School Transportation

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K-12 Schools
Aspects of Choice
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Introduction

PK-12 students who attend school in person, as do the vast majority of the 50 million students in U.S. public schools, need a way to get to school on time, every day. These students need to get to school to experience the benefits of education, such as instruction in core academic subjects and electives, socialization with peers, and mental health and disability services administered through schools. Transportation can also allow families to choose schools farther from home that are more aligned with their needs or preferences, potentially helping to create more equitable access to educational opportunity. While one might imagine the yellow school bus when thinking about school transportation, in this chapter, we consider research on all the different modes that students may use to get to school. These include walking or biking, being driven by their parent or another adult, riding the yellow bus, or using public transit (e.g., municipal bus, light rail, or subway). We also consider research that sheds light on the relationship between school transportation policies and student access to schools and outcomes such as achievement and attendance. Better understanding how students get to school and the impact of their travel on their school experiences is crucial for ensuring that the investments made in educational improvement are effective.

While much of the research in this handbook focuses on what goes on inside schools and during the school day bell-to-bell, this chapter examines what students experience before school as they make their way to the building and what goes on after school as they make their way home—and how that collectively matters for their school experience outcomes. Issues like the distance to school, the geographic location of schools in a district or region, commute times, traffic, and even safety concerns around school buildings are all relevant in considering how school transportation might matter for students. We use the term "school-sponsored transportation" to refer to school transportation that is paid for by the school, such as a traditional school bus, prepaid public transportation cards, or prepaid vouchers for taxis or ride shares.

School transportation has been explored by scholars in urban planning, sociology, engineering, economics, and education. This scholarship describes the ways students get to and from school, how those modes of transit have changed over time, and how transportation impacts students. School transportation and its relationship to student outcomes is a relatively understudied topic among education researchers. In addition, most studies of school transportation are observational and are not able to cleanly disentangle cause and effect through methods such as randomized controlled trials. However, several key studies have employed quasi-experimental methods to estimate the causal relationship between student mode of transport or eligibility for transportation services and outcomes.

Key findings

Key finding #1: *Modes of school transportation have changed dramatically over the last half century, with many more students getting to school via car than walking or biking.*

Determinants of school trip mode choice vary across contexts.

Key finding #2: *School-sponsored transportation offerings and eligibility vary on many different dimensions.*
State policies that govern how districts handle student transportation differ both between states and across different school types within states. There is notable variation across traditional public schools, charters, and other schools of choice, with many choice school options not providing school-sponsored transportation.

Key finding #3: *School transportation—or the ability to get to school easily—shapes where students enroll in school.*
In school choice contexts, school transportation availability and eligibility are strongly associated with enrollment and lead students to enroll in higher quality schools.

Key Finding #4: *The mode of school transportation is associated with student outcomes, particularly attendance, but the evidence is inconclusive, in part because of differences in school choice and transportation policy contexts.*
Few studies explore the link between school transportation and student achievement.

Background

Brief history of school transportation policy

Transportation and education have been inextricably linked for the past century. In fact, the entire school consolidation movement of the early 1900s—away from one-room schoolhouses to unified schools separated into grade levels—was predicated on the ability of school districts to use motorized vehicles, including school buses, to gather children from greater distances than walking previously allowed. Practically, districts went from a maximum catchment area of 3 miles walking distance to a maximum catchment area of 20+ miles driving distance. Transportation became an increasingly important responsibility for local school boards in the mid-20th Century, and school bus transportation became increasingly pervasive.[1]

In the 1970s, the school bus became a symbol of the school desegregation movement in the wake of *Swann v. Charlotte-Mecklenburg Board of Education (1971),* which enabled the busing of children to desegregate. Indeed, many referred and still refer to this practice as "busing." However, we emphasize that transportation was the means through which court-ordered desegregation occurred; historian Matthew Delmont makes the case that calling desegregation "busing" was a coded way for opponents to describe desegregation—in other words, the negative connotations associated with the term "busing" indicated opposition to desegregation and not to the school bus as a vehicle.[2] The Supreme Court overturned Swann in 1999, which ended court-ordered racial desegregation and, in turn, ended the use of school buses expressly for desegregation programs.[3]

