Technical Report

TRANSPORTATION INEQUITIES AND SCHOOL CHOICE: HOW CAR, PUBLIC TRANSIT, AND SCHOOL BUS ACCESS AFFECT FAMILIES' OPTIONS

EDUCATION RESEARCH ALLIANCE FOR NEW ORLEANS

Jon Valant, Brookings Institution and Tulane University
Jane Arnold Lincove, University of Maryland, Baltimore County and Tulane University

Published April 18, 2023

Education Research Alliance NOLA.org

Transportation Inequities and School Choice:

How Car, Public Transit, and School Bus Access Affect Families' Options

Abstract

This study examines how the student transportation options available to families affect which schools are realistically accessible to them in a choice-based setting. The study has two parts. First, we compare commute times by foot, public transit, school bus, and car. We show that providing school bus service reduces commute times and improves access for families without cars, but access to a car fundamentally shapes families' options. Second, we explore the relationship between neighborhood-level measures of vehicle access and families' school requests and placements. Car access is strongly associated with school requests and placements even after accounting for neighborhood characteristics. We consider car access as a pathway by which wealth disparities produce educational disparities in settings that emphasize school choice.

Keywords: Transportation, school bus, school choice, charter schools, inequality

Introduction

In the United States, wealth, income, and educational opportunity are tightly intertwined. The traditional model of assigning students to schools based on where they live means that families' schooling options are constrained by their wealth and income. Prohibitively high housing costs—coupled with exclusionary zoning practices that limit affordable rental opportunities in expensive areas—keep many low-income families from accessing schools they might desire (Rothwell, 2012). By creating options outside of students' immediate residential areas, school choice reforms could weaken the link between families' financial resources and educational options. However, school choice programs present barriers of their own, many of which disproportionately affect students of color and students in poverty (Sattin-Bajaj & Roda, 2020).

Transportation is one such barrier (Bierbaum, Karner, & Barajas, 2021; McShane & Shaw, 2020; Urban Institute Student Transportation Working Group, 2018). Theory suggests that offering families choice may produce better opportunities for students and constructive pressures for schools (Friedman, 1955). However, even if a school is technically available to request, the school is not truly an option unless a child can get to and from that school, safely and affordably, in a reasonable amount of time. This points to the importance of student transportation. Indeed, school choice is associated with long commutes (Corcoran, 2018; He & Giuliano, 2018; Scott & Marshall, 2019; Stein et al., 2017;

Yang, Abbott, & Schlossberg, 2012), especially for students of color (Burdick-Will, 2017; Corcoran, 2018; Cowen et al., 2018; He & Giuliano, 2018). Students who travel farther generally can access more and higher-quality schools (Cordes & Schwartz, 2018; Denice & Gross, 2018). However, longer, more difficult commutes are also associated with less time to sleep and exercise (Voulgaris, Smart, & Taylor, 2019) and higher rates of school transfer and absenteeism (Blagg, Rosenboom, & Chingos, 2018; Cordes, Rick, & Schwartz, 2022; Stein, Burdick-Will, & Grigg, 2021; Stein & Grigg, 2019).

The gap between school choice in theory and practice has raised broader concerns about which families are (and are not) tasked with seeking alternatives to their local public schools (Scott & Holme, 2016; Singer & Lenhoff, 2022), as well as how much choice families truly have (Pattillo, 2015) and what leaving one's neighborhood might mean to minoritized and marginalized children and their communities (Pearman & Greene, 2022; Shedd, 2015). In this context, understanding the role of student transportation is critical. Transportation barriers could make the promise of school choice illusory and contribute to choice policies strengthening, not weakening, the link between families' financial resources and educational opportunities.

This study examines the relationship between the modes of transportation available to families, the time it takes children to commute to school, and families' school requests and placements. Our focus is New Orleans, a city with

the most choice-oriented school system in the U.S. and policies intended to reduce transportation barriers. New Orleans has a charter-based system that does not guarantee enrollment in any particular school. It is a system that offers families of all backgrounds the ability to *request* many schools. However, whether it offers the ability to *access* many school options hinges partly on access to transportation. New Orleans has attempted to address this issue by requiring schools to provide transportation to all their students regardless of residential location.

The study applies two empirical strategies, which are presented below in two parts. In the first part, we compare commute times to school by mode of transportation (walking, public transit, school bus, and car) and neighborhood characteristics (low- and high-income block groups). This includes analyzing how New Orleans' provision of school bus service affects students' access to schools. In the second part, we further explore the relationship between car access and school choice by looking to families' school requests and placements. Our findings point to car access as a key determinant of families' school choice options and underappreciated source of inequity in choice-oriented systems – even within a system that provides school bus service to most schools. Unless families have access to efficient, reliable transportation, their true "consideration sets" are likely much smaller than the full "choice sets" seen by policymakers and researchers (Simon, 1955).

Context

After Hurricane Katrina in 2005, New Orleans transitioned from a traditional, neighborhood-zoned school district to a citywide system of charter schools (Cowen Institute, 2011; Harris, 2020). New Orleans does not assign students to schools based on where they live. Instead, families request schools through New Orleans' unified enrollment system (called OneApp until 2021). Families submit applications with rank-ordered school requests, then an algorithm makes placements based on families' requests, seat capacity, and priorities such as sibling preference (Abdulkadiroğlu et al., 2017).[1] Some schools offer a limited geographic priority to students living nearby, but this falls short of a guaranteed seat in a neighborhood school. Geographic priority never applies to more than half of the seats in a school, is never used for high school, and is a priority, not a guarantee, with other priorities such as sibling status often receiving greater weight.

Survey data show that car rides and school buses are the most common (but not only) ways to get to school in New Orleans. When asked to check all that apply from a list of ways to get to get school, 51 percent of students selected getting a ride from a parent/guardian, 50 percent taking a school bus, 9 percent

[1] A small number of public schools, including a disproportionate share of high-rated schools, resisted entry in OneApp, opting to manage their own enrollment processes. As indicated below, we include these schools in some but not all analyses. Some private schools participate in OneApp via a state voucher program. We exclude private schools from all analyses.

walking, 7 percent carpooling, 5 percent taking a city bus, and 4 percent driving themselves (Bell Weixler, Harris, & Gerry, 2020). Relative to cities that make use of a subway system to transport students (e.g., see Corcoran, 2018, for discussion of New York City), the New Orleans public transportation system of city buses, streetcars, and a ferry across the Mississippi River can be slow and unreliable. To support broad geographic access to school choice, the city has a school transportation policy that requires charter schools to provide "free and adequate" transportation to all students (Nobles III, 2018). Most schools fulfill this requirement by providing school bus service, while a few provide only public transit tokens. Whatever strategy they choose, schools must fund and manage the process themselves. There is no centralized transportation service or designated transportation funding. Buerger and Harris (2021) find that transportation costs are a substantial portion of charter school budgets and that increased transportation costs were among the largest fiscal effects of the transition to a market-based school system.

