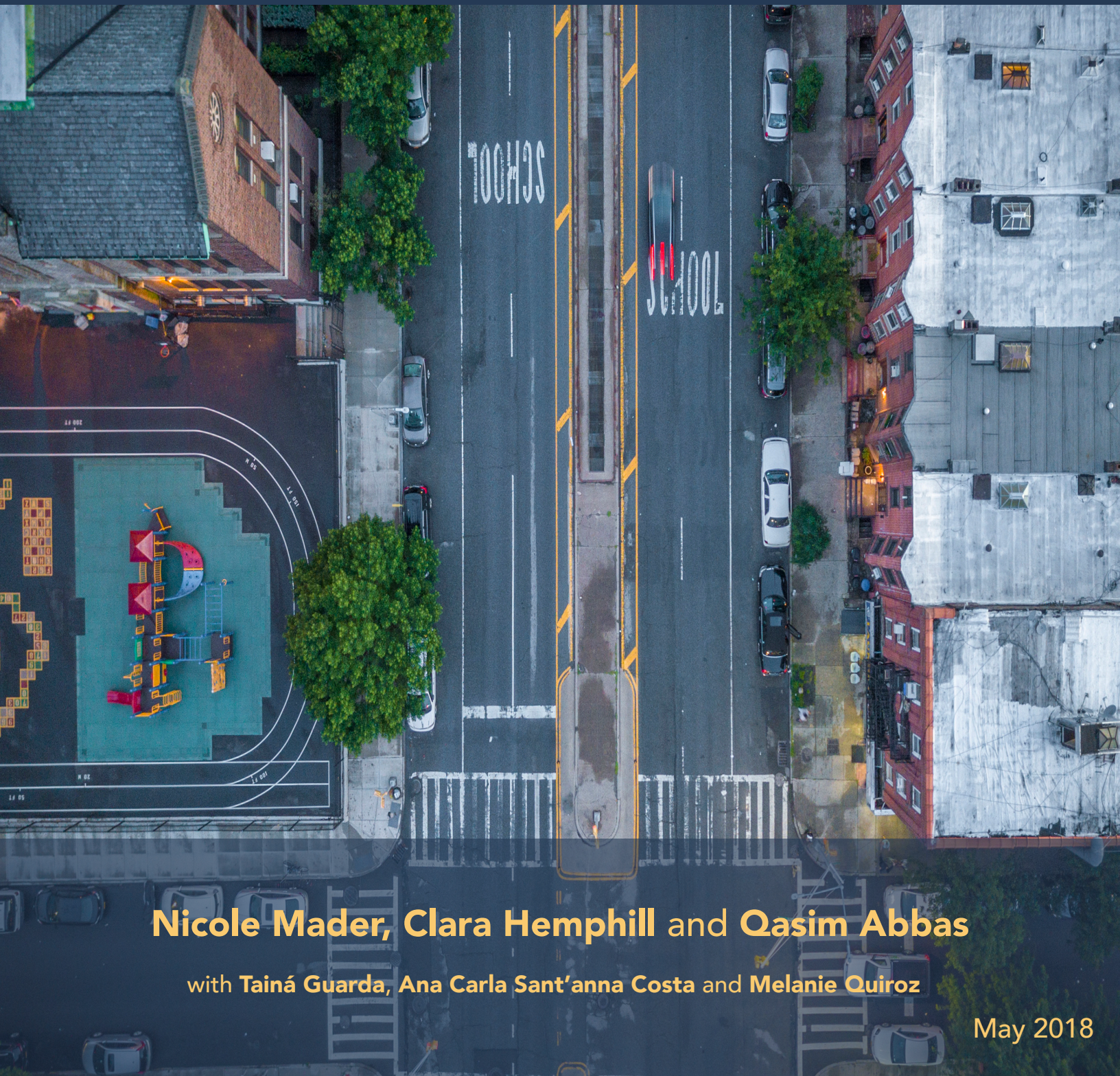THE NEW SCHOOL

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The Paradox of Choice:

How School Choice Divides New York City Elementary Schools

Nicole Mader, Clara Hemphill and **Qasim Abbas**

with **Tainá Guarda, Ana Carla Sant'anna Costa** and **Melanie Quiroz**

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THE NEW SCHOOL

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Team

Kristin Morse, executive director

Clara Hemphill, director of education policy and InsideSchools

Nicole Mader, senior research fellow

Bruce Cory, editorial advisor

Kamille Vargas, manager of operations

Qasim Abbas, research assistant

Melanie Quiroz, research assistant

Ana Carla Sant'anna Costa, research assistant

Data visualizations: Tainá Guarda

Report design and layout: Milan Gary

Cover photo: [Mike Pittman Photography](MIKE PITTMAN PHOTOGRAPHY)

Back Cover photo: [Alex Rivera](THE BRONXER)

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Executive Summary

The conventional wisdom is that most elementary school children in New York City attend their zoned neighborhood schools and that the city's high levels of school segregation merely reflect segregated housing patterns. But a more nuanced story—one studded with startling and disquieting paradoxes—emerges from our analysis of school enrollment data for the approximately 715,000 students who entered kindergarten in New York City public schools over the past 10 years.

We found that while most kindergartners continue to attend their zoned schools, it's a surprisingly narrow and shrinking majority. Only 60 percent of New York City kindergartners attended their zoned schools in the 2016-17 school year, the last year for which complete enrollment figures are available, down from 72 percent in 2007-08. This explosion of school choice means that more than 27,000 kindergarten students leave their school zones every morning to attend charter schools, schools with gifted classes, dual language programs (with instruction in two languages), and traditional public schools for which they are not zoned.

While many of them are enrolled in schools close to home, one-third migrate across community school district lines, usually toward higher-income neighborhoods: from Harlem to the Upper West Side; from Crown Heights to Fort Greene; or from southeast Queens to Bayside.

Who opts out and who stays in their zoned schools varies by race, ethnicity, and neighborhood. Today, nearly 60 percent of all Black children opt out, up from 38 percent 10 years ago. This is a school choice rate considerably higher than that of White, Asian, and Hispanic children. Free lunch-eligible students and English language learners, on the other hand, are much less likely to opt out of their zoned schools than higher-income and English proficient students.

However, this varies by neighborhood: in higher-income areas, parents' satisfaction with their local schools is often higher, so the proportion of children enrolled in their zoned schools tends to be high. In gentrifying neighborhoods, where more than half of parents exercise school choice, this means that the racial and economic diversity of the neighborhood is not reflected in the local schools. At some schools in Harlem, Bedford-Stuyvesant, Fort Greene, and Crown Heights fewer than 25 percent of children who live in the school zones attend those schools. In this way, zones provide families of means with exclusive access to the schools they like, while choice allows them to flee the ones they don't.

Students who leave tend to enroll in schools with higher levels of academic achievement, as measured by test scores, and fewer low-income classmates, our analysis found. Those who stay are more likely to find themselves in schools with higher concentrations of poverty and more classmates who don't speak English. These schools face declining enrollments; while some elementary schools are overcrowded, at a majority of the city's zoned elementary schools enrollment fell over the past 10 years. And because school budgets are based on enrollment these schools consequently have declining resources.

Only 60 percent of New York City kindergartners attended their zoned schools in 2016-17.

Another unintended consequence of choice is that it may be contributing to school segregation, above and beyond the impact of persistent and pervasive housing segregation. If all children in public elementary schools went to their zoned schools, our analysis found, the city's schools would be marginally less segregated than they are now. Over 6,000 more kindergartners would attend schools with free lunch rates near the city average. About 2,300 more kindergartners would attend schools that are between 50 and 90 percent Black and Hispanic, which is the range the City's Department of Education (DOE) established for "racially representative" schools in the "diversity" plan it released in June 2017. Children also would be more evenly distributed by race, language status, and income throughout the public schools than they are now.

Of course, there is no way of knowing how many children would actually attend their zoned schools if there were no public school choice. Some families would no doubt send their children to private or parochial schools, or move to what they deem more desirable school zones. Some would simply lie about their addresses, a tactic that has been used successfully for more than 100 years, as Betty Smith recounts in her semiautobiographical novel *A Tree Grows in Brooklyn*. And even if all public school kindergartners attended their zoned schools, the system would still be segregated, with 24,000 kindergartners out of 75,000 attending schools that are more than 90 percent Black and Hispanic or have a free lunch rate of more than 87 percent.

Nonetheless, for those who hoped school choice would lead to a more equitable system, this report poses one more sobering paradox. School choice may indeed give thousands of children better educational opportunities by allowing them to escape low-performing schools in their neighborhoods. But the schools they leave behind face ever-greater challenges as they struggle to serve the city's neediest children.

Introduction

Hundreds of students, parents, advocates, and community members crammed into a Brooklyn school cafeteria on a rainy evening in March for a town hall hosted by the city's new School Diversity Advisory Group. A hush fell over the room when Sabrina DuQuesnay, a student leader of the integration advocacy group Teens Take Charge, read a poem she had written about her experiences in segregated New York City schools.

"Should our socioeconomic difference be justified as blame," she said, "that students miss the opportunity for a quality education, based solely on the fact that they reside at a particular location?"

Sabrina's words hung heavily over the room, but few questioned the implicit assumption that school choice—allowing families to choose schools for their children other than the ones to which they were geographically assigned—could help solve the problems she described.

This report examines this contention that school choice can help make education in New York City less segregated. It looks at who has benefited and who has been left behind as choice at the elementary school level has expanded rapidly in the past 10 years.

While ostensibly universal, the reality is that choice is not easily exercised by all. Our analysis found that low-income families, those who don't speak English, and recent immigrants are less likely to exercise choice. The students who leave their zoned schools tend to enroll in schools with higher test scores and lower concentrations of poverty.

But choice is also a burden that falls disproportionately on families of color—both those who commute to school each morning and those who are left behind in zoned schools with higher concentrations of poverty, declining enrollments, and shrinking budgets. White children are more likely to live in neighborhoods where parents are satisfied with their local schools.

The historic relationship between school choice and segregation is long and complex. Since Brown v. Board of Education, school choice policies have sometimes been used to justify school segregation, and sometimes as a strategy for school integration.

During the 1960s, "freedom of choice plans" nominally allowed all students to attend their schools of choice but functionally allowed segregated schooling to continue (Darby and Saatcioglu, 2014). Social pressures, practices such as "counseling out," and lack of transportation for Black students during this era meant that most Black students "chose" to

stay in all-Black schools (Aggarwal, 2015). In 1968, the U.S. Supreme Court ruled that such "freedom of choice" plans were an inadequate response to segregation, ushering in a period of involuntary desegregation that included busing across district lines.

Faced with White resistance to busing and White flight to the suburbs, Black and Hispanic civil rights leaders in New York City increasingly turned their attention away from desegregation and focused instead on "community control." In response, the State Legislature decentralized NYC schools in 1969, dividing the city into 32 community school districts with locally elected school boards controlling elementary and middle schools. (A citywide school board retained control of high schools.) These district borders remain largely intact today. Although the school boards were dissolved when the Legislature gave the mayor control of the schools in 2002, the Community Education Councils that replaced them still determine school attendance zones—a politically fraught responsibility.

In 1974, the U.S. Supreme Court changed course, ruling that municipal governments could not mandate desegregation unless the segregation came from explicit, intentional, affirmative policies. Voluntary desegregation plans began to replace mandatory plans and school choice was used to foster integration, not segregation.

Low-income families, those who don't speak English, and recent immigrants are less likely to exercise choice.

The Federal Magnet Schools Assistance Program was created to attract White parents to schools in neighborhoods of color by providing extra resources and special programs. In New York City, school choice flourished in East Harlem's District 4, where Deborah Meier founded the legendary Central Park East Elementary School as an intentionally integrated school of choice that attracted families of all races from many neighborhoods. Following national trends, several other New York City school districts introduced experimental choice policies, including magnet schools, bilingual schools, alternative unzoned schools, and districtwide choice at the middle school level.

The rationale for school choice changed again towards the end of the 20th century, based on the argument that schools were failing not because of poverty or racial isolation, but because they were over-regulated and subject to the monopoly of the teachers' unions (Chubb and Moe, 1990; Boaz, 1991; Viteritti, 1999). Allowing parents to choose where to send their children to school would, according to this theory, spur innovation and competition among schools and ultimately raise school quality. In the 1990s, choice, stripped of its racialized past, became central to school reform efforts based on this market logic. Charter schools flourished across the country; in New York, the legislature authorized the creation of charter schools in 1998.

These moves coincided with reforms included in President George W. Bush's 2001 No Child Left Behind Act, which married choice with accountability. Schools that could not narrow the racial "achievement gap" were subject to budget cuts and choice mechanisms that allowed students to transfer away from failing schools. Ultimately, many of those schools faced state takeover or closure.

Since then, school choice policies have expanded rapidly. A variety of options now exists for students in all 50 states and the District of Columbia, ranging from public funds for private schools through vouchers or tuition tax credits, to "hybrid choice" markets that present parents with multiple public alternatives to their geographically assigned schools (Mickelson et al, 2008).

