Why Doesn't Everyone Get a Bus?
Understanding Inequities in School Bus Transportation Across Schools and Students in New York City

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This article explores inequity in access to and provision of bus service across student sociodemographic groups and examines possible barriers to bus access and utilization. To so do, we use administrative data on New York City K-6 public school students from 2011-2017, including information on race/ethnicity, poverty status, distance from home to school, and eligibility for and utilization of the school bus and multiple regression analysis. We find that while Black students are more likely to be eligible for bus service than White students, both Black and Hispanic students are less likely to be assigned bus service than their White peers who live similarly far from school. When we examined barriers to access and utilization, we find that district-level routing restrictions may disproportionately affect Black students who tend to live further from school than their peers. However, the largest barrier to bus use is that not all schools offer the bus and Black and Hispanic students are more likely to attend schools that do not. Bus service can be a powerful tool for districts to address racial and socioeconomic gaps in educational outcomes and ensure all students access to a high-quality education, and therefore, it is important for districts and school leaders to consider potential inequities in policies governing who is eligible for and ultimately receives bus service.

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Photo: Melisa Figueroa

Introduction

For decades, educational policy and reform efforts have neglected a simple fact – students need to be in school for these efforts to improve outcomes. Fortunately, there is increasing attention on how students get to school and the role that school buses play in determining educational outcomes. For example, Cordes et al. (2019) report that New York City elementary school students who take the school bus have better attendance, while Gottfried (2017), looking at national data, also reports higher attendance among kindergarteners who take the bus. Beyond educational outcomes, the academic and popular literature are increasingly weighing the importance of the school bus for educational opportunity because it allows students to exercise choice – that is, to attend a school other than their neighborhood school (Sattin-Bajaj, 2019). This increased focus in the literature yields growing evidence that parents are considering the reliability and availability of transportation as they choose among a widening array of charter, magnet, and district choice schools. Take the hypothetical case of Jasmine, who is entering kindergarten in the fall. After doing some research, Jasmine's parents learn that their neighborhood school has large class sizes and low proficiency rates. They would like to enroll her in a well-known choice school that is located further from home. Unfortunately, her

With over 9,000 buses, New York City's school bus fleet is the largest in the nation.

parents find out that this school does not provide buses for students. Because they cannot drive her to school, Jasmine attends her parents' second choice school, which is closer to home and provides a bus. Like Jasmine, thousands of children and families across the country are faced with similar dilemmas. Having access to a school bus may mean the difference between attending a higher or lower performing school. Indeed, Cordes and Schwartz (2018) find that students who use the school bus in New York City are significantly more likely to exercise choice, and among students who attend choice schools, those who ride the bus attend schools with higher proficiency rates. Thus, equity in access to and utilization of school buses may have important consequences for access to high-quality schools and progress toward meeting the United Nations sustainable development goal of ensuring a quality education for all students, regardless of background. Beyond academic consequences, improving access to bus service may also affect student health, for example, by reducing exposure to pollution on the way to school (County of Marin, 2018).

Despite the popular belief in the ubiquitous "school bus" as a mode of transportation to school, not all students ride, or are even offered, the school bus. Barriers to bus service can be the result of multiple factors, including district-level policies and school-level characteristics. District-level policies regularly

place limits on who is eligible for the school bus and particular school features may influence whether or not principals offer bus service. A review of research yielded no studies that explore how policies governing routes may contribute to inequities in bus service or the role that schools play in determining which students are offered and ride the bus. We begin to fill that gap by examining equity in access to and utilization of the school bus in New York City and by exploring the district rules and school characteristics that may contribute to any inequities.

This article has three main aims. The first is to explore inequity in access to and provision of bus service across student race/ethnicity and poverty status. The second is to uncover potential barriers to bus access and utilization, including factors that explain bus provision at the school level. The third is to offer recommendations for schools and districts to improve equity in transportation based upon our findings.

Why New York City?