In addition to transportation costs for schools, it is important to recognize costs for students and families. Even with school busing, many students endure long rides and early pick-up times, potentially to the detriment of their physical, emotional, and academic health (Jacob & Rockoff, 2011; Voulgaris, Smart, & Taylor, 2019). Many parents, too, devote substantial time and resources to school transportation.

The New Orleans school system is unique in many ways, and U.S. cities differ markedly from one another in their student transportation policies, public transit offerings, geography, and school choice policies (Urban Institute Student Transportation Working Group, 2018). Results from any one city, including New Orleans, might not generalize well to other settings. However, research on New Orleans provides an informative glimpse into the dynamics of citywide choice system, with findings instructive for cities expanding their school choice offerings. Many cities and states are grappling with student transportation issues, especially where transportation systems were designed to fit a neighborhood school model but school choice programs have proliferated (Burgoyne-Allen, O'Keefe, & O'Neal Schiess, 2019). A state policy overview by McShane and Shaw (2020) reveals a patchwork of approaches. They find that 31 states make transportation funding or services available to charter school students, with funding mandated for all charter students in 17 of those states. Transportation policies for intra-district choice programs are similarly split, and a few states ensure transportation for private school choice programs. An analysis by the Urban Institute Student Transportation Working Group (2017) shows that city and district transportation policies vary considerably as well.

Empirical Analysis

Part I: Commute Times by Mode of Transportation and Neighborhood

In Part I, we examine the number of schools that families could reach based on neighborhood poverty rates and the modes of transportation available to them. We consider both the total number of schools available and the number of schools that were rated highly by the state of Louisiana. This part of the analysis requires data on commute times, school characteristics, and neighborhood characteristics.

We calculate commute times from each block group to each public school in New Orleans. The U.S. Census Bureau divides Orleans Parish (350 square miles) into 497 block groups. We calculate travel times from the population-weighted geographic center (centroid) of each block group, which we obtained from Census data, to each public school in Orleans Parish using a Google Maps API.

We obtained school addresses and school ratings from informational packets available to families. The Louisiana Department of Education (LDOE) uses school ratings as part of its accountability system, assigning an annual report card grade of A through F (or transitional grade of T) to every public school in the state. These grades are based primarily on state test scores. While a blunt and potentially biased measure of quality, LDOE letter grades are the most visible

quality measures for New Orleans schools, and research suggests that many families consider these grades when requesting schools (Harris & Larsen, 2019).

For each school/block group combination, we estimate travel times by foot, car, and public transit. We do this for a Wednesday morning in October to simulate a typical school day commute.[2] In doing so, we compute the door-to-door transit time for a hypothetical student living precisely at the block group centroid. For instance, when calculating transit time for a student whose commute involves two city buses, we add the time required to walk from the block group centroid to the first bus stop, ride that bus, walk to the second bus stop, wait for that bus, ride the second bus, and then walk from the drop-off stop to school. Where there are multiple public transit route options, we choose the route with the shortest walking time to a transit stop. Of course, duration and distance are not all that define a commute. Some families may opt for routes based on considerations such as safety and alignment with parents' or friends' schedules (Burdick-Will, Stein, & Grigg, 2019). Since we cannot observe these deviations, we focus on the fastest routes available.

We are interested in whether commute times differ for families living in high-poverty and low-poverty areas, so we collected block group-level neighborhood data from the U.S. Census Bureau's American Community Survey

[2] Google uses "historical time-of-day and day-of-week traffic data" in its predictive travel times to account for factors such as typical traffic patterns (Kelareva, 2015).

(ACS). We use ACS five-year estimates from 2016 for Part I (the year for which we have school bus routes) and 2014 for Part II (the year for which we have student addresses). To distinguish between high-poverty and low-poverty block groups, we use the top and bottom quartiles of block groups by the share of residents receiving Food Stamps/SNAP in the past 12 months (ACS item B22010). In the top quartile (mean SNAP rate: 47 percent), we observe an estimated 115 public school students and 11 private students per block group in grades K-12. In the bottom quartile (mean SNAP rate: 2 percent), we observe an estimated 42 public school students and 46 private school students per block group. This reflects the unequal access to private schools in New Orleans to families of different wealth and income. We also obtained ACS data on the number of vehicles available by household (item B25044), median gross rent in dollars (B25064), and educational attainment for the population 25 years and older (B15003). We use these variables in Part II.

Table 1 displays descriptive statistics from these ACS data as well as the distribution of schools by state letter grade.[3] In 2013-14, four schools in OneApp that offered kindergarten and three that offered 9th grade had an A or B grade. This increased sharply by 2016-17. This reflects several factors, including

[3] Note that the statistics are calculated across block groups (e.g., mean values for block groups) and might not match overall Orleans Parish statistics.

changes in school performance, school openings/closings/transitions, and changes in how letter grades were determined.[4]

Figure 1 illustrates the geographic distribution of A and B-rated schools in Orleans Parish in 2016-17 (based on state letter grades from the prior year). The figure plots school locations, with Census blocks shaded by their relative poverty levels. While there are A and B-rated schools across the city, some are clustered in the relatively wealthy Uptown area in the southwestern part of the city. The east side of New Orleans is characterized by higher poverty, lower density of housing, and fewer A/B-rated schools. We also note the Westbank region, which is separated from the rest of New Orleans by the Mississippi River. Getting from the Westbank to other parts of the city requires students to cross a single bridge or ride a ferry.

Turning to our findings, we first compare commute times to A/B-rated schools by mode of transportation and block group poverty quartile. This addresses a fundamental issue related to access to the highest-rated schools in New Orleans: to what extent families of different socioeconomic backgrounds can reach schools in a reasonable amount of time. We focus on A/B-rated schools to assess which families can realistically reach schools that the state deems the

[4] Schools did not receive an SPS in their first year of operation, after a management transition, or if they did not have students in tested grades.

highest performing. While these schools are in high demand from parents, we note that not all families prefer A/B-rated schools.

Figure 2 plots the proportion of the 15 total A/B-rated elementary schools that a family could reach (y-axis) by the amount of time it would take to get there (x-axis). We chart the number of schools reachable for families (a) whose only option is to walk, (b) who can walk or take public transit, and (c) who can walk, take public transit, or drive. We chart transit times separately for the lowest-poverty quartile (dashed lines) and highest-poverty quartile of block groups (solid lines) based on Food Stamps/SNAP rates.

Students whose only option is to walk (light gray lines) have few options within a reasonable distance for kindergarteners. From most block group centroids, families cannot walk to a single A/B-rated school within 15 minutes (perhaps longer for young children) and roughly one school in 30 minutes. This suggests that most young students require a different type of commute to reach the highest-rated schools. Using public transit puts more schools within reach. Still, families can only access 2-3 A/B schools on average (fewer than 20 percent of the schools available) within a 30-minute public transit commute. Far greater accessibility comes from having a car. Virtually all families with cars (black lines) can access all A/B-elementary schools within 25 minutes.

