STUDENT EXIT, MOBILITY, AND ATTENDANCE IN DETROIT

COLLEGE OF EDUCATION, WAYNE STATE UNIVERSITY

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WAYNE STATE
College of Education

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OUR THANKS TO

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RESEARCH NOTE

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WE WANT TO HEAR FROM YOU

This report provides an overview of student exit, mobility, and absenteeism in Detroit. Our future reports will go deeper into these issues to explore questions that community members need answered to contribute to educational improvement in Detroit. We will provide our interpretation of this research, based on data, studies from other cities, and the historical and contemporary Detroit context. But we are not the only experts. Detroit students, parents, educators, and advocates are in the best position to help us understand what our findings mean and how to act on them in policy and practice. To that end, we want to hear from you. Please go to http://tinyurl.com/WSU-education-research-survey to give us your feedback.

REFERENCE FOR THIS REPORT

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STUDENT EXIT, MOBILITY, AND ATTENDANCE IN DETROIT

COLLABORATIVE POLICY RESEARCH

This research is the result of a collaboration between Wayne State University's College of Education and a constellation of community partners interested in improving Detroit schools. We orient our work around the pressing policy needs of the Detroit education community, and we seek to inform the design of local educational reforms. We believe that education reform in other places has important lessons for our collective work in Detroit, but that any solution for Detroit will have to respond to the unique strengths and needs of our community.

This is the first of a series of reports in which we will apply social science research techniques, cycles of improvement on our own research methods, and feedback from community partners to explore critical policy problems and potential solutions in the Detroit education landscape. In this study, we examine the following questions: What factors affect the odds that students leave the city for school, switch schools, or miss 10% or more school days? How do the conditions in residential and school neighborhoods affect student outcomes? What else do policymakers, educators, and families need to know in order to affect positive policy change?

MAJOR FINDINGS

Nearly a quarter of Detroit students attended a public school in the suburbs in 2017-18. Most had previously attended school in Detroit. Students were more likely to have attended school outside the city when they had fewer city schools near where they lived, raising important policy questions about school locations, closures, and access.

Seventeen percent of Detroit students switched schools between school years when they were not in a transition year. Early elementary school and 9th grade students were most likely to be movers, and more than half of all non-routine moves were among students who did not change residence, suggesting that dissatisfaction, disciplinary pushout, or other school-level issues may be contributing to mobility.

More than half of students who attended school in Detroit were chronically absent, missing 10% or more of the school year. Controlling for individual student characteristics, students were more likely to be chronically absent if they attended a school with high rates of student mobility, were new to the school, commuted further to get to school, and when they lived in neighborhoods with higher asthma rates.

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Please go to http://tinyurl.com/WSU-education-research-survey to share your feedback.

Detroit is at a unique crossroads for educational improvement. After years of financial distress and state intervention, the city has a newly elected and empowered local school board, a new superintendent, active nonprofit and grassroots education groups, and a new Community Education Commission that unites district, charter, and community partners in common cause "to break down barriers that prevent families from accessing quality schools in Detroit" (Community Education Commission, 2019). In 2016, state lawmakers passed historic legislation to create a new Detroit Public Schools Community District (DPSCD), free from a $617 million debt burden, alongside other reforms designed to increase accountability and oversight of all public schools in the city. This was just two years after the City of Detroit emerged from bankruptcy and began to rebuild its political, social, and economic infrastructure. Improving the public schools is seen as an urgent need in all corners of the city, with multiple overlapping purposes, including advancing educational justice, strengthening the economic potential of city residents, and attracting new residents.

Yet, Detroit's public schools face enormous challenges to meet the academic, social, and developmental needs of students. On the most recent national assessment, Detroit students scored lower than their counterparts in any other urban school district, and Detroit schools have consistently performed near the bottom on Michigan Department of Education school rankings. Turning around Detroit's schools will require the collaboration of school, municipal, community, and research partners to develop a clear understanding of the challenges Detroit students face in accessing educational opportunity and evidence-based approaches to overcome those challenges. This report from the College of Education at Wayne State University is designed to draw attention to three critical problems in the Detroit education landscape - student exit from Detroit, student mobility, and chronic absenteeism - and possible pathways toward improvement.

Using student-level data from Michigan's Center for Educational Performance and Information, we analyzed the relationship between students, their residential neighborhoods, and their schools. Specifically, this report addresses the following questions: What factors affect the odds that students leave the city for school, switch schools, or miss 10% or more school days? How do the conditions in residential and school neighborhoods affect student

outcomes? And what else do we (researchers, parents, students, advocates, policymakers, and community members) need to know in order to affect positive policy change?

Focusing on the most recent data, from 2017-18, our major findings included:

Nearly 26,000 Detroit students attended a public school in the suburbs in 2017-18. Most had previously attended school in Detroit. Students were more likely to have attended school outside the city when they had fewer city schools near where they lived, raising important policy questions about school locations, closures, and access.

Seventeen percent of Detroit students switched schools between school years when they were not in a transition year. Early elementary school and 9th grade students were most likely to be movers, and more than half of all non-routine moves were among students who did not change residence, suggesting that dissatisfaction, disciplinary pushout, or other school-level issues may be contributing to mobility.

More than half of students who attended school in Detroit were chronically absent, missing 10% or more of the school year. Controlling for individual student characteristics, students were more likely to be chronically absent if they attended a school with high rates of student mobility, were new to the school, commuted further to get to school, and when they lived in neighborhoods with higher asthma rates.

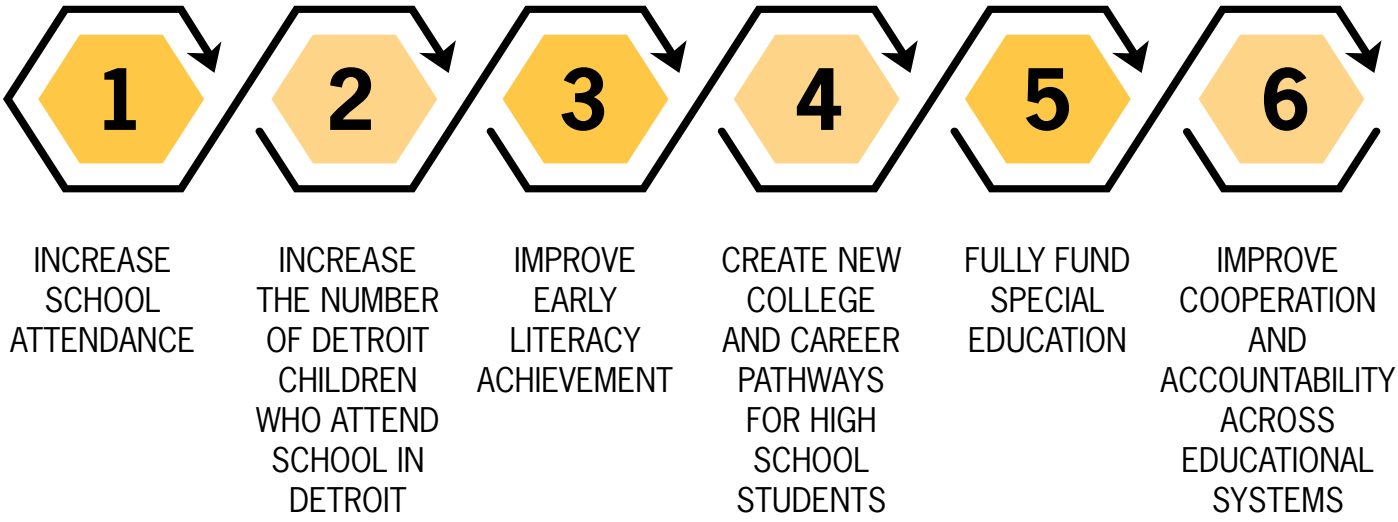
NEARLY
26,000
DETROIT STUDENTS ATTENDED A PUBLIC SCHOOL IN THE SUBURBS IN 2017-18

SEVENTEEN PERCENT
OF DETROIT STUDENTS SWITCHED SCHOOLS BETWEEN SCHOOL YEARS WHEN THEY WERE NOT IN A TRANSITION YEAR.

MORE THAN HALF
OF STUDENTS WHO ATTENDED SCHOOL IN DETROIT WERE CHRONICALLY ABSENT.

WHY EXIT, MOBILITY, AND ABSENTEEISM?

In 2017, the Coalition for the Future of Detroit Schoolchildren released its second set of recommendations, with six top priorities for the "transition" phase of a long-term effort to improve education in Detroit:



That same year, our research team at Wayne State began a partnership with the Detroit Public Schools Community District to generate research that would inform policy and practice related to reducing chronic absence. As we began this work, we learned more about the community stakeholders who were actively engaged with efforts to address issues of chronic absence and enrollment across schools in Detroit. Therefore, we actively sought to expand our research to inform policy improvements across the Detroit education landscape. This report seeks to provide new research evidence to support the policy improvement efforts of community members, particularly in the areas of attendance and enrollment. We also hope to contribute data and information that may facilitate better coordination across educational institutions, by providing information on Detroit students, no matter where they go to school. In this way, our research may be useful as policymakers work toward the goals described above.