Current federal policies

School transportation policy is predominately the purview of the states and local education agencies (districts); the federal government is largely uninvolved. However, there are three notable exceptions:

- Federal law requires districts to provide transportation to three categories of students: foster youth, students experiencing homelessness, and students with individualized education programs (IEPs) that call for the student to receive transportation. Regardless of state or local policies, districts must provide transportation for these students.[4]
- Although policies determining which students receive school bus transportation are the purview of the states, the bus as a vehicle is heavily regulated by the federal government. The National Highway Traffic Safety Administration (NHTSA) has established Federal Motor Vehicle Safety Standards for school buses that emphasize safety in design requirements, including lights, stop signs, stop arms, additional mirrors, and even the iconic yellow color.[5] Some states add requirements beyond NHTSA's, but all must adhere to the baseline.
- The Bipartisan Infrastructure Investment and Jobs Act of 2021 allocated $5 billion in federal funding for the purchase of electric school buses in the form of grants administered by the U.S. Environmental Protection Agency (EPA).

There are two other ways that federal policy shapes student access to school via transportation funding and regulations. While these policies do not directly address or involve school-sponsored transportation, they do cover other modes by which students access schools daily.

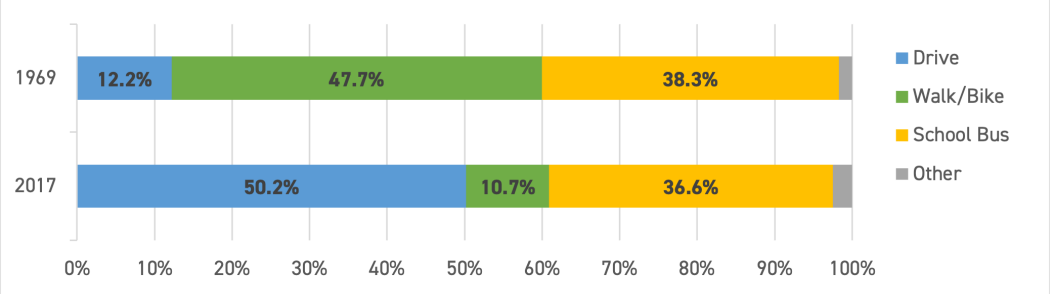
- Safe Routes to School (SRTS) programs seek to facilitate and encourage students and their families to engage in active travel to and from school, principally by walking or bicycling. SRTS projects are divided into infrastructure projects, like sidewalk repair or bicycle lane construction, and non-infrastructure projects, like community outreach programs that educate families about the health benefits of an active lifestyle. SRTS began in Denmark in the 1970s, made its way to the United States in the late 1990s, and in 2005, the federal government funded it as part of its regular federal transportation bill (Safe Accountable Flexible Efficient Transportation Equity Act: A Legacy for Users, or SAFETEA-LU), which established an SRTS program within the Federal Highway Administration (FHWA).[6] From 2005–2012, the FHWA issued funds to state transportation departments, each of which had an SRTS coordinator. Since 2012, SRTS has existed within the larger Transportation Alternatives Program, which includes other walking and biking programs and requires a 20% state match.7 State departments of transportation typically administer competitive grant processes to which schools and community organizations can apply for SRTS funding consideration.
- Some students rely on public transit for school transportation. However, the extent to which public transit agencies are permitted to serve students is limited by federal policy. Commonly known as the "Tripper Rule," general-public transit agencies are essentially prohibited from offering PK-12-student-only services. Transit agencies may place stops at schools (though not on school property), increase frequency and capacity of service at bell times, and modify fares for students, but agencies must continue to allow the general-public use of these stops and routes.[8]

Evidence

Key finding #1: *Modes of school transportation have changed dramatically over the last half century, with many more students getting to school via car than walking or biking.*

Urban planning researchers have analyzed students' travel mode choices to and from school. In general, the literature has considered the geographic and sociodemographic determinants of the five principal school travel mode choices for K-12 students: automobile, school bus, walking, biking, and public transit.