Mayor Michael Bloomberg, elected in 2001, was a fierce proponent of choice. His administration encouraged the rapid expansion of charter schools by offering them free space in ordinary public schools. The City eliminated attendance zones in three of the 32 school districts. District 1 on the Lower East Side, District 7 in the South Bronx, and District 23 in Brooklyn's Brownsville section became all-choice districts. The City centralized kindergarten enrollment, which had been the responsibility of individual principals. And in the final months of Bloomberg's third and last term, the City Department of Education (DOE) created an online kindergarten application process called Kindergarten Connect designed to encourage school choice by simplifying paperwork and reducing the amount of time parents spent travelling from school to school to submit applications.

Bloomberg's approach to school choice was in line with a 2007 Supreme Court decision, Parents Involved in Community Schools v. Seattle School District No. 1, also known as the "PICS" case; it overturned voluntary desegregation plans based on race. District 1 on the Lower East Side was no longer permitted to use race as it once had to allocate seats in its elementary schools; a handful of popular schools which had previously had a balance of White, Black, and Hispanic children became disproportionately White. It's too soon to say whether a new plan, designed to allocate seats based on free lunch eligibility and English language proficiency, will result in better integration.

Although current Mayor Bill de Blasio is a less vocal supporter of school choice and has a less friendly relationship with the charter sector than his predecessor, school choice options have continued to increase during his tenure.
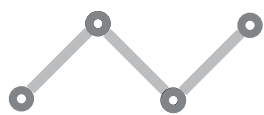
Data and Methodology

This report employs three types of data from the New York City Department of Education (DOE). First, using student-level administrative data obtained through a data request to the DOE, we were able to identify the elementary zone assignment and key biographic characteristics of each student enrolled in a public school from 2007-08 to 2016-17. We limited this to the 715,000 students over those 10 years who were enrolled in kindergarten for the first time, were not enrolled in District 75 special education programs, hospital schools, or home schools, and had a valid zone assignment to a school or an unzoned choice district.

Limiting the data to kindergartners (rather than all students in grades K-5) allowed us to have greater confidence in pupils' addresses because it minimized the likelihood that a family had moved after submitting their kindergarten application. This also allowed us to focus on the year emphasized in DOE school choice policy: in New York City every family must apply to kindergarten, ranking up to 12 options on one centralized application due the January before entering kindergarten, and can also apply to separate charter school lotteries that spring. Once children are enrolled, they have the right to stay in their school even if they move out of the zone. These factors would complicate any analysis of data for students older than kindergarten and introduce several reasons beside school choice why a family might relocate or switch schools.

We counted families as exercising school choice if their children did not attend their assigned zoned school in the given year or if they lived in one of three unzoned "choice districts" (Districts 1, 7, and 23). For school year 2012-13 and later, this required additional data from the DOE's elementary school zone maps available to the public on NYC Open Data, which allowed us to interpret zone code assignments that did not match any school identification number. We found that between 2,500 and 5,000 students in each year of these later years were assigned zone codes that designated students to schools based on their grade level, typically as zones were phasing students into new schools or out of closing schools. An additional 3,000 students per year were assigned to zones that allowed families to choose among multiple schools: in these cases, students were counted as "choosing" if they did not enroll in any one of those schools.

Finally, for school locations, admissions methods, demographics, and academic performance of each of the schools in our dataset, we used publicly available information found on the DOE's website. Changes to admissions methods over time—for example, if a school introduced a dual language program open to students outside of its zone in

2013—are reflected in the data only for students who applied to kindergarten in that year or later.

The analysis that follows uses multiple techniques to understand who is exercising elementary school choice in NYC, where they are enrolling, and how that affects the distribution of students across the city. We aggregated our individual student data by school year, student characteristics, and characteristics of the schools they were zoned for or enrolled in to describe overarching choice patterns and changes over time. We also used a logistic regression model to control for all of those characteristics at once, allowing us to identify which factors are most predictive of school choice.

Lastly, to better understand how these school choices affected the distribution of students across the system overall, we compared multiple measures of segregation for the actual kindergarten classes at each school over the last 10 years to the hypothetical kindergarten classes if all students had attended their zoned schools. This comparison, in effect, controls for the role of housing segregation in school segregation, allowing us to examine how school choice may be deepening or alleviating segregation in elementary schools. Appendices A and B contain technical details on the logistic regression and the comparative segregation analysis.

Findings

Who exercises public elementary school choice in NYC?

In 2016-17, 40 percent of all public school kindergartners attended a school other than one to which they were geographically assigned. This number has expanded rapidly in the last 10 years, up from 28 percent in 2007-08. Even excluding the nearly 3,500 students in "choice districts" 1, 7, and 23, which have not had attendance zones since 2012-13, 36 percent of kindergarten students opted out of their zoned schools last year.

About 76,000 children were enrolled in public school kindergarten in 2016-17, an increase of about 11,000 or 18 percent, from 2007-08. Most of the increase can be attributed to a growth in the kindergarten-aged population in the city, rather than a shift from private to public schools. State data shows private school kindergarten enrollment declined by about 1,100 in the same period.

Table 1: Choice Rates and Student Demographics Citywide, 2007-08 to 2016-17

Kindergarten students in all NYC public schools with valid zone assignment	School Year				Percent change over 10 years
	2007-08		2016-17		
TOTAL	**64,304**		**75,634**		**18%**
enrolled in their zoned school	46,075	72%	45,130	60%	-2%
opted out of their zoned school	17,458	27%	27,116	36%	55%
living in a "choice district"	771	1%	3,388	4%	339%
exercised school choice	**18,229**	**28%**	**30,504**	**40%**	**67%**
Student demographics					
English language learners	13,280	21%	15,174	20%	14%
with disabilities	6,860	11%	11,442	15%	67%
eligible for free lunch	51,392	80%	52,554	69%	2%
Race/Ethnicity					
Asian	9,873	15%	12,311	16%	25%
Black	17,563	27%	18,111	24%	3%
Hispanic	25,852	40%	30,475	40%	18%
Other (Native American + Multi-Racial)	719	1%	2,091	3%	191%
White	11,417	18%	12,766	17%	12%
Home language					
English	39,400	61%	48,791	65%	24%
Spanish	14,532	23%	14,181	19%	-2%
Chinese	3,402	5%	4,350	6%	28%
Place of birth					
in New York City	56,505	88%	64,653	85%	14%
in the US outside of NYC	3,702	6%	4,797	6%	30%
outside the US	4,101	6%	6,184	8%	51%

The proportion of children qualifying for free lunch declined from 80 percent in 2007-08 to 69 percent in 2016-17, suggesting an increase in the number of middle class families moving to the city or remaining in the city when their children reach school age. The number of children born outside of the city or the United States grew, but remains a small proportion.

Groups that have grown disproportionately over the last 10 years include students with disabilities; students who identify as Asian, Native American, or Multi-Racial; and students who speak English or Chinese at home. But the

racial and ethnic composition of public school kindergarten cohorts remained basically consistent over the years we studied. There was a slight decrease in the proportions of Black students and of students who speak Spanish at home. Nevertheless, the racial and ethnic make-up was almost the same in 2016-17 as it was in 2007-08: 40 percent Hispanic, 24 percent Black, and 17 percent each White and Asian in 2016-17 (with a small number in "other" categories).[1]

All race and ethnicity groups in New York City exercise school choice more now than they did 10 years ago, but **Figure 1** shows how much variation there is among groups. Last year, nearly 60 percent of Black families with kindergarten-aged children in public schools chose a school, including the 9 percent who lived in all-choice districts. Although Black students only make up about a quarter of all kindergartners in public schools, they comprise over one-third of all school choosers. Even when controlling for socioeconomic and other characteristics, we found that these Black students are 1.6 times more likely to opt out of their zoned schools than non-Black students. (Regression results and more detail on how they were calculated can be found in **Appendix A**).

A high percentage of Hispanic students are also choosers, up to 39 percent in 2016-17, including the 5 percent who live in all-choice districts. Asian and White students are less likely to be choosers than non-Asian and non-White students. This may reflect the

Figure 1: Rates of Kindergarten School Choice by Race/Ethnicity, 2007-2016

Percent of kindergarten students who opted out of their zoned schools or lived in a choice district

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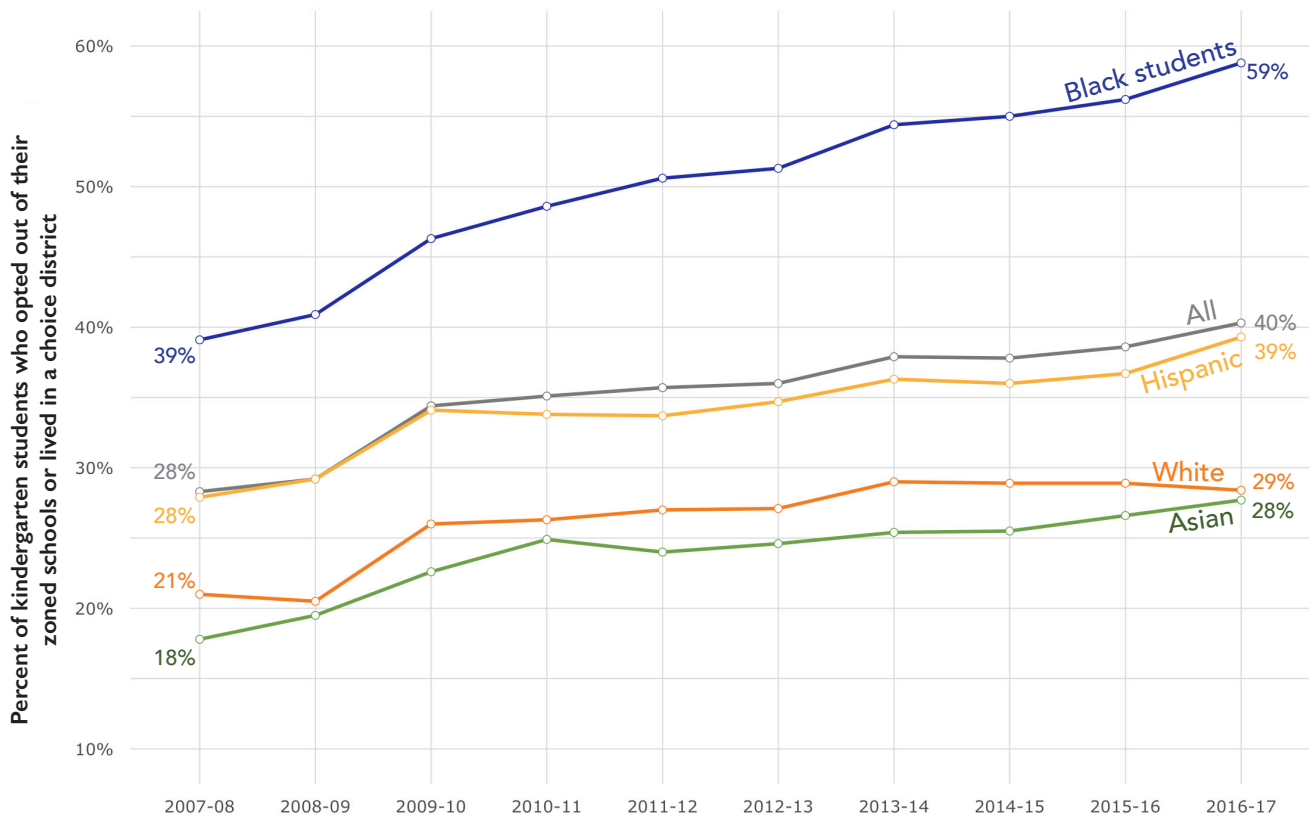
[1] For the sake of consistency with DOE data definitions, we adhere to the terms they've used to describe students, including Hispanic to identify Latinx students and free lunch-eligible to identify students experiencing poverty.

fact that White and Asian parents in New York City are more likely to be satisfied with their zoned neighborhood schools. This is in contrast to research on school districts in other parts of the country which found that White students are the most likely to exercise choice. (Cullen et al, 2003; Holme and Richards, 2009; Campbell et al, 2005; Stein, 2015; Koedel et al, 2009; Bifulco, Ladd and Ross, 2007; Saporito, 2003; Hastings, Kane, & Staiger, 2006).

National research has documented that families with fewer advantages are less likely to exercise school choice, even when policies explicitly make it available to everyone (Musset, 2012). Our analysis confirmed this. Controlling for race, ethnicity, and other demographic characteristics, free lunch-eligible families were 80 percent less likely to opt out of their zoned schools and English language learners were 73 percent less likely to opt out of their zoned schools.

This uneven exercise of choice may reflect the high costs of choice to families, like navigating complex application or lottery systems, researching all the available school options, commuting farther to school each day, paying fees for uniforms or after-school programs, or meeting additional expectations of parent involvement throughout the school year. It is important to note that many families facing these barriers expend a significant amount of effort on the school choice process, but "social class status, among other things, confers differential advantage for parents' whose class position matches that of the [choice] schools" (Bell, 2008).

Schools can also play a large role in the choice process as they conduct outreach, host tours, and set policies such as what time parents can drop students off in the mornings. Studies have documented how schools can game the system through "cherry-picking" or "creaming" students from higher socioeconomic levels (Jabbar, 2015; Welner, 2013). These authors have found that schools can shape their pool of applicants through parental contracts, volunteer duties, entrance procedures, and the location of schools.