The problems of student exit, mobility, and absenteeism reflect the challenges of administering public education in large urban school districts throughout the U.S., yet local conditions reflect unique challenges in Detroit. For example, about 17% of all Detroit resident students switched schools between 2016-17 and 2017-18, when they could have stayed at their previous school. On average, school moves are harmful to individual students'

academic and social outcomes, and they have the potential to negatively affect other students (Welsh, 2017). In addition, 55% of students who attended school in Detroit were chronically absent, which we defined as missing 10% or more of the days they were enrolled in school. Chronic absence is associated with lower academic achievement and risk of drop out (Gottfried, 2014). Finally, about a quarter of Detroit resident students attended a traditional public or charter school outside the city in 2017-18. This has important implications, as school funding follows students to the districts where they enroll. All of these problems are affected by and contribute to instability in the Detroit education system, leading to uncertainty about enrollment, funding, staffing, and the long-term viability of schools and districts. Solving these problems is critical to improving educational access and opportunity for all Detroit students.

This research begins with the premise that the challenges of educational improvement in Detroit are not solely the problems of school leaders and teachers, parents, or government officials. Rather, the problems facing Detroit's schools are complex, influenced by multiple and overlapping systemic factors, and can be significantly reduced through research-informed changes in policy and practice. We ground our work in ecological systems theory (Bronfenbrenner, 1977), wherein intersecting factors in families, neighborhoods, and communities produce the conditions in which individual behavior is manifested. Expanding on this theory, we seek to document systemic factors that may be creating barriers for students to achieve success in school, focusing on school and community factors, with the aim of informing high-leverage policy changes within city and school systems. Where individual student factors are especially influential, we highlight what they reveal about inequality in Detroit, and the potential policy levers that could make a difference.

EXIT, MOBILITY, AND CHRONIC ABSENTEESIM CONTRIBUTE TO **INSTABILITY** IN THE DETROIT EDUCATION SYSTEM, LEADING TO **UNCERTAINTY** ABOUT ENROLLMENT, FUNDING, STAFFING, AND THE LONG-TERM VIABILITY OF SCHOOLS AND DISTRICTS.

OUR DATA

This report is based on administrative data from the Michigan Student Data System, which is the platform where public school districts report individual student information on all students who are enrolled in their schools. The database covers the school years 2010-11 through 2017-18 and includes all K-12 students who were enrolled in a public school in Macomb, Oakland, or Wayne counties during any of those years. For almost all students, we have records at least three times per school year (fall, spring, and end of year) that include information on their residential census block, demographic characteristics, and schools. For students in grades 3-8 and 11, we also have information on their performance

on state standardized tests in reading and math from the state accountability data system. Using geographical data on student residences and schools, we were also able to analyze neighborhood demographic and health data from the American Community Survey, crime data from the Detroit Police Department, and residential vacancy data from Data Driven Detroit. Information on our specific methodology can be found in each section of this report, and a complete technical appendix is available online at the end. This report focuses primarily on the more than 100,000 students who lived and/or attended school in Detroit between 2010-11 and 2017-18, with particular attention to the most recently completed school year.

DETROIT STUDENTS

As shown in Figure 1, K-12 students who lived in Detroit in 2017-18 were unevenly distributed throughout the city. Lighter shading, as shown in the greater downtown neighborhoods, indicate lower concentrations of students. Darker shading indicates higher concentrations of students, such as in Southwest, the west side, and the far east side. At the same time, Figure 2 shows that students have uneven access to Detroit schools near where they live. In this map, darker shading indicates that students in these neighborhoods have more schools in their residential radius; lighter shading means there are fewer schools available in their residential radius.[1] These maps are one method we use throughout the report to show the distribution of educational opportunity and outcomes in Detroit.

In Table 1, we describe the characteristics of students who lived in Detroit and attended a public school (no matter where they go to school), compared to public school students who lived outside of Detroit in the Metro area. Private school and homeschooled children are excluded from this analysis[2]. The differences between Detroit students and students in the rest of the Metro region are clear. More than 80% of Detroit resident students were Black, compared to 18% of suburban Detroit students. In addition, about 90% of Detroit students were economically disadvantaged, meaning that they qualified for free or reduced-price lunch, were homeless, and/or were migrants. This is compared to 46% of students who were categorized as economically disadvantaged in the Metro area outside of Detroit.

These data demonstrate the deeply entrenched racial and economic segregation that has plagued southeast Michigan and many other urban areas

1 Residential radius is defined as within 2.5 miles from a K-8 student's home and within 3.5 miles from a high school student's home (See Schlossberg, Greene, Phillips, Johnson, & Parker, 2006; Hamlin, 2017).

2 According to the 2010-14 Census estimates, approximately 6% of Detroit resident students attend private school, while between 8-12% of suburban Metro Detroit students attend private schools. Michigan does not collect data on homeschooling rates, but national estimates suggest that about 3% of students in the country are homeschooled.

Figure 1: Concentration of Detroit Students by Residential Neighborhood

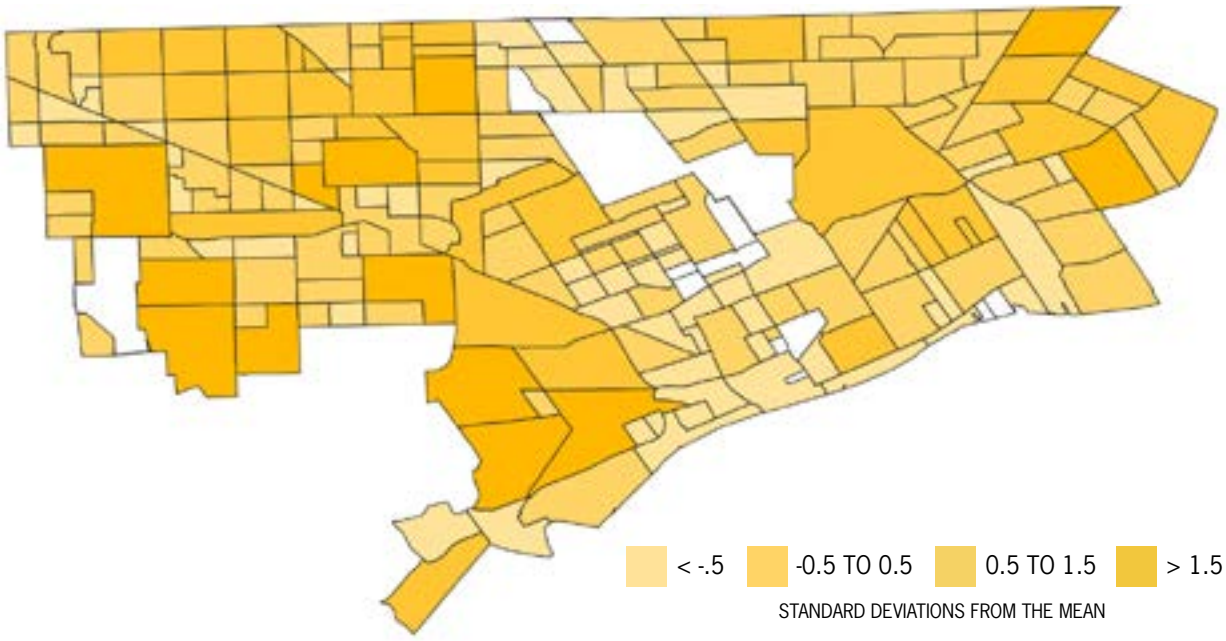
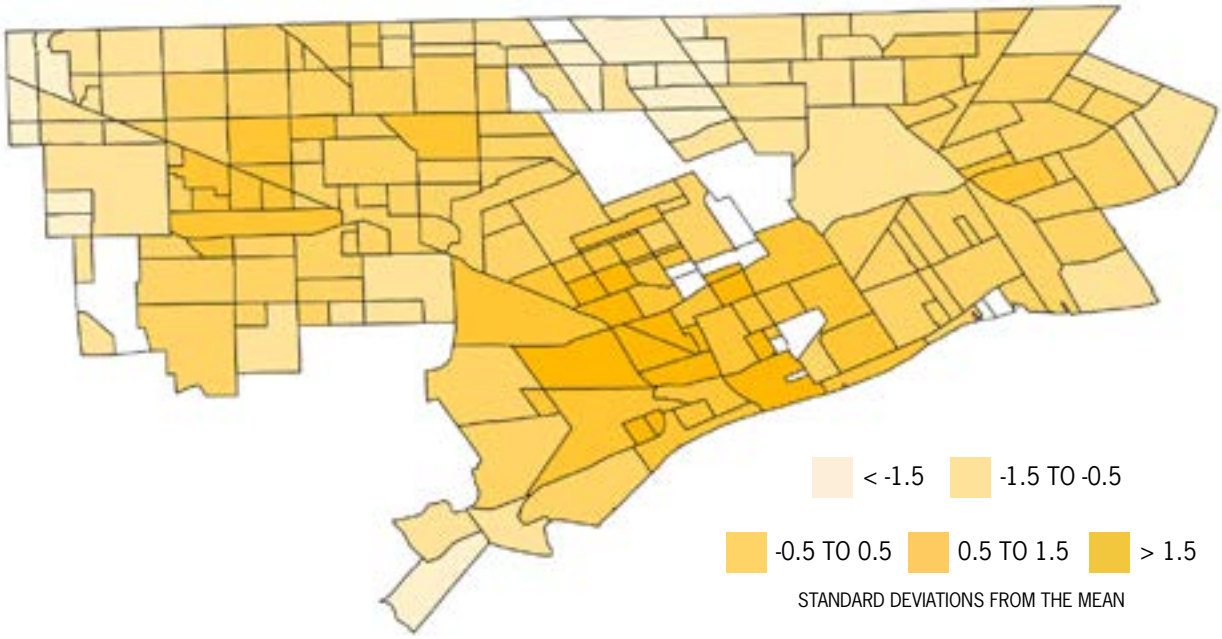


