EXAMINING THE RE-SEGREGATION OF PUBLIC SCHOOLS IN THE U.S.: SCHOOL CHOICE AND WHITES' PREFERENCES

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ABSTRACT

Rebecca Josephine Bielamowicz: Examining the Re-Segregation of Public Schools in the U.S.: School Choice and Whites' Preferences
(Under the direction of Ted Mouw)

Although the expansion of school choice options in the U.S. has been widely discussed, few studies have examined their impact on racial segregation in traditional public schools. I study this relationship by examining changes in levels of White-Black, White-Hispanic, and White-Asian segregation of school-age children in schools and their catchment areas between 2000 and 2010 in the 22 largest school districts in the U.S. Findings show that schools have higher levels of segregation than their corresponding catchment areas and that school segregation increased in a majority of these districts during this time period, independent of changes in residential segregation. In a second study of over 20,000 schools in the 2009-2010 school year, I examine the factors that predict the enrollment of Whites in their neighborhood schools. I find that, net of a school's quality, the racial composition of the catchment area continues to have a significant effect on White enrollment.

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CHAPTER 1

INTRODUCTION

Today in the United States, public schools are nearly as segregated as they were in the 1960s: recent studies estimate that in the 2009-2010 school year, 74 percent of Black students and 80 percent of Hispanic students attended schools in which 50 to 100 percent of the student body was Black or Hispanic – in the 1968-1969 school year, these figures were 77 percent and 55 percent, respectively (Civil Rights Project 2012). Moreover, the extreme concentration of Black and Hispanic students in schools has almost doubled since 2000: between the 2000-2001 and 2013-2014 school years alone, the percentage of K-12 public schools with 75 to 100 percent of Hispanic and/or Black students and students on free or reduced-price lunch grew from 9 to 16 percent (Government Accountability Office 2016).

What has been responsible for this so-called “return to school segregation” in the U.S.? The concomitant growth of school choice options and the expiration of court-ordered desegregation mandates in the 1990s have made this question difficult to answer. Some researchers claim that school districts’ release from court oversight, which prompted a widespread return to the use of residential location to determine school assignment, has been primarily responsible for the increases seen in levels of school segregation, since, in the absence of other school options, segregated neighborhoods will produce segregated schools (Frankenburg 2013; Rivkin 1994). Others claim that though U.S. neighborhoods continue to be highly stratified by both race and class, schools are more segregated than the areas they draw from because White and wealthier families have the desires and means to opt out of their assigned schools and into ones that are more homogeneous (Saporito and Sohini 2006; Saporito and Sohini 2007; Bifulco et al. 2009).

Prior research has been scant and inconclusive, and my analysis improves upon earlier work in three ways. First, much of the work that compares residential and school composition has been limited by the unavailability of catchment-area data and has thus been unable to produce a proper counterfactual (Reardon and Yun 2003; Frankenburg 2013; Owens 2016). The more commonly available and widely used geographic units used to study school segregation – such as census tracts or metropolitan areas – are limited measures because school attendance boundaries are often quite dissimilar from them and there is considerable heterogeneity across attendance zones in a district. Second, research that has analyzed catchment-area data only did so for a small number of school districts prior to the *Parents Involved* Supreme Court decision and miscounted the number of private, magnet, and charter schools in the districts analyzed (Saporito and Sohini 2006; Sohini and Saporito 2009). *Parents Involved* significantly curtailed the ability of school districts to use race-based school assignment policies (2007) and effectively made it easier for parents to sort their children into their desired schools, which may result in parents using schools that are less diverse than the ones zoned to their neighborhood, a proposition I address in my longitudinal analysis. Finally, to address claims that White parents use widely available school quality data to select schools for their children, I include a number of important indicators of school effectiveness to predict White enrollment in their assigned school.

This research extends the literature on the dynamics of the relationship between school and residential segregation in an era of increased choice. Using data from the School Attendance

Boundary Information System, U.S. Census, American Community Survey, Common Core of Data, and the Office for Civil Rights Data Collection, I use dissimilarity indices to estimate the changes between levels of school and catchment-area segregation for the elementary- and high-school-aged populations in the 22 largest school districts in 2000 and 2010. I also use scatterplots to compare the racial and economic composition of catchment areas to the racial and economic composition of their assigned schools. Lastly, I use linear regression models to predict White enrollment in their assigned schools. I find that in a majority of districts, levels of White-Black, White-Hispanic, and White-Asian segregation were higher in schools than in their catchment areas in both 2000 and 2010. I also find that, independent of changes in residential segregation, a majority of these districts saw increases in their levels of school segregation between 2000 and 2010. Additionally, the results from the racial and economic cross-sectional analyses indicate that there are higher concentrations of poor students in their assigned schools than in their neighborhoods, and that that there are fewer Whites attending their assigned schools than would be if all students in the catchment area attended their assigned school. Finally, I find that, net of the quality of the school, the racial composition of the catchment area continues to have a significant effect on White enrollment.

BACKGROUND AND THEORETICAL FOUNDATION

The School-Housing Relationship in the U.S.

For much of the 20th century in the U.S., residential location has been the most widely used public school assignment policy: where students live have determined which public school they are eligible to attend. As such, the composition of the neighborhood school was often a reflection of its underlying catchment area, and, in the absence of any interventions, segregated neighborhoods generated segregated schools. Various integration efforts that were implemented in the wake of the *Brown* decision (1954), such as busing and magnet schools, were designed to upend this school-housing relationship in order to achieve racial balance in schools (see *Swann v. Charlotte-Mecklenburg Board of Education* [1971]; U.S. Department of Education 2004). Though highly controversial, state-mandated desegregation worked, particularly in the South: by the 1970s, approximately 20 percent of Black students attended all-Black schools, compared to almost 100 percent in the early 1960s, and these levels continued to decline through the 1980s (Clotfelter 2004; Orfield 1983).

Despite their effectiveness, desegregation mandates were never intended to be permanent (see *Board of Education of Oklahoma City v. Dowell*, 1991), and districts began to be released from court oversight in the 1990s (Reardon et. al 2012). The 1990s also witnessed the dramatic growth of alternatives to the neighborhood public school, particularly in the form of charter schools (NCES 2017). These parallel developments raise a fundamental puzzle when examining the re-segregation of schools: are segregated schools simply a reflection of the segregated neighborhoods they are once again drawing from, or are they the result of parents' abilities to more easily sort their children into schools that are more racially and economically homogenous than the ones available to them in their attendance boundaries?

School Choice: Facilitating Integration or Increasing Segregation?

The expansion of magnet, charter, private, open enrollment, intra-district transfers, and voucher programs have given parents numerous educational options beyond their neighborhood public schools. Between the 2000-2001 and 2013-2014 school years, the number of magnet schools in the U.S. more than doubled, from 1,469 to 3,254, and the number of charter schools more than tripled, from 1,993 to 6,465 (NCES 2016). School choice has expanded under the premise that traditional public education has failed to deliver on its promised good – a welleducated populace that can compete in the global economy – because of excessive bureaucratic oversight, misguided spending, and inept policies (Brandl 1998). By introducing multiple alternatives to public education, poorly performing public schools will be incentivized to improve, lest they lose enough unsatisfied families and are forced to close. In this way, competition can foster innovation in otherwise stagnant and underperforming public schools, and, so the argument goes, the overall quality of education available to American families will increase.

Though it has become easier for parents to exercise choice in this new educational "marketplace," it is unclear what information they are using to inform their school choice decisions and what matters to them the most. School choice advocates maintain that parents will thoroughly evaluate school quality evidence and enroll their child in the highest quality school available to them (Chubb and Moe 1988; Merrifield 2001), but the staggering increases in levels of racial and class segregation warrant further investigation into the extent to which non-academic characteristics, such as the racial and class composition of the school or catchment area, matter to parents when choosing a school.

Two theories dominate debates about the origins of school segregation in this era of increased choice. Liberation theory posits that school choice can increase the overall quality of public schools *and* promote integration by upending the school-housing relationship (Archbald 2004). Schools zoned to high-poverty, racially segregated neighborhoods tend to perform worse than schools zoned to affluent and Whiter neighborhoods (Reardon et al. 2017). With the increased availability of options like charters, magnets, vouchers, and intra-district transfer plans, students living in high-poverty, racially segregated neighborhoods will no longer be forced to attend the poorly performing school zoned to them, and by allowing these students to move to better schools – which are often Whiter and more affluent – they will also be integrating them.

The liberation model assumes that all families can access these educational options equally, and that parents are motivated to choose the highest quality school for their child. Recent educational reform, like the No Child Left Behind Act (2001), has been informed by this theory and, as a result, has pushed for the increased transparency of accountability measures. The NCLB requires schools take such actions like publishing "Report Cards" with their annual test scores and informing parents when their schools are failing (Dee and Jacob 2011) in order to increase parents' ability to make informed decisions for their child's education. Under the assumptions of the liberation model, we would expect school segregation to decrease with the expansion of choice options.

Despite the theoretical promises of the liberation model, recent empirical work illuminates its shortcomings, most notably its failure to account for structural factors that keep poor families from sending their children to higher performing schools. In their study of the school choice forms of families in Charlotte-Mecklenburg Schools, Hastings and Weinstein (2008) found that when parents were given clear information on test scores, significantly more parents zoned to low-performing schools chose schools with higher test scores, and this behavior was strongest for the families who lived closest to high-performing schools. Though this study suggests that readily accessible information on school quality will result in parents choosing high-performing schools for their child, structural constraints, such as not living near a high-performing school, will prevent them from being able to send their child to that school. Similarly, Rich and Jennings (2015) found that even when Chicago Public Schools introduced a new accountability system that notified parents when their school was on "probation" for having 85 percent or more of their students falling below the 50th percentile on the Iowa Test of Basic

Skills, students who left probation schools were most likely to enroll in another probation school than students who left non-probation schools. These findings suggest that even when families are aware that their children are attending low-performing schools, structural factors, such as poverty and entrenched racial segregation, keep them from sending them to better-performing schools. Consequently, scholars worry that this "skimming" effect – in which the most resourced and potentially highest achieving students leave their neighborhood schools for better-performing schools – will create a two-tiered school system in which the poorest and hardest-to-educate students are concentrated in their neighborhood schools, thereby exacerbating the racial and economic segregation of schools and overall inequality in the school system (Bifuco and Ladd 2006; Bifulco et al. 2009).

Unlike the liberation model, the outgroup avoidance theory would expect that dominant groups, such as Whites and affluent families, will avoid schools with high proportions of poor and non-White students, regardless of their quality, in order to maintain their status (Bobo 1999; Crowder 2000), such that school choice will actually increase school segregation. This theory has substantial empirical support in the residential segregation literature, which has consistently found that Whites have much lower tolerances for integrated neighborhoods than do Blacks (Emerson et al. 2001; Farley et al. 1997). In particular, as the proportion of the minority population in the neighborhood grows and the likelihood of contact with them increases, Whites leave (Charles 2003; Massey and Denton 1993). Indeed, this is exactly what happened across the U.S. in the wake of the *Brown* decision: Whites left integrating neighborhoods and school districts in favor of private schools or suburbs where they would be less subject to contact with Blacks and Hispanics (Andrews 2002; Farley et. al 1978).

