

How Does School Bus Transportation Affect Student Attendance and Achievement?

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Overview

Transportation is an essential resource for students. It is also costly for school districts nationwide. In an effort to minimize transportation spending, a growing number of states and districts have attempted to amend their policies to decrease the number of students eligible to ride the bus, cut transportation from their budgets, or find alternatives such as public transportation and rideshare services. As transportation cuts continue, the question remains how bus transportation affects student outcomes.

In this study, we use Michigan public school records from 2012-13 to 2018-19 to examine the effects of school bus eligibility on student attendance and achievement. We compare a sample of students eligible to ride the bus to similar students who attend the same public school but are not eligible for bus transportation.

Providing some of the first evidence on the effects of bus transportation on student outcomes, we find:

- School bus eligibility increases attendance rates for economically disadvantaged students by 0.63 percentage points (approximately a 1 day increase in a 180-day school year).
- School bus eligibility decreases the probability of being chronically absent (missing more than 10% of school days) for economically disadvantaged students by 3.8 percentage points (an approximate 20%-25% reduction).
- Transportation eligibility does not have any statistically significant effects on student achievement.

These results have important implications for school choice. In school choice environments, transportation is a crucial resource to provide economically disadvantaged students access to highly desired schools far from home. For charter schools, providing transportation in multiple and distant neighborhoods is a costly endeavor prompting many charter schools to cut bus budgets. Studying the effects of bus eligibility on public school student attendance and achievement can inform how accessibility affects students across school sectors.

Overall, our findings indicate that bus eligibility can help put vulnerable student populations less at risk of missing a significant amount of time in the classroom.

Background

Nearly 50% of all U.S. public school students ride the bus to and from school every day. Although bus transportation is a critical resource for students, it is not without costs. Nationally, we spend approximately \$24 billion on bus transportation every year – nearly \$1,000 per student or 8% of the average per pupil expenditure. The high expense of bus transportation has led many school districts to cut the number of routes available, cut transportation services altogether, or curb expenses by providing public bus passes or contracting rideshare services. In Michigan, as in some other states, school districts limit transportation eligibility to those who live beyond a specific walking distance from their school. As transportation cuts continue, there has been little research on the effects of transportation to help districts better understand how students might be impacted.

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A major consideration in the discussion about district-provided transportation is how it might affect attendance. [Families report](#) that the biggest barrier getting kids to school regularly is transportation. The school bus often provides a solution to this challenge and gives students a reliable mode of transportation between home and school. Free and accessible district-provided transportation also removes the logistical and financial burdens of school transit from parents. Particularly for students from economically disadvantaged families without access to personal vehicles or from families where parents have inflexible work schedules, school buses provide a practical option to get to school. [Previous studies](#) show that attendance does affect student [outcomes](#), school finances, and school accountability ratings in 70% of states. It follows that district-provided transportation could affect test scores by helping increase how often students attend school.

In addition to providing students with reliable transportation, school buses are the safest vehicle on the road. Students are about [70 times more likely](#) to get to school safely when taking the bus instead of a passenger vehicle. Providing safe transportation can also prevent students from having to walk long distances through neighborhoods with higher rates of violent crime.

While riding the bus presents students and families with several benefits, there are potential drawbacks as well. Early pick up times and long commutes on the school bus can lead to students having [less time for homework, extracurricular activities, and sleep](#). Bus commuting can also place students in potentially negative social environments that can impact attendance such as bullying and fighting.