Notably, the largest divergences in Figure 2 relate to mode of transportation (light/medium/dark lines), not neighborhood poverty rates

(solid/dashed lines). Families in low-poverty block groups can walk to more high-rated schools than families in high-poverty block groups, but the differences are relatively small. To some extent, this reflects the geographic distribution of schools and income inequality in New Orleans, where high-rated schools are clustered in low-poverty block groups, but low-poverty and high-poverty block groups are often near one another. In New Orleans, poverty is more likely to restrict access to schools by keeping parents from having a car than by leaving more distance between their homes and high-rated schools.

Appendix Figure 1 presents a parallel analysis for high school (9th grade). The decision-making context differs somewhat, since parents might be more open to older children using public transit or having longer commutes. However, the commute time patterns are similar.

Our next analysis examines how providing school bus transportation affects the accessibility of A/B-rated schools (for families without a car). There is no central collection of bus routes, so we collected routes from individual school websites and asked school managers to share route maps through email and phone requests. Route maps provide pick-up times and locations (intersections or street addresses) for each school bus. We geocoded the locations using Google Maps and HERE Maps APIs and used the reported pick-up times and locations to estimate commute times. We cannot observe potential routes from locations

where a school did not pick up students. Therefore, our data reflect school bus routes as (and where) they actually were.

To make apples-to-apples comparison of commute times, we restrict our school bus sample to the A/B-rated schools for which we have school bus routes from the block groups where those routes had bus stops. In total, this amounts to 1,638 stops across 10 schools (6 elementary; 4 high) and 358 block groups.[5] To calculate the full commute time via school bus, we add the time it would take to walk from each block group centroid to the nearest school bus stop and the expected time to get from that stop to the school as indicated on the route map. For a given school, we only include the block groups that contain at least one bus stop. We do this to omit long walks from other block groups, under the assumption that schools would have created a nearer bus stop if a student had requested one. This is not a trivial assumption but broadly consistent with the policy that requires schools to provide free and adequate transportation to all students.

In Figure 3, we focus on high-poverty block groups, where car access is lower and families may be more likely to benefit from the provision of school bus service. We illustrate the proportion of elementary schools in our school bus data

[5] Due to differences between the samples for Figures 2 and 3, we do not suggest making comparisons across figures (only within them). When we reproduce Figure 2 using the subsample from Figure 3, the reduced-sample figure appears much like the full-sample version (available upon request).

that are reachable (y-axis) in a specified amount of time (x-axis). Appendix Figure 2 is a parallel chart for high schools. Again, the patterns for elementary and high schools are similar so we focus on elementary schools.

The dashed lines show the proportion of schools reachable without school bus service. The solid lines of the same shade show the proportion of schools reachable with school bus service, based on available bus route data. Car commutes are always faster than school bus commutes. In New Orleans, a single bus often covers a large portion of the city in circuitous routes that take far longer than direct routes by car (Lincove & Valant, 2018). Still, for families without a car, having school bus service substantially improves the reachability of schools over both transit (dark gray lines) or only walking (light gray lines). The differences in reachable schools are modest for commutes of less than 10 minutes since most school bus commutes take longer than that. The differences are substantial over longer periods of time. For example, within 30 minutes, having school bus service roughly doubles the number of A/B-rated schools accessible to families who would otherwise use public transit and triples the number of A/B-rated schools accessible to families who would otherwise walk. For families who would otherwise walk, school buses make most schools reachable within about 40 minutes—a stark contrast to their options without a school bus.

Our findings in Part I underscores some important points. First, the ability to drive children to school provides families with substantially more school

options. Families that can access cars and manage morning and afternoon commutes of 20-25 minutes can reach essentially any school in New Orleans. Second, the relationship between car commutes and school access likely creates or exacerbates other inequities. Non-car riders who tolerate longer commutes may have less time for activities, homework, sleep, and family. Third, the provision of school bus service substantially reduces commute times for many students. While school bus commutes do not approach the efficiency of car commutes, the availability of school buses makes more schools accessible to families from high-poverty block groups.

Part II: Block Group Car Access and School Requests/Placements

Building on the finding that car access shapes a family's school options, we next investigate whether neighborhood characteristics such as rates of car access are associated with school choice behaviors and outcomes through analysis of the revealed choice sets of applicants. Addressing this question requires data on student addresses, families' school requests and placements, and school and neighborhood characteristics.

Data on student addresses and families' school requests and placements come from the school district's anonymized, student-level OneApp records. We observe where students lived when they applied for a school for the 2013-14 school year, which schools they requested (ranked), their priority status at each school, and whether and where they received a placement. Using home addresses,

we calculate the travel distance (in miles) from the student's home to each school available in OneApp. As we did in Part I, we incorporate school letter grades and block group data from the ACS.

We do not observe vehicle access or poverty measures at the individual family level, so we link each student to their block group's average levels as a proxy. Based on block group averages from 2016 ACS five-year estimates, about 79 percent of households in New Orleans have access to at least one vehicle (Table 1). However, this varies across block groups, with an interquartile range of 68 to 93 percent. This provides important variation for our estimates.

Combining these data, we model school applications and assignment as:

$$Y_{ij} = \gamma_0 + \gamma_1 Z_j + \gamma_2 X_i + \varepsilon_{ij} + u_j \quad \text{[eq 1]}$$

for student *i* who lives in block group *j* and applies to, or enrolls in, school type *Y*. *Z* is a vector of block group characteristics that could influence school preferences through geographic access. *X* is vector of student-level characteristics related to geographic access (e.g., characteristics of the closest-to-home school). Because block group characteristics do not vary by household and we observe multiple student applications per block group, we model a decomposed error term with individual-level random error (ε_{ij}) and block-group error (u_j) and estimate eq [1] with block group random effects.

We estimate eq [1] for several outcomes related to applicants' school requests: number of schools requested, requesting at least one A/B-rated school, a

school grade point average (GPA) calculated across all requests (A=4, B=3, etc.), and the commuting distance to first-choice and farthest-from-home requests. We also include two assignment-related outcomes: whether assigned to an A/B-rated school and distance to assigned school. We hypothesized that, all else equal, families with less vehicle access would be less likely to request and get placed in schools farther from home.

Our independent variables in *Z* describe characteristics of the student's residential block group. We focus on three theoretical influences on parent choices. The first is vehicle access, which we operationalize as the proportion of households with no vehicle. The second is poverty, which as operationalize as the proportion of households receiving Food Stamps/SNAP. The third is parent education, which we operationalize as the proportion of adults with a high school diploma. Apart from vehicle access, poverty could affect parent choice by, for example, limiting the resources that parents can commit to a school search. Parent education could affect requests via social networks that are segregated such that parents of different socioeconomic status hear different information about schools (Schneider et al., 1997). We chose these variables in hopes of capturing key constructs within a parsimonious model.

We also control for two student-level household characteristics (*X*) that might influence families' options. First, we calculate the distance to the nearest public school in the city. This reflects the minimum distance a student would have

to commute. Second, we include the SPS of the nearest school to home. These covariates allow us to estimate the effects of neighborhood differences for students with similar proximity to schools with similar performance ratings.