Despite findings that show that the racial makeup of a neighborhood - net of other characteristics, like its class composition or an innocuous preference to live with fellow members of a racial group – matters to Whites when selecting a neighborhood (Krysan et al. 2009; Bobo and Zubrinsky 1996), evidence as to how much a school's racial composition matters to White parents who are choosing a school is less clear. In a recent survey experiment of White parents' preferences, Billingham and Hunt (2016) find support for the pure race hypothesis: as the proportion of Black students in a school grew, Whites were less likely to say they would enroll their child in it. However, because of their inability to measure individuals' *actual* behavior, preference studies are limited. Additionally, though studies of parents' actual enrollment decisions have found that Whites opt out of their assigned school as the proportion of the minority population in the catchment area grows (Saporito and Sohini 2006; Sohini and Saporito 2009; Renzulli and Evans 2005; Phillips et. al 2015), the absence of detailed school-level quality data makes it difficult to determine whether White parents are opting out of their assigned schools because they are low performing or because they do not want to send their child to school with large numbers of non-White children. Given the correlation between the demographic composition of the school and its performance outcomes (Reardon 2011), it is possible that these exits merely reflect Whites' desires and abilities to avoid the "bad" schools.

Combining the Study of Residential and School Segregation

With the growth of choice options, residential and school segregation no longer necessarily move in lockstep with each other, and this shift calls for a theoretical reconceptualization of how scholars understand both. The three dominant theories that account for residential segregation – prejudice, discriminatory practices in the housing market, and the racial/ethnic differences in educational attainment, income, and wealth accumulation that lead those with the highest levels of these resources to choose different neighborhoods (Charles 2003; Crowder and Krysan 2016) – do not explicitly account for the role that schools play in drawing families into particular geographic areas that are zoned to particular schools. Findings of recent work have urged researchers to complicate their understandings of the dynamics of residential and school selection (Holme 2002; Lareau 2014; Johnson and Shapiro 2003). Using the nationally representative Parent and Family Involvement in Education Survey, Ely and Teske (2014) find that White parents are more likely than parents of other racial groups to make residential location decisions based on the school the area gives them access to. Additionally, in their study of the residential decisions of college-educated White families with children, Pearman and Swain (2017) find that the availability of school choice options beyond the neighborhood public school increases the likelihood of these families moving into the highly segregated neighborhoods zoned to these schools by up to 22 percent. This work suggests that outgroup avoidance does not operate in the same way across all contexts as the theory would expect it to. Indeed, the White families were not opposed to living in a high-poverty, racially segregated neighborhood so long as their children did not have to attend the school zoned to that neighborhood. This also suggests that the racial composition of the *school* zoned to the neighborhood – which is a reflection of its underlying school-age population – may influence White parents' decisions to live in that neighborhood more than the overall racial composition of the neighborhood itself.

This finding necessitates an investigation of the effect that the racial composition of the *school-age* population has on Whites' residential and school location decisions. Prior empirical work on racial threat theory has argued for the importance of including age in measurements of threat. In their study of perceptions of levels of neighborhood crime, Quillian and Pager (2001) find that it not the overall percent of Blacks in a neighborhood, but the percentage of *young* black men in particular, that increases respondents' likelihood of reporting higher crime levels, regardless of the neighborhood's actual crime levels. Similarly, it may not be the racial composition of the catchment area overall, but the proportion of the catchment area that has non-White children who are eligible to attend their assigned school, that influences Whites' likelihood of using their assigned school. To bring the necessary nuance to this question, I use age-specific measures of the racial composition in the catchment area to predict White enrollment.

Finally, more realistic and externally valid units of analysis should be used to measure school and residential segregation. Dominant in the literature is the use of census tracts (Owens et. al 2016; Owens 2016; Bischoff and Reardon 2014; Reardon and Bischoff 2011; Logan and Stults 2011). While these are designed by the Census Bureau to approximate neighborhoods and are consistent from census to census, tracts do not necessarily capture how people sort into or understand the boundaries of their own neighborhoods. Additionally, there are often multiple catchment areas within the bounds of a single tract, making it difficult to establish a proper counterfactual with which to compare "neighborhood" and school enrollment patterns. Some work in the residential segregation literature has problematized the use of tracts, finding that residential segregation was higher when measured at the block group (Iceland and Steinmetz 2003), and others have developed new "tract-free" spatial methods to measure segregation (Lee et. al 2008). Still, catchment areas are not widely employed. While there have been many studies that have examined changes in residential and school segregation over time, none, to the best of my knowledge, have measured changes in residential and school segregation using the catchment area as the unit of analysis. To address this gap, I use catchment-area data from the 22 largest school districts to compare levels of residential and school segregation between 2000 and 2010.

Research Questions

Given the current literature on this topic, three research questions drive my analysis: first, have levels of school segregation increased between 2000 and 2010, independent of changes in levels of residential segregation? An increase would suggest that school choice – not residential segregation – has been responsible for rising levels of school segregation. Second, do traditional public schools have higher concentrations of poor students and fewer White students than they would if all students in their catchment area attended their assigned schools? Third and finally, is there evidence to suggest that Whites are exiting their assigned schools so as to avoid low-quality schools, or to avoid sending their children to school with non-White children?

DATA AND METHODS

Data

To evaluate the extent to which levels of school and catchment area segregation have changed between 2000 and 2010, I acquired the elementary and high school catchment area maps of the 22 largest school districts in the 1999-2000 school year from Dr. Salvatore Saporito. With the exception of New York City, 21 of the 22 districts were available in the School Attendance Boundary Information System data in 2010 and were used to conduct the comparison. SABINS is the first and only database that has made elementary, middle, and high school catchment area boundaries across thousands of school districts in the U.S. publicly available. SABINS has developed unique “gisjoin” codes that allow researchers to link catchment-area demographic data from the Census and school enrollment information from the Common Core of Data to each catchment area using ArcGIS. This facilitates the comparison of the number of children, by race and age, who are living in a catchment area to the number of students, by race, who are enrolled in their corresponding grades in their assigned school. SABINS collected catchment area boundaries for the 2009-2010, 2010-2011, and 2011-2012 school years, but the extent of geographic coverage decreased in each subsequent year. The 2009-2010 school year has the most coverage – at least one district in 49 states is available – and is used for this analysis.

To compare the economic composition of catchment areas to the economic composition of their assigned schools, I use 2006-2010 American Community Survey poverty estimates and free lunch enrollment information from the CCD. Since the elimination of the Census long form, questions about poverty status have been asked via the ACS. Some of the school districts I analyze are in rural areas with small populations, so I use the 5-year ACS estimates because they are the most reliable and provide data on all areas of the U.S., regardless of population size (ACS 2017).

School quality measures and the magnet, charter, or alternative status of schools were gathered from the 2013-2014 Office of Civil Rights Data Collection survey year.[1] Reading and math test score data for the 2009-2010 school year was gathered from ED*Facts*.

Analytic Sample

For the longitudinal analysis, I analyze levels of school and catchment area segregation in the 22 largest school districts in the 1999-2000 and 2009-2010 school years. A full list of these districts and their number of regular, magnet, charter, and private schools is detailed in Table 1. Three districts – Baltimore City Public Schools, New York City Public Schools, and the School District of Philadelphia – are missing data. In the case of BCPS, I was unable to calculate levels

[1] Though this portion of the project examines school and catchment area demographics in the 2009-2010 school year, I use school quality information from the 2013-2014 OCR survey year to maintain the integrity of my sample. This was the first year that the OCR was a full universe of public schools, in comparison to the 2009-2010 OCR year, when only 7,000 school districts and 72,000 schools were included.

of segregation across high school catchment areas in 2010 because in the late 2000s, Baltimore implemented an open-enrollment policy for its high schools and consequently eliminated their high school catchment areas. Additionally, New York City did not submit boundary information to SABINS in 2010, and the School District of Philadelphia did not report school enrollment information to the CCD in 1999-2000 or for any of the surrounding years.

For the racial cross-sectional analysis in the 2009-2010 school year, my analysis is limited to neighborhood elementary schools that offered grades K-3 and high schools that offered grades 10-11. I analyze 16,181 elementary schools in 3,082 districts across 49 states and 4,002 high schools in 2,494 districts in 49 states. For the economic cross-sectional analysis in the 2009-2010 school year, I analyze 17,498 elementary schools in 4,837 districts across 50 states and 4,512 high schools in 3,017 districts in 50 states.

I restrict my sample to traditional public schools, which I define to be schools that have geographically defined attendance boundaries and that do not require their students to apply for admission in order to be able to attend the school. The CCD gathers information on schools' magnet, charter, and alternative status by contacting each state's state education agency, but states have the option to opt out of reporting their status. Non-reporting was a significant issue in the 2009-2010 school year – 19 states did not report magnet, charter, or alternative status for their schools. This resulted in SABINS assigning non-traditional public schools a boundary. To ensure that these schools were excluded from my analysis, I compared schools' magnet and charter classifications in the CCD to their magnet and charter classifications in the OCR. I dropped all schools that, according to the OCR, were full or partial magnets, charters, or alternative schools.[2]

[2] The OCR's magnet, charter, and alternative school classifications are arguably more reliable indicators than the CCD's because the OCR contacts the local education agency (i.e., the school district) to request this information,

Measures

Longitudinal Analysis

I use the index of dissimilarity to measure the age-specific racial segregation of children across schools and their catchment areas in 2000 and 2010. The index of dissimilarity (D) is a measure of the proportion of the population that would have to move so that each school or catchment area would have the same composition as the entire district or city (White 1983). The index of dissimilarity is bounded by 0 and 1: a value of 0 indicates perfect integration, while a value of 1 indicates perfect segregation. Below is the formula for the index of dissimilarity and descriptions of how I calculated segregation at the level of the school and their catchment areas:

$$D = \frac{1}{2}\sum_{i=1}^{n}\left|\frac{w_i}{W_T} - \frac{b_i}{B_T}\right|$$

Where n is the number of elementary schools in the district, w_i is the number of Whites in elementary school i, W_T is the total number of Whites enrolled in grades K-3 in the district, b_i is the total number of Blacks enrolled in school i, and B_T is the total number of Blacks enrolled in grades K-3 in the district.

I used the same equation for high school students, except that w_i is the number of Whites in high school i, W_T is the total number of Whites enrolled in grades 10-11 in the district, b_i is

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whereas the CCD requests data from each state's state education agency. I use 2013-2014 OCR data to conduct this comparison. First, to check whether the CCD and OCR usually align in their school classifications, I compared school classifications in the 2013-2014 CCD – a year where there was less non-reporting – to the classifications in the 2013-2014 OCR. According to the OCR data, 6.42 percent of schools (6,025 of 93,863) were classified as charters, and 6.26 percent (5,878 of 93,863) were classified as charters in the CCD. In the OCR, 3.97 percent (3,727 of 93,863) were classified as magnets, and in the CCD, 3.36 percent (3,151 of 93,863) were classified as magnets. In other words, the OCR and CCD usually report similar classifications, with the OCR reporting slightly more magnets and charters than the CCD. I then used the 2013-2014 OCR data to identify magnet, charter, and alternative schools in the 2009-2010 CCD. I assumed that the degree to which schools changed their status between these survey years would be smaller than the bias yielded if I were to have kept these non-neighborhood schools in the sample. For the elementary school sample, I identified 402 more magnet schools and 196 more charter schools than were listed in the CCD. For the high school sample, I identified 285 additional magnet schools and 38 more charter schools than were listed in the CCD. These schools were dropped from my final sample.

the total number of Blacks enrolled in high school i, B_T is the total number of Blacks enrolled in grades 10-11 in the district, and n is the number of high schools in the district.

To calculate segregation across elementary school catchment areas, the same equation was used, except that: n is the number of elementary school catchment areas in the district, w_i is the number of White 5- to 9-year-olds in elementary school catchment area i, W_T is the total number of White 5- to 9-year-olds living in the district, b_i is the total number of Black 5- to 9-year-olds living in elementary school catchment area i, and B_T is the total number of Black 5- to 9-year-olds living in the district.