In New York City, Aggarwal (2014) documented the experiences of several parents of color as they explored their elementary school options in District 3, which spans the Upper West Side and part of Harlem. She identified a pattern of "gate keeping" behavior on the part of the schools, such as school officials who told parents a school was "not for them," that the school application required a photo, and that they could not sit by their kids at breakfast drop-off (for fear of the parent eating the free food). They were informed the children would be asked where they slept at night and might receive impromptu visits from social workers to verify this home address. They even heard a principal who said "this is not a free lunch school" on a tour. To Aggarwal, this confirmed that "the irony of liberal freedom to choose, qualified by inequality, is redoubled as the structures of exclusion."

What types of schools are families choosing?

The number of alternatives to zoned elementary schools has increased significantly in the past 10 years, as **Figure 2** shows. In 2007-08, there were 196 schools of choice, including charter schools, unzoned district schools, and zoned schools that admitted out-of-zone students to dual language or gifted & talented (G&T) programs; these made up 28 percent of all schools. By 2016-17, that number had grown to 457 schools, or 48 percent of all schools. The charter sector has grown the most, more than tripling over 10 years; unzoned schools and schools with dual language or gifted programs have also doubled.

Black students who leave their zoned schools are much more likely to attend a charter school than any other group of students, a proportion that has steadily increased over the past decade, as **Figure 3** shows. In 2016-17, 30 percent of Black kindergartners attended a charter school, compared to 13 percent of all kindergartners.

The charter sector has grown the most, more than tripling over 10 years.

Figure 2: Number of Elementary Schools by Admissions Method, 2007-2016

Year	Charter schools	Unzoned schools	Schools with a dual language program	Schools with a G&T program	Zoned schools	Total
2007-08	42	54	51	49	567	763
2008-09	56	59	61	55	556	787
2009-10	67	61	69	72	538	807
2010-11	89	63	70	79	543	844
2011-12	98	64	72	81	543	858
2012-13	112	92	76	85	513	878
2013-14	132	92	94	81	510	909
2014-15	146	94	95	96	502	933
2015-16	149	96	111	96	490	942
2016-17	156	95	111	95	491	948
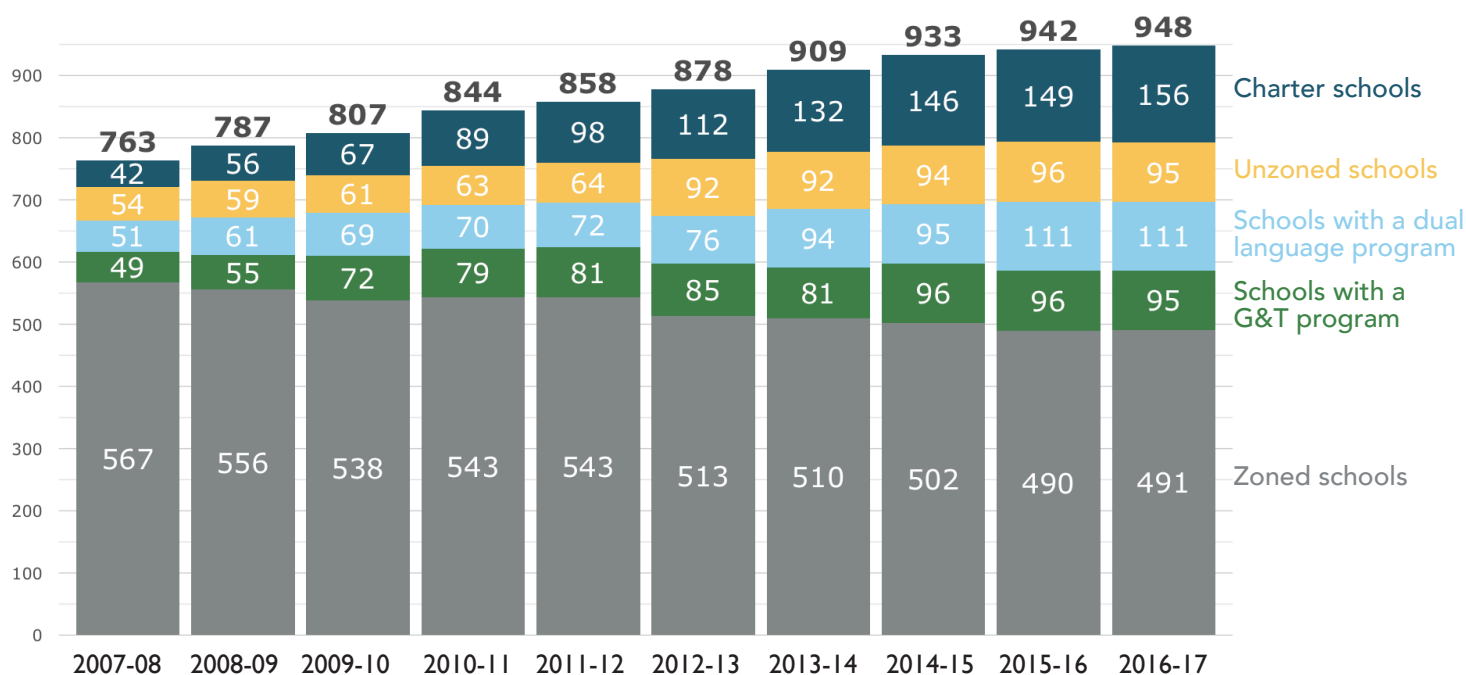
White and Asian families who leave their zoned schools are more likely to enroll in a school with a gifted and talented program than Blacks and Hispanics are. Eight percent of White and Asian kindergartners who opted out of their zoned schools attended schools with G&T programs, compared to 2 percent of Hispanic students and 3 percent of Black students. In NYC, kindergarten entry into these programs is determined by a standardized test taken during the previous year. The top percentile of test takers throughout the city are offered seats at one of five schoolwide G&T programs; the next ranks of top scorers are offered seats in their districts' G&T programs located within other schools. Although our dataset did not indicate whether these students are enrolled in the G&T track in hybrid-zoned G&T schools, we know from data provided by the City Council that G&T classrooms across the city are disproportionally filled with White or Asian students.

Thirty percent of Black kindergartners attended a charter school, compared to 13 percent of all kindergartners.

Finally, it is important to note that about 12 percent of the school choices we observed in our dataset were to other zoned schools that do not offer dual language or G&T programs. This movement across zone and district lines, detailed further in the last section of findings, is an important aspect of the school choice landscape in NYC that often stays under the radar in the policy conversation.

Figure 3: Kindergarten Enrollment by Admissions Method, 2007-2016

Asian

Black

Hispanic

White

Free lunch eligible students

English language learners

Legend:
- Charter schools
- Unzoned schools
- Schools with a dual language program
- Schools with a G&T program
- Attended a different zoned school
- Attended their zoned school
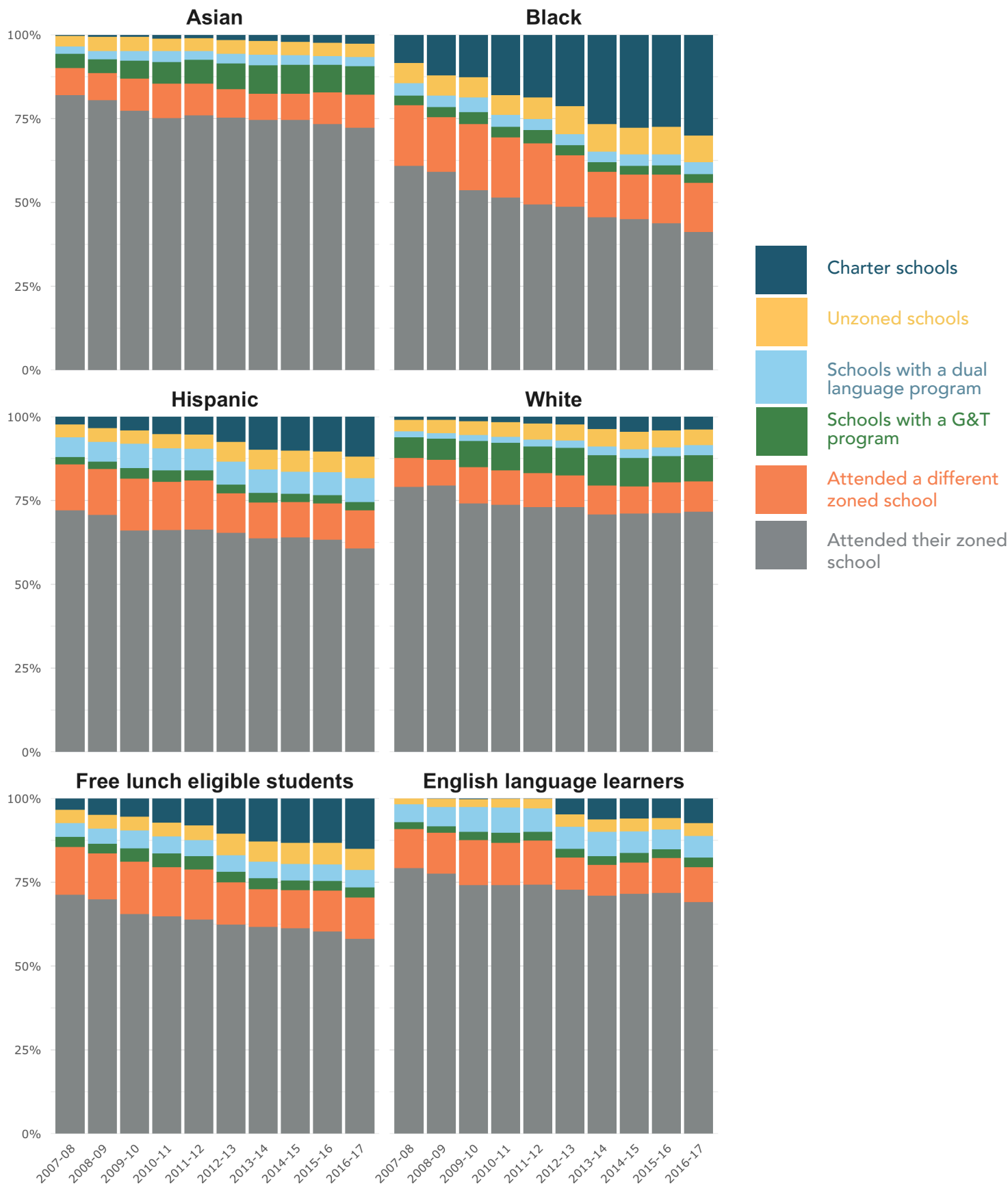
How might school demographics and performance drive these choices?

The market logic driving school choice expects that a parent whose children are zoned to a low-performing school will pursue higher-quality alternative schools through school choice. But many studies have confirmed that social networks, socioeconomic status, and race all play a role in how parents view school quality (Bell, 2008; Smrekar, 2009; Hastings, Van Weelden and Weinstein, 2007; Ben-Porath, 2009; Burgess et al, 2015).

Examining schoolwide performance and demographic data for each year prior to the kindergarten choices in our dataset, we found evidence that families of all race/ethnicity groups in NYC appear to consider the academic performance of schools in the choice process. **Figure 4** shows that students who stayed at their zoned schools had been assigned to schools with higher standardized test scores than students who opted out. Further, children who opted out of their zoned schools tended to enroll in schools with far higher test scores. Black students had the biggest improvement between the test scores at their zoned and chosen schools: 13 percent higher for English Language Arts, and 19 percent higher for Math.