New York City is an ideal context to explore these aims for four key reasons. First, the New York City Department of Education (NYC DOE) provided us with unique, detailed student- and school-level data on pupil transportation. The availability of such data is extremely rare and makes this study possible. Second, while NYC DOE sets broad policy governing bus eligibility and provides busing infrastructure – such as contracting with vendors and developing computer systems for tracking students – school principals have the final say on whether their school offers a bus or not. Indeed, roughly 40% of elementary school principals choose not to offer school bus service even though bus-eligible students

Photo: Luiz Guimarães

Over 100,000 students ride yellow school buses to school in New York City each day.

attend their school (authors' calculations).[1] This may be an important source of inequity if different types of students are more likely to attend a school without a bus. Third, there is considerable variation in school characteristics that may play a role in principals' decision-making around bus service, including grade-span and student demographics. Finally, the diversity of New York City public school students allows us to explore potential student-level inequities in bus offerings and provision across multiple dimensions.

Institutional Background

Whether a student is ultimately eligible for bus service depends on district- and school-level factors. At the district level, the Office of Pupil Transportation (OPT) sets policies governing how far students must live from school to be eligible for bus service and places restrictions on bus routes. According to district policy, general education students in grades K-2 must live at least one-half mile from school to receive free transportation in the form of either the school bus or full-fare metro cards, which allow students to travel on public buses and subways. This distance is extended to one mile for students in grades 3-6. In addition, district-level routing guidelines limit bus routes to five miles from first stop to school. For students attending traditional public schools, routes cannot cross sub-city administrative school districts (called community school districts or CSDs) and for students in charter schools, routes may not transport students from their homes in one borough to attend school in another borough. For example, a student living in Brooklyn cannot take a school bus to attend a charter school in Queens, Manhattan, the Bronx, or Staten Island. Therefore, if students live too far from school or not far enough, they are unlikely to receive bus service. At the school level, principals make decisions about whether to offer bus service and how to assign students to bus stops.

There are exceptions, of course, to these guidelines. For example, all homeless students who reside in temporary housing shelters are eligible for bus service to attend school. Other exceptions include those for students with hazardous walking routes – such as if their walk would cross a dangerous or wide road – and students who exercise choice because their neighborhood school is designated as failing under No Child Left Behind.

Each of these institutional factors, guidelines, and exceptions may contribute to inequity in access to bus service. For example, if students of certain racial/ethnic groups tend to live closer to school, they will be underrepresented among bus riders. Similarly, if particular groups of students disproportionately choose to attend schools more than five miles from home, then these students will likely be underrepresented on the bus. Lastly, if students of a specific racial/ethnic group are more likely to have hazardous walking routes or live in homeless shelters, that group will be overrepresented.

Data and Methods

We use restricted-access, student-level data, including information on race/ethnicity, poverty status (measured as eligibility for free or reduced-price lunch), distance from home to school, and eligibility for and utilization of the school bus, to examine the differences between students who do and do not have access to or utilize bus service. More specifically, we use multiple regression analysis to explore differences in bus access and utilization by race/ethnicity and poverty, examining how a student's race/ethnicity or poverty status is related to the likelihood that he or she will be eligible for or use the bus. In these models, the outcome is an indicator of whether or not a student is eligible for (received) bus service and the predictors include indicators of students' race/ethnicity and poverty status. In this way, we shed light on differences between, for example, black and white students in eligibility and utilization. Some of the differences in who rides the bus may reflect differences in where

[1]This number was calculated by dividing the total number of elementary schools with less than five students on a school bus by the total number of elementary schools.

students live relative to school. If white students live closer to school than black students, on average, they may be less likely to get the bus because they can walk. Thus, we also examine differences in bus utilization that account for whether students live far enough away to be eligible for bus service.

Next, we employ a similar analytical strategy to explore the role of specific routing guidelines in determining utilization. To do so, we see whether certain groups of students are more likely to be subject to these guidelines by, for example, living more than five miles from school or attending school in a different borough or CSD. Finally, we use regression analysis to explore what school-level characteristics may influence a principal's decision to offer bus service by examining the extent to which grade-span, share of students eligible for the bus, mission (e.g., charter, gifted and talented, magnet), and geographic location are related to the likelihood that a particular school offers buses.