To calculate segregation across high school catchment areas, the same equation was used, except that: n is the number of high school catchment areas in the district, w_i is the number of White 15- to 17-year-olds in high school catchment area i, W_T is the total number of White 15- to 17-year-olds living in the district, b_i is the total number of Black 15- to 17-year-olds living in high school catchment area i, and B_T is the total number of Black 15- to 17-year-olds living in the district. I repeated the above steps to calculate the White-Hispanic and White-Asian indices of dissimilarity.

Racial Cross-Sectional Analysis

For this analysis, I compare the percent of White children living in the catchment area to the percent of White children enrolled in their assigned school. *Percent White in Catchment* is the percent of all 5- to 9-year-olds (the sum of all White, Black, Hispanic, and Asian 5- to 9-year-olds) living in the catchment area who are White. *Percent White in School* is the percent of all K-3 graders (the sum of all White, Black, Hispanic, and Asian students enrolled in grades K-3 in the school) who are White. For the high school sample, *Percent White in Catchment* is the percent of all 15- to 17-year-olds (the sum of all White, Black, Hispanic, and Asian 15- to 17-

year-olds) who are living in the catchment area who are White. *Percent White in School* is the percent of all 10-11 graders (the sum of all White, Black, Hispanic, and Asian students enrolled in grades 10-11) who are White.

Economic Cross-Sectional Analysis

To estimate the separate effect schools of choice have had on the economic composition of public schools at the elementary and high school levels, I use tract-level ACS data because public-use block-level estimates do not disaggregate by age to the level of detail necessary to conduct separate comparisons for elementary- and high school-aged students. Tract-level ACS estimates, however, are disaggregated into ages "5," "6-11," "15," and "16-17." I compare the number of children, ages 5-11, who are living below the poverty line, to the number of students enrolled in grades K-5 in their assigned school who are on free lunch. Similarly, for high school, I compare the number of children, ages 15-17, who are living below the poverty line to the number of students enrolled in grades 10-11 in their assigned school who are on free lunch.[3] The tracts overlapped and cut across school attendance boundaries in various ways, so I used the "intersect" tool in ArcGIS to correctly distribute the number of individuals to each intersection of the tract and catchment area. The intersect tool assigns each portion of a tract to a school, and I then added up all of these intersections by the school that serves each intersection to get the poverty estimates of the catchment area.

[3] Free and reduced-price lunch eligibility is determined by the federal poverty guidelines, which are released annually by the Department of Health and Human Services and differ from the federal poverty thresholds that are used to calculate ACS poverty estimates. The federal poverty guidelines have slightly higher cutoffs than the federal poverty thresholds, meaning that families who are not living below the poverty line, as defined by the Census Bureau, will still be free lunch eligible. To qualify for free lunch, students must be living in families earning 130 percent or below the federal poverty guidelines, which are adjusted annually and by the number of people in the family. These two measures are not ideal, but they are the best data that is currently available at an aggregate level, since the CCD does not currently offer any other alternative proxy for poverty. See Snyder and Musu-Gillette (2015) for more discussion on using free and reduced-price lunch as a proxy for poverty.

The CCD only provides data on the total number of students who are free lunch eligible in the entire school, but not the number of students who are free lunch eligible in each grade. To estimate the number of students who are on free lunch in grades K-5, I multiply the proportion of students in grades K-5 by the proportion of students in the school who are on free lunch, and solve for X:

$$\left(\frac{Total\ Number\ of\ Students\ Enrolled\ in\ Grades\ K-5}{Total\ Number\ of\ Students\ Enrolled\ in\ the\ School}\right)*\left(\frac{X}{Total\ Number\ of\ Students\ on\ Free\ Lunch}\right)$$

To estimate the K-5 poverty rate, I then divided X by the total number of students in the school and multiplied by 100:

$$\left(\frac{X}{Total\ Number\ of\ Students\ Enrolled\ in\ the\ School}\right)*100$$

I then added the number of children living below the poverty line across all of the intersections that were zoned to a particular school and used them to construct the age-specific catchment area poverty rate:

$$\left(\frac{Number\ of\ Children\ Ages\ 5-11\ Living\ Below\ the\ Poverty\ Line\ in\ the\ Catchment\ Area}{Total\ Number\ of\ Children\ Ages\ 5-11\ Living\ in\ the\ Catchment\ Area}\right)*100$$

I constructed my variables using the same above equations for the high school sample.

Linear Regression Models

Dependent Variable

White Enrollment is the dependent variable. I constructed this variable as a proportion, in which the numerator is the total number of White students who are enrolled in grades K-3 in their assigned public school, and the denominator is the number of White 5- to 9-year-olds who are living in the catchment area and who are thus eligible to attend their neighborhood elementary school:

$$\frac{Number\ of\ Whites\ Enrolled\ in\ Grades\ K-3\ in\ their\ Assigned\ School}{Number\ of\ White\ 5-to-9-year-olds\ in\ the\ Catchment\ Area}$$

White Enrollment is similarly constructed for the high school sample. The numerator is the total number of White students who are enrolled in grades 10-11 in their assigned public school, and the denominator is the number of White 15- to 17-year-olds who are living in the catchment area and able to attend their neighborhood high school.

$$\frac{Number\ of\ Whites\ Enrolled\ in\ Grades\ 10-11\ in\ their\ Assigned\ School}{Number\ of\ White\ 15-to\ 17-year-Olds\ in\ the\ Catchment\ Area}$$

Independent Variables

I model *White Enrollment* as a function of catchment-area and school characteristics. *Percent Minority in Catchment* is the percent of all 5- to 9-year-olds living in the catchment area who are Black, Hispanic, and Asian. *Percent Black in Catchment* is the percent of all 5- to 9-year-olds living in the catchment area who are Black; *Percent Hispanic in Catchment* is the percent of all 5- to 9-year-olds living in the catchment area who are Hispanic; and *Percent Asian in Catchment* is the percent of all 5- to 9-year-olds living in the catchment area who are Asian.[4] A wealth of prior research has documented Whites' avoidance of schools and neighborhoods as the proportion of minorities in the area increase (Renzulli & Evans 2005; Sohini & Saporito 2009; Charles 2000; Krysan and Farley 2002; Farley et. al 1978). To account for this potentially nonlinear relationship between Whites' likelihood of enrollment in their assigned school and the

[4] *Percent Black in Catchment* and its corresponding variables (*Percent Hispanic in Catchment* and *Percent Asian in Catchment*) are constructed to describe the composition of the catchment area who is eligible to attend the local school and does not describe the racial composition of the catchment area as a whole. The denominator is the sum of the number of Black, Hispanic, White, and Asian 5- to 9-year-olds who are living in the catchment area.

racial composition of the catchment area, I include squared measures of the percent minority, Black, Asian, and Hispanic who are living in the catchment area.

My project improves upon prior work on school segregation by including numerous measures of school effectiveness to investigate whether White parents are opting out of their assigned public schools out of concerns about their quality. *Percent Novice* is a measure of the percent of teachers in a school who were in their first or second year of teaching. Research demonstrates that novice teachers are less effective than more experienced teachers. Rivkin, Hanushek, and Kain (2005) find that students of teachers in their first, second, and third years of teaching have significantly lower math and reading test score outcomes than do students of teachers with more years of experience. Clotfelter, Ladd, and Vigdor (2005) confirm similar findings. Schools with high percentages of minorities are more likely to have novice teachers (Clotfelter et al. 2004), and parents could be avoiding these schools out of concern about the teaching quality, as opposed to the composition of the student body. The OCR provides data on the number of teachers who are in their first and second years of teaching and the total number of teachers in the school, and I constructed *Percent Novice* from this data. *Percent Chronically Absent* is the percent of teachers in a school who have missed more than 10 school days in the school year. Schools with high percentages of chronically absent teachers are less likely to have environments conducive to learning: teachers are more likely to be unsatisfied with their jobs, leading them to miss work more often, and students are more likely to have low morale because they are not receiving meaningful instruction from substitute teachers (Bruno 2002). *Percent Certified* is the percent of teachers in a school who have met all state licensing and certification requirements. Certified teachers have been found to be more effective at raising students' test scores than teachers without certification (Darling-Hammond et al. 2005), and because there are higher percentages of uncertified teachers at majority minority schools (Peske and Haycock 2006), White parents may be avoiding the school out of a concern for teacher quality. *Percent Suspended* is the percent of students without disabilities that received more than one out-of-school suspension during the academic year. Though there is considerable variability in the amount of discretion schools have in assigning students out-of-school suspensions (Mendez et al. 2002), I use this measure to capture the potentially more severe misbehavior an OSS could warrant and the effect this may have on parents' perceptions of the safety of the school. *Percent Language Arts Proficient* is the percent of students who took a state test in reading/language arts and scored proficient or above. *Percent Math Proficient* is the percent of students who took a state test in math and scored proficient or above. Test scores have been shown to matter a great deal to parents who are searching for schools for their children and are often some of the first metrics they use to determine the quality of a school in question (Schneider et al. 1998; Weiher and Tedin 2002; Hastings et al. 2005). Because some values were reported in ranges (ex., 10-14) for schools with low enrollment so that students' confidentiality would be protected, I centered these ranges on their average (ex., 10-14 became 12). *Percent on FRPL* is the percent of the entire student body that is on free or reduced-price lunch, and this is included because poverty status is correlated with many of the variables included in the analysis. *Magnet Count* is the number of magnet schools that are located within the catchment area; *Charter Count* is the number of charter schools that are located within the catchment area; and *Private Count* is the number of private schools that are located within the catchment area. If parents are living in an area with many choice options in close proximity to their home, they may be enticed by the novelty of these schools and thus be more likely to use them in lieu of their neighborhood schools.

For the high school analysis, all of the above variables are included, in addition to two that are specific to high schools: *IB Program*, a binary indicator of whether the school has an IB program (1=yes), and *AP Course Count*, the number of AP courses the school offers.[5] High schools with IB programs or large AP course offerings are more likely to be attractive to parents who are looking for rigorous schools that will make their children more competitive in the college admissions process and more prepared for a college curriculum.

Analytic Strategy

The factors predicting *White Enrollment* in their assigned elementary school are modeled in Equation 1:

$$\begin{aligned} White\ Enrollment &= \beta_0 + \beta_1 Percent\ Black\ in\ Catchment + \beta_2 Percent\ Black^2\ in\ Catchment \\ &+ \beta_3 Percent\ Hispanic\ in\ Catchment + \beta_4 Percent\ Hispanic^2\ in\ Catchment \\ &+ \beta_5 Percent\ Asian\ in\ Catchment + \beta_6 Percent\ Asian^2\ in\ Catchment \\ &+ \beta_7\ Percent\ Novice + \beta_8\ Percent\ Chronically\ Absent \\ &+ \beta_9\ Percent\ Certified + \beta_{10}\ Percent\ Suspended + \beta_{11}\ Magnet\ Count \\ &+ \beta_{12}\ Charter\ Count + \beta_{13}\ Private\ Count \\ &+ \beta_{14}\ Percent\ Language\ Arts\ Proficient + \beta_{15}\ Percent\ Math\ Proficient \\ &+ \beta_{16}\ Percent\ Free\ \&\ Reduced - Price\ Lunch + \varepsilon \end{aligned}$$

The factors predicting *White Enrollment* in their assigned high school are modeled in Equation 2:

$$\begin{aligned} & White\ Enrollment = \beta_0 + \beta_1 Percent\ Black\ in\ Catchment + \\ & \beta_2 Percent\ Black^2\ in\ Catchment + \beta_3 Percent\ Hispanic\ in\ Catchment + \\ & \beta_4 Percent\ Hispanic^2\ in\ Catchment + \beta_5 Percent\ Asian\ in\ Catchment + \\ & \beta_6 Percent\ Asian^2\ in\ Catchment + \beta_7\ Percent\ Novice + \\ & \beta_8\ Percent\ Chronically\ Absent + \beta_9\ Percent\ Certified + \beta_{10}\ Percent\ Suspended + \\ & \beta_{11}\ Magnet\ Count + \beta_{12}\ Charter\ Count + \beta_{13}\ Private\ Count + \\ & \beta_{14}\ Percent\ Language\ Arts\ Proficient + \beta_{15}\ Percent\ Math\ Proficient + \\ & \beta_{16}\ Percent\ Free\ \&\ Reduced - Price\ Lunch + \beta_{17}\ AP\ Course\ Count + \beta_{18}\ IB\ Program + \\ & \varepsilon \end{aligned}$$

[5] I would liked to have included the average SAT or ACT scores for each high school, but the availability of this data varied widely by state – some state departments of education, such as Florida and California, published this data for each school in each academic year, but other departments did not. Including this data in the analysis would have significantly reduced my sample size.