Figure 4: Academic Proficiency of Zoned and Choice Schools, 2015-16
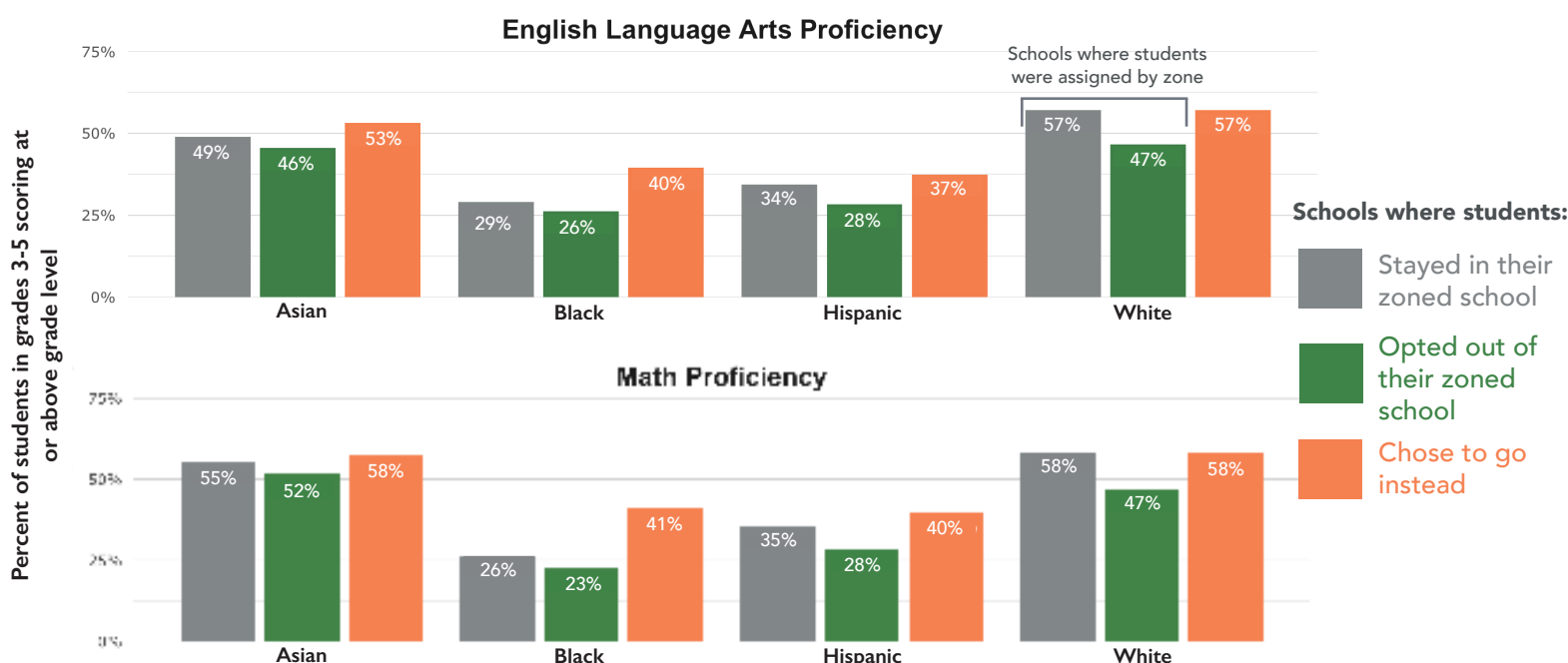
This suggests that families may consider test scores as a measure of school quality when they decide where to send their children. However, given the high correlations between test scores and student demographics, high test scores could also be seen as a "race neutral" signal to families that the racial and socioeconomic backgrounds of the students at a school will match their own. For example, one study found that both highly educated Black and White parents sought high-status schools for their children, but racially and socioeconomically segregated social networks limited White parents' access to information about high-quality integrated schools (Sikkink and Emerson, 2008). This led White parents to associate the presence of students of color with lower status and to enroll their children in predominantly White schools. When Roda and Wells (2013) studied the choice decisions of parents in New York City, they found that "this process of sorting leads to self-fulfilling prophecies of 'good' and 'bad' schools, as the schools or programs that enroll the most privileged students are seen as better, which in turn perpetuates separateness and inequality."

Our analysis, shown in **Figure 5**, is consistent with this. We found that students who exercised school choice had been zoned to schools with higher proportions of free lunch-eligible students and Black and Hispanic students than the ones who stayed in their zones. When students left their zoned schools, they typically enrolled in schools with a lower percentage of free lunch-eligible students. This was true for students of all race/ethnicity groups, but White students had the biggest difference between the free lunch rates at their zoned and chosen schools (13 percent). White families also tended to choose schools that have more White children than their zoned schools do. Black and Hispanic families, on the other hand, choose schools with the same proportion of Black and Hispanic children as the schools to which they were zoned.

Figure 5: Demographic Compositions of Zoned and Choice Schools, 2015-16
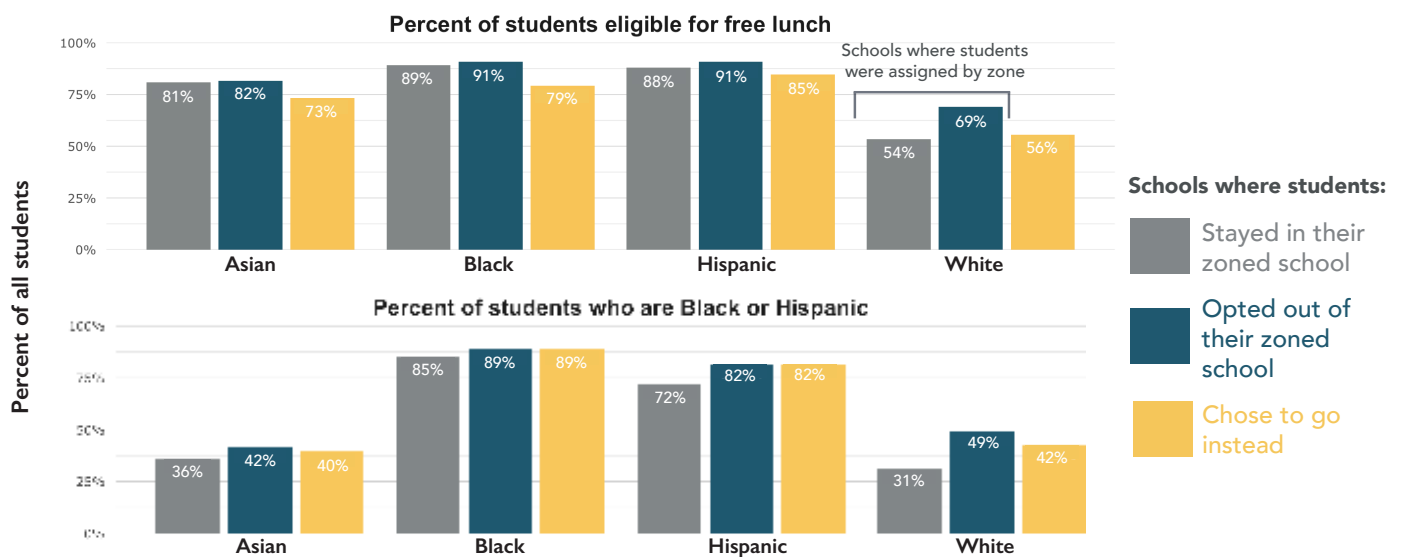
Where in the city is choice most prevalent?

The proportion of families opting out of their zoned schools varies widely from neighborhood to neighborhood. In higher-income and predominately White and Asian neighborhoods, parents are more likely to enroll their children in the zoned neighborhood schools. But in historically African-American neighborhoods and gentrifying neighborhoods, parents are more likely to exercise school choice. In Bedford-Stuyvesant and Crown Heights in Brooklyn and central Harlem in Manhattan (Districts 16, 17, and 5), for example, fewer than one-third of kindergartners attend their zoned schools.

Zone retention rates are high in District 2 (which covers the Upper East Side, Midtown, and lower Manhattan), and Districts 20 and 21 in Brooklyn (which include Bay Ridge and Bensonhurst). Parents often move to these neighborhoods in order to register their children in the local schools, so it's no surprise that these zone retention rates are high. Queens, Staten Island, and the Bronx have generally high zone retention rates, which may reflect: satisfaction with zoned schools; or the disincentive of longer travel times to non-zoned schools in these parts of the city; or the poor public transit available in some neighborhoods. District 10, serving the Riverdale and Fordham neighborhoods in the Bronx, is the only district in the city to see an increase in zone retention in the past 10 years, from 64 to 71 percent.

District 29 in Southeast Queens, unlike other Queens districts, has a low and declining zone retention rate, dropping from 70 to 54 percent in the last 10 years. Southeast Queens has a large African-American population and low zone retention rates may reflect dissatisfaction with zoned neighborhood schools.

Figure 6 shows more detail about where students in each district enrolled in kindergarten in the 2016-17 school year. Districts 1, 7, and 23 stand out in this graph because they have no students with assigned zones. Still, across those three districts, the percentage of students who stay in the district varies widely, from 79 percent in District 1 to 44 percent in District 23. Only District 16 in Bedford-Stuyvesant and District 5 in Harlem hold on to smaller shares of students in their traditional public schools. These two districts, as well as Districts 4 in East Harlem, 7 in the South Bronx, and 17, 18, and 23 spanning from Crown Heights through Brownsville, Brooklyn, all send more than a third of their students to charter schools.

Figure 6: Rates of Kindergarten School Choice by Community School District, 2016-17

Legend:
- Stayed in zone
- Stayed in district
- Left district
- Went to charter school

Districts (top to bottom):
- District 20 (Bay Ridge)
- District 24 (Jackson Heights)
- District 31 (Staten Island)
- District 28 (Jamaica)
- District 21 (Sheepshead Bay)
- District 25 (Flushing)
- District 26 (Bayside, Little Neck)
- District 15 (Park Slope, Sunset Park)
- District 2 (Downtown/Midtown Manhattan, Upper East Side)
- District 10 (Kingsbridge, Fordham)
- District 30 (Astoria, Long Island City)
- District 27 (Howard Beach, Jamaica)
- District 11 (Parkchester)
- District 22 (Flatlands)
- District 9 (Highbridge)
- District 12 (Tremont)
- District 29 (Queens Village)
- District 8 (Hunts Point, Soundview)
- District 19 (East New York)
- District 14 (Williamsburg)
- District 6 (Washington Heights, Inwood)
- District 32 (Bushwick)
- District 18 (Flatbush, Canarsie)
- District 13 (Fort Greene, Brooklyn Heights)
- District 3 (Upper West Side, Harlem
- District 4 (East Harlem)
- District 5 (Harlem)
- District 17 (Crown Heights, Prospect Lefferts)
- District 16 (Bedford-Stuyvesant)
- District 1 (Lower East Side)
- District 7 (South Bronx)
- District 23 (Brownsville)

X-axis: 0%, 25%, 50%, 75%, 100%

Percent of students who live in each district

What many of the districts facing higher and higher rates of school choice have in common is dramatic gentrification over the last decade, evidenced by rising rents, an influx of White and higher-income residents, and displacement of longtime residents. We used an analysis by the NYU Furman Center (2015) that analyzed 15 indicators of socioeconomic change to characterize each of the city's 55 "sub-borough areas" as gentrifying, high-income, or non-gentrifying. **Table 2** shows a list of which sub-borough areas fall under each category.

Table 2: Gentrification Classification of each NYC Sub-Borough Area

Gentrifying	Higher-Income		Non-Gentrifying
Astoria	Bay Ridge	Ozone Park/Woodhaven	Bensonhurst
Bedford Stuyvesant	Bayside/Little Neck	Park Slope/Carroll Gardens	Coney Island
Brownsville/Ocean Hill	Borough Park	Pelham Parkway	East New York/Starrett City
Bushwick	Brooklyn Heights/Fort Greene	Queens Village	Highbridge/South Concourse
Central Harlem	Chelsea/Clinton/Midtown	Rego Park/Forest Hills	Kingsbridge Heights/Moshulu
East Harlem	East Flatbush	Riverdale/Kingsbridge	Soundview/Parkchester
Lower East Side/Chinatown	Elmhurst/Corona	Rockaways	University Heights/Fordham
Morningside/Hamilton Heights	Flatbush	Sheepshead Bay/Gravesend	
Morrisania/Belmont	Flatlands/Canarsie	South Ozone Park/Howard Beach	
Mott Haven/Hunts Point	Flushing/Whitestone	South Shore	
North Crown Heights/Prospect Hts	Greenwich Village/Financial District	Stuyvesant Town/Turtle Bay	
South Crown Heights	Hillcrest/Fresh Meadows	Sunnyside/Woodside	
Sunset Park	Jackson Heights	Throgs Neck/Co-op City	
Washington Heights/Inwood	Jamaica	Upper East Side	
Williamsburg/Greenpoint	Mid-Island	Upper West Side	
	Middle Village/Ridgewood	Williamsbridge/Baychester	
	North Shore		

Source: NYU Furman Center (2015)

By tying each student in our dataset to one of these sub-borough areas using his or her census tract of residence, we were able to classify each student's neighborhood gentrification level. We found that families of students living in gentrifying neighborhoods are 1.7 times more likely to choose a school than families of students in high-income or non-gentrifying (lower-income) neighborhoods. Consequently, living in a gentrifying neighborhood is the largest predictor of choice we found over all the other student characteristics in our regression.

Figure 7 shows how the rate of choice in gentrifying neighborhoods has increased dramatically over the last 10 years. In 2016-17, fully 60 percent of families of all kindergarten students in gentrifying neighborhoods exercised choice, including the 14 percent that live in all-choice districts. This is far higher than in higher-income neighborhoods (32 percent), where parents are much more likely to be zoned for higher-performing schools, and in non-gentrifying neighborhoods (35 percent), where the barriers to choice we detail above are felt most acutely.

This is true for all race/ethnicity groups, but the contrast is most stark for White students: 46 percent of the White students who live in gentrifying neighborhoods opt out of their

zoned schools, but only 25 percent of them opt out in high-income or non-gentrifying neighborhoods. Although Black students opt out at a higher rate than White students in all three types of neighborhoods, the rate in gentrifying neighborhoods (52 percent) is barely higher than the rates in the other two types of neighborhoods (both at 50 percent).