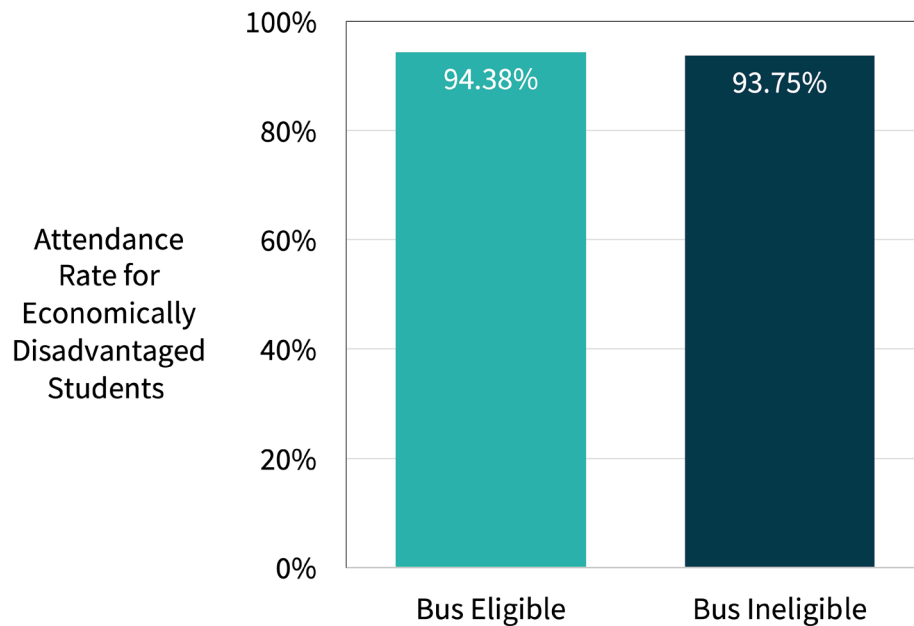
Recent evidence links riding the bus and increased attendance. This study contributes to existing research by providing some of the first causal evidence of bus transportation eligibility on student attendance and achievement.

What Effect Does School Bus Eligibility Have on Attendance?

When assessing the impact of bus eligibility on all students, no significant effects are evident. However, when we narrow the analysis to focus on economically disadvantaged students only, findings reveal that transportation eligibility increases attendance rates for these students by 0.63 percentage points. This is the equivalent of 1 day in a 180-day school year.

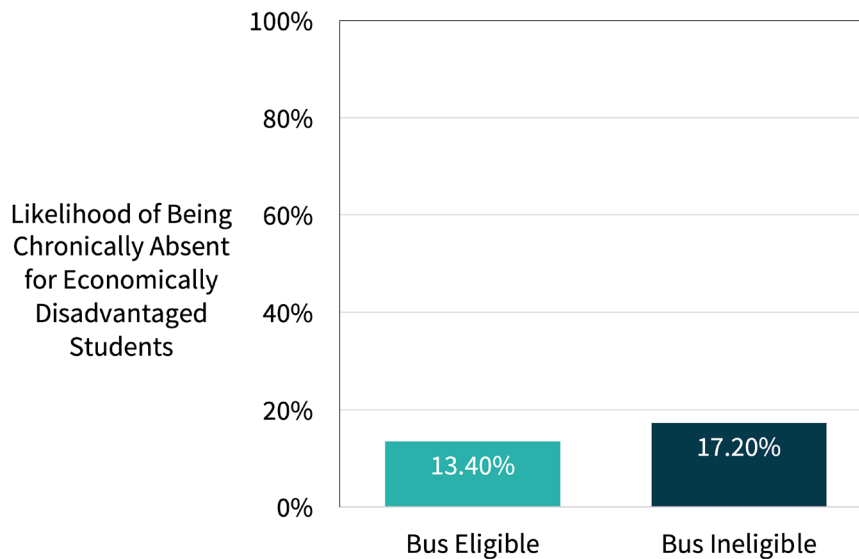
In Michigan, students are considered economically disadvantaged if they qualify for free or reduced price lunch; receive food (SNAP) or cash assistance (TANF); or they are homeless, migrants, or in foster care.

Figure 1. Transportation Eligibility Increases Attendance for Economically Disadvantaged Students



More significant than its effect on attendance rates, bus eligibility decreases the likelihood of being chronically absent for economically disadvantaged students by up to 4 percentage points. This is approximately a 20% decrease in chronic absenteeism when compared to average levels for economically disadvantaged students.

Figure 2. Transportation Eligibility Decreases Chronic Absenteeism for Economically Disadvantaged Students



This 20% reduction in chronic absenteeism is substantial. Students who are chronically absent have [lower levels of achievement](#) in future grades and are more likely to [drop out of school](#). Chronic absenteeism also impacts classmates' outcomes. Research indicates that students in classrooms with [higher chronic absenteeism rates](#) have lower test scores; however, these outcomes may be correlational and not causal.

What Effect Does School Bus Eligibility Have on Student Achievement?

Overall, we do not find any statistically significant effect on average student achievement. It is important to note that this finding does not mean that bus eligibility did not improve achievement for some students. If there is an effect, it may be hard to detect because it could be concentrated in a relatively small group of students (e.g., those families who do not have cars). However, our data do not allow us to identify these groups if this is the case.

We also do not find any statistically significant effect on economically disadvantaged students' achievement, despite the effects on chronic absenteeism. Prior research has found that attending one additional school day a year can increase achievement by one hundredth of a standard deviation. Perhaps in this case, the effects on attendance for economically disadvantaged students were not large enough to translate into achievement effects.