RESULTS

Trends in School Segregation between 2000-2010

In Table 2, I present the number of neighborhood, magnet, charter, and private schools in the 22 largest school districts in the 2000 and 2010 school years. In 17 of the 22 districts, the number of regular, neighborhood schools increased between 2000 and 2010. In 8 districts, the number of magnet schools increased. The number of private schools declined in 13 districts but increased in 9 districts. The number of charter schools increased in all but two districts (Fairfax [VA] and Montgomery [MD] counties).

Tables 2-7 show the White-Black, White-Hispanic, and White-Asian dissimilarity indices among elementary- and high-school-aged students in their schools and catchment areas in the 22 largest school districts between 2000 and 2010. Table 2 details the White-Black segregation of children ages 5-9 across their elementary schools and catchment areas in 2000 and 2010. In 2000, 15 school districts had elementary schools that were more segregated than their corresponding catchment areas – in 2010, there were 14 districts that had elementary schools that were more segregated than their underlying catchment areas. Independent of changes in residential segregation, seven districts saw increases in their levels of elementary-school segregation between 2000 and 2010.

Table 3 details the White-Black segregation of children ages 15-17 across their high schools and catchment areas in 2000 and 2010. Though overall levels are still high, White-Black segregation among high-school age children is lower than White-Black segregation in elementary school, which is likely the result of the larger attendance boundaries that are used at the high school level. In 2000, 13 districts had high schools that were more segregated than their attendance boundaries. In 2010, there were 7 districts. Net of changes in residential segregation among this age group, levels of high school segregation increased in 9 districts between 2000 and 2010.

In Table 4, I show the White-Hispanic dissimilarity indices among the elementary school-age population and their distribution across elementary schools and catchment areas between 2000 and 2010. In both 2000 and 2010, 19 districts had elementary schools that were more segregated than their catchment areas. However, net of changes in the underlying catchment areas, schools in only 5 districts were more segregated in 2010 than they were in 2000.

Table 5 shows the White-Hispanic dissimilarity indices between 2000 and 2010 among the high-school age population and their distribution across high schools and catchment areas. In 2000, 13 districts had high schools that were more segregated than their catchment areas; in 2010, this increased to 14. Net of changes in the underlying catchment areas, 10 districts had high schools that were more segregated in 2010 than they were in 2000. Additionally, White-Black segregation across elementary and high schools was higher than White-Hispanic segregation.

Table 6 shows the White-Asian dissimilarity indices among elementary schools and their catchment areas. In 2000, 14 districts had elementary schools that were more segregated than their underlying attendance zones – in 2010, 12 districts did. Net of underlying catchment area demographic change, 10 districts had schools that were more segregated in 2010 than they were in 2000.

In Table 7, I detail White-Asian dissimilarity indices among high schools and their catchment areas between 2000 and 2010. In 2000, 9 districts had high schools that were more segregated than their catchment areas – in 2010, there were 10. Net of changes in levels of residential segregation, 11 districts had high schools that were more segregated in 2010 than they were in 2000.

Overall, across all racial groups, a majority of districts had schools that were more segregated than their catchment areas would predict them to be, and of the racial groups analyzed, White-Black segregation is the highest. Additionally, independent of changes in residential segregation, school segregation increased in a majority of these districts. Levels of segregation were higher in elementary school than they were in high school, suggesting that larger attendance boundaries are effective in their effort to facilitate integration. Finally, as detailed in Tables 11 and 12 in the Appendix, the school-age population is more segregated across catchment areas than the non-school-age population.

Comparing the Racial and Economic Composition of Catchment Areas to the Racial and Economic Composition of their Assigned Schools

Figure 1 presents the comparison between the percent of White students, ages 5-9, who are living in their catchment areas to the percent of White students enrolled in grades K-3 in their assigned schools. Figure 2 shows the comparison between the percent of White students, ages 15-17, who are living in their catchment areas to the percent of White students enrolled in grades 10-11 in their assigned schools. The hypothetical, dotted regression line demonstrates the percent White we would expect to be enrolled in the school if all White students in the catchment area attended their assigned school. Points that fall below the line indicate White under enrollment. For both the elementary and high school samples, there are more White students living in the catchment area than are attending their assigned schools.

Figures 3 and 4 describe the economic composition of schools and their underlying catchment areas. In Figure 3, I compare the percent of students, ages 5-11, who are living below the poverty line in the catchment area to the percent of students enrolled in grades K-5 who are on free lunch in their assigned school. Similarly, in Figure 4, I compare the percent of students, ages 15-17, who are living below the poverty line in their catchment area to the percent of students enrolled in grades 10-11 who are on free lunch in their assigned school. The dotted line is the hypothetical regression line, or the economic composition of the school we would expect if all students in the catchment area used their assigned school. The concentration of points above the regression line in both the elementary and high school samples indicate that school poverty rates are higher than poverty rates in the corresponding catchment areas.

Explaining White Enrollment

Table 8 contains the descriptive statistics of all of the variables used in the linear regression models. In both the elementary and high school samples, on average, over half of the White population in the catchment area used their assigned schools, though there is considerably more variability in their usage in elementary school (SD = 54.78, compared to 18.82 in the high school sample). Since high school boundaries are designed to be larger than elementary school boundaries, there are more students of every racial group living in the high school catchment areas. In both the elementary and high school samples, Whites are the largest demographic group. On average, the elementary school catchment areas are 51 percent White, 16 percent Black, 28 percent Hispanic, and 5 percent Asian; the high school catchment areas are 69 percent White, 11 percent Black, 17 percent Hispanic, and 3 percent Asian. In regards to choice options, there are, on average, more magnet, private, and charter schools available to students at the high school level than at the elementary school level. Among the elementary schools analyzed, the schools were 48 percent White, 18 percent Black, 28 percent Hispanic, and 5 percent Asian, though there is considerable variability in the sample. In the high school sample, schools were, on average, 68 percent White, 13 percent Black, 16 percent Hispanic, and 3 percent Asian.

The results of the linear regression models that predict White enrollment in their assigned elementary school are presented in Table 9. Model 1[6] is the baseline model that predicts *White Enrollment* in their assigned elementary school by *Percent Minority*. In Model 2, I introduce the *Percent Minority Squared* term to account for the potentially nonlinear relationship between *White Enrollment* and the proportion minority in the catchment area. In Model 3, I disaggregate *Percent Minority* into the percent of each racial group living in the catchment area, and in Model 4, I add squared terms for each of these groups. In Model 5, I add all school quality variables to the model. Finally, in Model 6, I add the number of private, magnet, and charter schools located within the catchment area. The R^2 value increases in each successive model (R^2=.30)., indicating that the inclusion of these additional measures improves model fit.

The racial composition of the catchment area affects Whites' use of their assigned elementary school. *Percent Black*, *Percent Hispanic*, and *Percent Asian* all have negative effects on *White Enrollment*, although *Percent Asian* has the largest negative effect (-.449, p<.01), followed by *Percent Black* (-.222, p<.01), and *Percent Hispanic* (-.0773, p<.05). In particular, the coefficients on *Percent Black Squared* (-0.00136, p<.05) and *Percent Hispanic Squared* (-0.000771, p<.1) are negative and significant, which indicates that higher proportions of Black and Hispanic children in the catchment area will result in fewer Whites attending their assigned school, regardless of its quality or the number of choice options available to families in the area. In contrast, higher proportions of Asians in the catchment area, captured in the *Percent Asian Squared* term, will have a positive effect on *White Enrollment* (.00754, p<.01).

Additionally, the number of choice options that are available to families within the bounds of the catchment area have large effects on *White Enrollment* in their assigned schools.

[6] In all models, I report heteroskedastic robust standard errors. All models are use analytic weights that weight by the number of White 5- to 9-year-olds living in the catchment area.

Charter schools in particular have the largest negative effect (-5.616, *p*<.01), followed by private schools (-4.970, *p*<.01), and magnet schools (-1.016, *p*<.01).

The results of the linear regression models that predict *White Enrollment* in their assigned high school are presented in Table 10. Model 1[7] is the baseline model that predicts *White Enrollment* in their assigned high school by *Percent Minority*. In Model 2, I introduce *Percent Minority Squared*. In Model 3, I disaggregate *Percent Minority* into the percent Black, Hispanic, and Asian living in the catchment area. In Model 4, I add squared terms for each racial group. In Model 5, I add in all school quality measures to the model. Finally, in Model 6, I add the number of private, magnet, and charter schools located within the catchment area. As indicated by the R^2 values, the disaggregation of the racial composition and the inclusion of squared terms and school quality measures all improve model fit (R^2=.44).

The racial composition of the catchment area also affects Whites' use of their assigned high school. *Percent Black* and *Percent Asian* both have negative effects on *White Enrollment*, although *Percent Asian* has the largest negative effect (-.510, *p*<.01), followed by *Percent Black* (-.104, *p*<.01). In contrast, *Percent Hispanic* has a positive effect on *White Enrollment* (.169, *p*<.01); however, higher percentages of Hispanics in the catchment area – captured by the *Percent Hispanic Squared* term – result in fewer Whites enrolling in their assigned school (-.00311, *p*<.01). Similarly, as the proportion of Black children in the catchment area grows – captured in the *Percent Black Squared* term – fewer White children will enroll in their assigned school (-0.00192, *p*<.01). Like the elementary school sample, lower proportions of Asian children – captured in the *Percent Asian* term – have a negative effect on *White Enrollment* (-

[7] In all models, I report heteroskedastic robust standard errors. I use analytic weights that weight by the number of White 15- to 17-year-olds living in the catchment area in all models.

.510, $p<.01$), but higher proportions – captured in the *Percent Asian Squared* term – have positive effects on *White Enrollment* (.0129, $p<.01$).

As was the case with the elementary school sample, the number of choice options that are available to families in the catchment area have negative and significant effects on *White Enrollment* in their assigned high school. Private schools have the largest effect on Whites' public school usage (-1.320, $p<.01$), followed by charters (-1.083, $p<.01$), and magnets (-.745, $p<.05$).

DISCUSSION AND CONCLUSION

School choice has been heralded as a solution to failing public schools, expanding under the assumptions that all families are equally able to access them and that parents are motivated to choose schools based on their academic quality. Our understanding of the role they have played in the rising levels of school segregation has been limited by the unavailability of catchment area data that would make possible the "apples to apples" comparisons of the age-specific population living in the catchment area to the population enrolled in their corresponding grades in their assigned school. Moreover, studies have been significantly limited by their failure to assess the claim that parents are using school choice options as a way to avoid the "bad" schools zoned to their neighborhood. By using catchment area data and detailed school-level quality information, this research advances our understanding of the dynamics of racial and economic stratification in U.S. schools and neighborhoods.