Figure 7: Rates of Kindergarten School Choice by Neighborhood Gentrification Level, 2016-2017
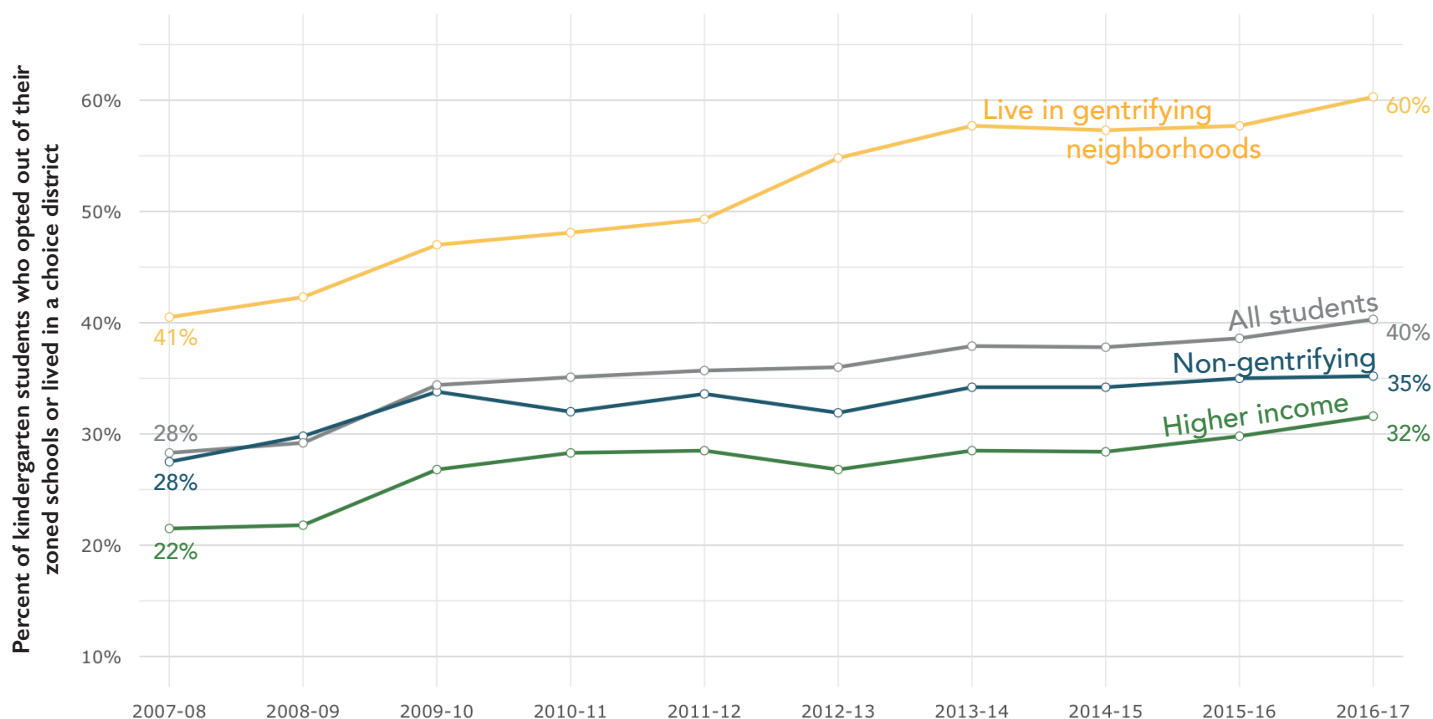
Further, White parents in gentrifying neighborhoods appear to be more sensitive to the existing demographics of the schools to which they are zoned. The ones who opt out of their zoned schools enroll their children in schools which have, on average, 19 percent fewer students eligible for free lunch and 14 percent fewer Black and Hispanic students, both far higher than the differences for all White students citywide (see Figure 4). Black, Hispanic, and Asian parents in gentrifying neighborhoods, on the other hand, seek out schools with lower rates of free lunch eligibility, but tend to enroll their children in schools with nearly the same proportion of Black and Hispanic students as their zoned schools.

A similar pattern follows for socioeconomic groups: 52 percent of non-free lunch-eligible students (thus middle- and higher-income families) in gentrifying neighborhoods opt out of their zoned schools, but only 30 and 34 percent of them opt out in higher-income and non-gentrifying neighborhoods, respectively. Free lunch-eligible students are less likely to opt-out in all three types of neighborhoods, and the difference between their opt-out rates in gentrifying neighborhoods (44 percent) and the others (both around 33 percent) is not as large.

Non-free lunch-eligible parents in gentrifying neighborhoods tend to enroll their children in schools with 16 percent fewer free lunch-eligible students and 9 percent fewer Black and Hispanic students; whereas free lunch-eligible choosers end up in schools with only 9 percent fewer free lunch-eligible students and 1 percent fewer Black and Hispanic students.

These findings confirm other recent research that found that White and higher-income families were less likely to exercise school choice if they lived in high-income neighborhoods (that were more similar to them) and more likely to do so if they lived in "diverse" neighborhoods that were in the midst of gentrification (Phillips, Larsen and Hausman, 2015). Another study released this year flipped that inquiry on its head, asking whether the presence of school choice policies increased the likelihood of gentrification. They found that as choice policies expanded, white households were 22 percent more likely to move into low-income communities of color. However, in districts where school choice did not expand, "the racial composition of a neighborhood remained a significant deterrent to gentrification, even after controlling for a host of economic characteristics (e.g. crime, unemployment, etc.) often used to explain neighborhood change" (Pearman and Swain, 2017).

46 percent of the White students who live in gentrifying neighborhoods opt out of their zoned schools.

How does choice affect the distribution of elementary school students across NYC?

Our findings in the previous sections demonstrate that families of free lunch-eligible and English language learner students in New York City are less likely to exercise choice, and that the families who do choose tend to enroll in higher-performing schools with lower concentrations of poverty than in their zoned schools. In addition, White and non-free lunch-eligible families tend to choose schools with lower proportions of Black and Hispanic students than the schools to which they are zoned, particularly in gentrifying neighborhoods. This section will document what is happening to the zoned schools these students are leaving behind, and how school segregation across the city would look different if they all stayed.

More than 27,000 kindergarten students leave their school zones every morning to attend different public elementary schools. There is a ripple effect as families move to schools with lower free lunch rates and higher performance: a child from East New York may go to Crown Heights, a child from Crown Heights may go to Fort Greene, and a child from Fort Greene may go to Park Slope. As a result, schools lose pupils to higher-income neighborhoods but gain pupils from lower-income neighborhoods.

In the 2016-17 school year, districts located farthest from Manhattan and that are predominately low-income or gentrifying lost more students than they received. District 9 in the Highbridge section of the Bronx, for example, sent 420 of its kindergarten students to other Bronx districts and another 240 students to Manhattan; fewer than 300 came to District 9 from other districts. District 19 in East New York, too, lost 490 students to every other district in Brooklyn and Queens; fewer than 200 came in to fill their empty seats.

Children who leave their home districts tend to move towards the economic center of the city along subway lines. Districts 3 and 4 on the Upper West Side and in East Harlem, District 7 in the South Bronx, and Districts 13 and 14 in downtown Brooklyn and Williamsburg all receive more students than they lose. Geography and public transportation may play a role in families' decisions, but it may also reflect an assumption that schools in higher-income parts of the city are higher performing.

At a smaller scale, when we look at the movements between individual schools, these patterns mean shrinking enrollment at most zoned schools. In 370 of the 620 normal zones (those with only one school) schools lost more students than they received in 2016-17, at an average of 30 fewer kindergarten students per school. This is up considerably from 10 years ago, when only 320 of those zones saw an enrollment deficit at an average of 18 fewer students per school.

Some schools face much worse enrollment deficits: P.S. 375 Jackie Robinson School, a zoned school serving Prospect Lefferts Gardens in Brooklyn's District 17, has lost an average of 180 kindergartners more than it gained each year for the 10 years we studied. Even after a strong, engaging principal took over in 2014 and initiated a Spanish dual language program that admits students from out of its zone, the school still lost around 80 kindergarten students in each of the subsequent school years to other schools in District 17. It also lost dozens more students across Prospect Park to Districts 15 and 13, and a small handful to each of the 18 charter schools strewn across Brooklyn. Accordingly, the kindergarten class last year at P.S. 375 had 17 percent more free lunch-eligible students, 4 percent more English language learners, and 7 percent fewer White students than the set of kindergarteners assigned to its zone.

Declining budgets combined with higher-need student populations mean that these schools are forced to do more with less.

This pattern of attrition, duplicated across hundreds of zoned schools each year, results in less per-pupil funding to pay for teachers, enrichment, and other essential resources. Declining budgets combined with higher-need student populations mean that these schools are forced to do more with less. This vicious cycle appears to perpetuate itself in the choice marketplace, as more parents who can overcome the barriers to choice opt out of their struggling zoned schools, and the families who remain find themselves in even weaker and more segregated schools.

Despite the growing diversity of the nation's school-aged population, the embrace of school choice policy across the country has coincided with an increase in segregation across race, socioeconomic status, and student ability (Mickelson et al, 2008). New York City's school system provides a conspicuous example of both trends: it is ranked third in the country for its embrace of school choice policies by the Brookings Institution (Whitehurst, 2017) and is also the third-most segregated school system of all large US cities (Fessenden, 2012).

What's hard to untangle, however, is the role that residential segregation plays in school segregation. Because most elementary school students in the city have an assigned school zone, it is often assumed that our elementary schools are segregated because our housing is, leaving little room for policy solutions short of controversial rezoning efforts. But as the integration advocacy group NYC Appleseed put it, the combination of zones and choice "is a perfect storm of segregation and unequal access" (2013). Zones provide families of means with exclusive access to the schools they like, while choice allows them

to flee the ones they don't. In gentrifying neighborhoods in particular, where choice is most prevalent, this means that the racial and economic diversity of the neighborhood is not reflected in the local schools.

Our 2015 report "Segregated Schools in an Integrated City" documented this mismatch between neighborhoods and schools, using data from census tracts where students live as an imprecise proxy for their school zones. Now, knowing exactly where students are zoned for kindergarten, we can precisely identify what each kindergarten class would look like at each school if everyone attended their zoned schools. Using the three most established measures from the housing and school segregation literature—the dissimilarity, exposure, and isolation indices—and other predominant measures from the policy conversation, we found that our schools would be less segregated than they are today if all students in public schools attended their zoned schools. This analysis assumes that the students currently in our public school data set would remain in public schools, rather than move to private schools or leave the city.

Out of the three measures we tested, we saw the largest differences with the dissimilarity index. This measure allows us to compare the proportions of two groups of students at each school with those across its entire district, creating a scale from 0-100 percent that indicates what percentage of students in either group would have to move schools in order to balance enrollment across the district. The average White-Black dissimilarity index across all school districts in the 2016-17 school year was 62 percent, meaning 62 percent of White or Black kindergarten students would have to move to a different school in order to see a perfectly balanced distribution of White and Black students across the average district. If all public school kindergarten students had attended their zoned schools in that year, however, the dissimilarity index would drop to 55 percent, a statistically significant difference of seven percentage points. The average dissimilarity index for free lunch-eligible students to non-eligible ones would drop even further if everyone attended their zoned schools, by 10 percentage points, from 40 to 30 percent.

Our schools would be less segregated than they are today if all students in public schools attended their zoned schools.

The exposure and isolation indices both measure segregation from the perspective of contact with other demographic groups rather than a balanced distribution of students across the district. The isolation index for Black kindergarten students citywide, for example, is 56 percent, meaning that the typical Black student attends a school with a kindergarten cohort that is 56 percent Black. The Black-White exposure index is 5 percent, which means the typical Black student attends a school with a kindergarten cohort that is 5 percent White. While

our comparisons using the exposure and isolation indices did not reveal statistically significant differences, we did find that students in each demographic group would be slightly less isolated and more exposed to others who are not in those groups if all attended their zoned schools.

We also saw significant differences looking at the concentrations of free lunch-eligible and Black and Hispanic students. There would be 6,300 more kindergarten students in schools within 10 percent of the citywide free lunch average. In addition, 2,300 more kindergartners would be in schools with "racially representative" cohorts, defined in the DOE's Diversity Plan as those between 50 and 90 percent Black and Hispanic. All these precise figures and more detail on how they were calculated can be found in **Appendix B**.

These differences may seem small: by all counts, our schools would still be segregated and we still would have a lot of work to do to achieve real integration in each of them. These numbers also can't predict whether all students would attend their zoned schools if our current elementary school choice policies did not exist: many families of means would engage in the implicit system of choice that has always existed, sending their children to private schools or moving to a more desirable zone or district. But what these comparisons do reveal is that our elementary school system as a whole is more segregated when school choice is part of the equation. This is consistent with all the other research on large urban school systems that have had similar data to ours, with a zone assignment for each student (Cullen, Jacob and Levitt, 2000; Saporito, 2003; Bifulco, Ladd and Ross, 2007; Koedel et al, 2009; Phillips, Larsen and Hausman, 2015). In New York City and across the country, districts are more segregated by race, class, or academic ability under school choice policies than they would be if all students enrolled in their zoned schools.