Figure 1: School trip travel mode shares, 1969 and 2017 (adapted from McDonald et al., 2011 and Kontou et al., 2020; Data from National Person/Household Travel Survey)



The seminal work in this area is a 2011 study that analyzed usual travel to school among students in 1969, 1995, 2001, and 2009 and a follow-up 2020 study using 2017 data. The authors found that while school bus use remained relatively constant over this period (between 36% and 39%), students' travel to school has shifted dramatically from majority walking to majority driving. In 1969, only 12% of K-8 students traveled to school in a family car; by 2017, that number was 50 percent. The percentages for walking and biking—what planners call Active School Travel—is nearly the inverse: 48% in 1969 and 11% in 2017.[9]

School trips comprise roughly 10 to 14% of all vehicles on the road during the morning peak travel period (commonly, "rush hour").[10] Because schools all generally assemble and dismiss at similar times, these trips create a ripple effect on the transportation system. One study found that investments in school bus transportation are associated with lower levels of traffic congestion in major U.S. metropolitan areas.[11]

What explains these travel choices today? The findings from this literature have varied with scale (e.g., national versus local) and geography (e.g., New York City versus smaller district studies). Some consistent conclusions include that students become more likely to walk/bike as they get older, and students who live shorter distances to school and/or in a dense urban area are more likely to walk/bike. Conversely, children in households with cars are less likely to walk/bike.[12] Relatedly, once students reach the eligible age for a driver's license, they become much more likely to travel to school in a car—even if they themselves are not a license holder.[13] Two studies asked parents for their input and found "stranger danger," convenience of dropping off and picking up children, students' need for carrying belongings, and extracurricular activities as reasons for driving their children to/from school.14

The literature does not have a clear consensus on the equity effects of school transportation. Different studies have different conclusions around race/ethnicity and income and school travel mode choice.

Most of these studies come with two caveats. First, the school bus plays an important role in transporting children to and from school. However, most of these studies lack data on which students/families were offered a school bus by their district, thus making it difficult to determine a student's full transportation choice set. Additionally, most of these studies are unable to connect students to the schools they attend, thereby complicating the understanding of how children travel based on whether they attend their assigned public school, a choice public school, or a private school.

Key Finding #2: *School-sponsored transportation offerings and eligibility vary on many different dimensions.*

Most states set baseline transportation policies by which their districts must abide. Districts are then free to offer transportation services above and beyond what states require.

Only one study to date has considered variability between these state policies, developing a framework for analyzing them around three questions:

1. Is pupil transportation mandated by the state?
2. What are the eligibility requirements for state aid?
3. What is the formula used for reimbursement?[15]

Additional variability lies in whether the state allows districts to charge families fees for transportation services. The authors find substantial variability among states. They examined five case-study states' policies as of 2006: Alabama, Ohio, and Idaho required districts to provide transportation and had variations of funding formulas, while Texas and California had only a funding formula without any requirement.

Within each state, districts have the option to provide transportation services in addition to the state's minimum requirements. Michigan does not mandate that districts provide students with school transportation, but many districts do; 44% of students in the 50 largest school districts in that state were transportation eligible (meaning their school district provided them with an option for a school bus to and from school).[16] The characteristics of students who were and were not eligible were mostly similar, including race/ethnicity, sex, and absenteeism. However, a much lower share of bus-eligible students were economically disadvantaged (26%) and English learners (7%) than among students who did not receive school bus services (47% economically disadvantaged and 25% English learners). Similarly, in New York City, economically disadvantaged students were less likely to receive school bus service, and Black and Latino students were less likely to be bus transportation eligible.17