Because most students in non-transitional grades remain in their current schools, we focus our analysis on students entering kindergarten in our main analysis, with replication for 9th grade.[6] Kindergartners are especially vulnerable to transportation barriers since most cannot walk long distances or navigate public transit. Further, the school district required an adult chaperone to meet young children at the bus stop, so even school bus commutes require some parental involvement for kindergarteners. Appendix Figure 3 maps school locations in 2013-14 (disaggregated by grade level and letter grade), overlaying block group vehicle access rates. In that year, applicants could rank up to eight schools in the Main Round. The OneApp's deferred-acceptance algorithm was designed so that parents had incentive to rank schools in their true order of preference (Abdulkadiroğlu et al., 2017).

Full results appear in Table 2 for kindergarten (and Appendix Table 1 for 9th grade). We see that neighborhood vehicle access is more consistently associated with parents' school choices than neighborhood poverty rate (based on

[6] We omit students who continued enrollment in their current school (e.g., pre-K to kindergarten). However, we include students who could have continued in their current school but used OneApp to request a different placement.

Food Stamps/SNAP)[7] or parental education, especially for distance-related outcomes. An increase in block group car access of 10 percentage points is associated with a statistically significant increase of 2.2 percentage points in the probability that a family will rank at least one A/B-rated elementary school. Block group car access is also significantly associated with distance to first-choice schools and farthest-ranked schools ($p<.01$ in all estimates) in the range of 0.2 to 0.4 miles for a 10-percentage-point difference in ownership rate. The differences we observe in ranked choices translate to differences in school assignments, as students from block groups with higher car access are also assigned to schools farther from home. Estimates of the relationship between neighborhood car access and assignment to an A/B-rated school are positive but not statistically significant. Interestingly, Food Stamp/SNAP receipt is only associated with receiving (and perhaps requesting) lower-rated schools, all else equal. The only clearly significant association for parental education is a positive relationship with ranking at least one A/B-rated school.

Discussion

This study features two complementary analyses that yield complementary results. We find that the modes of transportation available in a school choice setting fundamentally shape families' access to schools. This is evident in

[7] As a robustness check, we ran the same model after replacing SNAP receipt with a logged estimate of median gross rent. Results are similar (and, if anything, suggest a slightly stronger relationship between vehicle access and school requests).

comparisons of hypothetical commute times, which show how access to a car can define families' realistic options. We find that neighborhood car accessibility rates are strong predictors of school choice behaviors even after accounting for neighborhood poverty and parental education. Importantly, school bus service substantially improves accessibility for families without cars who otherwise might walk or use public transit.

This study has limitations. For one, we cannot observe household-level car ownership and therefore rely on block group measures. Future studies with household survey data could address this issue. Also, we refrain from interpreting our regression results in Part II as causal. Perhaps, for example, some families obtained cars or changed residences to make preferred schools more accessible (e.g., such that school choice affected vehicle access rather than vice versa).[8] Moreover, while New Orleans provides a valuable glimpse of how student transportation looks in a choice-based school system, findings from New Orleans may not generalize to cities with different transportation offerings, geographies, and school choice policies. We will need to continue learning from cities' various approaches to student transportation.

[8] Our analytic approach mitigates this concern by focusing on requests made nearly nine months before enrollment. In New Orleans, where families are not guaranteed a seat in local schools, it seems unlikely that many parents would make school-related vehicle or residential decisions before receiving a school placement.

We see three primary implications from this study. First, not having a car is a key—and perhaps underappreciated—barrier for many low-income families in school choice settings. In addition to restricting families' options, it leaves children vulnerable to the unpredictability, inefficiency, risks, and adverse impacts of alternate travel. This is a specific way in which wealth and income inequalities may contribute to educational inequalities as districts transition from neighborhood zoning to school choice. Second, providing school bus services can substantially improve the accessibility of schools to families without cars. We find this even in a city like New Orleans where many school bus routes are notoriously inefficient (Lincove & Valant, 2018). Third, these results shed new light on the mechanisms through which poverty influences parent behavior in school choice. Specifically, researchers should take care when interpreting differences in the school requests of low- and high-income (or wealth) families. What might look like different preferences for school quality could, in fact, reflect the disproportionate barriers that keep some families from requesting and obtaining seats in schools they might prefer but cannot access.

Finally, we should underscore our finding that access to a vehicle fundamentally shapes commutes times and school accessibility—and is associated with school requests and placements—even in a setting that provides school bus transportation. This is not an argument against the public provision of student transportation in school choice settings. Indeed, we show that school buses

improve access. Rather, this is a reminder that wealth disparities contribute to educational disparities in many ways, including some—such as car access—that are not directly about the ability to purchase educational resources.

References

Abdulkadiroğlu, A., Che, Y. K., Pathak, P. A., Roth, A. E., & Tercieux, O. (2017). *Minimizing justified envy in school choice: The design of New Orleans' OneApp* (NBER Working Paper No. 23265). Cambridge, MA: National Bureau of Economic Research.

Bell Weixler, L., Harris, D. N., & Gerry, A. (2020). *Voices of New Orleans youth: What do the city's young people think about their schools and communities? Technical appendix.* New Orleans, LA: Education Research Alliance for New Orleans.

Bierbaum, A. H., Karner, A., & Barajas, J. M. (2021). Toward mobility justice: Linking transportation and education equity in the context of school choice. *Journal of the American Planning Association, 87*(2), 197-210.

Blagg, K., Rosenboom, V., & Chingos, M. (2018). *The extra mile: Time to school and student outcomes in Washington, DC.* Washington, DC: Urban Institute.

Buerger, C., & Harris, D. N. (2021). The impact of government contracting out on spending: The case of public education in New Orleans. *The American Review of Public Administration, 51*(2), 139-154.

Burdick-Will, J. (2017). Neighbors but not classmates: Neighborhood disadvantage, local violent crime, and the heterogeneity of educational experiences in Chicago. *American Journal of Education, 124*(1), 37-65.

Burdick-Will, J., Stein, M. L., & Grigg, J. (2019). Danger on the way to school: exposure to violent crime, public transportation, and absenteeism. *Sociological Science, 6*, 118-142.

Burgoyne-Allen, P., O'Keefe, B., & O'Neal Schiess, J. (2019). *Intersection ahead: School transportation, school integration, and school choice.* Bellwether Education Partners.

Corcoran, S. (2018). *School choice and commuting: How far New York City students travel to school.* Washington, DC: Urban Institute.

Cordes, S. A., Rick, C., & Schwartz, A. E. (2022). Do long bus rides drive down academic outcomes? *Educational Evaluation and Policy Analysis*.

Cordes, S. A., & Schwartz, A. E. (2018). *Does pupil transportation close the school quality gap?* Washington, DC: Urban Institute.

Cowen, J., Edwards, D. S., Sattin-Bajaj, C., & Cosby, M. (2018). *Motor City miles: Student travel to schools in and around Detroit.* Washington, DC: Urban Institute.

Cowen Institute. (2011). *Transforming public education in New Orleans: The Recovery School District.* New Orleans, LA: Cowen Institute.

Denice, P., & Gross, B. (2018). *Going the distance: Understand the benefits of a long commute to school.* Washington, DC: Urban Institute.