Figure 2: Average Number of Detroit Schools in Student Residential Radius by Neighborhood



for generations. These patterns in residential demographics are mirrored in the differences between city and suburban schools. In Detroit, 77% of schools were racially isolated, defined as more than 90% of the student body made up of students from one race (Jacobsen, Frankenberg, & Lenhoff, 2012). Just 14% of schools in the suburbs were racially isolated. In addition, while 54% of schools in Detroit were economically isolated, defined as more than

Table 1: Characteristics of Students Who Live in Detroit and Metro Detroit, 2017-18

Variable	Students Who Lived in Detroit (N=100,288)	Students Who Attended School in Detroit[1] (N=82,827)	Students Who Lived in Suburban Detroit (N=497,282)
Exit Residential City for School	26.03%	-	16.94%
Between-Year Mover	19.52%	20.68%	10.52%
Chronically Absent	51.18%	55.16%	18.16%
Black	81.92%	82.58%	19.61%
Asian	1.42%	0.57%	6.33%
Latinx	10.92%	12.71%	5.73%
White	4.78%	3.41%	64.48%
English Language Learners	12.06%	12.17%	11.15%
Special Education	13.36%	14.35%	13.08%
Female	49.60%	49.43%	48.76%
Economically Disadvantaged	90.06%	89.60%	46.76%
Average ELA Z-Score[2]	-0.6703	-0.6680	0.0728
Average Math Z-Score[2]	-0.7424	-0.7527	0.0933

1 Students who attended school in Detroit included Detroit residents and non-Detroit residents who were enrolled in charter schools in the city or who attended DPSCD through the state's school choice law.

2 M-STEP scores are displayed as z-scores, which represents how the score compares to scores from students across the state. It is a measure of how many standard deviations away from the mean the score is. The mean score in the state would be represented as 0, so z-scores below 0 are lower than the state mean, and z-scores that are above 0 are higher than the state mean. Only students in grades 3-8 and 11 are tested by the state.

90% of students categorized as either economically disadvantaged or not economically disadvantaged, just 14% of schools in the suburbs were economically isolated. There is a strong connection between poverty and student achievement; students who attend racially and economically isolated schools consistently score lower on standardized tests in national studies (Condron, Tope, Steidl, & Freeman, 2013; Mickelson, Bottia, & Lambert, 2013; Orfield & Lee, 2005; Reardon, 2011). We see the same patterns when comparing standardized test scores, represented by English Language Arts and Math z-scores (a measure of how far away a student's score is from the state average). If a z-score is 0, that means the student performed about the same as the average student in their grade and subject. Negative z-scores represented scores that were below the average, and positive z-scores reflected scores above the average. In 2017-18, Detroit students scored well below the state average, while Metro Detroit students scored above. Poverty is highly correlated with most student outcomes, including those examined in our research. This report attempts to tease apart some of the mechanisms underneath that relationship by connecting individual students to the conditions of the neighborhoods where they live and the characteristics of their schools. In three sections, we highlight our approach, findings, and key policy takeaways in our analyses of student exit, mobility, and chronic absence.

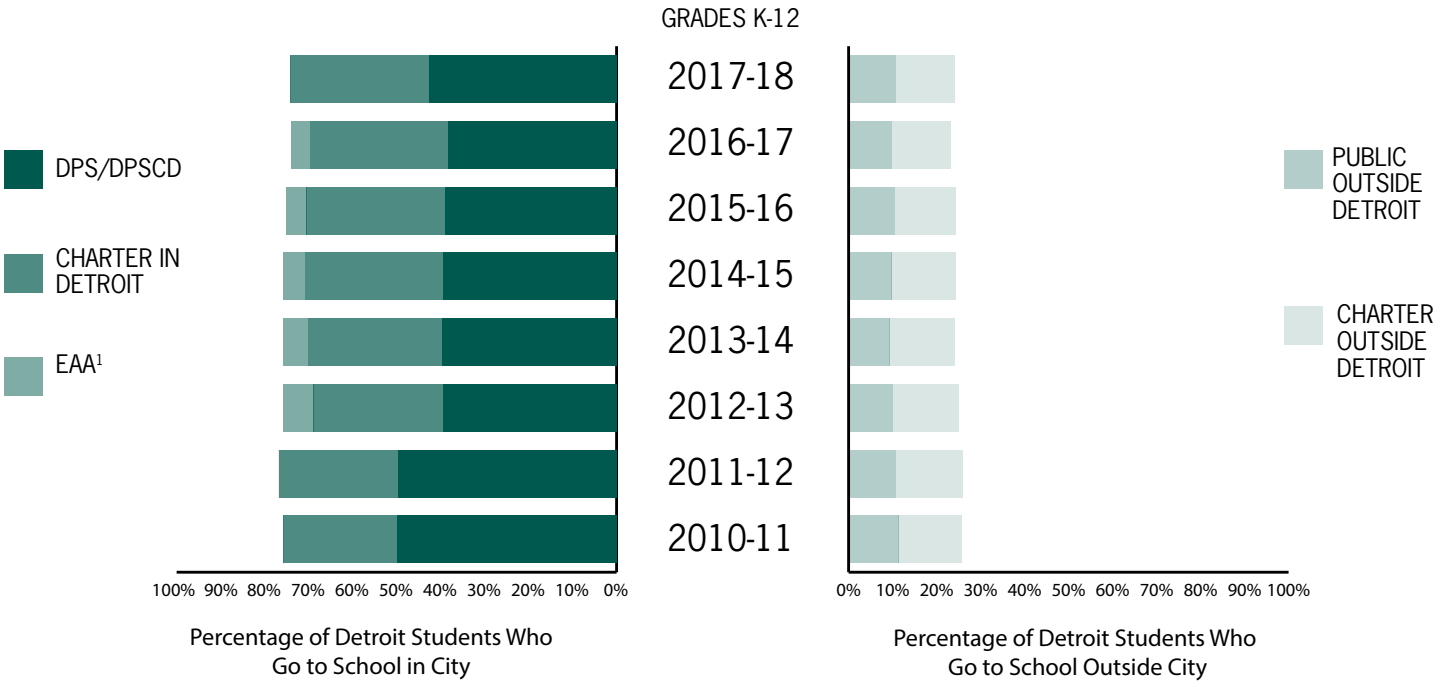
STUDENT EXIT FROM DETROIT

STUDENT EXIT FROM DETROIT

In 2017-18, nearly 26,000 Detroit children - a quarter of the students who live here - attended a traditional public school or charter school in the suburbs. According to Senate Fiscal Agency estimates, that means that upwards of $205 million of state school funding is following students into other charter and traditional public school districts every year, rather than supporting DPSCD and Detroit charter schools ("Per-pupil foundation allowance ten-year history for schools: FYs 2009-10 through 2018-19 (estimated)," 2018). This creates challenges for local Detroit schools, when fewer than 85,000 K-12 children attend school in a city built for 2 million people. Fixed costs cannot keep up with decreasing enrollments, and the city's school infrastructure is suffering. In 2018, DPSCD estimated it would take $500 million just to bring buildings up to current standards. In addition, these high rates of exit suggest that many Detroit families have not found a school in the city that suits their needs, a worrisome trend at a time when city officials hope to entice new residents and retain current families in the city.