Transportation is a costly endeavor for school districts. Data indicate that despite the constant rate of school bus use, expenditures on school-sponsored transportation increased throughout the 20th century. This is likely due to increased distances between children's homes and schools and more complex travel needs with advancements in school choice.18 Transportation expenditures tend to be greater in districts with higher percentages of Black students, and the differences between districts exceed those between states, suggesting that geographic, school choice, and economic differences between districts may be explaining

these differences, rather state-level differences in costs.19

There are also major school choice implications inherent in school transportation policy, especially at the state level. Many states that require districts to provide transportation do so only for general education students attending their assigned schools and for the three special groups for which federal law mandates bus transportation (students with IEPs, foster youth, and students experiencing homelessness). Several states leave schools of choice, particularly charter schools, outside of these regulations. While many schools of choice elect to provide transportation anyway, exempting them from these regulations enables some choice schools to capitalize on the market efficiency of not offering transportation. State policies around transportation to charter schools can take two forms: in state regulation or in charter school authorizations; some states require that charter applications include a transportation plan, while others do not.[20]

A recurring limitation in the literature is that studies have typically fallen into one of two categories: studies that consider state or district transportation policies and/or expenditures and studies that consider the use of transportation services. More research is needed to explore the degree to which changes in school transportation policy affect the number of students who become end users of the service and how frequently they use the service. Such research could help policymakers understand how best to maximize the sizable expenditures that districts put into offering school bus transportation. While bus service is expensive, because each additional student added to a school bus costs relatively little, districts spend less per student and more students benefit from the service when school buses are full.

Key Finding #3: *School transportation—or the ability to get to school easily—shapes where students enroll in school.*

Several studies have examined how school transportation shapes student enrollment, particularly in school choice contexts.[21] They have examined whether the availability of school-sponsored transportation affects student enrollment, including whether transportation availability causes more students to access higher-quality schools as measured by standardized test scores and student growth. The literature has also examined how distance to school, commute times, and other characteristics of the mode and experience of transport relate to which schools students enroll in.

Families strongly prefer schools close to home. Evidence from correlational studies, analyses that are able to estimate the causal effects of transportation, and qualitative studies of parent experiences and decision-making clearly show that the distance to school, commute time, and availability of transportation options significantly shape the schools families consider and those they end up choosing for their children.[22] School choice complicates the school enrollment decision for families, particularly those who do not have reliable private transportation. While school choice options such as charter schools and open enrollment in nearby districts can increase the pool of high-quality schools families can choose from, they can also increase transportation burdens, resulting in inequitable costs for families in ways that include longer commute times, complicated public transit routes, and/or the need to provide and pay for private school transportation in lieu of school-sponsored options.[23]

Several studies have examined how school transportation shapes enrollment in New York City. One study that linked student enrollment records to data on school bus usage and receipt of public transportation passes found that students who enrolled in schools of choice

were more likely to use school transportation and more likely to enroll in higher-quality schools.[24] In addition, among students enrolled in a school of choice, transit users enrolled in higher-quality schools. These associations were much larger for Black and Hispanic students, suggesting that school-sponsored transit to schools of choice may provide a greater benefit in access to higher-quality schools for racially minoritized students, in part because Black and Hispanic students are more likely to live in neighborhoods with lower-quality schools.25

Research from Detroit, another choice-rich city where most students do not attend their zoned school, has found that distance to school and transportation access are significantly associated with whether students enroll in schools of choice and whether they enroll in higher-quality schools in their choice sets.[26] First, the geographic location of schools in Detroit and their distance to students' homes plays a role in whether families regard them as viable options.[27] One study found that Detroit students who live in lower-income areas or areas where fewer residents own a car (as measured by the American Community Survey) were more likely to attend their zoned school.[28] In addition, students who lived farther away from their zoned school were less likely to attend it, even though they were eligible for a school bus. The author argues that this finding may have more to do with distance than with school bus eligibility. Another study found that the availability of school transportation options, including whether schools offered any school transportation and whether school bus stops were accessible to students, was positively associated with enrollment, suggesting that, in a choice-rich environment, students are more likely to enroll in schools where they can access school-sponsored transportation.[29] A qualitative study focused on how school transportation resources and barriers shaped enrollment reinforced these findings, showing how distance often played a deciding role early on in the school selection process by limiting the schools that parents considered, while transportation resources at the school and at home influenced their final decisions about where to enroll.[30]

Key Finding #4: The mode of school transportation is associated with student outcomes, particularly attendance, but the evidence is inconclusive, in part because of differences in school choice and transportation policy contexts.