The longitudinal analysis of school and catchment-area racial segregation in the 22 largest school districts between 2000 and 2010 reveal a diverging relationship between the composition of districts' residential and school populations. While high levels of residential segregation remain a defining feature of American life, schools were, on average, more segregated than the neighborhoods they drew from. Additionally, compared to the high-school-age and non-school-age populations, levels of segregation were highest among elementary-age students, and White-Black segregation was the highest among all racial groups and ages analyzed.

Additionally, results from the racial and economic cross-sectional analyses indicate that students are exposed to higher concentrations of poverty in their schools than in their neighborhoods. The cross-sectional analysis also reveals that there are fewer Whites using their assigned school than would be if all living in an attendance area used their assigned school. These findings suggest that choice options are not being used by the families they were intended to help and that their expansion has created traditional public schools that are segregated above and beyond what would be expected by their neighborhood composition.

The linear regression models indicate that, regardless of the quality or class composition of the assigned public school or the number of school choice options available to families within the catchment area, the school-age racial composition of the catchment area affects the likelihood that Whites will enroll in their assigned school. In particular, the proportion of the school-age population of the catchment area that is Black and Asian has a negative and highly significant effect on *White Enrollment* at both the elementary and high school levels. The proportion of school-age population that is Hispanic also negatively affects *White Enrollment*, though its magnitude is less than the effect that the *Percent Black* and *Percent Asian*. At the high-school level, the percent of the school-age population that is Hispanic actually has a positive effect on *White Enrollment*, though as the proportion of this population grows, the likelihood of *White Enrollment* declines. These results provide support for the outgroup avoidance hypothesis and suggest that school choice options facilitate "White flight."

This study is not without its limitations. Though the use of catchment-area data is an important step forward in measuring school and residential segregation, the data available for my cross-sectional study year is not nationally representative, nor is it likely that the participation of the districts in the SABINS project was random. Unfortunately, this makes it unclear the extent to which these findings are generalizable to districts across the U.S. If school districts with less racial and economic segregation were more likely to submit their catchment area data to SABINS, my results could underestimate the true effect the racial composition has on *White Enrollment*. Researchers should encourage federal agencies to annually collect national data on catchment areas so that more definitive conclusions can be drawn about the contemporary nature of residential and school segregation and to improve upon other work that use census tracts as the main unit of analysis.

Additionally, though the economic analysis is striking, it is likely that my analysis overestimates the concentration of poor students in their neighborhood schools. As previously mentioned, the percent of students on free lunch is an unreliable measure of poverty since different federal guidelines are used to determine poverty and free lunch statuses (Snyder and Musu-Gillette 2015). However, as it stands now, free lunch is the only measure of school poverty that is available to researchers.

Future research should consider how parents are choosing schools for their children and what information is most important to them when deciding upon a certain school. In an era of "colorblindness," measuring the extent to which the racial composition of the school in question has on White parents' likelihood of using it has become difficult to measure, since significant social desirability bias will prevent parents from discussing how much this matters to them when choosing a school for their children.

Though the original goals of school choice expansion were to increase the quality of schools available to American families and decrease levels of school segregation, their expansion has had the opposite effect. School choice has increased the concentrations of poor and non-White students in their traditional public schools and has contributed to the overall increases we have seen in levels of school segregation. Liberation theory rests on the fundamentally flawed assumption that all families are equally able to find out and take advantage of school choice options. Additionally, it assumes that White parents will not use schools of choice as a way to separate their children from non-White children. If school choice continues to expand without any modifications to its implementation, such as "controlled choice" plans or the implementation of socioeconomic desegregation plans, we can expect levels of school segregation to continue to increase.

Table 1 - Number of Regular, Magnet, Charter, and Private Schools in the 22 Largest School Districts – 2000 and 2010

	2000				2010			
	Regular	Magnet	Charter	Private	Regular	Magnet	Charter	Private
Baltimore City	163	0	0	181	154	4	33	145
Baltimore County	160	0	0	232	155	3	1	118
Broward County	215	2	9	134	218	0	69	155
Chicago Public Schools	507	47	12	424	520	49	30	340
Clark County	221	6	2	58	306	7	14	87
Dallas ISD	203	11	20	99	207	17	53	93
Detroit Public Schools	213	41	49	93	133	19	79	28
Duval County	161	0	7	93	153	0	8	128
Fairfax County	174	3	0	90	186	3	0	133
Hillsborough County	167	10	10	112	218	0	37	119
Houston ISD	210	34	43	277	210	53	146	219
Los Angeles Unified	529	64	33	295	609	25	124	240
Miami-Dade County	324	2	12	262	331	0	117	301
Milwaukee Public Schools	123	32	2	131	161	0	57	121
Montgomery County	168	0	0	147	189	0	0	153
New York City	1120	0	4	877	1455	18	94	649
Orange County	154	0	5	99	172	0	21	130
Palm Beach County	152	0	7	114	157	0	35	101
Philadelphia	239	13	25	241	248	15	70	207
Pinellas County	141	0	2	97	107	0	12	93
Prince George’s County	153	21	0	96	177	7	4	106
San Diego Unified	119	40	11	100	140	32	43	82

Table 2 - White-Black Dissimilarity Indices between 2000 and 2010 for Elementary Schools and Their Catchment Areas

	2000			**2010**			
	Elementary Catchment	Elementary School	School-Catchment	Elementary Catchment	Elementary School	School-Catchment	**2010-2000**
Baltimore City	.71	.80	0.09	.69	.77	0.08	-0.01
Baltimore County	.62	.64	0.02	.57	.58	0.01	-0.01
Broward County	.58	.65	.07	.56	.60	.04	-.03
Chicago PS	.88	.90	.02	.85	.87	.02	.00
Clark County	.43	.42	-.01	.43	.39	-.04	-.03
Dallas ISD	.69	.70	.01	.72	.71	-.01	-.02
Detroit PS	.66	.79	.13	.75	.81	.06	-.07
Duval	.51	.45	-.06	.51	.51	.00	0.06
Fairfax	.43	.46	.03	.44	.47	.03	0
Hillsborough	.38	.47	.09	.51	.55	.04	-0.05
Houston ISD	.72	.76	.04	.73	.77	.04	0
Los Angeles Unified	.75	.75	.00	.75	.71	-.04	-0.04
Miami-Dade	.70	.75	.05	.69	.78	.09	0.04
Milwaukee	.69	.60	-.09	.70	.66	-.04	0.05
Montgomery	.43	.44	.01	.50	.51	.01	0
New York City	.82	.83	.01	*	*	*	*
Orange	.54	.57	.03	.54	.58	.04	0.01
Palm Beach	.55	.60	.05	.54	.62	.08	0.03
Philadelphia	.78	*	*	.76	.75	-.01	*
Pinellas	.42	.31	-.11	.52	.53	.01	0.12
Prince George's	.53	.57	.04	.54	.58	.04	0
San Diego Unified	.65	.54	-.11	.64	.63	-.01	0.1
Average	**0.61**	**0.62**	**0.01**	**0.62**	**0.64**	**0.02**	**0.01**

Table 3 - White-Black Dissimilarity Indices between 2000 and 2010 for High Schools and Their Catchment Areas

	2000			2010			
	High School Catchment	High School	School-Catchment	High School Catchment	High School	School-Catchment	**2010-2000**
Baltimore City	.46	.65	.19	*	.53	*	*
Baltimore County	.54	.56	.02	.51	.50	-.01	-.03
Broward County	.58	.65	.07	.56	.60	.04	-.03
Chicago PS	.74	.70	-.04	.75	.75	.00	.04
Clark County	.35	.37	.02	.34	.33	-.01	-.03
Dallas ISD	.59	.68	.09	.71	.66	-.05	-.14
Detroit PS	.44	.65	.21	.54	.65	.11	-.10
Duval	.40	.36	-.04	.39	.39	.00	.04
Fairfax	.34	.38	.04	.37	.37	.00	-.04
Hillsborough	.34	.33	-.01	.38	.38	.00	.01
Houston ISD	.64	.65	.01	.64	.65	.01	.00
Los Angeles Unified	.70	.60	-.10	.66	.62	-.04	.06
Miami-Dade	.59	.63	.04	.60	.65	.05	.01
Milwaukee	.51	.56	.05	.61	.39	-.22	-.27
Montgomery	.36	.36	.00	.43	.45	.02	.02
New York City	*	*	*	*	*	*	*
Orange	.43	.43	.00	.39	.35	-.04	-.04
Palm Beach	.35	.37	.02	.47	.54	.07	.05
Philadelphia	.74	*	*	.62	.60	-.02	*
Pinellas	.28	.32	.04	.47	.43	-.04	-.08
Prince George's	.42	.47	.05	.51	.55	.04	-.01
San Diego Unified	.54	.48	-.06	.53	.50	-.03	.03
Average	**0.49**	**0.51**	**0.03**	**0.52**	**0.52**	**-0.01**	**-0.03**

Table 4 - White-Hispanic Dissimilarity Indices between 2000 and 2010 for Elementary Schools and Their Catchment Areas

	2000			**2010**			
	Elementary Catchment	Elementary School	School-Catchment	Elementary Catchment	Elementary School	School-Catchment	**2010-2000**
Baltimore City	.42	.57	.15	.52	.56	.04	-.11
Baltimore County	.30	.42	.12	.36	.45	.09	-.03
Broward County	.26	.29	.03	.29	.32	.03	.00
Chicago PS	.60	.59	-.01	.67	.68	.01	.02
Clark County	.46	.48	.02	.51	.53	.02	.00
Dallas ISD	.59	.60	.01	.65	.61	-.04	-.05
Detroit PS	.48	.50	.02	.53	.40	-.13	-.15
Duval	.21	.28	.07	.22	.27	.05	-.02
Fairfax	.43	.52	.09	.40	.49	.09	.00
Hillsborough	.35	.41	.06	.36	.45	.09	.03
Houston ISD	.61	.66	.05	.68	.75	.07	.02
Los Angeles Unified	.67	.74	.07	.71	.76	.05	-.02
Miami-Dade	.27	.47	.20	.30	.50	.20	.00
Milwaukee	.59	.61	.02	.60	.62	.02	.00
Montgomery	.43	.49	.06	.47	.54	.07	.01
New York City	.69	.71	.02	*	*	*	*
Orange	.34	.39	.05	.37	.40	.03	-.02
Palm Beach	.40	.45	.05	.42	.47	.05	.00
Philadelphia	.68	*	*	.63	.67	.04	*
Pinellas	.20	.31	.11	.26	.36	.10	-.01
Prince George's	.57	.72	.15	.57	.62	.05	-.10
San Diego Unified	.65	.58	-.07	.61	.62	.01	.08
Average	**0.46**	**0.51**	**0.06**	**0.48**	**0.53**	**0.04**	**-0.02**

Table 5 - White-Hispanic Dissimilarity Indices between 2000 and 2010 for High Schools and Their Catchment Areas

	2000			**2010**			
	High School Catchment	High School	School-Catchment	High School Catchment	High School	School-Catchment	**2010-2000**
Baltimore City	.32	.24	-.08	*	.41	*	*
Baltimore County	.20	.28	.08	.26	.35	.09	.01
Broward County	.20	.22	.02	.24	.22	-.02	-.04
Chicago PS	.50	.47	-.03	.52	.52	.00	.03
Clark County	.37	.39	.02	.40	.44	.04	.02
Dallas ISD	.46	.58	.12	.51	.55	.04	-.08
Detroit PS	.49	.50	.01	.25	.14	-.11	-.12
Duval	.17	.20	.03	.15	.21	.06	.03
Fairfax	.32	.34	.02	.29	.33	.04	.02
Hillsborough	.26	.23	-.03	.24	.26	.02	.05
Houston ISD	.52	.54	.02	.58	.67	.09	.07
Los Angeles Unified	.61	.61	.00	.64	.62	-.02	-.02
Miami-Dade	.28	.39	.11	.28	.38	.10	-.01
Milwaukee	.44	.39	-.05	.48	.32	-.16	-.11
Montgomery	.32	.36	.04	.37	.41	.04	.00
New York City	*	*	*	*	*	*	*
Orange	.28	.31	.03	.32	.34	.02	-.01
Palm Beach	.35	.34	-.01	.34	.35	.01	.02
Philadelphia	.57	*	*	.47	.59	.12	*
Pinellas	.12	.21	.09	.16	.22	.06	-.03
Prince George's	.49	.59	.10	.45	.64	.19	.09
San Diego Unified	.52	.42	-.10	.55	.42	-.13	-.03
Average	**0.37**	**0.38**	**0.02**	**0.38**	**0.40**	**0.02**	**-0.01**