Keeping more students in the city for school would bring a host of benefits to the education system, local communities, and students themselves. While previous research has shown that attending a traditional public school outside a residential district does not significantly impact achievement positively or negatively (Cowen & Creed, 2017), there is ample reason to believe that leaving Detroit for school may have negative consequences for students. Research shows that students who attend school farther away or who do not have access to school bus transportation are more likely to be chronically absent (Gottfried, 2017), which has negative consequences for student achievement and socio-emotional outcomes (Gottfried, 2014). In addition, many students who attend school outside Detroit do not stay, either because of the hardships of getting to school, being "pushed out" of suburban schools, or other issues (Cowen, Creed, & Keesler, 2015). This movement back and forth contributes to student mobility, which also has negative consequences for students. Finally, the loss of students from community schools can wreak havoc on local infrastructure and services. Without students, schools are more likely to close, leaving resident students scrambling to find schools that are farther away from home.

Figure 1: Student Enrollment in Detroit and Suburban Schools (2010-11 to 2017-18)



METHODOLOGY

For this analysis, our sample included the 100,288 K-12 children who lived in Detroit in 2017-18 and attended a public school anywhere in the tri-county area. Using student-level data on demographics, residential census block, and school, we estimated the odds that a student attended a school outside Detroit in 2017-18. We modeled a series of logistic regressions with the outcome as "attended school outside Detroit." In the first model, we estimated the association between student demographics, grade level, and concentration of schools with attending a school outside Detroit. Concentration was measured by calculating the number of schools with a student's grade level in a 2.5 mile radius from a K-8 student's home and a 3.5 mile radius from a high school student's home. We analyzed concentration of schools in Detroit and outside of Detroit. In the second model, we added two neighborhood characteristics – the percentage of residential vacancies and the number of violent crimes. In our final model, we swapped the neighborhood characteristics with variables indicating whether the student had moved the previous year and whether the student had exited Detroit for school the previous year. We present our results as odds ratios, which represent the change in the odds that a student would exit based on a one-standard-deviation increase in the predictor. As shown in Figure 3, odds ratios above 1.0 indicate that the odds of attending a school outside of Detroit are higher, while odds ratios below 1.0 indicate lower odds of attending a school

1 The Eduation Achievement Authority (EAA) was a state-run school district that took over some of the lowest performing schools in the state in 2012-13. It was disbanded after the 2016-17 school year.

Table 1: Districts Outside Detroit that Enrolled the Largest Number of Detroit Students

District Name	Number of Detroit Students Enrolled
School District of the City of Oak Park	2,476
Chandler Park Academy	1,695
Bradford Academy	1,034
Advanced Technology Academy	1,006
School District of the City of River Rouge	846
Washington-Parks Academy	695
Conner Creek Academy East	617
Crescent Academy	606
School District of the City of Hazel Park	589

outside Detroit. Full results of our models can be found in the technical appendix.

STUDENT EXIT FROM DETROIT

Since at least as far back as 2010-11, about a quarter of public school students who lived in Detroit attended school in the suburbs (see Figure 1). In 2017-18, 11% of Detroit students enrolled in a traditional district (e.g., Oak Park or River Rouge) and 14% enrolled in a charter school district outside the city (e.g., Chandler Park Academy or Bradford Academy). Table 1 shows the districts outside Detroit that enrolled the largest number of Detroit students.

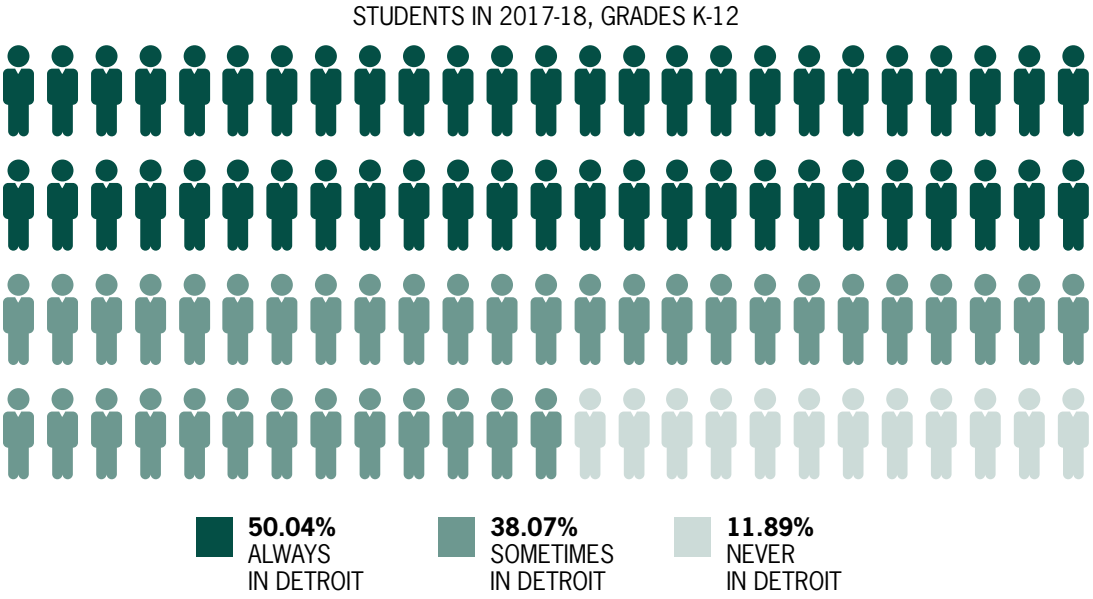
More than half of the students who went to school outside Detroit in 2017-18 had attended a city school in a previous year, and about 33% of students who went to school in Detroit had previously attended school elsewhere. This suggests that many families are switching between city and suburban schools over time. In fact, just 11% of the students who went to school in the suburbs in 2017-18 had never enrolled in a city school (see Figure 2).

Ninth grade is an important year for movement into and out of city schools. About 6% of ninth graders switched from a Detroit school to a suburban school

ABOUT
6%
OF NINTH GRADERS
SWITCHED **FROM** A DETROIT SCHOOL **TO** A SUBURBAN SCHOOL BETWEEN EIGHTH AND NINTH GRADES,

WHILE
14%
OF NINTH GRADERS
SWITCHED **FROM** A SUBURBAN SCHOOL **TO** A DETROIT SCHOOL.

Figure 2: Percentage of Detroit Students Who Were Always, Sometimes, or Never Enrolled in a City School



between eighth and ninth grades, while 14% of ninth graders switched from a suburban school to a Detroit school. This suggests that the transition to high school may be an important time in students' lives, where more or higher quality school options could motivate families to stay in the city for school. As we show in our mobility analysis, once students are in tenth grade, they are much less likely to switch schools. Therefore, our research suggests that, if students enroll in a city school for ninth grade, no matter where they enrolled previously, they are likely to remain in a city school until graduation.

The highest percentages of students who exit the city for school live on the borders of the city and in the northwest. Many of the students in these areas live closer to suburban schools than they do city schools. This is indicative of both suburban school locations and, in some communities, a lack of access to Detroit schools near where they live. In fact, one recurring pattern we found in our research is that students have inequitable access to schools near their homes. Students with higher concentrations of schools in Detroit near their homes were less likely to have attended a school outside the city.

Comparing Brightmoor and Brush Park is an illustrative example of this problem. On one hand, just 66 students lived in Brush Park in fall 2017. Yet, these 66 students had, on average, 16.18 schools within their residential radius[1] (see

1 Residential radius is defined as within 2.5 miles from a K-8 student's home and within 3.5 miles from a high school student's home.