Results

Inequity in School Bus Access and Provision

To begin, we find that, on average, black students live nearly one-half mile further from school than white students and poor students live almost one-quarter mile closer to school than non-poor students. This translates to differences in bus eligibility: black students are 14 percentage points more likely than white students to live far enough from school to be eligible, while Asian and Hispanic students are slightly less likely than white students to be eligible. Poor students are almost 10 percentage points less likely to be eligible for bus service than non-poor students. Even though black students are more likely to be eligible for bus service than white students, they are almost equally likely to actually take the bus (Figure 1). Thus, while black students, on average, live further from school and are substantially more likely to be eligible, they are only slightly more likely to take the bus. Once we account for differences in who lives far enough from school to be bus-eligible, we find that black and Hispanic students are about four percentage points less likely to take the bus than white students (Figure 2). This suggests that there are important inequities in access to the school bus, as black and Hispanic students who live similarly far from school are less likely to take a bus than their white peers. We do not see meaningful differences in bus utilization among bus-eligible poor and non-poor students.

What are the potential barriers?

Next, we examine what barriers might account for these differences. One explanation may be that black students are more likely to live in locations where they cannot be accommodated on routes that would meet OPT guidelines. For example, our regression estimates indicate that black students are three percentage points more likely than their white peers to live more than five miles from school and are almost 25 percentage points more likely to attend a school in a different CSD than where they live (results not shown but available from authors). While black students may live far enough from school to be eligible for a bus, they may live too far to ride the bus. District limits on the length and destination of bus routes do not appear to explain why Hispanic students are less likely to ride the bus, however.

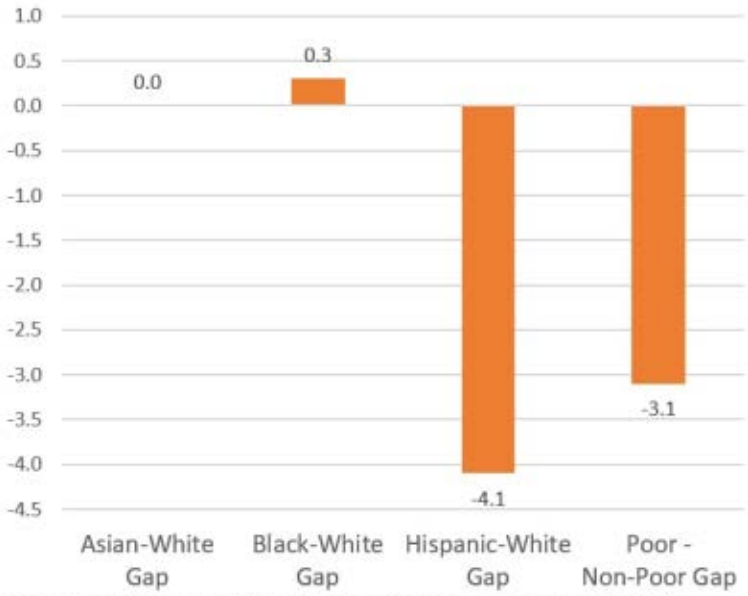
A second reason for differences in bus utilization is differential enrollment in schools that offer buses. Specifically, black and Hispanic students are significantly less likely to attend schools that offer buses than white students.

Putting these together, our results imply that, for Hispanic students, the biggest barrier to bus use is that the schools they attend do not offer buses. Black students, however, are not only less likely to attend schools that offer the bus, but they are also more likely to be subject to limits on the length or destinations of bus routes.

Since the availability of buses appears to be an important contributor to inequities in bus access, we next examine the school characteristics that may be related to the availability of the school bus.[2] We find that elementary schools are more likely than middle schools to offer bus service (results not shown but

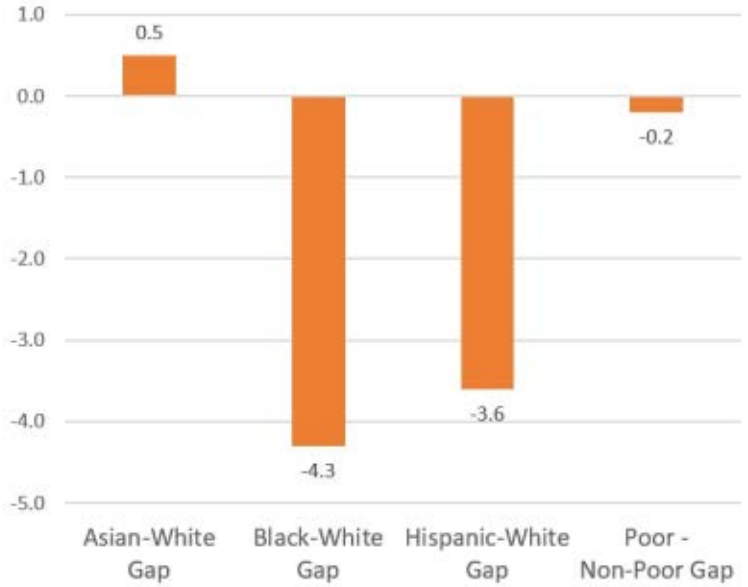
[2] We define a school as offering bus service if at least five students ride the bus and at least one bus student does not have a transportation exception.