Table 6 - White-Asian Dissimilarity Indices between 2000 and 2010 for Elementary Schools and Their Catchment Areas

	2000			**2010**			
	Elementary Catchment	Elementary School	School-Catchment	Elementary Catchment	Elementary School	School-Catchment	**2010-2000**
Baltimore City	.40	.54	.14	.35	.52	.17	.03
Baltimore County	.36	.39	.03	.36	.40	.04	.01
Broward County	.22	.22	.00	.27	.26	-.01	-.01
Chicago PS	.56	.58	.02	.50	.55	.05	.03
Clark County	.28	.24	-.04	.29	.27	-.02	.02
Dallas ISD	.58	.65	.07	.53	.61	.08	.01
Detroit PS	.66	.82	.16	.85	.90	.05	-.11
Duval	.30	.33	.03	.34	.31	-.03	-.06
Fairfax	.26	.28	.02	.29	.30	.01	-.01
Hillsborough	.30	.30	.00	.31	.35	.04	.04
Houston ISD	.43	.45	.02	.38	.36	-.02	-.04
Los Angeles Unified	.49	.50	.01	.50	.49	-.01	-.02
Miami-Dade	.32	.36	.04	.31	.36	.05	.01
Milwaukee	.57	.47	-.10	.58	.52	-.06	.04
Montgomery	.31	.31	.00	.34	.32	-.02	-.02
New York City	.52	.52	.00	*	*	*	*
Orange	.34	.36	.02	.27	.30	.03	.01
Palm Beach	.26	.28	.02	.24	.24	.00	-.02
Philadelphia	.55	*	*	.51	.53	.02	*
Pinellas	.30	.38	.08	.30	.32	.02	-.06
Prince George's	.36	.45	.09	.40	.43	.03	-.06
San Diego Unified	.59	.50	-.09	.59	.56	-.03	.06
Average	**0.41**	**0.43**	**0.02**	**0.41**	**0.42**	**0.02**	**-0.01**

Table 7 - White-Asian Dissimilarity Indices between 2000 and 2010 for High Schools and Their Catchment Areas

	2000			**2010**			
	High School Catchment	High School	School-Catchment	High School Catchment	High School	School-Catchment	**2010-2000**
Baltimore City	.25	.10	-.15	*	.32	*	*
Baltimore County	.32	.39	.07	.25	.34	.09	.02
Broward County	.17	.22	.05	.20	.23	.03	-.02
Chicago PS	.49	.42	-.07	.50	.44	-.06	.01
Clark County	.20	.20	.00	.30	.28	-.02	-.02
Dallas ISD	.35	.46	.11	.44	.53	.09	-.02
Detroit PS	.56	.73	.17	.20	.32	.12	-.05
Duval	.22	.25	.03	.20	.25	.05	.02
Fairfax	.15	.15	.00	.16	.16	.00	.00
Hillsborough	.25	.26	.01	.21	.30	.09	.08
Houston ISD	.32	.27	-.05	.31	.31	.00	.05
Los Angeles Unified	.42	.37	-.05	.54	.41	-.13	-.08
Miami-Dade	.18	.20	.02	.20	.27	.07	.05
Milwaukee	.42	.36	-.06	.52	.23	-.29	-.23
Montgomery	.21	.21	.00	.27	.23	-.04	-.04
New York City	*	*	*	*	*	*	*
Orange	.25	.21	-.04	.23	.24	.01	.05
Palm Beach	.16	.22	.06	.16	.30	.14	.08
Philadelphia	.46	*	*	.40	.39	-.01	*
Pinellas	.24	.29	.05	.22	.31	.09	.04
Prince George's	.33	.32	-.01	.30	.31	.01	.02
San Diego Unified	.46	.45	-.01	.55	.46	-.09	-.08
Average	**0.31**	**0.30**	**0.01**	**0.31**	**0.32**	**0.01**	**-0.01**

Figure 1 – Comparison of the Percent of White 5- to 9-year-olds Living in the Catchment Area by the Percent White Enrolled in Grades K-3 in their Assigned School

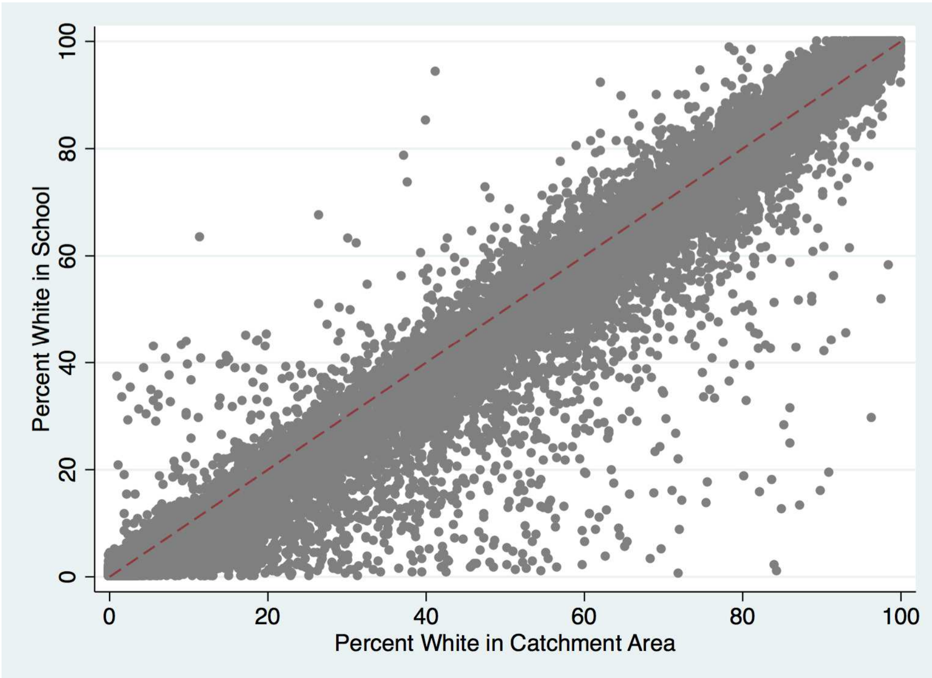


Figure 2 – Comparison of the Percent of White 15- to 17-year-olds Living in the Catchment Area by the Percent White Enrolled in Grades 10-11 in their Assigned School

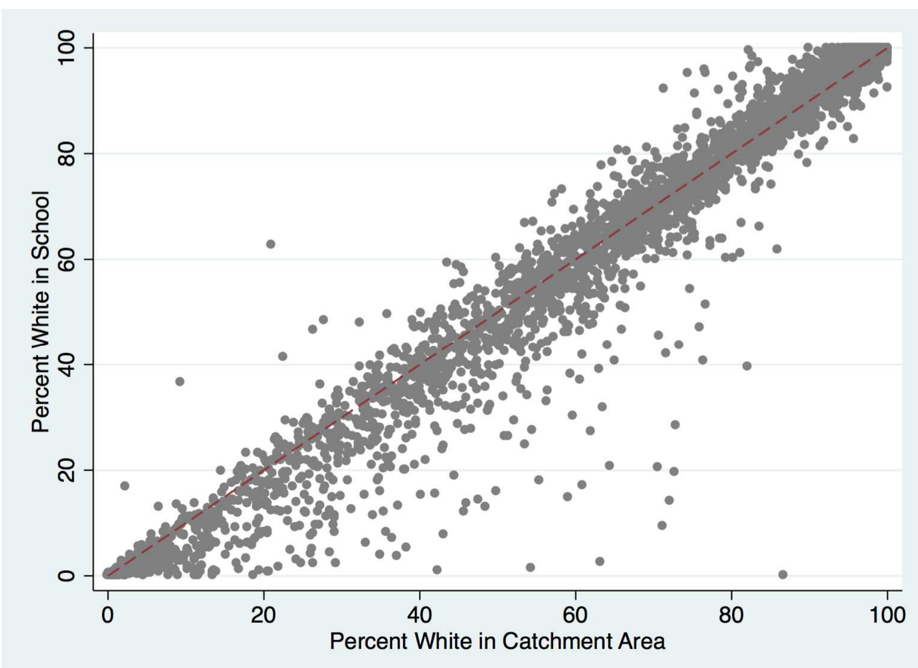
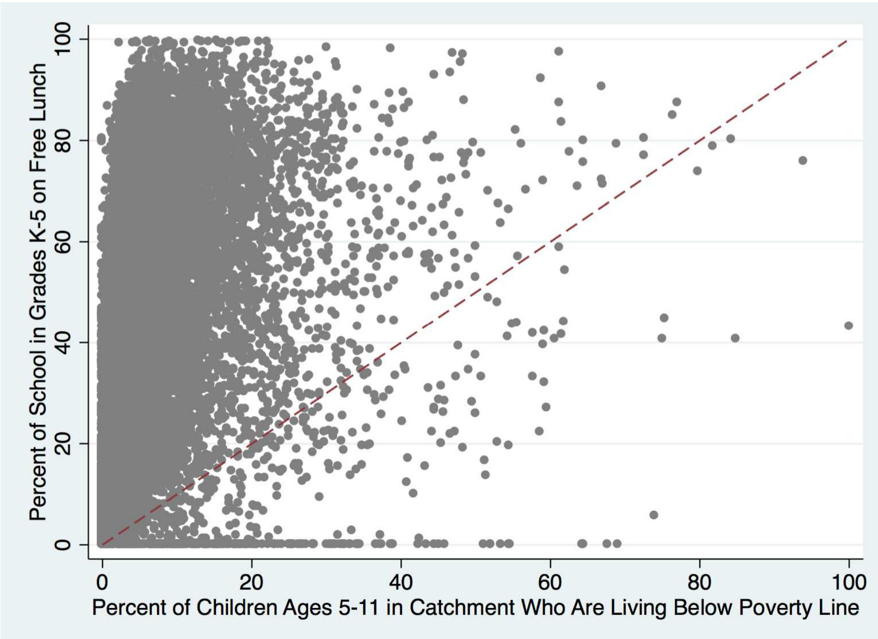
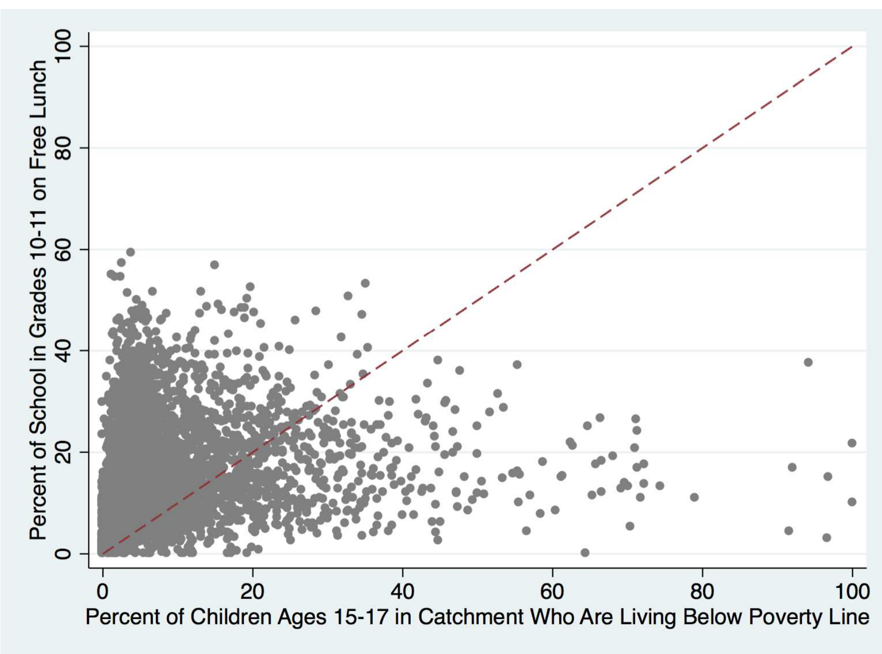


Figure 3 - Comparison of the Percent of Poor 5-11-Year-Olds Living in the Catchment Area by the Percent of Poor Students Enrolled in Grades K-5 in their Assigned School



Note: N=17,498.