Friedman, M. (1955). The role of government in education. In R.A. Solo (Ed.), *Economics and the public interest* (pp. 123–144). New Brunswick, NJ: Rutgers University Press.

Harris, D. N. (2020). *Charter school city: What the end of traditional public schools in New Orleans means for American education*. Chicago, IL: University of Chicago Press.

Harris, D. N., & Larsen, M. F. (2019). *The identification of schooling preferences: Methods and evidence from post-Katrina New Orleans.* New Orleans, LA: Education Research Alliance for New Orleans. Retrieved from https://educationresearchalliancenola.org/files/publications/Harris-Larsen-How-Parents-Choose-2019-07-05.pdf

He, S. Y., & Giuliano, G. (2018). School choice: Understanding the trade-off between travel distance and school quality. *Transportation, 45*(5), 1475-1498.

Jacob, B. A., & Rockoff, J. E. (2011). *Organizing schools to improve student achievement: Start times, grade configurations, and teacher assignments.* The Hamilton Project. Washington, DC: Brookings Institution.

Kelareva, E. (2015, November 11). Predicting future travel times with the Google Maps APIs. Google Cloud. Retrieved from https://cloud.google.com/blog/topics/inside-google-cloud/predicting-future-travel-times-with-the-google-maps-apis

Lincove, J. A., & Valant, J. (2018). *New Orleans students' commute times by car, public transit, and school bus.* Washington, DC: Urban Institute.

McShane, M. Q., & Shaw, M. (2020). *Transporting school choice students: A primer on states' transportation policies related to private, charter, and open enrollment students.* Indianapolis, IN: EdChoice.

Nobles III, W. P. (2018, March 2). Charter schools battle OPSB over buses as students struggle to get to class. *NOLA.com / The Times-Picayune*. Retrieved from https://www.nola.com/news/education/article_4f8eb859-4739-5387-8726-3c4672ac5ef1.html

Pattillo, M. (2015). Everyday politics of school choice in the Black community. *Du Bois Review: Social Science Research on Race, 12*(1), 41-71.

Pearman, II, F. A., & Greene, D. M. (2022). School closures and the gentrification of the Black metropolis. *Sociology of Education, 95*(3), 233-253.

Rothwell, J. (2012). *Housing costs, zoning, and access to high-scoring schools.* Washington, DC: Brookings Institution.

Sattin-Bajaj, C., & Roda, A. (2020). Opportunity hoarding in school choice contexts: The role of policy design in promoting middle-class parents' exclusionary behaviors. *Educational Policy*, *34*(7), 992-1035.

Schneider, M., Teske, P., Roch, C., & Marschall, M. (1997). Networks to nowhere: Segregation and stratification in networks of information about schools. *American Journal of Political Science*, 1201-1223.

Scott, J., & Holme, J. J. (2016). The political economy of market-based educational policies: Race and reform in urban school districts, 1915 to 2016. *Review of Research in Education, 40*(1), 250-297.

Scott, M. R., & Marshall, D. T. (2019). Public transit and school choice in Philadelphia: Exploring spatial equity and social exclusion. *Journal of School Choice, 13*(2), 177-197.

Shedd, C. (2015). *Unequal city: Race, schools, and perceptions of injustice.* New York, NY: Russell Sage Foundation.

Simon, H. A. (1955). A behavioral model of rational choice. *Quarterly Journal of Economics, 69*(1), 199-118.

Singer, J., & Lenhoff, S. W. (2022). Race, geography, and school choice policy: A critical analysis of Detroit students' suburban school choices. *AERA Open, 8*(1), 1-19.

Stein, M. L., Burdick-Will, J., & Grigg, J. (2021). A choice too far: Transit difficulty and early high school transfer. *Educational Researcher, 50*(3), 137-144.

Stein, M. L., & Grigg, J. A. (2019). Missing bus, missing school: Establishing the relationship between public transit use and student absenteeism. *American Educational Research Journal, 56*(5), 1834-1860.

Stein, M. L., Grigg, J., Cronister, C., Chavis, C., & Connolly, F. (2017). *Getting to high school in Baltimore: Student commuting and public transportation.* Baltimore, MD: Baltimore Education Research Consortium.

Urban Institute Student Transportation Working Group. (2017). *Student transportation and educational access: How students get to school in Denver, Detroit, New Orleans, New York City, and Washington, DC.* Washington, DC: Urban Institute.

Urban Institute Student Transportation Working Group. (2018). *The road to school: How far students travel to school in the choice-rich cities of Denver, Detroit, New Orleans, New York City, and Washington, DC.* Washington, DC: Urban Institute.

Voulgaris, C. T., Smart, M. J., & Taylor, B. D. (2019). Tired of commuting? Relationships among journeys to school, sleep, and exercise among American teenagers. *Journal of Planning Education and Research, 39*(2), 142-154.

Yang, Y., Abbott, S., & Schlossberg, M. (2012). The influence of school choice policy on active school commuting: A case study of a middle-sized school district in Oregon. *Environment and Planning A: Economy and Space, 44*(8), 1856-1874.

Table 1
Descriptive Statistics

Panel A. Block group summary statistics	2014 ACS 5-year estimates				2016 ACS 5-year estimates			
	Mean	SD	25th pctile	75th pctile	Mean	SD	25th pctile	75th pctile
Share of block group with vehicle access	0.793	0.182	0.672	0.940	0.789	0.176	0.680	0.930
Share of block group received Food Stamps/SNAP	0.231	0.181	0.077	0.345	0.224	0.182	0.073	0.349
Median rent (log) in block group	$974	$272	$817	$1,109	$994	$294	$810	$1,134
Share of adults in block group with HS diploma	0.828	0.141	0.749	0.938	0.837	0.136	0.767	0.943
Observations (max.)	497				497			

Panel B. Number of school options by state letter grade	2013-14 sample		2016-17 sample	
	Kindergarten	9th Grade	Kindergarten	9th Grade
A/B schools	4 (9)	3 (6)	10 (15)	10 (13)
C schools	5	3	21	4
D/F/T schools	37	8	19	4
No grade (e.g., new schools)	0	4	5	5

Note. Panel A reports summary statistics for all census block groups in Orleans Parish from ACS 5-year estimates. Table displays (unweighted) values across block groups, not necessarily overall Orleans Parish population means. Panel B reports number of public school options on New Orleans OneApp for the 2013-14 and 2016-17 school years. Numbers in parentheses include additional A/B-rated schools that did not participate in OneApp that year.