Research studies have explored the relationship between school transportation and various student outcomes, such as student attendance and achievement. The effect of school transportation offerings on student attendance is mostly positive, with some causal evidence indicating that school bus eligibility increases student attendance. However, two descriptive studies focused on Detroit and a causal study of a school bus program in Tallahassee found a weak negative association between school bus access and attendance. The school choice and transportation context of the studies are important in understanding why these relationships may not be consistent across sites.

Several studies have shown that longer commute times and more burdensome school travel are negatively associated with attendance and on-time arrival at school.[31] In addition, students who are exposed to violent crime during their school commutes tend to have worse school attendance.[32] A study from New York City that used a causal design found that long (45–60 minutes) and very long (more than an hour) bus rides led to worse attendance, potentially attenuating the positive effects of attending a higher-quality school via a longer commute.[33]

Most of the small literature on the relationship between the school bus and attendance shows a positive relationship. For instance, two studies using data from the federal Early Childhood Longitudinal Survey found that students who rode the school bus to kindergarten

and students who rode the school bus in rural communities had fewer absences than those who commuted to school in any other way.34 Two studies on the relationship between school bus eligibility and attendance in Michigan find conflicting results, likely because of the different policy contexts of Detroit versus the rest of the state. One study that used a causal design by comparing students just below and above the walking distance cutoff, which focused on large school districts in Michigan, found that school bus eligibility increased attendance and reduced chronic absenteeism when comparing students who lived within 0.4 miles of the walking distance cutoff of 1.5 miles.[35] However, this study excluded Detroit, which has a shorter walking distance cutoff. The other study, which focused on Detroit and used a descriptive design, found that school bus eligibility had a small but significant negative association with attendance.36 This may mean that the school bus is not a reliable mode of transportation in Detroit or that many students who are eligible to ride the bus do not ride it. Subsequent research from the same team of scholars found that about half of the students in Detroit who have access to a school bus never ride the bus to school.37

Further illustrating differences by context are two studies focused on similar school transportation programs in different cities. A study using a causal design to investigate the effects of a Minneapolis program that provided bus passes to students found a decrease in unexcused absences for student users by 11.5% overall and by 30.5% for students who lived within two miles of their school.[38] However, a study of a similar program in Tallahassee that also used a causal design found that student attendance declined and chronic absenteeism increased following program implementation.[39]

Hopson and colleagues conducted a systematic review of studies that analyzed the relationship between school transportation and academic outcomes.[40] They found that school transportation is associated with better academic outcomes when it provides access to higher-quality schools, but school bus ridership on its own had a mixed relationship with academic outcomes. For instance, one study using national data found that, among K-6th grade students, riding to school in a private vehicle was associated with higher achievement than riding the school bus.41 Similarly, the study that examined school bus eligibility in large districts in Michigan (other than Detroit) found no effect of school-sponsored transportation on achievement.42 Overall, the literature suggests that school transportation can significantly shape student attendance and academic achievement, but more research is needed to unpack the conditions under which school bus transportation is beneficial to students.

Future directions for research

More research is needed to understand how changes in transportation policy, availability, or eligibility may change student enrollment patterns or outcomes, like attendance or achievement. Since much of the research on school transportation has been conducted in just a few major cities, there is a need for more research into school transportation in rural, suburban, and other areas across the U.S. In addition, although federal policy mandates transportation for some special student populations (foster youth, students experiencing homelessness, and students with IEPs who need transportation), little research has investigated how these transportation services benefit these student groups and whether changes to the mode type may change the outcomes associated with school transportation. Finally, the field would benefit from more experimental research that could tease out the causal effects of school transportation on student enrollment and outcomes in different school policy contexts.

Conclusion

School transportation policy contexts vary dramatically across the country, so it is likely that different policies will have different effects based on the availability of private transit, public transit, location of schools, and school choice options. Overall, school transportation is essential for getting students to and from school, and families consider transportation when determining where to enroll their children, particularly in school choice contexts. Policymakers should consider innovating with school transportation access to ensure that students who have the most transportation vulnerability have a reliable way to get to school.[43]

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