Figure 3: Neighborhood Comparison of Ratio of Students to Schools

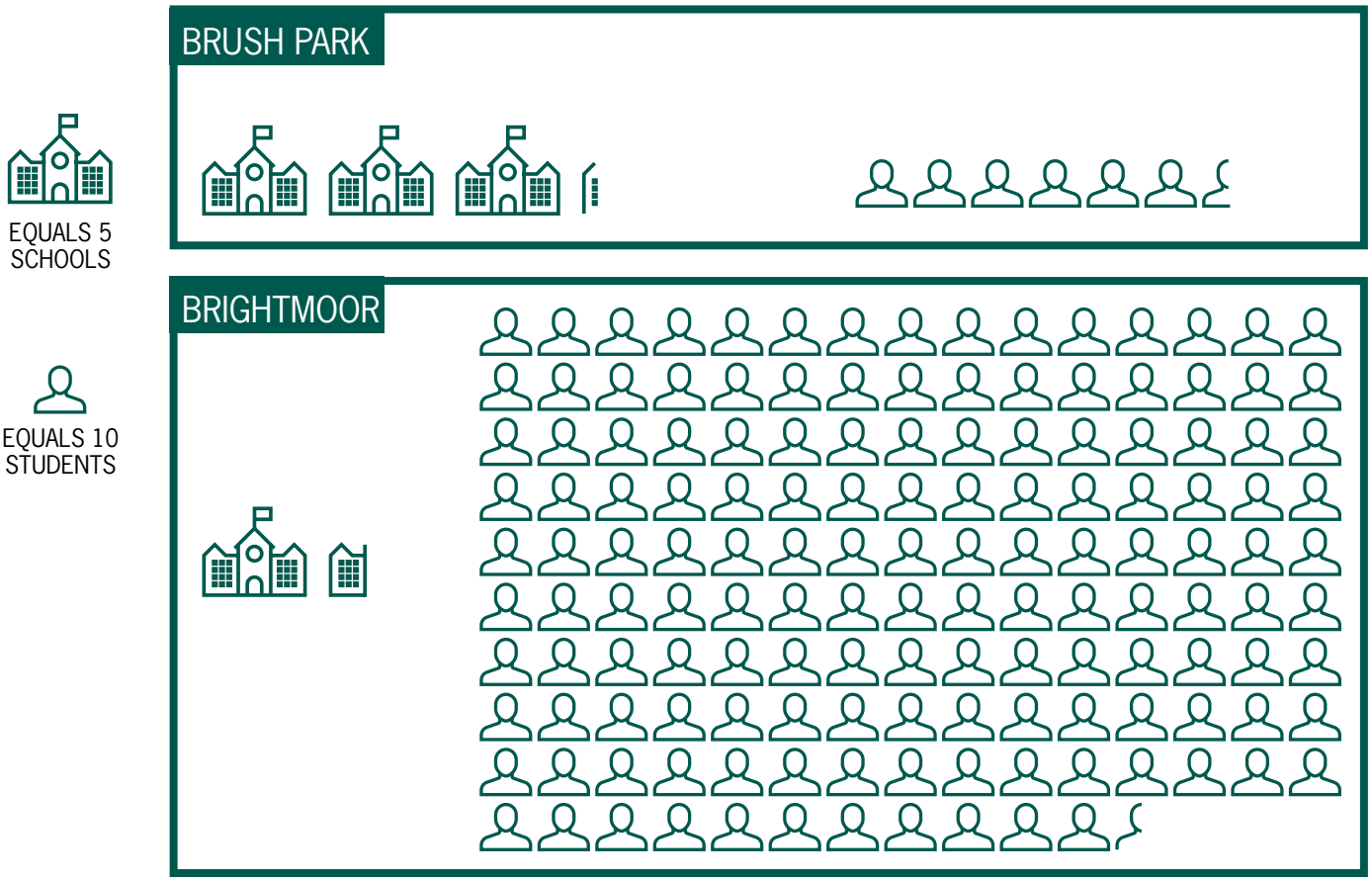


Figure 3). On the other hand, there were 1,463 students living in Brightmoor in fall 2017, but these students had an average of 5.39 schools within their residential radius. The maps in Figures 4 and 5 illustrate what our data tell us - there are more schools where fewer students live, and the fewest schools where most students live. Twenty-one percent of the students who lived in Brightmoor attended school outside the city in 2017-18.

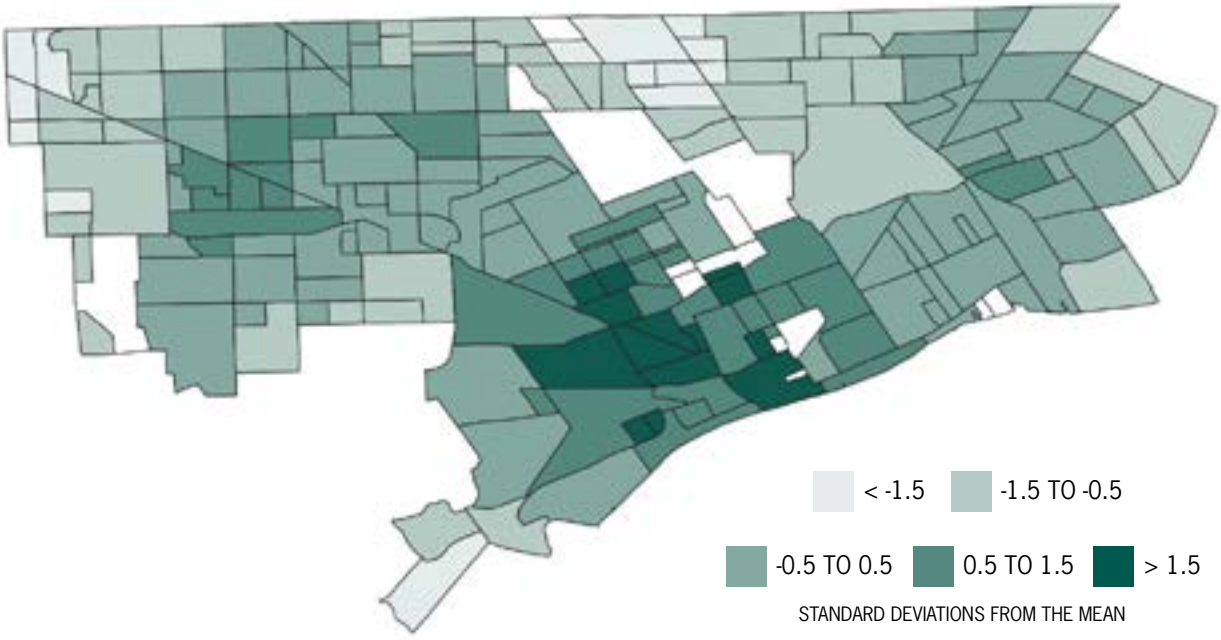
Students who exited lived in neighborhoods where, on average, about 35% of students went to school outside the city. This suggests that student exiting is clustered by neighborhood and may be influenced by peers. That is, if many students in the same neighborhood attended school outside Detroit, that may influence others in the neighborhood to do the same.

FACTORS ASSOCIATED WITH EXIT

The neighborhoods with the highest numbers and rates of exit were those to the northeast of Hamtramck (e.g., Buffalo, Banglatown, and North Campau) and those bordering Dearborn (e.g., Warren Ave Community and Warrendale). These neighborhoods were also demographically different than most of the city,

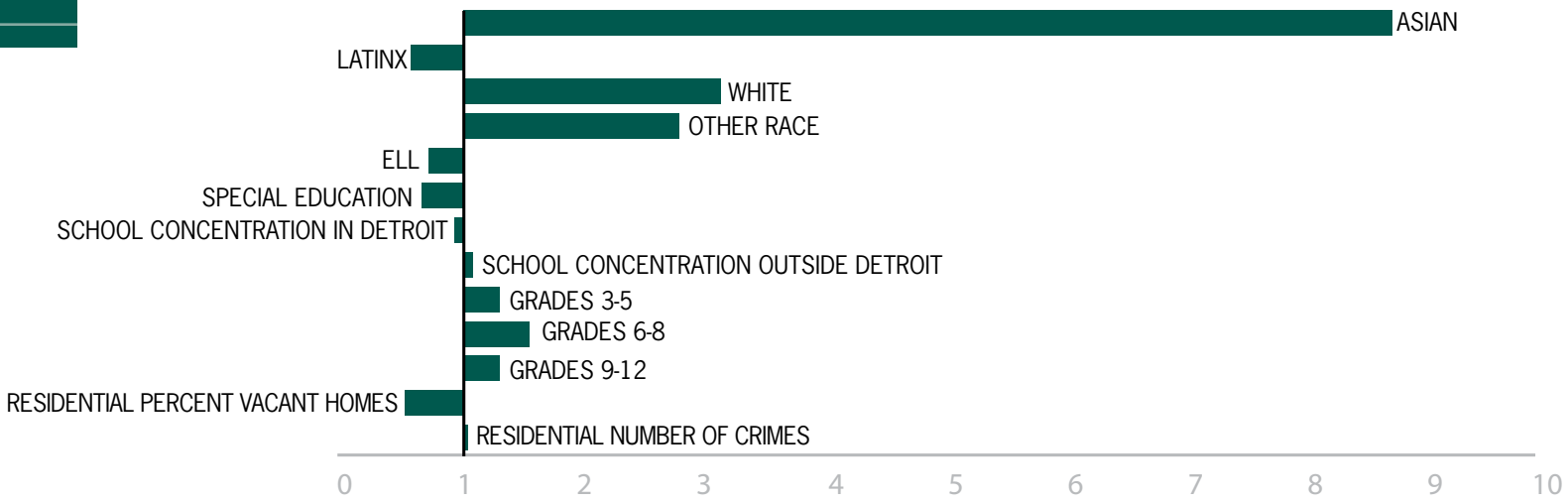
Figure 4: Percentage of Detroit Students Who Attended School in the Suburbs by Neighborhood

Figure 5: Average Number of Detroit Schools in Student Residential Radius by Neighborhood



with disproportionately more Asian and White/Arabic students. Across all our analyses, Asian, White, and Other Race students had higher odds of exit, and Latinx students had lower odds of exit, than Black students. Economically disadvantaged students had slightly higher odds of exit, but only when controlling for residential mobility and prior year exit.