Figure 1. Gaps in Probability of Bus Use, by Race/Ethnicity and Poverty Status



Note: Results are coefficient estimates from a linear probability model where results are interpretable as percentage points.

Figure 2. Gaps in Probability of Bus Use, by Race/Ethnicity and Poverty Status, Controlling for Eligibility



Note: Results are coefficient estimates from a linear probability model where results are interpretable as percentage points.

available from authors). This is perhaps not surprising, as New York City only offers buses to students in grades K-6, while schools in Staten Island are eligible to provide buses for students through eighth-grade. Therefore, if middle school principals in four of New York City's boroughs chose to offer the bus, it would often only be for students in a single grade. More generally, schools with a higher share of bus-eligible students are more likely to provide a bus. We also find that schools with higher shares of white and Asian students are more likely to offer buses. This is consistent with our findings that black and Hispanic students are less likely to attend a school that offers bus service.

Principals may also be more likely to offer bus service when their school draws students from outside of their school attendance zone, or if their school is a charter school or school with gifted and talented programs. We see that charter schools and schools with gifted and talented programs are much more likely to provide bus service than schools that only serve their neighborhood catchment area.

Finally, we find that the school's neighborhood context matters. Schools in lower-density boroughs such as Queens and Staten Island are 20 percentage points and 50 percentage points, respectively, more likely to offer bus service than schools in higher-density Manhattan. These differences may reflect better access to and ease of use of public transportation in higher-density neighborhoods. The importance of geography may also help explain why black and Hispanic students are less likely to attend schools that provide buses, as black and Hispanic students are much less likely to live in Queens and Staten Island, where schools are more likely to provide bus service to their students.

Implications

Our results reveal important inequities in bus use that reflect barriers at the district and school levels. Despite being race-neutral, routing guidelines appear to disproportionately

Photo: Yan Berthemy

School bus rounds Bleecker Street in Manhattan.

affect black students who tend to travel further to school and attend schools outside of their CSD. Yet perhaps the largest barrier to bus use is that not all schools offer the bus, and black and Hispanic students are more likely to attend schools that do not.

This leads to three key recommendations for district administrators who are interested in expanding access to school buses. First, while routing guidelines are likely to vary by context, district administrators should consider the impact of routing guidelines and limitations on bus service availability for at-risk or disadvantaged populations and adjust guidelines accordingly. In the case of New York City, this may mean increasing the maximum route distance or lifting prohibitions regarding cross-borough bus routes. Second, allowing principals or other school-level personnel to decline provision of school buses may exacerbate inequality in bus service access. One solution would be to make bus service mandatory at all schools, but this may require expanding bus fleets, a significant financial cost to districts. Third, district administrators may need to develop novel approaches to expanding bus service that in the long run will help students and the district. For example, districts can work to reallocate bus routes, such as in Boston where district personnel worked with Massachusetts Institute of Technology researchers to develop a computer algorithm designed to create more efficient routes. This solution ultimately afforded students better access to choice schools and saved the district $5 million (Coleman, 2019).

Conclusion

Bus service can be a powerful tool for districts to address racial and socioeconomic gaps in educational outcomes and ensure that all students have access to a high-quality education. Yet some students may face barriers that produce inequities in bus access and utilization, ultimately hampering this goal. We find evidence of this in New York City, where black and Hispanic students who live far enough from school to be bus-eligible are less likely to receive bus service than their white peers. We also find evidence that this is due in part to district-level policies that govern bus routes and school-level decisions to offer bus service. Thus, it is important for district and school leaders to consider potential inequities in policies governing who is eligible for and ultimately receives bus service. While busing all students would be financially costly, districts should consider whether reallocating routes or expanding bus service in a more limited way would increase equity in bus service and educational outcomes.

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