Conclusion

It has become common in both conservative and liberal political circles to hear statements like "a student's zip code should not determine his destiny." This is the heart of the equity argument for school choice: that detaching school assignment from residential segregation and concentrated poverty is the best—if not the only—way to level the playing field for all children.

Our analysis shows that the expansion of school choice in New York City in the past 10 years has, indeed, allowed thousands of children to leave low-performing schools for higher-performing schools, often outside their neighborhoods. But it has also resulted in higher concentrations of poverty and shrinking enrollments and budgets in the schools they leave behind, making it ever harder for those schools to serve their neighborhoods well.

The negative effects of school choice are not inevitable. Over the past 60 years, school choice policies have sometimes been used to justify school segregation, sometimes as a strategy for school integration. School choice programs can have vastly different impacts, depending on how they are designed. Several researchers make an important distinction between "laissez-faire" choice programs and ones that include policies to regulate choice based on class, race, achievement, or language status. The National Academy of Education found that choice plans that are not race-conscious have the tendency to increase racial stratification, but ones that are have the potential to meaningfully integrate our schools (Linn & Welner, 2007).

The experience of District 1 on the Lower East Side illustrates this. When choice was first introduced in the 1990s, several progressive alternative schools used race as an admission criteria to maintain a balance of Hispanic, Black, White, and Asian children. When the Bloomberg administration made admissions race-blind, a few schools in the district became disproportionately middle class and White. In 2017, in an attempt to create a better demographic mix in the district's 16 elementary schools, the Department of Education instituted a system of "controlled choice," which uses parental preference, free lunch eligibility, and other demographic factors besides race, to assign children.

Thanks to the hard work of the many student and parent activists, journalists, and policymakers bringing attention to this issue, New Yorkers are increasingly aware that our school system is dismally segregated. It is time now to incorporate the issue of school choice

in that conversation and to drop the excuse that our elementary schools are segregated merely because our housing is.

The logic of choice can be used for segregation or integration. But in either case, it puts the onus on individual parents to find good schools for their children, rather than on society as a whole to provide for the education of all children. Correcting the disparities across the school system as a whole and providing equitable educational opportunity to all families should be a collective effort by all members of the community with strong central leadership from City Hall and the Department of Education.

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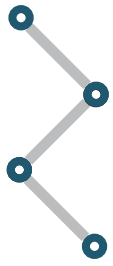
Appendix A:
Predictors of school choice logistic regression model

It has been well established in the literature that demographic and geographic characteristics of students and districts can influence uptake of school choice (Cullen et al, 2003; Holme and Richards, 2009; Campbell et al, 2005; Stein, 2015; Koedel et al, 2009; Bifulco, Ladd and Ross, 2007; Saporito, 2003; Hastings, Kane, & Staiger, 2006; Phillips, Larsen & Hausman, 2015). To better understand which characteristics were most predictive of choice here in New York City, we conducted a binary logistic regression controlling for multiple key characteristics of all kindergartners with zones (excluding choice districts 1, 7, and 23) over the last 10 years.

Independent (right-hand side) variables were picked in light of previous studies examining choice as a function of variables very similar to the ones employed in this model. All independent variables came from student-level biographical data provided by the DOE with the exception of the gentrification levels, which are derived from a Furman Center analysis that classified each of NYC's sub-borough areas based on 15 indicators of gentrification (NYU Furman Center, 2015). Students were matched to a sub-borough area through their census tract of residence, provided by the DOE. All categorical variables were recoded into binary variables with the following reference groups removed: students whose race is classified as "Other" (Native American or multi-racial); students born inside the U.S.; and students living in non-gentrifying neighborhoods.

The choice of logistic regression as opposed to a linear OLS (Ordinary Least Squares) is due to the dichotomous nature of the dependent variable. Choice is coded such that '0' denotes no movement away from one's assigned zone school and '1' denotes choice in the form of enrolling in any other public school across the city. Table 3 shows the results of the regression model, which are highly statistically significant for each independent variable at the 99 percent level of confidence, as well as the interpretations of each coefficient. In order to interpret the results of the regression, an exponentiation (e raised to the power of the value of the coefficient) of each coefficient is conducted to calculate odds ratios. An odds ratio expresses the likelihood of an event taking place under two conditions (choosing or not choosing in the context of the model). For example, the odds ratio for Black students indicates that they are 1.6 times more likely to choose a school than students who aren't Black; students living in gentrifying neighborhoods are 1.7 times more likely to choose as students not living in gentrifying neighborhoods; and students eligible for free lunch are .79 times less likely to choose as students who are not eligible.

Due to the mathematical nature of logistic regression, an R-Square value isn't an appropriate measure to assess the amount of variance explained by the model, so pseudo R-square values are

summarized at the bottom of Table 3. A misclassification test was also conducted to assess the proportion of predicted outcomes rightly reported as choice outcomes by the model. The proportion accurately predicted comes out to be 0.66.

Table 3: Logistic Regression Model Results

independent variable	coefficient (standard error)	exponentiated coefficient/ odds ratio
(constant)	-0.397 ***	
	(0.020)	
Black	0.457 ***	**1.6**
	(0.019)	
Asian	-0.48 ***	**0.62**
	(0.020)	
White	-0.405 ***	**0.67**
	(0.020)	
Hispanic	-0.182 ***	**0.83**
	(0.019)	
English language learner	0.324 ***	**0.72**
	(0.009)	
Free lunch eligible	-0.233 ***	**0.79**
	(0.007)	
Born outside US	-0.218 ***	**0.80**
	(0.012)	
Live in gentrifying neighborhood	0.523 ***	**1.7**
	(0.008)	
Live in high income neighborhood	-0.241 ***	**0.79**
	(0.008)	

***=significant at the 99% confidence level

		Pseudo R-Square values:	
Observations	*651,308*	*Hosmer and Lameshow*	*0.049*
Log Likelihood	*-395,262.40*	*Cox and Snell*	*0.061*
Akaike Inf. Criterion	*790,546.80*	*Nagelkerke*	*0.084*
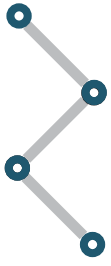
Appendix B:
Comparison of segregation indices in schools and zones

To better understand the relationship between school choice and school segregation, above and beyond the role of residential segregation, we compared actual enrollment under NYC choice policies to a counterfactual enrollment scenario in which all students in our public school data set attended their zoned schools. This method is in line with studies that have had access to student-level residential or zone assignment data similar to ours for other school districts across the U.S. (Cullen, Jacob and Levitt, 2000; Saporito, 2003; Bifulco, Ladd and Ross, 2007; Koedel et al, 2009; Phillips, Larsen and Hausman, 2015).

To determine levels of segregation in each scenario, we calculated the three most established measures of segregation from the housing and education literatures—the dissimilarity, exposure, and isolation indices—for the kindergarten cohort enrolled at each school and the kindergarten cohort living in each zone. We also compared the concentration of free lunch-eligible students and Black and Hispanic students across schools and zones in each district. Students in choice districts 1, 7, and 23 were excluded from each comparison because they do not have zoned schools. Students who live in shared zones—those with a choice of more than one school within their assigned zoned—were combined together for their counterfactual measures.

The dissimilarity index is a measure comparing the proportions of two demographic groups within a school to the proportions of those two groups across an entire district, calculated using the following formula:

$$Dissimilarity\ index = \frac{1}{2}\sum_{i=1}^{n}\left[\frac{a_i}{A} - \frac{b_i}{B}\right]$$

where a_i and b_i are the populations of each group in the ith school or zone and A and B are the total population of each group in the entire district. Dissimilarity index scores range from 0 to 1 (expressed here as percentages), and can be interpreted as the proportion of either group that would have to move to different schools or zones in order for every school to match the district wide proportions for those two groups. As such, a higher dissimilarity score indicates more segregation within the schools across a district, in the sense that the population within the district is not evenly distributed or balanced across all schools.

Table 4 shows a dissimilarity index score for every pairing of demographic groups in each district under both scenarios for the 2016-17 school year. Although the results in each district varied, the

means of all districts were lower for every single pairing under the counterfactual scenario then they were under the actual scenario. The results of each t-test comparing these means, shown along the bottom of Table 4, show that these differences were statistically significant for each pairing except the Black-Hispanic dissimilarity index. This indicates that for all other pairings tested, kindergarten students would be less segregated by race, class, and language status if they all attended their zoned schools.

Table 4: Dissimilarity Index Scores for each District's Schools and Zones, 2016-17

	District	Free lunch-eligible/Non-eligible Dissimilarity		English language learners/Non-ELL Dissimilarity		Black/White Dissimilarity		Black/Asian Dissimilarity		Black/Hispanic Dissimilarity		White/Asian Dissimilarity		White/Hispanic Dissimilarity		Hispanic/Asian Dissimilarity		Black+Hispanic/White Dissimilarity		Black+Hispanic/Asian Dissimilarity	
		Actual (schools)	Counter-factual (zones)	Actual (schools)	Counter-factual (zones)	Actual (schools)	Counter-factual (zones)	Actual (schools)	Counter-factual (zones)	Actual (schools)	Counter-factual (zones)	Actual (schools)	Counter-factual (zones)	Actual (schools)	Counter-factual (zones)	Actual (schools)	Counter-factual (zones)	Actual (schools)	Counter-factual (zones)	Actual (schools)	Counter-factual (zones)
Manhattan	2	50%	53%	57%	51%	58%	54%	53%	51%	26%	29%	54%	47%	42%	39%	47%	43%	43%	46%	42%	48%
	3	61%	44%	38%	23%	72%	49%	69%	49%	36%	35%	31%	18%	56%	33%	57%	36%	39%	63%	40%	61%
	4	46%	13%	35%	29%	67%	28%	59%	32%	28%	23%	40%	29%	57%	29%	53%	26%	26%	60%	26%	55%
	5	38%	18%	24%	13%	57%	40%	61%	25%	26%	15%	47%	35%	50%	44%	63%	27%	40%	51%	25%	62%
	6	41%	24%	29%	17%	73%	63%	63%	40%	56%	44%	54%	34%	61%	46%	68%	46%	47%	61%	42%	66%
Bronx	8	31%	28%	35%	32%	54%	55%	67%	65%	24%	19%	52%	49%	44%	45%	54%	53%	47%	45%	56%	57%
	9	47%	25%	24%	17%	47%	39%	56%	51%	22%	19%	44%	45%	40%	35%	48%	47%	36%	42%	49%	49%
	10	43%	37%	26%	23%	66%	64%	51%	53%	25%	25%	56%	50%	57%	53%	42%	41%	55%	58%	42%	43%
	11	33%	28%	34%	30%	72%	70%	64%	67%	42%	38%	55%	54%	44%	44%	41%	45%	56%	55%	51%	48%
	12	35%	16%	30%	18%	51%	31%	59%	64%	20%	15%	54%	55%	44%	31%	61%	65%	30%	44%	64%	59%
Brooklyn	13	55%	48%	45%	28%	64%	57%	47%	34%	33%	23%	48%	40%	41%	43%	46%	28%	52%	56%	30%	44%
	14	40%	41%	34%	23%	76%	73%	71%	63%	41%	37%	45%	47%	65%	59%	59%	45%	61%	67%	47%	59%
	15	57%	59%	64%	64%	59%	59%	75%	70%	62%	54%	73%	75%	62%	65%	48%	49%	62%	58%	51%	51%
	16	35%	21%	45%	29%	46%	27%	52%	43%	20%	23%	80%	45%	63%	41%	58%	38%	30%	49%	41%	53%
	17	38%	23%	50%	29%	57%	37%	47%	28%	31%	25%	60%	30%	53%	25%	31%	23%	33%	54%	25%	44%
	18	33%	14%	43%	18%	37%	33%	42%	21%	35%	23%	45%	27%	45%	40%	47%	25%	33%	37%	20%	41%
	19	39%	30%	48%	38%	48%	41%	73%	73%	46%	44%	62%	56%	47%	39%	60%	57%	31%	42%	59%	61%
	20	36%	31%	36%	36%	46%	48%	49%	50%	41%	39%	43%	46%	33%	31%	37%	41%	32%	32%	41%	37%
	21	29%	25%	22%	22%	74%	76%	69%	71%	54%	57%	36%	31%	38%	32%	29%	28%	38%	44%	35%	35%
	22	32%	23%	34%	35%	67%	70%	68%	70%	47%	42%	45%	40%	44%	43%	42%	44%	61%	59%	59%	57%
	32	36%	12%	23%	22%	62%	48%	65%	63%	36%	44%	47%	33%	47%	30%	49%	47%	29%	49%	49%	51%
Queens	24	37%	30%	43%	37%	60%	65%	59%	63%	50%	53%	59%	61%	62%	59%	48%	51%	59%	61%	50%	48%
	25	36%	32%	42%	39%	65%	62%	58%	61%	56%	58%	52%	50%	45%	44%	29%	30%	43%	46%	31%	30%
	26	21%	22%	28%	25%	53%	40%	45%	38%	37%	38%	28%	28%	26%	21%	18%	18%	22%	31%	17%	23%
	27	44%	34%	35%	35%	82%	78%	78%	76%	62%	59%	65%	65%	53%	53%	45%	45%	56%	58%	50%	50%
	28	47%	45%	37%	34%	85%	87%	66%	68%	60%	62%	49%	48%	53%	52%	33%	31%	66%	67%	42%	43%
	29	34%	21%	46%	41%	54%	52%	78%	73%	57%	52%	40%	39%	56%	45%	35%	30%	47%	51%	62%	66%
	30	35%	31%	30%	25%	59%	62%	55%	58%	54%	57%	47%	49%	56%	52%	34%	34%	51%	56%	35%	35%
S.I.	31	41%	39%	35%	33%	78%	80%	66%	69%	35%	35%	37%	38%	51%	49%	40%	40%	58%	59%	48%	47%
	MEAN	39.7%	29.9%	37.0%	29.8%	61.7%	54.8%	60.9%	54.9%	40.0%	37.5%	49.9%	43.6%	49.5%	42.1%	45.6%	39.0%	44.3%	51.8%	42.5%	49.1%
Difference between counterfactual and actual means		*-9.8%*		*-7.2%*		*-6.8%*		*-6.0%*		*-2.6%*		*-6.3%*		*-7.4%*		*-6.5%*		*-7.5%*		*-6.7%*	
	p-value	*0.000723****		*0.01178***		*0.07769**		*0.09355**		*0.4883*		*0.05149**		*0.006794****		*0.0351***		*0.0145***		*0.03374***	