Figure 6: Odds Ratios for Attending a School Outside Detroit



Note: This is a graphical representation of the odds ratios for exiting Detroit for school in 2017-18. Only the statistically significnt variables ($p < 0.001$) from Model 2 are displayed. Full regression output for Models 1, 2, and 3 can be found in the technical appendix. Race variables are in comparison to Black students.

Students with higher numbers of schools in their residential radius that were in Detroit had lower odds of exit, while students with higher numbers of schools in their residential radius outside Detroit had higher odds of exit. When looking at the residential neighborhood models, we found that students who lived in neighborhoods with more housing vacancies were less likely to leave, perhaps because of compounding factors related to poverty. Students who lived in neighborhoods with more crimes, however, were more likely to have attended school outside the city. This pattern may reflect families' concerns over safety if their children were to attend school in their neighborhoods.

KEY TAKEAWAYS

- Most students who attended school outside Detroit had attended school in the city in a previous year.
- More than 20% of ninth graders either entered or exited the city between 8th and 9th grades.
- Students who had higher numbers of schools in their residential radius in Detroit had lower odds of attending school outside the city.
- Neighborhood conditions, such as vacancies and crime, may influence families' decisions to leave the city for school.

POLICY IMPLICATIONS

These initial takeaways indicate potential policy implications that community members, school leaders, and government officials may want to consider:

- Many families move in and out of Detroit schools over time, indicating that recruitment and retention strategies may be effective at bringing families back to the city and retaining them. These strategies might include measures to improve neighborhood safety.

- When deciding where to open new schools or close buildings, it's important to consider areas of the city that have high numbers of students but lower numbers of schools accessible to them.

- Many families make big changes when their students move from 8th to 9th grade. School leaders may want to take advantage of this time by creating more high quality high schools in more areas of the city, actively recruiting 8th graders to return to the city for high school, or developing clearer feeder patterns from 8th grade to city high schools.

FUTURE RESEARCH QUESTIONS

This study revealed broad patterns in exit from Detroit in the most recent school year, but it also inspired more questions about why and to what ends Detroit students attend school in the suburbs. Our future research may address the following:

- How do Detroit students perform academically over time after enrolling in a suburban school?

- What are the qualities of the schools Detroit students attend outside the city?

- What factors contribute to students switching between city and suburban schools over time?

- Is there a relationship between student exit and residential exit from the city?

STUDENT MOBILITY

School choice policy rests on the belief that families will leave schools that are not meeting their expectations, not only leading to better outcomes for those students, but also putting pressure on schools to improve in order to attract and retain students. However, when families choose to move their children between schools, they risk the negative consequences of mobility on student performance, and in the aggregate such moves destabilize the education environment across schools and systems. Specifically, a non-routine school move – or moving between schools before completing the school's terminal grade – on average has a negative effect on student outcomes. Mobile students are at risk of lower academic achievement (Mehana & Reynolds, 2004), slower academic growth in the early grades (Herbers et al., 2012; Lleras & McKillip, 2017), increased behavioral problems (Engec, 2006), and increased likelihood of dropping out of school (Rumberger & Larson, 1998).

In addition, students who attend schools with a highly mobile student population are at risk of adverse effects (e.g., lower achievement and higher dropout rates), even if they themselves do not change schools (Hanushek, Kain, & Rivkin, 2004; South, Haynie, & Bose, 2007). High rates of student mobility in a school impacts teachers' ability to plan and teach effectively (Entwistle & Ramsden, 2015; Rumberger et al., 1999), contributes to decreased student classroom participation (Gruman et al., 2008), slows the pace of learning and instruction, and makes it challenging to monitor enrollment, manage school resources (like textbooks and other learning aids), and cultivate a sense of school spirit and belonging (Rumberger, 2003).

METHODOLOGY

We analyzed our data set to describe the extent of student mobility across schools and communities in Detroit, and to identify associations between student-, school-, and community-factors and student mobility (see technical appendix for more details about the data set). For this analysis we focused solely on between-year moves of any Detroit resident student, defined as any non-routine move between the end of a given school year and the following fall. Therefore, the data included in this analysis only included students who were not in a "transition year", that is finishing the terminal grade in a school and therefore having to move to another school. For example, students who completed 8th grade in a K-8 school in spring 2016 would not be included in the mobility analysis because they did not have a choice except to move.

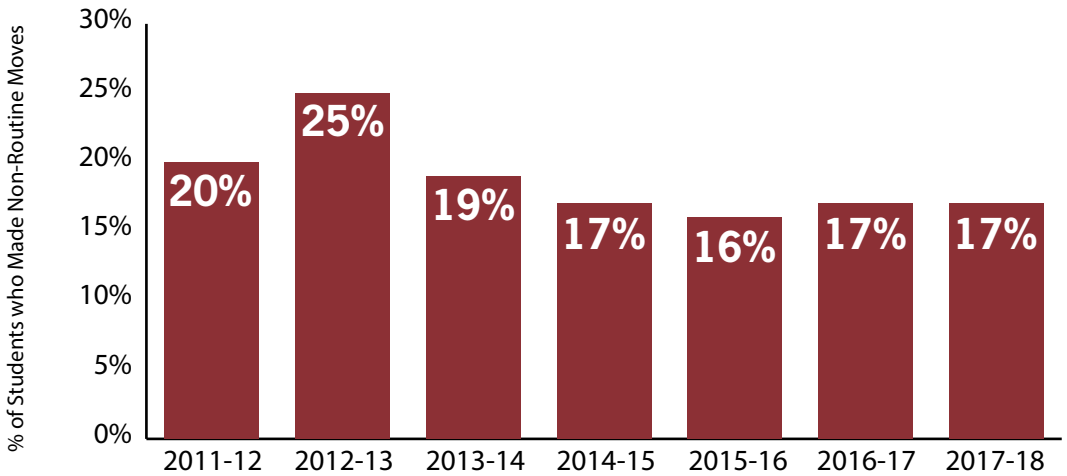
We began the analysis by describing trends in student mobility over time. We then focused analysis on the most recent year of data (2017-18) to identify the extent of student mobility across neighborhoods in Detroit, and then identified differences in student mobility by student and school categories. Finally, we estimated two logistic regressions to further identify these associations while controlling for other variables. The first model included both student and school variables as predictors. The second model included a measure of student math achievement, so it only includes students in grades 3-8 and 11, who took the M-STEP or MME.

STUDENT MOBILITY WITHIN DETROIT

A SCHOOL'S KINDERGARTEN COHORT WITH AVERAGE RATES OF BETWEEN-YEAR MOBILITY WOULD, BY FOURTH GRADE, INCLUDE **FEWER THAN HALF** OF THE STUDENTS WHO STARTED SCHOOL THERE.

Student mobility among Detroit resident students is robust. As shown in Figure 1, approximately 17% of Detroit resident students made a non-routine school move between spring 2017 and fall 2017. The negative effects of high rates of student mobility likely get worse over time, both for individual students and for schools overall. For example, a school's kindergarten cohort with average rates of between-year mobility would, by fourth grade, include fewer than half of the students who started school there. Additionally, many students make more than one non-routine move over the course of their education, and over time, the proportion of students who were ever mobile increases within a given class cohort. For example, for students who were in the 7th grade during the 2017-18 school year, nearly 62% had made a non-routine move at some point in their education career. Although the average

Figure 1: Percentage of Students Who Were Between-Year Movers (2011-12 to 2017-18)



number of moves a student in this cohort made was just over 1 (standard deviation of 1.05), nearly 25% of students made 2 or more moves between 1st and 7th grades.

