14.5***	0.273	0.022	12.3***
% Foreign born	−0.052	0.087	−0.6	0.050	0.087	0.6
% Single parent household	−0.170	0.037	−4.6***	−0.164	0.041	−4.0***
Constant	67.495	1.132	59.6***	67.638	1.229	55.0***
Number of schools	38,262			41,300		
Adj R-squared	0.367			0.346		