***=significant at the 99% confidence level, **=significant at the 95% confidence level, *=significant at the 90% confidence level

The dissimilarity index is useful for capturing one particular dimension of segregation, the balance of two groups of students across a district, but it is limited in its ability to measure actual contact between students of different demographic groups. In other words, if all the schools in a district had student bodies that were 99 percent Black and 1 percent Hispanic, that district would be balanced according to its district's proportions and earn a perfect zero on a dissimilarity index. However, the students in those schools would still be segregated in terms of the lack of exposure to students of other groups and the almost entire isolation of Black students in the same school. This is why we also calculated the exposure and isolation indices for the actual kindergarten enrollment and the counterfactual enrollments if all kindergarten students attended their zoned schools.

The exposure index is calculated using the following formula:

$$Exposure\ index = \sum_{i=1}^{n} \left[\frac{a_i}{A} - \frac{b_i}{T_i} \right]$$

where a_i and b_i are the populations of each group in the ith school or zone, A is the total population of group a in the entire district, and T_i is the total population in the ith school or zone. Exposure index scores range from 0 to 1 (expressed here as percentages), and can be interpreted as the probability of a person from group a interacting with a person from group b in any school or zone. A higher score on this index indicates greater exposure, hence less segregation.

The isolation index is essentially the inverse of the exposure index, and is calculated using a similar formula:

$$Isolation\ index = \sum_{i=1}^{n} \left[\frac{a_i}{A} - \frac{a_i}{T_i} \right]$$

where a_i is the population of each group in the ith school or zone, A is the total population of group a in the entire district, and T_i is the total population in the ith school or zone. Isolation index scores again range from 0 to 1 (expressed here as percentages), and can be interpreted as the probability of a person from group a interacting with another person from group a in any school or zone. A higher score on this index indicates greater isolation, hence more segregation.

Table 5 shows the exposure and isolation index scores for select demographic groups in each district under both scenarios for the 2016-17 school year. The means of all districts

Table 5: Isolation and Exposure Index Scores for Each District's Schools and Zones, 2016-17

Borough	District	FL: Sch %free	Sch %non	Zone %free	Zone %non	ELL: Sch %ELL	Sch %non	Zone %ELL	Zone %non	Asian: Sch %Asian	Sch %Black	Sch %Hisp	Sch %White	Zone %Asian	Zone %Black	Zone %Hisp	Zone %White	White: Sch %White	Sch %Asian	Sch %Black	Sch %Hisp	Zone %White	Zone %Asian	Zone %Black	Zone %Hisp	B/H: Sch %B+H	Sch %White	Sch %Asian	Zone %B+H	Zone %White	Zone %Asian
Manhattan	2	44%	56%	44%	56%	92%	67%	92%	72%	50%	5%	12%	28%	45%	6%	13%	32%	62%	15%	4%	13%	61%	16%	5%	13%	33%	40%	21%	31%	42%	22%
	3	68%	32%	53%	47%	95%	91%	95%	93%	13%	13%	19%	48%	9%	18%	22%	44%	53%	9%	12%	18%	47%	8%	16%	23%	74%	19%	4%	58%	31%	6%
	4	87%	13%	88%	12%	87%	73%	84%	77%	18%	19%	42%	12%	7%	27%	60%	4%	18%	14%	20%	39%	5%	5%	29%	60%	91%	3%	4%	90%	4%	5%
	5	88%	12%	84%	16%	90%	86%	89%	88%	4%	51%	38%	5%	2%	50%	39%	5%	7%	3%	46%	42%	8%	2%	48%	38%	95%	2%	1%	92%	4%	2%
	6	83%	17%	80%	20%	75%	64%	74%	70%	6%	8%	66%	18%	5%	11%	65%	17%	27%	4%	6%	60%	22%	4%	7%	64%	92%	5%	1%	90%	6%	2%
Bronx	8	84%	16%	84%	16%	87%	78%	87%	81%	18%	15%	59%	6%	16%	17%	60%	6%	11%	6%	17%	64%	12%	7%	18%	64%	90%	4%	4%	90%	4%	4%
	9	92%	8%	91%	9%	77%	70%	77%	74%	3%	28%	66%	2%	3%	31%	64%	2%	3%	2%	28%	67%	3%	1%	31%	64%	96%	2%	1%	96%	2%	1%
	10	88%	12%	87%	13%	77%	69%	77%	71%	8%	11%	70%	8%	8%	11%	70%	8%	23%	6%	8%	60%	21%	6%	8%	61%	91%	4%	3%	91%	4%	3%
	11	79%	21%	78%	22%	91%	85%	91%	86%	22%	23%	44%	9%	23%	23%	43%	9%	26%	9%	16%	47%	25%	9%	17%	47%	84%	7%	7%	85%	6%	7%
	12	91%	9%	90%	10%	81%	73%	80%	76%	9%	25%	61%	2%	11%	25%	59%	2%	3%	4%	23%	67%	3%	4%	27%	64%	94%	1%	2%	93%	2%	3%
Brooklyn	13	71%	29%	64%	36%	95%	88%	95%	91%	11%	46%	16%	22%	9%	39%	19%	27%	44%	4%	26%	18%	46%	6%	24%	17%	74%	17%	5%	68%	20%	6%
	14	70%	30%	70%	30%	86%	77%	86%	83%	9%	11%	44%	33%	10%	13%	45%	29%	54%	5%	8%	30%	52%	5%	9%	32%	82%	13%	3%	78%	16%	4%
	15	66%	34%	66%	34%	85%	47%	84%	46%	48%	3%	31%	16%	50%	2%	32%	15%	61%	9%	6%	18%	62%	9%	5%	18%	55%	23%	18%	54%	23%	20%
	16	84%	16%	82%	18%	95%	90%	94%	92%	6%	70%	20%	1%	6%	65%	23%	4%	7%	1%	73%	17%	5%	3%	71%	18%	93%	2%	2%	92%	3%	3%
	17	85%	15%	82%	18%	92%	80%	92%	87%	7%	65%	23%	4%	5%	65%	22%	6%	12%	4%	62%	19%	8%	4%	65%	21%	93%	3%	3%	91%	4%	3%
	18	83%	17%	80%	20%	95%	90%	94%	93%	3%	87%	6%	3%	1%	88%	6%	3%	4%	2%	87%	6%	3%	1%	88%	5%	96%	2%	1%	95%	2%	1%
	19	86%	14%	86%	14%	90%	80%	90%	84%	36%	23%	37%	2%	32%	27%	38%	2%	3%	12%	45%	38%	3%	11%	47%	38%	90%	1%	7%	91%	1%	6%
	20	73%	27%	72%	28%	66%	46%	66%	46%	58%	1%	21%	20%	59%	1%	20%	19%	40%	34%	1%	24%	39%	33%	1%	26%	36%	26%	38%	37%	26%	36%
	21	71%	29%	70%	30%	70%	63%	70%	64%	37%	5%	27%	31%	35%	5%	27%	32%	46%	25%	5%	22%	45%	25%	4%	24%	50%	25%	23%	49%	26%	23%
	22	70%	30%	68%	32%	82%	73%	83%	73%	31%	16%	17%	34%	30%	16%	16%	36%	51%	17%	16%	14%	50%	18%	16%	14%	69%	18%	10%	71%	17%	9%
	32	88%	12%	83%	17%	75%	69%	75%	71%	4%	10%	84%	2%	7%	12%	75%	5%	4%	2%	13%	79%	5%	5%	16%	73%	96%	2%	2%	93%	3%	3%
Queens	24	76%	24%	74%	26%	70%	48%	69%	51%	36%	1%	49%	12%	37%	1%	49%	11%	38%	16%	1%	43%	37%	15%	1%	46%	73%	10%	16%	73%	11%	16%
	25	72%	28%	72%	28%	69%	48%	68%	50%	66%	3%	21%	10%	66%	2%	21%	10%	29%	43%	3%	22%	26%	45%	3%	23%	34%	13%	52%	34%	13%	52%
	26	49%	51%	49%	51%	87%	81%	85%	80%	61%	4%	14%	18%	63%	3%	13%	18%	28%	52%	3%	13%	27%	53%	3%	14%	23%	18%	56%	18%	21%	57%
	27	81%	19%	78%	22%	87%	76%	87%	78%	36%	11%	39%	6%	35%	12%	39%	6%	42%	12%	7%	35%	42%	30%	9%	33%	75%	7%	14%	75%	6%	14%
	28	74%	26%	72%	28%	87%	77%	87%	79%	38%	11%	25%	19%	39%	10%	26%	19%	40%	27%	5%	22%	38%	30%	4%	23%	61%	11%	22%	62%	11%	22%
	29	76%	24%	73%	27%	90%	76%	90%	82%	44%	21%	26%	3%	40%	24%	27%	4%	4%	31%	44%	15%	6%	33%	39%	18%	84%	1%	10%	82%	2%	12%
	30	68%	32%	66%	34%	75%	63%	74%	66%	29%	4%	46%	18%	29%	4%	47%	17%	35%	20%	5%	36%	35%	19%	4%	37%	66%	13%	18%	65%	14%	18%
S.I.	31	65%	35%	63%	37%	90%	82%	90%	84%	15%	8%	26%	48%	16%	8%	27%	47%	63%	11%	4%	20%	62%	11%	4%	21%	63%	27%	8%	62%	27%	9%
MEAN		**76%**	**24%**	**74%**	**26%**	**84%**	**73%**	**84%**	**75%**	**25%**	**21%**	**36%**	**15%**	**24%**	**21%**	**37%**	**15%**	**29%**	**14%**	**20%**	**33%**	**27%**	**14%**	**21%**	**34%**	**74%**	**11%**	**12%**	**73%**	**12%**	**13%**
Difference between counterfactual and actual means		*-2%*	*2%*			*0%*	*3%*			*-1%*	*1%*	*1%*	*0%*					*-1%*	*0%*	*1%*	*1%*					*-2%*	*1%*	*0%*			

and the differences between the means in each scenario are displayed at the bottom of the table, but our t-tests are not displayed because none met a 90 percent confidence threshold. This indicates that although there is slightly less isolation and slightly more exposure across most districts under the counterfactual scenario in which all kindergarten students attend their zoned schools, those differences were not statistically significant.

Finally, our concentration measures look at the percent of schools or zones that fall near the citywide averages for free lunch eligibility and the percentage of Black and Hispanic students across the city. For free lunch eligibility, we defined "near-average" as 67 to 87 percent, which is around the 10-year mean for all kindergarten students across the city. For the proportion of Black and Hispanic students, we relied on the definition used in the DOE's 2017 Diversity Plan, which defines a "racially representative" school as one that has between 50 and 90 percent Black and Hispanic students. Although this goal sets a less aggressive threshold around the citywide average, it nonetheless represents an important political benchmark because of its inclusion in the DOE's official plan.

Table 6 shows the proportion of schools or zones, the total number of students, and the proportion of students in schools or zones in each district that fall below, near, and above the free lunch average. (The total number of schools and zones is not comparable in this analysis because about a quarter of all schools do not have zones). Under the counter-factual enrollment scenario in which all students attend their zoned schools, 6,300 more kindergarten students (8 percent) would be enrolled in schools with near-average poverty rates, and 4,200 fewer students (12 percent) would be enrolled in high-poverty schools. These differences are both statistically significant at the 99 percent level of confidence.

Table 7 shows the proportion of schools or zones, the total number of students, and the proportion of students in schools or zones in each district that fall within the range of racial representativeness. The differences between actual enrollment and the counterfac-tual enrollment scenario in which all students attend their zoned schools was not as great by this measure. Some 2,300 more kindergarten students (3 percent) would be enrolled in racially representative schools and 1,200 fewer students (2 percent) would be enrolled in schools with greater than 90 percent Black and Hispanic students. The proportion of schools in which Black and Hispanic students are underrepresented would also increase by 7 percent. All these differences still met the threshold of statistical significance at the 95 percent level of confidence.