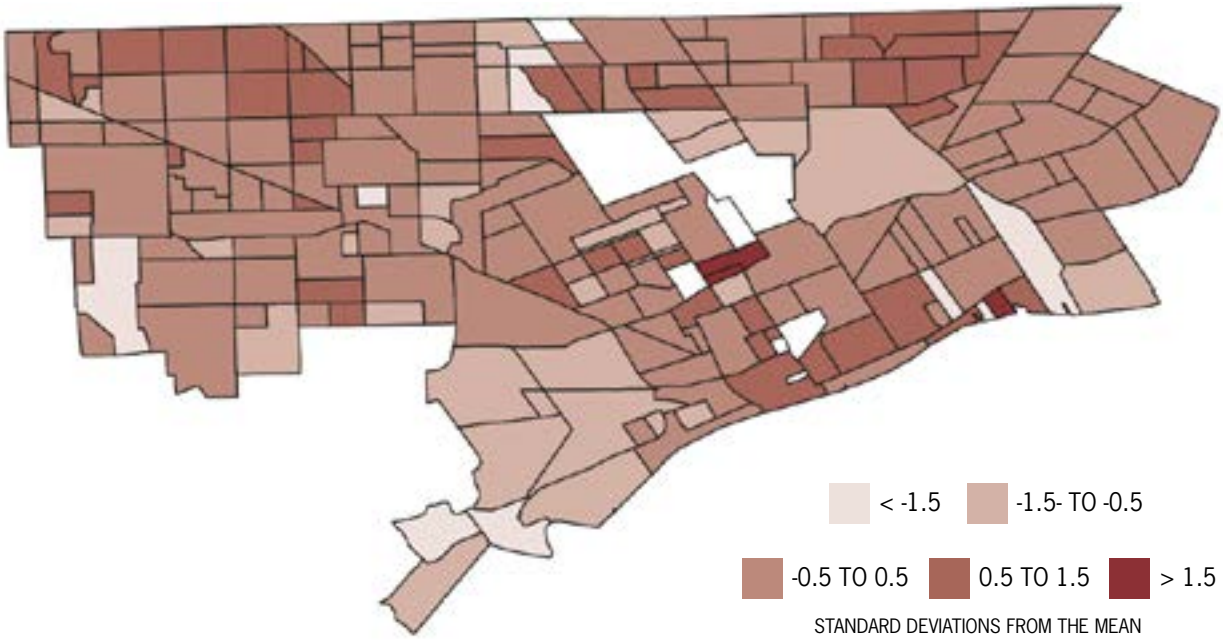
In grades 1-7, rates of student mobility were fairly consistent, ranging from about 18% to 20% of students moving between years. Between 7th and 8th grade, mobility was lower, at about 16%. We saw the same drop-off in 11th and 12th grades, with students much less likely to move between the last two years of high school. The transition from 8th to 9th grade stood out as unique in our analysis. Although 80% of 9th graders were not eligible to be considered movers because the school where they attended in 8th grade did not have a 9th grade, 36% of the 9th graders who could have stayed at their previous school decided to switch schools instead (see Table 1). This increased rate of mobility between 8th and 9th grade may be indicative of several different factors, including increased parental and student concerns about school safety, academic quality, or athletic/extracurricular programs. Given the nature of our current data we cannot yet test these hypotheses, but these patterns suggest the need for greater attention.

Student mobility is also not evenly distributed across communities within Detroit. As shown in Figure 2, mobility rates varied greatly across sections of the city. For example, approximately 40% of the students who lived in

Table 1: Student Mobility by Grade

Grade Level	Not Between-Year Movers	Between Year Movers	Total Students Not in a Transition Year
K	-	-	-
1st	5,961 (81.57%)	1,347 (18.43%)	7,308
2nd	5,821 (81.71%)	1,303 (18.29%)	7,124
3rd	5,559 (81.15%)	1,291 (18.85%)	6,850
4th	5,594 (82.16%)	1,215 (17.84%)	6,809
5th	5,432 (81.16%)	1,261 (18.84%)	6,693
6th	4,308 (80.48%)	1,045 (19.52%)	5,353
7th	5,358 (82.33%)	1,150 (19.52%)	6,508
8th	5,370 (83.75%)	1,042 (16.25%)	6,412
9th	822 (63.72%)	468 (36.28%)	1,290
10th	5,173 (82.50%)	1,097 (17.50%)	6,270
11th	4,928 (88.28%)	654 (11.72%)	5,582
12th	5,513 (91.02%)	544 (8.98%)	6,057
Total	59,839 (82.82%)	12,417 (17.18%)	72,256

Figure 2: Percentage of Between-School Year Movers by Neighborhood



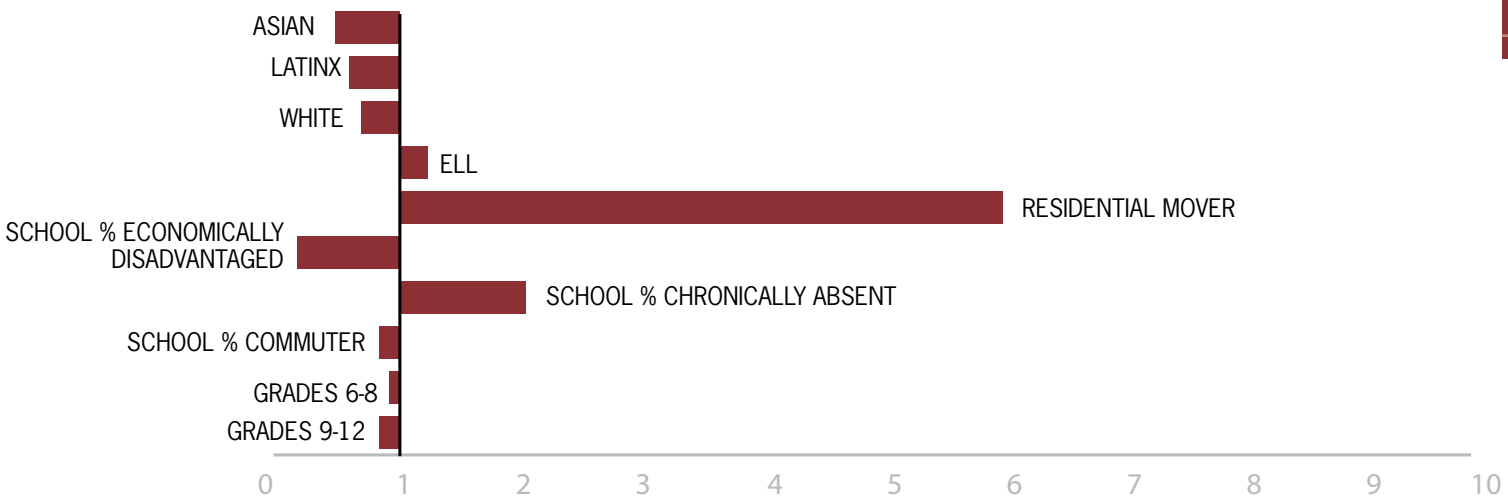
the Northeast Detroit neighborhood Connor Creek were mobile between spring 2017 and fall 2017. Conversely, only 8% of students who lived in the Southwest Detroit neighborhood made a between school year move.

FACTORS ASSOCIATED WITH STUDENT MOBILITY

In addition to geographic indicators, a larger proportion of Black students were mobile compared to Latinx or white student groups. Additionally, student movers on average had lower math achievement scores than non-movers. While 11% of non-movers had changed residence between school years, 44% of mobile students had changed residence. Therefore, it should be noted that nearly 56% of all school movers did not change their residence in the prior year. This suggests that, beyond issues related to housing instability, parents used school choice options at high rates. Furthermore, students were more

56%
OF ALL SCHOOL MOVERS
DID NOT CHANGE THEIR
RESIDENCE IN THE PRIOR YEAR.

Figure 3: Odds Ratios for Making a Non-Routine Move



Note. This is a graphical representation of the odds ratios for student mobility, or switchng schools in a non-transition year between 2016-17 and 2017-18. Only the statistically significnt variables ($p < 0.01$) from Model 1 are displayed. Full regression output for Models 1 and 2 can be found in the technical appendix. Race variables are in comparison to Black students.

likely to transfer out of schools that had lower average student achievement and higher chronic absenteeism rates. Finally, students were more likely to switch schools when they had attended a charter school rather than a traditional public school the previous year.

In order to further understand the association between student mobility and key predictors, we estimated a series of logistic regressions in order to control for other predictor variables. School-level variables were taken from the school the student attended the year before (2016-17). Based on our preferred base level model, Black students were more likely to be mobile compared to Latinx and white students, but not more likely to be mobile compared to Asian students. For example, Black students were over two times more likely to be mobile than Latinx students, holding all other variables constant. Not surprisingly, the odds that a student was mobile were six times higher if they had changed residence the year before.

Students were less likely to be mobile if they were in junior high or high school than in elementary school, possibly reflecting fewer school options available in the later grades. At the high school level, this finding was likely driven by lower rates of mobility during the transition from 10th to 11th grade and 11th to 12 grade, where there were noticeably lower rates of mobility compared to the transition from 8th to 9th and 9th to 10th grades. While students were more likely to be mobile if they had attended a school with

ON AVERAGE, STUDENTS WITH

HIGHER MATH Z-SCORES

WERE **LESS LIKELY TO BE MOBILE**, WHICH ALIGNED WITH THE FINDING THAT STUDENTS WHO ATTENDED SCHOOLS WITH HIGHER AVERAGE MATH Z-SCORES WERE LESS LIKELY TO BE MOBILE.

higher percentages of chronically absent students, they were less likely to be mobile if they had attended a school with a higher than average percentage of economically disadvantaged students. This likely relates to marginal effects of deviations from the mean in an environment marked by high percentages of economic disadvantage across schools in the city. Finally, in this first model, there was no statistically significant measurable impact of attending a charter school or attending a school in Detroit on student mobility.