Figure 4 - Comparison of the Percent of Poor 15-17-Year-Olds Living in the Catchment Area by the Percent of Poor Students Enrolled in Grades 10-11 in their Assigned School



Note: N=4,512.

Table 8 - Descriptive Statistics

	Elementary Schools (n=16,181)		High Schools (n=4,002)	
	Mean/Proportion	SD	Mean/Proportion	SD
White Enrollment	63.81	54.78	53.69	18.82
Catchment Area Characteristics				
Total Number of Students in Catchment Area	501.37	361.56	1069.61	1029.42
Number of White Students in Catchment	230.34	210.45	568.35	488.31
Percent White in Catchment	51.05	33.47	68.74	28.88
Percent White Squared in Catchment	37.27	33.57	55.59	33.31
Percent Minority	48.95	33.47	31.26	28.88
Percent Minority Squared	35.16	35.40	18.11	26.42
Number of Black Students	87.90	171.48	158.46	311.94
Percent Black	16.20	23.50	11.34	17.86
Percent Black Squared	8.14	19.85	4.47	12.96
Number of Hispanic Students	156.35	208.28	289.23	642.42
Percent Hispanic	28.02	27.75	16.86	21.58
Percent Hispanic Squared	15.55	24.68	7.50	17.05
Number of Asian Students	26.78	53.98	53.57	132.58
Percent Asian	4.73	8.28	3.06	5.60
Percent Asian Squared	0.91	3.94	0.41	2.05

Number of Magnet Schools in Catchment Area	0.09	0.87	0.14	0.66
Number of Charter Schools	0.16	0.54	0.48	1.36
Number of Private Schools	0.68	1.14	2.16	3.01
School Characteristics				
Total Number of Students Enrolled in School	324.44	146.80	532.43	420.07
Number of White Students Enrolled	144.93	125.09	298.32	256.42
Percent White of School	48.46	34.97	67.65	31.07
Number of Black Students Enrolled	57.71	79.99	79.95	129.80
Percent Black	18.36	25.69	13.06	20.58
Number of Hispanic Students Enrolled	103.02	132.57	124.83	238.28
Percent Hispanic	28.02	29.99	15.84	22.62
Number of Asian Students Enrolled	18.79	38.29	29.32	65.78
Percent Asian	5.16	9.00	3.46	6.11
Percent of Novice Teachers	11.16	10.90	10.54	8.97
Percent of Teachers with State Certification	98.34	7.37	98.69	5.01
Percent of Chronically Absent Teachers	28.71	19.95	26.16	18.60
IB Program (1=yes)	-	-	0.06	0.23
AP Course Count	-	-	10.09	7.99
Percent Suspended	0.90	2.28	2.33	4.99
Percent Language Arts Proficient	71.84	18.15	73.46	17.59
Percent Math Proficient	74.03	16.75	66.85	18.69

Table 9 – Linear Regression Models of the Proportion of White Students Enrolled in their Assigned Elementary School by the Characteristics of the School and Catchment Area

School and Catchment Area Characteristics	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4	(5) Model 5	(6) Model 6
Percent Black in Catchment			-0.478***	-0.432***	-0.358***	-0.222***
			(0.0184)	(0.0517)	(0.0500)	(0.0361)
Percent Black^2 in Catchment				-0.000812	-0.000681	-0.00136**
				(0.000795)	(0.000766)	(0.000557)
Percent Hispanic in Catchment			-0.210***	-0.205***	-0.165***	-0.0773**
			(0.0113)	(0.0428)	(0.0427)	(0.0326)
Percent Hispanic^2 in Catchment				-3.18e-05	0.000340	-0.000771*
				(0.000563)	(0.000550)	(0.000424)
Percent Asian in Catchment			-0.133***	-0.389***	-0.499***	-0.449***
			(0.0291)	(0.0674)	(0.0766)	(0.0591)
Percent Asian^2 in Catchment				0.00746***	0.00974***	0.00754***
				(0.00151)	(0.00163)	(0.00134)
Percent Novice					-0.0648***	-0.0807***
					(0.0245)	(0.0186)
Percent Chronically Absent					-0.0368***	-0.0208**
					(0.0115)	(0.00879)
Percent Certified					0.217***	0.134***
					(0.0306)	(0.0285)
Percent Suspended					-0.434**	-0.464***
					(0.210)	(0.149)
Magnet Count						-1.016***
						(0.146)
Charter Count						-5.616***
						(0.587)
Private Count						-4.970***
						(0.202)
Percent Language Arts Proficient					0.341***	0.196***
					(0.0385)	(0.0264)
Percent Math Proficient					-0.106***	-0.0176
					(0.0333)	(0.0245)
Percent on FRPL					0.0195	-0.0140
					(0.0166)	(0.0117)
Percent Minority in Catchment	-0.291***	-0.275***				

	(0.00983)	(0.0361)				
Percent Minority^2 in Catchment		-0.000195				
		(0.000387)				
Constant	72.00***	71.80***	71.66***	72.07***	32.55***	49.74***
	(0.346)	(0.530)	(0.345)	(0.449)	(3.771)	(3.211)
Observations	16,181	16,181	16,181	16,181	16,179	16,179
R-squared	0.094	0.094	0.112	0.114	0.144	0.299

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 10 – Linear Regression Models of the Proportion of White Students Enrolled in their Assigned High School by the Characteristics of the School and Catchment Area

School and Catchment Area Characteristics	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4	(5) Model 5	(6) Model 6
Percent Black in Catchment			-0.440***	-0.434***	-0.156***	-0.104**
			(0.0214)	(0.0547)	(0.0526)	(0.0447)
Percent $Black^2$ in Catchment				-0.000177	-0.00125	-0.00192***
				(0.000904)	(0.000806)	(0.000720)
Percent Hispanic in Catchment			-0.201***	-0.0679	0.103*	0.169***
			(0.0197)	(0.0691)	(0.0577)	(0.0446)
Percent $Hispanic^2$ in Catchment				-0.00206**	-0.00195**	-0.00311***
				(0.000967)	(0.000843)	(0.000628)
Percent Asian in Catchment			-0.0316	-0.318**	-0.924***	-0.510***
			(0.0534)	(0.134)	(0.127)	(0.115)
Percent $Asian^2$ in Catchment				0.00963***	0.0238***	0.0129***
				(0.00367)	(0.00396)	(0.00336)
Percent Novice					-0.134***	-0.142***
					(0.0331)	(0.0296)
Percent Chronically Absent					-0.0527***	-0.0323***
					(0.0130)	(0.0113)
Percent Certified					0.158**	0.0734
					(0.0654)	(0.0691)
Percent Suspended					-0.230**	-0.247***
					(0.102)	(0.0788)
AP Course Count					-0.0141	0.121***
					(0.0399)	(0.0342)
IB Program					-1.506	0.523
					(1.220)	(1.028)
Magnet Count						-0.745**
						(0.359)
Charter Count						-1.083***
						(0.279)
Private Count						-1.320***
						(0.102)
Percent Language Arts Proficient					0.160***	0.0804***
					(0.0304)	(0.0205)
Percent Math Proficient					0.0144	-0.00177

					(0.0204)	(0.0151)
Percent on FRPL					-0.175***	-0.173***
					(0.0290)	(0.0203)
Percent Minority in Catchment	-0.267***	-0.141***				
	(0.0128)	(0.0445)				
Percent Minority^2 in Catchment		-0.00163***				
		(0.000557)				
Constant	60.34***	58.83***	60.14***	59.80***	36.85***	53.21***
	(0.387)	(0.485)	(0.401)	(0.430)	(7.209)	(7.281)
Observations	4,002	4,002	4,002	4,002	4,001	4,001
R-squared	0.150	0.153	0.184	0.188	0.309	0.437

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

APPENDIX

Table 11 - Age-Specific Dissimilarity Indices between White-Black, White-Hispanic, and White-Asian Across Schools and Catchment Areas in 2000

	White-Black				White-Hispanic				White-Asian			
	EC	ES	HSC	HS	EC	ES	HSC	HS	EC	ES	HSC	HS
Baltimore City												
Ages 5 to 9	.71	.80	-	-	.42	.57	-	-	.40	.54	-	-
Ages 15 to 17	-	-	.46	.65	-	-	.32	.24	-	-	.25	.10
Ages 18 to 85	.66	-	.40	-	.31	-	.20	-	.37	-	.26	-
Baltimore County												
Ages 5 to 9	.62	.64	-	-	.30	.42	-	-	.36	.39	-	-
Ages 15 to 17	-	-	.54	.56	-	-	.20	.28	-	-	.32	.39
Ages 18 to 85	.56	-	.51	-	.25	-	.17	-	.30	-	.23	-
Broward County												
Ages 5 to 9	.58	.65	-	-	.26	.29	-	-	.22	.22	-	-
Ages 15 to 17	-	-	.43	.50	-	-	.20	.22	-	-	.17	.22
Ages 18 to 85	.51	-	.32	-	.26	-	.19	-	.25	-	.20	-
Chicago Public Schools												
Ages 5 to 9	.88	.90	-	-	.60	.59	-	-	.56	.58	-	-
Ages 15 to 17	-	-	.74	.70	-	-	.50	.47	-	-	.49	.42
Ages 18 to 85	.83	-	.73	-	.56	-	.49	-	.45	-	.42	-
Clark County												
Ages 5 to 9	.43	.42	-	-	.46	.48	-	-	.28	.24	-	-
Ages 15 to 17	-	-	.35	.37	-	-	.37	.39	-	-	.20	.20
Ages 18 to 85	.34	-	.27	-	.38	-	.34	-	.21	-	.17	-
Dallas ISD												
Ages 5 to 9	.69	.70	-	-	.59	.60	-	-	.58	.65	-	-
Ages 15 to 17	-	-	.59	.68	-	-	.46	.58	-	-	.35	.46
Ages 18 to 85	.64	-	.58	-	.51	-	.38	-	.37	-	.19	-
Detroit Public Schools												
Ages 5 to 9	.66	.79	-	-	.48	.50	-	-	.66	.82	-	-
Ages 15 to 17	-	-	.44	.65	-	-	.49	.50	-	-	.56	.73
Ages 18 to 85	.55	-	.39	-	.59	-	.58	-	.47	-	.40	-
Duval County												
Ages 5 to 9	.51	.45	-	-	.21	.28	-	-	.30	.33	-	-
Ages 15 to 17	-	-	.40	.36	-	-	.17	.20	-	-	.22	.25