Conclusion

The purpose of this analysis is to better understand how school bus eligibility impacts student attendance and achievement. We find that while eligibility has no major effect on student attendance or achievement overall, economically disadvantaged students who were eligible for district-provided transportation were less likely to be chronically absent. This finding expands on previous research that shows increased attendance improves students' cognitive and non-cognitive outcomes.

While this study can't determine whether school buses have a greater impact on attendance and achievement than other modes of transportation or what the effects are of longer periods of time spent on the bus, it does give district leadership greater insight into the benefits of expanded bus eligibility. This finding suggests policymakers and district leaders could consider using transportation as an intervention for chronically absent students. Providing this resource to economically disadvantaged students can provide an opportunity for these students to increase crucial learning time in school, which may in turn impact their academic achievement.

How Did We Carry Out the Analysis?

Many Michigan schools determine student eligibility for bus transportation based on the distance it would take students to walk to school. For this analysis, we examined transportation policies for the 50 districts with the largest enrollment in Michigan. Of these districts, we include only the 23 districts that have the state mandated maximum walking distance cutoff of 1.5 miles in our study sample. If students live more than 1.5 miles from school and attend their assigned school, districts provide them with transportation. If students live closer to school under the 1.5-mile cutoff, districts do not provide them with transportation.

The method we use in this study, regression discontinuity, allows us to see the effects of school bus eligibility by comparing outcomes of K-8 students who live on either side of the cutoff but who are otherwise similar. These students go to the same schools, are in the same grades, and share most demographic characteristics observable in our data, but one group is eligible to receive bus services while the other is not.

Michigan Transportation Policies

In Michigan, school districts are not required to provide transportation to regular education students. If a district decides to provide transportation at the elementary, middle, or high school level, they must provide it to all students living in the district who (1) attend the public school which "they are eligible to be admitted" and (2) live at least **1.5 miles** walking distance away from school; however, districts can set the cut-off distance closer than 1.5 miles if they choose.

Districts can only charge for transportation in the case of interdistrict choice. Since charter schools are not residence-based, transportation regulations do not apply.

We used data for all Michigan public school students from 2012-13 to 2018-19 from the Michigan Department of Education and the Center for Educational Performance and Information. These records include student enrollment, demographic, attendance, and achievement outcomes, as well as addresses at the census block level.

Districts in our analysis are mostly urban and suburban. Compared to the average district in Michigan, those included have higher average attendance and achievement rates, lower chronic absenteeism rates, and a lower percentage of economically disadvantaged students. Our analysis excludes homeless students and students with disabilities because they may receive transportation to school regardless of where they live in relation to the schools they attend through support services.

How Does This Relate To Other REACH Research?

School transportation is a key issue that influences educational opportunities for disadvantaged students. Expanding on this issue, this study provides some of the first causal evidence of the effect bus transportation eligibility has on student attendance and achievement. In a forthcoming related study, REACH will explore the relationships between residential mobility, distance from school, and exit from public school choice programs, charter school and inter-district choice in Michigan.

Future REACH transportation studies will examine how transportation access and commute times affect the type and quality of schools that New York City students attend, academic outcomes, and both student and parental engagement in school. Our team is also analyzing whether and how distance and transportation affects student outcomes for those who live in New York City public housing. In Baltimore, the REACH team will explore an overhaul of the city's public transportation system, focusing on whether these changes affect the probability that disadvantaged students attend high-quality schools and achieve post-secondary outcomes.

About the National Center for Research on Education Access and Choice (REACH)

Founded in 2018, REACH provides objective, rigorous, and applicable research that informs and improves school choice policy design and implementation, to increase opportunities and outcomes for disadvantaged students. REACH is housed at Tulane University with an Executive Committee that includes researchers from Tulane, Michigan State University, Syracuse University, and the University of Southern California.

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Disclaimer

This research result used data structured and maintained by the MERI-Michigan Education Data Center (MEDC). MEDC data is modified for analysis purposes using rules governed by MEDC and are not identical to those data collected and maintained by the Michigan Department of Education (MDE) and/or Michigan's Center for Educational Performance and Information (CEPI). Results, information and opinions solely represent the analysis, information and opinions of the author(s) and are not endorsed by, or reflect the views or positions of, grantors, MDE and CEPI or any employee thereof.

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Corresponding Technical Paper

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