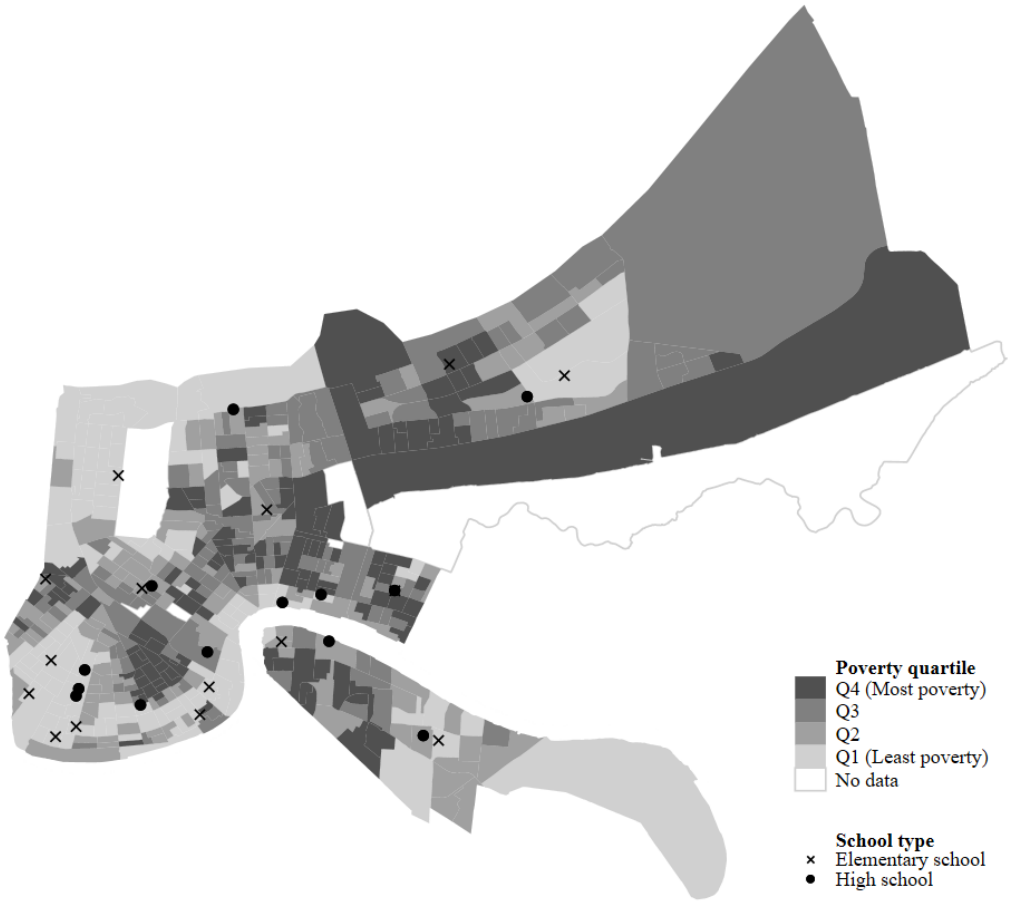
Table 2

Relationship Between Neighborhood Poverty and Kindergarten School Requests/Assignments

	Number of schools requested	Requested A/B school	GPA of requested schools	Distance to first-choice school	Distance to farthest school requested	Assigned to A/B school	Distance to assigned school
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Proportion of block group with vehicle access	0.467	0.218**	0.159	2.163***	3.246***	0.135	1.521***
	(0.467)	(0.104)	(0.173)	(0.573)	(0.690)	(0.086)	(0.517)
Proportion of block group with Food Stamps/SNAP	0.611	-0.071	-0.372*	-0.970	-0.312	-0.205**	-0.639
	(0.515)	(0.115)	(0.192)	(0.634)	(0.766)	(0.095)	(0.573)
Proportion of adults in block group with HS diploma	1.153*	0.251*	-0.112	-0.516	-0.312	0.031	-0.940
	(0.680)	(0.150)	(0.249)	(0.805)	(0.954)	(0.126)	(0.729)
Miles from home to closest school	0.365**	0.041	0.143**	1.971***	2.367***	0.067**	1.803***
	(0.181)	(0.040)	(0.066)	(0.215)	(0.253)	(0.033)	(0.195)
School Performance Score of closest school	0.003	0.003**	0.009***	-0.020***	-0.026***	0.002*	-0.014**
	(0.006)	(0.001)	(0.002)	(0.007)	(0.008)	(0.001)	(0.006)
Constant	1.355	-0.152	0.551*	2.508**	2.976**	-0.011	2.605***
	(0.862)	(0.190)	(0.315)	(1.016)	(1.196)	(0.160)	(0.921)
Number of student applications	1123	1123	1123	1122	1123	1121	1121
Number of block groups	338	338	338	338	338	338	338

Note. Table shows regression coefficients (standard errors) from OLS regressions with random effects at the block group level. Dependent variables appear in column headings. Columns 6 and 7 are conditioned on receiving an assignment. School Performance Score is a continuous value determined by LDOE and standardized to statewide mean=1, sd=0. Distances are reported in miles. ***p<.01, **p<.05, *p<.1

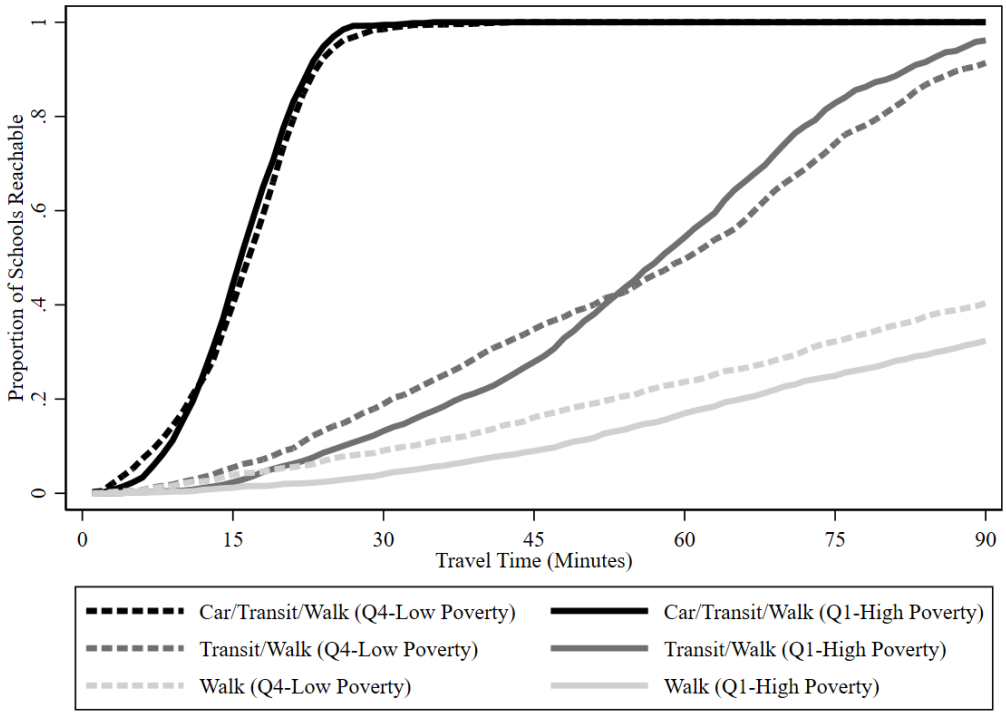
Figure 1
Map of 2016-17 "A" or "B" Rated Schools by Block Group Poverty Rate



Note. Poverty defined by rates of household SNAP receipt in 2016 ACS 5-year estimates. No data for uninhabited areas such as public parks and swampland. Schools shown offered kindergarten (elementary schools) or 9th grade (high schools).