Ages 18 to 85	.51	-	.42	-	.19	-	.12	-	.27	-	.21	-
Fairfax County												
Ages 5 to 9	.43	.46	-	-	.43	.52	-	-	.26	.28	-	-
Ages 15 to 17	-	-	.34	.38	-	-	.32	.34	-	-	.15	.15
Ages 18 to 85	.34	-	.28	-	.35	-	.25	-	.21	-	.15	-
Hillsborough County												
Ages 5 to 9	.38	.47	-	-	.35	.41	-	-	.30	.30	-	-
Ages 15 to 17	-	-	.34	.33	-	-	.26	.23	-	-	.25	.26
Ages 18 to 85	.31	-	.30	-	.30	-	.24	-	.28	-	.24	-
Houston ISD												
Ages 5 to 9	.72	.76	-	-	.61	.66	-	-	.43	.45	-	-
Ages 15 to 17	-	-	.64	.65	-	-	.52	.54	-	-	.32	.27
Ages 18 to 85	.67	-	.60	-	.53	-	.44	-	.37	-	.23	-
Los Angeles Unified												
Ages 5 to 9	.75	.75	-	-	.67	.74	-	-	.49	.50	-	-
Ages 15 to 17	-	-	.70	.60	-	-	.61	.61	-	-	.42	.37
Ages 18 to 85	.71	-	.66	-	.64	-	.57	-	.44	-	.40	-
Miami-Dade County												
Ages 5 to 9	.70	.75	-	-	.27	.47	-	-	.32	.36	-	-
Ages 15 to 17	-	-	.59	.63	-	-	.28	.39	-	-	.18	.20
Ages 18 to 85	.62	-	.53	-	.47	-	.41	-	.29	-	.20	-
Milwaukee Public Schools												
Ages 5 to 9	.69	.60	-	-	.59	.61	-	-	.57	.47	-	-
Ages 15 to 17	-	-	.51	.56	-	-	.44	.39	-	-	.42	.36
Ages 18 to 85	.65	-	.50	-	.59	-	.44	-	.34	-	.26	-
Montgomery County												
Ages 5 to 9	.43	.44	-	-	.43	.49	-	-	.31	.31	-	-
Ages 15 to 17	-	-	.36	.36	-	-	.32	.36	-	-	.21	.21
Ages 18 to 85	.38	-	.34	-	.35	-	.28	-	.25	-	.19	-
New York City												
Ages 5 to 9	.82	.83	-	-	.69	.71	-	-	.52	.52	-	-
Ages 15 to 17	-	-	*	*	-	-	*	*	-	-	*	*
Ages 18 to 85	.79	-	*	-	.61	-	*	-	.44	-	*	-
Orange County												
Ages 5 to 9	.54	.57	-	-	.34	.39	-	-	.34	.36	-	-
Ages 15 to 17	-	-	.43	.43	-	-	.28	.31	-	-	.25	.21
Ages 18 to 85	.46	-	.39	-	.30	-	.23	-	.28	-	.23	-
Palm Beach County												
Ages 5 to 9	.55	.60	-	-	.40	.45	-	-	.26	.28	-	-
Ages 15 to 17	-	-	.35	.37	-	-	.35	.34	-	-	.16	.22

Ages 18 to 85	.48	-	.31	-	.34	-	.31	-	.22	-	.14	-
Philadelphia												
Ages 5 to 9	.78	*	-	-	.68	*	-	-	.55	*	-	-
Ages 15 to 17	-	-	.74	*	-	-	.57	*	-	-	.46	*
Ages 18 to 85	.72	-	.67	-	.60	-	.52	-	.44	-	.35	-
Pinellas County												
Ages 5 to 9	.42	.31	-	-	.20	.31	-	-	.30	.38	-	-
Ages 15 to 17	-	-	.28	.32	-	-	.12	.21	-	-	.24	.29
Ages 18 to 85	.39	-	.26	-	.19	-	.11	-	.28	-	.21	-
Prince George's County												
Ages 5 to 9	.53	.57	-	-	.57	.72	-	-	.36	.45	-	-
Ages 15 to 17	-	-	.42	.47	-	-	.49	.59	-	-	.33	.32
Ages 18 to 85	.45	-	.36	-	.52	-	.44	-	.26	-	.23	-
San Diego Unified												
Ages 5 to 9	.65	.54	-	-	.65	.58	-	-	.59	.50	-	-
Ages 15 to 17	-	-	.54	.48	-	-	.52	.42	-	-	.46	.45
Ages 18 to 85	.57	-	.41	-	.48	-	.34	-	.50	-	.41	-

Table 12 - Age-Specific Dissimilarity Indices between White-Black, White-Hispanic, and White-Asian Across Schools and Catchment Areas in 2010

	White-Black				White-Hispanic				White-Asian			
	EC	ES	HSC	HS	EC	ES	HSC	HS	EC	ES	HSC	HS
Baltimore City												
Ages 5 to 9	.69	.77	-	-	.52	.56	-	-	.35	.52	-	-
Ages 15 to 17	-	-	*	.53	-	-	*	.41	-	-	*	.32
Ages 18 to 85	.63	-	*	-	.42	-	*	-	.33	-	*	-
Baltimore County												
Ages 5 to 9	.57	.58	-	-	.36	.45	-	-	.36	.40	-	-
Ages 15 to 17	-	-	.51	.50	-	-	.26	.35	-	-	.25	.34
Ages 18 to 85	.54	-	.49	-	.31	-	.23	-	.29	-	.23	-
Broward County												
Ages 5 to 9	.56	.60	-	-	.29	.32	-	-	.27	.26	-	-
Ages 15 to 17	-	-	.45	.54	-	-	.24	.22	-	-	.20	.23
Ages 18 to 85	.50	-	.35	-	.29	-	.22	-	.29	-	.25	-
Chicago Public Schools												
Ages 5 to 9	.85	.87	-	-	.67	.68	-	-	.50	.55	-	-
Ages 15 to 17	-	-	.75	.75	-	-	.52	.52	-	-	.50	.44
Ages 18 to 85	.80	-	.68	-	.57	-	.50	-	.42	-	.35	-
Clark County												
Ages 5 to 9	.43	.39	-	-	.51	.53	-	-	.29	.27	-	-
Ages 15 to 17	-	-	.34	.33	-	-	.40	.44	-	-	.30	.28
Ages 18 to 85	.33	-	.29	-	.38	-	.35	-	.25	-	.22	-
Dallas ISD												
Ages 5 to 9	.72	.71	-	-	.65	.61	-	-	.53	.61	-	-
Ages 15 to 17	-	-	.71	.66	-	-	.51	.55	-	-	.44	.53
Ages 18 to 85	.65	-	.63	-	.54	-	.44	-	.34	-	.18	-
Detroit Public Schools												
Ages 5 to 9	.75	.81	-	-	.53	.40	-	-	.85	.90	-	-
Ages 15 to 17	-	-	.54	.65	-	-	.25	.14	-	-	.20	.32
Ages 18 to 85	.50	-	.33	-	.59	-	.61	-	.55	-	.25	-
Duval County												
Ages 5 to 9	.51	.51	-	-	.22	.27	-	-	.34	.31	-	-
Ages 15 to 17	-	-	.39	.39	-	-	.15	.21	-	-	.20	.25
Ages 18 to 85	.48	-	.40	-	.20	-	.14	-	.28	-	.19	-
Fairfax County												

Ages 5 to 9	.44	.47	-	-	.40	.49	-	-	.29	.30	-	-
Ages 15 to 17	-	-	.37	.37	-	-	.29	.33	-	-	.16	.16
Ages 18 to 85	.35	-	.27	-	.35	-	.25	-	.23	-	.17	-
Hillsborough County												
Ages 5 to 9	.51	.55	-	-	.36	.45	-	-	.31	.35	-	-
Ages 15 to 17	-	-	.38	.38	-	-	.24	.26	-	-	.21	.30
Ages 18 to 85	.43	-	.33	-	.31	-	.20	-	.27	-	.21	-
Houston ISD												
Ages 5 to 9	.73	.77	-	-	.68	.75	-	-	.38	.36	-	-
Ages 15 to 17	-	-	.64	.65	-	-	.58	.67	-	-	.31	.31
Ages 18 to 85	.64	-	.57	-	.58	-	.48	-	.35	-	.20	-
Los Angeles Unified												
Ages 5 to 9	.75	.71	-	-	.71	.76	-	-	.50	.49	-	-
Ages 15 to 17	-	-	.66	.62	-	-	.64	.62	-	-	.54	.41
Ages 18 to 85	.68	-	.55	-	.64	-	.53	-	.42	-	.47	-
Miami-Dade County												
Ages 5 to 9	.69	.78	-	-	.30	.50	-	-	.31	.36	-	-
Ages 15 to 17	-	-	.60	.65	-	-	.28	.38	-	-	.20	.27
Ages 18 to 85	.65	-	.55	-	.48	-	.39	-	.26	-	.22	-
Milwaukee Public Schools												
Ages 5 to 9	.70	.66	-	-	.60	.62	-	-	.58	.52	-	-
Ages 15 to 17	-	-	.61	.39	-	-	.48	.32	-	-	.52	.23
Ages 18 to 85	.63	-	.61	-	.58	-	.54	-	.38	-	.32	-
Montgomery County												
Ages 5 to 9	.50	.51	-	-	.47	.54	-	-	.34	.32	-	-
Ages 15 to 17	-	-	.43	.45	-	-	.37	.41	-	-	.27	.23
Ages 18 to 85	.39	-	.37	-	.38	-	.31	-	.26	-	.22	-
New York City												
Ages 5 to 9	*	*	*	*	*	*	*	*	*	*	*	*
Ages 15 to 17	*	*	*	*	*	*	*	*	*	*	*	*
Ages 18 to 85	*	*	*	*	*	*	*	*	*	*	*	*
Orange County												
Ages 5 to 9	.54	.58	-	-	.37	.40	-	-	.27	.30	-	-
Ages 15 to 17	-	-	.39	.35	-	-	.32	.34	-	-	.23	.24
Ages 18 to 85	.44	-	.36	-	.32	-	.26	-	.27	-	.23	-
Palm Beach County												
Ages 5 to 9	.54	.62	-	-	.42	.47	-	-	.24	.24	-	-
Ages 15 to 17	-	-	.47	.54	-	-	.34	.35	-	-	.16	.30
Ages 18 to 85	.46	-	.35	-	.37	-	.34	-	.24	-	.19	-
Philadelphia												

Ages 5 to 9	.76	.75	-	-	.63	.67	-	-	.51	.53	-	-
Ages 15 to 17	-	-	.62	.60	-	-	.47	.59	-	-	.40	.39
Ages 18 to 85	.68	-	.60	-	.57	-	.44	-	.39	-	.31	-
Pinellas County												
Ages 5 to 9	.52	.53	-	-	.26	.36	-	-	.30	.32	-	-
Ages 15 to 17	-	-	.47	.43	-	-	.16	.22	-	-	.22	.31
Ages 18 to 85	.52	-	.41	-	.20	-	.14	-	.28	-	.24	-
Prince George's County												
Ages 5 to 9	.54	.58	-	-	.57	.62	-	-	.40	.43	-	-
Ages 15 to 17	-	-	.51	.55	-	-	.45	.64	-	-	.30	.31
Ages 18 to 85	.90	-	.43	-	.52	-	.33	-	.26	-	.21	-
San Diego Unified												
Ages 5 to 9	.64	.63	-	-	.61	.62	-	-	.59	.56	-	-
Ages 15 to 17	-	-	.53	.50	-	-	.55	.42	-	-	.55	.46
Ages 18 to 85	.51	-	.36	-	.45	-	.33	-	.50	-	.41	-

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