Table 6: Poverty Concentration in Schools and Zones, 2016-17

Borough	District	Below avg (<67%) Actual % schools	Actual # students	Actual % students	Counterfactual % schools	Counterfactual # students	Counterfactual % students	Near-avg (67%-87%) Actual % schools	Actual # students	Actual % students	Counterfactual % schools	Counterfactual # students	Counterfactual % students	Above-avg (>87%) Actual % schools	Actual # students	Actual % students	Counterfactual % schools	Counterfactual # students	Counterfactual % students
Manhattan	2	95%	2,864	96%	94%	2,800	95%	0%	-	0%	6%	158	5%	5%	115	4%	0%	-	0%
	3	50%	1,103	62%	88%	1,276	90%	32%	502	28%	6%	69	5%	18%	161	9%	6%	70	5%
	4	14%	172	13%	0%	-	0%	32%	457	36%	50%	462	47%	54%	655	51%	50%	520	53%
	5	12%	129	9%	0%	-	0%	16%	377	28%	77%	987	77%	72%	856	63%	23%	293	23%
	6	16%	311	16%	7%	105	5%	44%	899	45%	73%	1,584	78%	41%	795	40%	20%	344	17%
Bronx	8	3%	64	3%	10%	146	6%	56%	1,519	63%	55%	1,495	61%	41%	826	34%	35%	826	33%
	9	3%	59	2%	0%	-	0%	27%	737	26%	21%	771	23%	70%	2,067	72%	79%	2,513	77%
	10	7%	326	8%	6%	285	7%	42%	1,699	43%	38%	1,668	39%	51%	1,964	49%	56%	2,364	55%
	11	26%	964	31%	31%	1,173	35%	44%	1,206	38%	41%	1,241	37%	31%	989	31%	28%	945	28%
	12	0%	-	0%	0%	-	0%	27%	595	32%	20%	537	26%	73%	1,243	68%	80%	1,537	74%
Brooklyn	13	41%	892	59%	71%	927	73%	19%	231	15%	24%	247	19%	41%	392	26%	6%	99	8%
	14	46%	806	55%	42%	603	50%	38%	526	36%	47%	531	44%	15%	138	9%	11%	61	5%
	15	72%	2,230	71%	67%	1,979	67%	17%	563	18%	33%	994	33%	10%	329	11%	0%	-	0%
	16	19%	173	21%	7%	42	5%	24%	281	34%	64%	456	54%	57%	383	46%	29%	351	41%
	17	10%	247	14%	10%	117	6%	39%	717	41%	55%	1,169	62%	52%	802	45%	35%	601	32%
	18	14%	242	16%	0%	-	0%	43%	679	45%	100%	1,472	100%	43%	576	38%	0%	-	0%
	19	7%	224	11%	4%	139	6%	21%	547	27%	30%	942	40%	72%	1,220	61%	65%	1,252	54%
	20	48%	2,115	52%	48%	2,175	54%	29%	1,097	27%	34%	1,262	31%	23%	818	20%	17%	604	15%
	21	50%	1,179	55%	52%	1,288	58%	38%	770	36%	35%	758	34%	13%	208	10%	13%	183	8%
	22	50%	1,407	50%	52%	1,431	47%	33%	1,028	37%	44%	1,510	50%	17%	373	13%	4%	73	2%
	32	6%	76	8%	0%	-	0%	35%	329	33%	77%	847	79%	59%	607	60%	23%	220	21%
Queens	24	41%	1,817	39%	40%	1,712	36%	31%	1,412	30%	40%	2,031	42%	28%	1,428	31%	20%	1,045	22%
	25	50%	1,281	45%	45%	1,261	45%	42%	1,232	43%	45%	1,145	41%	8%	336	12%	9%	393	14%
	26	95%	1,582	96%	95%	1,518	95%	5%	67	4%	5%	72	5%	0%	-	0%	0%	-	0%
	27	27%	952	27%	31%	945	26%	32%	1,395	40%	53%	2,084	57%	41%	1,171	33%	17%	623	17%
	28	41%	1,412	51%	48%	1,579	55%	31%	735	26%	32%	742	26%	28%	640	23%	20%	568	20%
	29	19%	628	26%	25%	686	27%	63%	1,289	54%	71%	1,777	71%	19%	467	20%	4%	50	2%
	30	56%	1,950	62%	61%	1,826	58%	21%	664	21%	29%	969	31%	24%	529	17%	11%	351	11%
S.I.	31	64%	2,917	68%	73%	3,053	70%	24%	914	21%	18%	848	19%	12%	474	11%	9%	466	11%
MEAN/TOTAL		**34%**	**28,122**	**40%**	**39%**	**27,066**	**37%**	**31%**	**22,467**	**32%**	**39%**	**28,828**	**40%**	**34%**	**20,562**	**29%**	**22%**	**16,352**	**23%**
Difference between counterfactual and actual means and totals		*5% -*	*1,056*	*-2%*				*8% -*	*6,361*	*8%*				*-12% -*	*4,210*	*-6%*			
p-value		*0.6806*		*0.282056*				*0.004****		*0.003****				*0.000****		*0.001****			

***=significant at the 99% confidence level, **=significant at the 95% confidence level, *=significant at the 90% confidence level

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Table 7: Racial Representativeness in Schools and Zones, 2016-17

Borough	District	G1 Actual %sch	G1 Actual #stu	G1 Actual %stu	G1 CF %sch	G1 CF #stu	G1 CF %stu	G2 Actual %sch	G2 Actual #stu	G2 Actual %stu	G2 CF %sch	G2 CF #stu	G2 CF %stu	G3 Actual %sch	G3 Actual #stu	G3 Actual %stu	G3 CF %sch	G3 CF #stu	G3 CF %stu
		Black and Hispanic students underrepresented (Black+Hispanic <50%)						**"Racially Representative" (Black+Hispanic 50%-90%)**						**Black and Hispanic students overrepresented (Black+Hispanic >90%)**					
		Actual (schools)			Counterfactual (zones)			Actual (schools)			Counterfactual (zones)			Actual (schools)			Counterfactual (zones)		
Manhattan	2	89%	2,782	93%	90%	2,651	90%	11%	197	7%	10%	307	10%	0%	-	0%	0%	-	0%
Manhattan	3	32%	785	44%	47%	732	52%	32%	490	28%	53%	683	48%	36%	491	28%	0%	-	0%
Manhattan	4	11%	116	9%	0%	-	0%	14%	177	14%	43%	460	47%	75%	991	77%	57%	522	53%
Manhattan	5	0%	-	0%	0%	-	0%	16%	148	11%	31%	383	30%	84%	1,214	89%	69%	897	70%
Manhattan	6	6%	123	6%	7%	105	5%	25%	333	17%	26%	513	25%	69%	1,549	77%	67%	1,415	68%
Bronx	8	0%	-	0%	0%	-	0%	3%	745	21%	0%	-	0%	97%	2,793	79%	100%	1,672	100%
Bronx	9	0%	-	0%	0%	-	0%	30%	70	2%	24%	938	22%	70%	2,781	98%	76%	3,284	75%
Bronx	10	2%	145	4%	3%	144	3%	28%	1,063	37%	49%	1,510	45%	70%	1,664	58%	48%	3,235	49%
Bronx	11	10%	287	9%	10%	212	6%	49%	1,635	52%	3%	457	22%	41%	1,237	39%	87%	1,637	78%
Bronx	12	0%	-	0%	0%	-	0%	19%	375	20%	22%	795	33%	81%	1,463	80%	78%	1,617	67%
Brooklyn	13	22%	489	32%	29%	552	43%	41%	618	41%	59%	569	45%	37%	408	27%	12%	152	12%
Brooklyn	14	15%	369	25%	26%	399	33%	35%	537	37%	47%	540	45%	50%	564	38%	26%	256	21%
Brooklyn	15	62%	2,177	70%	63%	2,143	72%	34%	899	29%	33%	762	26%	3%	46	1%	4%	68	2%
Brooklyn	16	0%	-	0%	0%	-	0%	29%	227	27%	43%	366	43%	71%	610	73%	57%	483	57%
Brooklyn	17	0%	-	0%	0%	-	0%	23%	398	23%	35%	662	35%	77%	1,368	77%	65%	1,225	65%
Brooklyn	18	0%	-	0%	0%	-	0%	14%	167	11%	8%	73	5%	86%	1,330	89%	92%	1,399	95%
Brooklyn	19	7%	259	13%	4%	139	6%	14%	334	17%	26%	608	26%	79%	1,398	70%	70%	1,586	68%
Brooklyn	20	94%	3,717	92%	90%	3,645	90%	6%	313	8%	10%	396	10%	0%	-	0%	0%	-	0%
Brooklyn	21	75%	1,766	82%	78%	1,852	83%	21%	323	15%	22%	377	17%	4%	68	3%	0%	-	0%
Brooklyn	22	43%	1,437	51%	52%	1,506	50%	37%	947	34%	28%	937	31%	20%	424	15%	20%	571	19%
Brooklyn	32	0%	-	0%	0%	-	0%	0%	-	0%	23%	214	20%	100%	1,012	100%	77%	853	80%
Queens	24	34%	1,618	35%	37%	1,716	36%	41%	1,732	37%	46%	2,132	45%	25%	1,307	28%	20%	940	20%
Queens	25	85%	2,476	87%	86%	2,580	92%	15%	373	13%	14%	219	8%	0%	-	0%	0%	-	0%
Queens	26	100%	1,649	100%	100%	1,590	100%	0%	-	0%	0%	-	0%	0%	-	0%	0%	-	0%
Queens	27	29%	967	27%	36%	1,163	32%	46%	1,797	51%	45%	1,673	46%	24%	754	21%	19%	816	22%
Queens	28	48%	1,598	57%	52%	1,617	56%	38%	924	33%	36%	956	33%	14%	265	10%	12%	316	11%
Queens	29	13%	491	21%	17%	363	14%	28%	712	30%	41%	1,240	49%	59%	1,181	50%	42%	910	36%
Queens	30	44%	1,577	50%	46%	1,594	51%	47%	1,317	42%	43%	1,324	42%	9%	249	8%	11%	228	7%
S.I.	31	58%	2,669	62%	68%	2,774	64%	38%	1,475	34%	30%	1,550	35%	4%	161	4%	2%	43	1%
MEAN/TOTAL		**31%**	**27,497**	**39%**	**38%**	**27,477**	**38%**	**27%**	**18,326**	**26%**	**30%**	**20,644**	**29%**	**43%**	**25,328**	**36%**	**33%**	**24,125**	**33%**

Difference between counterfactual and actual means and totals
- Group 1 (underrepresented): **7%** / **-20** / **-1%**
- Group 2 ("Racially Representative"): **3%** / **2,318** / **3%**
- Group 3 (overrepresented): **-10%** / **-1,203** / **-2%**

p-value
- Group 1: 0.028** / 0.717691
- Group 2: 0.028** / 0.008***
- Group 3: 0.003*** / 0.004***

***=significant at the 99% confidence level, **=significant at the 95% confidence level, *=significant at the 90% confidence level

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THE INTEGRATION PROJECT at the Center for New York City Affairs, a multi-year research and reporting effort headed by InsideSchools founder Clara Hemphill, is examining racial and economic integration in the nation's largest public school system. Previous publications of this project include:

The Calculus of Race and Class: A New Look at the Achievement Gap in New York City Schools, by Nicole Mader and Ana Carla Sant'anna Costa, Center for New York City Affairs, January 2018.

No Heavy Lifting Required: New York City's Unambitious School 'Diversity' Plan, by Nicole Mader and Ana Carla Sant'anna Costa, Center for New York City Affairs, June 2017.

Five Steps to Integrate New York City Elementary Schools, by Clara Hemphill, Lydie Raschka, and Nicole Mader, Center for New York City Affairs, November 2016.

West Side Story: How City Leaders Can Back a Brave School Zoning Plan, by Clara Hemphill, Center for New York City Affairs Urban Matters blog, November 2016.

Integrated Schools in a Segregated City: Ten Strategies that Have Made New York City Elementary Schools More Diverse, by Clara Hemphill, Nicole Mader, and the InsideSchools staff, Center for New York City Affairs, October 2016.

Tough Test Ahead: Bringing Diversity to New York City's Specialized High Schools, by Bruce Cory and Nicole Mader, Center for New York City Affairs Urban Matters blog, June 2016.

Diversity in New York's Specialized Schools: A Deeper Data Dive, by Nicole Mader, Bruce Cory, and Celeste Royo, Center for New York City Affairs Urban Matters blog, June 2016.

Can Controlled Choice Help Integrate NYC Schools, by Clara Hemphill, Center for New York City Affairs Urban Matters blog, April 2016.

Segregated Schools in Integrated Neighborhoods: The City's Schools Are Even More Divided Than Our Housing, by Clara Hemphill and Nicole Mader, Center for New York City Affairs, January 2016.

Are Schools Segregated Because Housing Is? It Ain't Necessarily So, by Clara Hemphill and Nicole Mader, Center for New York City Affairs Urban Matters blog, December 2015.

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