Figure 2

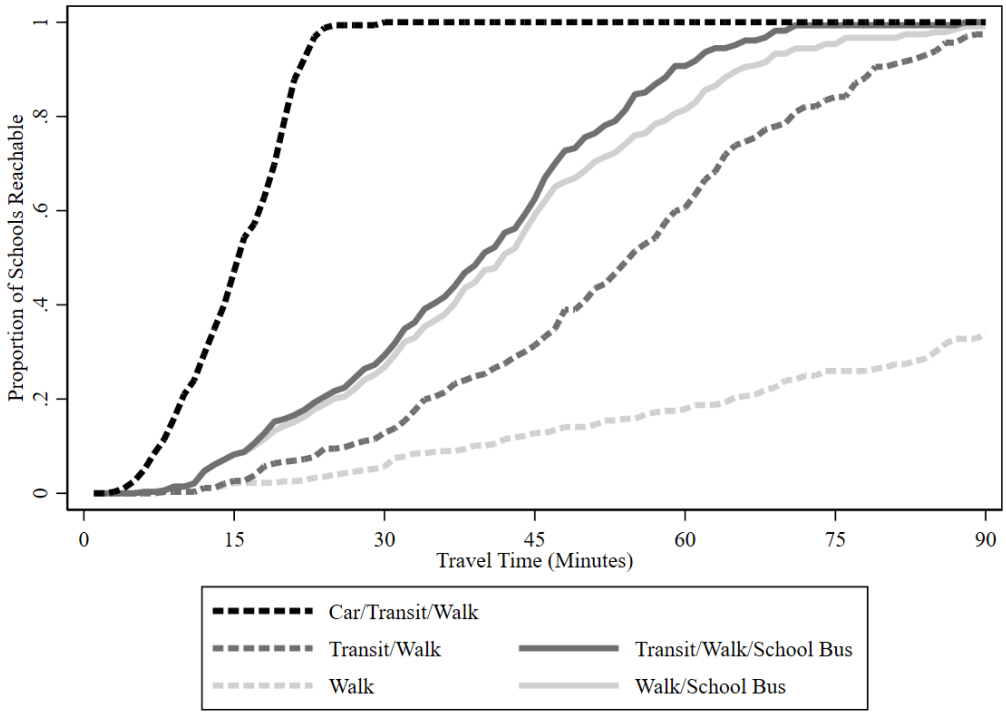
Travel Time to A/B-Rated Elementary Schools, by Transportation Options and Neighborhood Poverty Rate



Note. "Q4" refers to block groups in bottom quartile of SNAP receipt based on 2016 ACS 5-year estimates. "Q1" refers to block groups in top quartile of SNAP receipt. Includes A/B-rated schools that offered kindergarten regardless of whether school participated in OneApp for 2016-17 (n=15 schools). Block groups are weighted by population.

Figure 3

Travel Time to A/B-Rated Elementary Schools from Low-Income Block Groups, by School Bus Availability



Note. Includes block groups in top quartile of SNAP receipt (based on 2016 ACS 5-year estimates). Sample only includes schools with school bus route data and block groups with a bus stop for that school. Block groups are weighted by population.

Online Appendices

Appendix Table 1

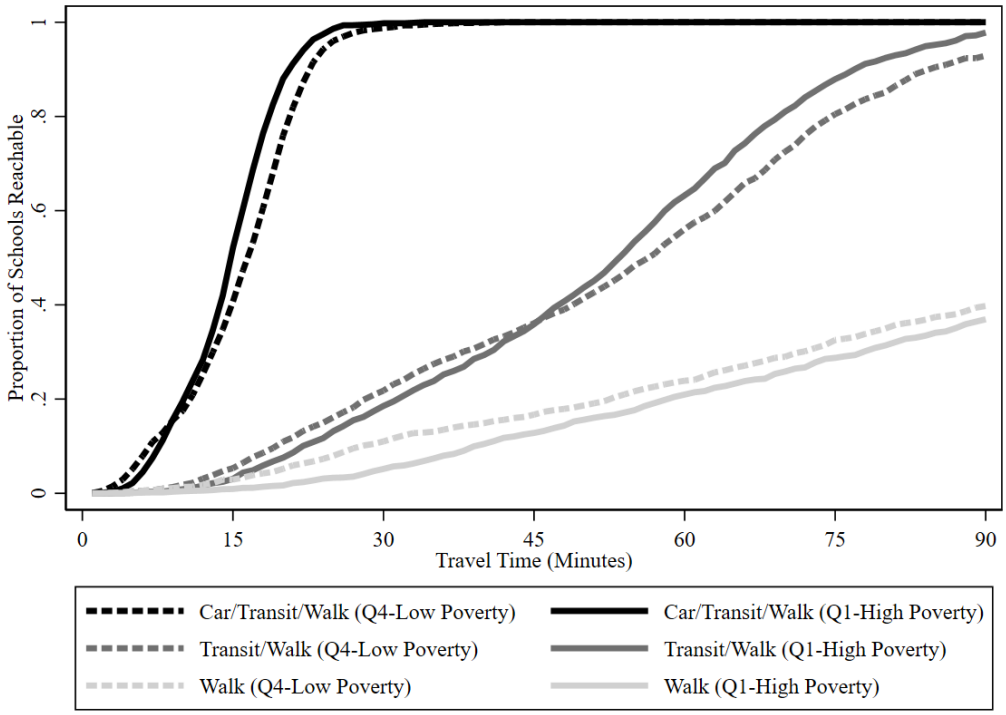
Relationship Between Neighborhood Poverty and Grade 9 School Requests/Assignments

	Number of schools requested	Requested A/B school	GPA of requested schools	Distance to first-choice school	Distance to farthest school requested	Assigned to A/B school	Distance to assigned school
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Proportion of block group with vehicle access	0.231	0.189**	0.319*	1.976**	2.887***	0.177	-0.424
	(0.355)	(0.092)	(0.167)	(0.779)	(0.851)	(0.108)	(0.852)
Proportion of block group with Food Stamps/SNAP	0.421	-0.013	-0.039	-1.217	-0.977	-0.077	-2.125**
	(0.359)	(0.093)	(0.177)	(0.825)	(0.912)	(0.112)	(0.912)
Proportion of adults in block group with HS diploma	0.346	0.002	-0.025	-0.631	-1.262	-0.218	-0.950
	(0.516)	(0.133)	(0.237)	(1.109)	(1.196)	(0.157)	(1.199)
Miles from home to closest school	0.100	0.012	0.025	0.824***	0.911***	-0.001	0.749***
	(0.101)	(0.026)	(0.047)	(0.222)	(0.237)	(0.031)	(0.238)
School Performance Score of closest school	-0.001	-0.000	0.001	-0.003	-0.009	0.000	-0.011*
	(0.003)	(0.001)	(0.001)	(0.006)	(0.006)	(0.001)	(0.006)
Constant	2.332***	0.598***	1.784***	3.497***	5.398***	0.464***	6.802***
	(0.545)	(0.141)	(0.250)	(1.169)	(1.259)	(0.165)	(1.264)
Number of student applications	1117	1117	1108	1117	1117	1116	1116
Number of block groups	321	321	321	321	321	321	321

Note. Table shows regression coefficients (standard errors) from OLS regressions with random effects at the block group level. Dependent variables appear in column headings. Columns 6 and 7 are conditioned on receiving an assignment. School Performance Score is a continuous value determined by LDOE and standardized to statewide mean=1, sd=0. Distances are reported in miles. ***p<.01, **p<.05, *p<.1

Appendix Figure 1

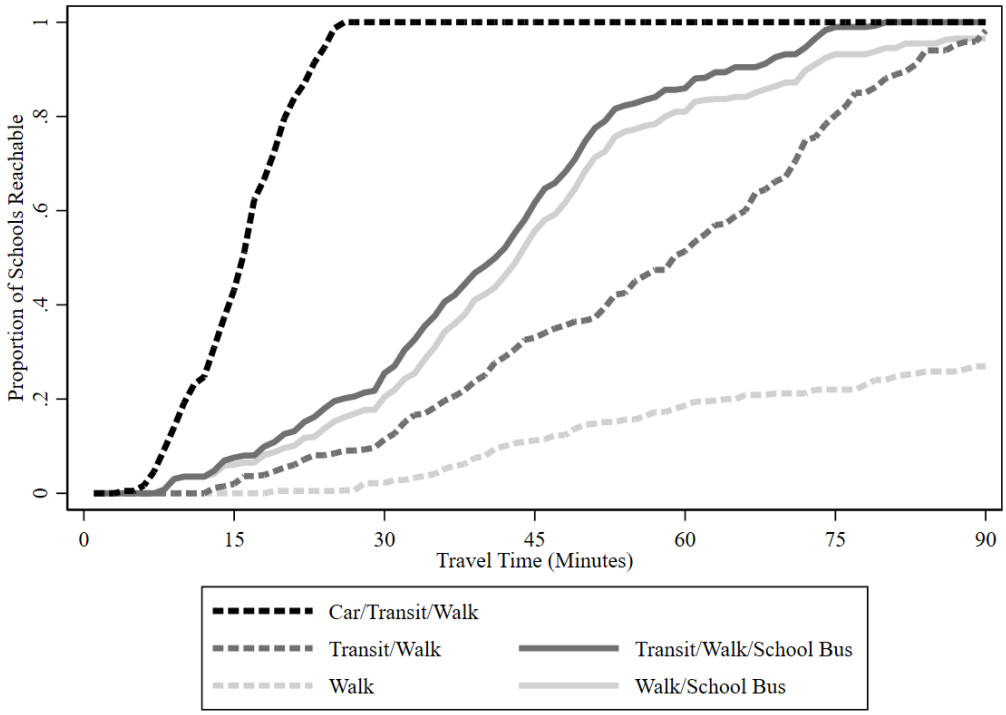
Travel Time to A/B-Rated High Schools, by Transportation Options and Neighborhood Poverty Rate



Note. "Q4" refers to block groups in bottom quartile of SNAP receipt (based on 2016 ACS 5-year estimates). "Q1" refers to block groups in top quartile of SNAP receipt. Includes A/B-rated schools that offered 9th grade regardless of whether school participated in OneApp for 2016-17 (n=13 schools). Block groups are weighted by population.

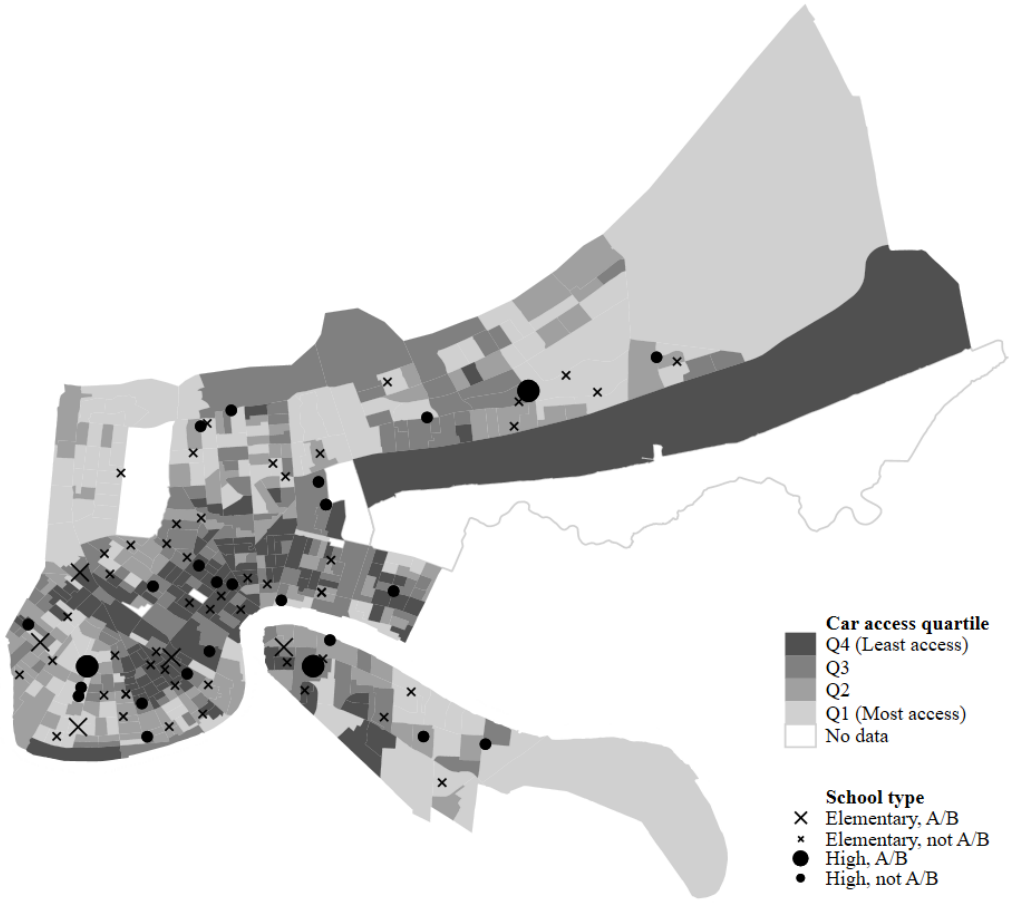
Appendix Figure 2

Travel Time to A/B-Rated High Schools from Low-Income Block Groups, by School Bus Availability



Note. Includes block groups in top quartile of SNAP receipt (based on 2016 ACS 5-year estimates). Sample only includes schools with school bus route data and block groups with a bus stop for that school. Block groups are weighted by population.

Appendix Figure 3
Map of 2013-14 Schools by School Rating and Block Group Vehicle Access



Note. Car access rates come from 2014 ACS 5-year estimates. No data for uninhabited areas. Schools shown offered kindergarten or 9th grade through OneApp.