In the second regression model, we controlled for both student-level math z-score (from the M-STEP/MME) and school average math z-score. In this reduced sample analysis, there were slightly higher odds of mobility if a student had attended a charter school the previous year, but slightly lower odds if they had attended a school in Detroit. On average, students with higher math z-scores were less likely to be mobile, which aligned with the finding that students who attended schools with higher average math z-scores were less likely to be mobile.

SUMMARY

Student mobility has been shown to have potentially negative impacts on both student and school outcomes, and as shown in this analysis, student mobility is robust among Detroit students. Overtime, such high rates of mobility compounds the negative outcomes that plague individuals and schools. Our analysis has shown that there are student and school factors associated with high rates of student mobility, and suggests the need for continued attention. Below we offer the key takeaways, policy implications, and direction for future research.

KEY TAKEAWAYS

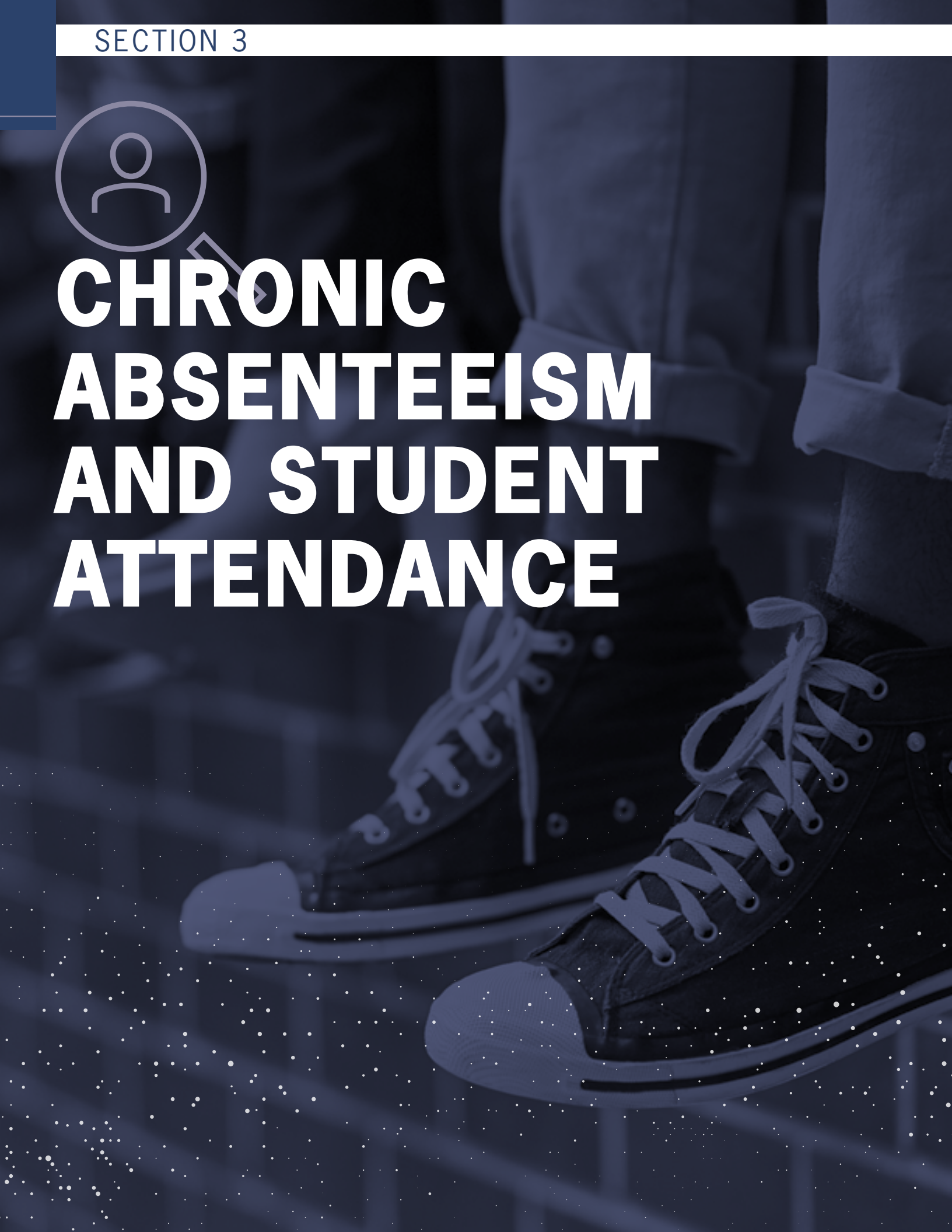
- The highest rates of student mobility were concentrated in specific neighborhoods.
- Student mobility was higher in schools marked by high rates of chronic absenteeism and lower student achievement.
- Student residential moves were associated with a much higher likelihood of student mobility, but over half of all non-routine moves were among students who did not change residence.
- A school's kindergarten cohort, with average rates of between-year mobility would, by fourth grade, include fewer than half of the students who started school there.

POLICY IMPLICATIONS

- Policymakers should attend to community characteristics which negatively impact access to schools, as student mobility was heavily concentrated in specific neighborhoods across the city.
- Efforts should continue to improve school quality, as parents seek effective and welcoming schools.
- Efforts to reduce student mobility should be more strongly linked to efforts to reduce housing insecurity and residential moves.

FUTURE RESEARCH

- What student-, school-, and community-characteristics mediate student mobility over time?
- What is the association between specific school quality indicators and student mobility?
- How do school and community characteristics jointly predict student mobility?



CHRONIC ABSENTEEISM AND STUDENT ATTENDANCE

Research has shown that chronic absenteeism, or missing 10% or more days of school, is associated with lower student academic achievement and graduation rates at the student level (Allensworth & Easton, 2007; Gershenson, Jacknowitz, & Brannegan, 2017; Gottfried, 2014; London, Sanchez, & Castrechini, 2016; Romero & Lee, 2007), and chronic absenteeism disrupts the learning environment at the classroom level impacting the outcomes of students who are not chronically absent (Balfanz & Byrnes, 2013; Epstein & Sheldon, 2002; Foy, 2005; Gottfried, 2014; Hartman, 2002). Furthermore, school systems risk losing funding when daily attendance drops below a specific level. Reducing chronic absenteeism is paramount not only in order improve educational and life outcomes for students, but because it is now part of the State accountability system in compliance with the federal Every Student Succeeds Act. Therefore, schools that fail to effectively address chronic absenteeism face possible State interventions.

We conceptualize the predictors of chronic absenteeism as encompassing an intersection between student-, school-, and community-level factors. In addition to structural issues related to family poverty (e.g., access to stable housing or transportation), student-level factors such as family structure (e.g., single family homes), parental engagement in a student's academic life, and cognitive ability and social development have been found to be associated with chronic absenteeism (Alexander, Entwise, & Horsey, 1997; Bimler & Kirkland, 2001; Catsambis & Beveridge, 2001; Corville-Smith, Ryan, Adams, & Dalicandro, 1998; Dahl, 2016; Jeynes, 2003; Reschly & Christenson, 2006; Romero & Lee, 2008; Sheldon, 2007). School-level factors such as the effectiveness of teachers and leaders can directly influence student attendance (Bryk, Sebring, Allensworth, Easton, & Luppescu, 2010; Gershenson, 2016), while other factors can mediate student- or environmental-level factors, such as providing school-based transportation (Gottfried, 2017) or school-based health services (Tinkelman & Schwartz, 2004). Community or environmental factors contribute to chronic absenteeism primarily through their association with student- and school-level factors, and often relate to public safety, public transportation, health care, and other factors associated with poverty (e.g., housing) (Bell, Rosen, & Dynlacht, 1994; Epstein & Sheldon, 2002).

METHODOLOGY

Leveraging our data set which contains student-level administrative data from the State of Michigan, combined with publicly available data regarding community characteristics, we sought to describe the extent and distribution of student chronic absence across schools in the City of Detroit during the 2017-18 school year. Through t-tests and nonparametric tests of differences in means, we first sought to identify variation in student chronic absence across various student and school classifications. Given the hierarchical nature of the data (students nested within schools), we then estimated a series of multi-level logistic regressions to further identify these associations while controlling for other variables. The first model that we estimated included all students (K-12) enrolled in any school in Detroit (charter or DPSCD) during the 2017-18 school year. Because the second model included an indicator for students' prior year chronic absence, it only includes students who were enrolled in a Detroit school during 2016-17 and 2017-18. Our final model included the school-level average math achievement z-score, thus reducing the sample to only include students and schools that took the M-STEP/MME during the 2017-18 school year.

Figure 1: Chronic Absenteeism in Metro Detroit, 2010-11 to 2017-18

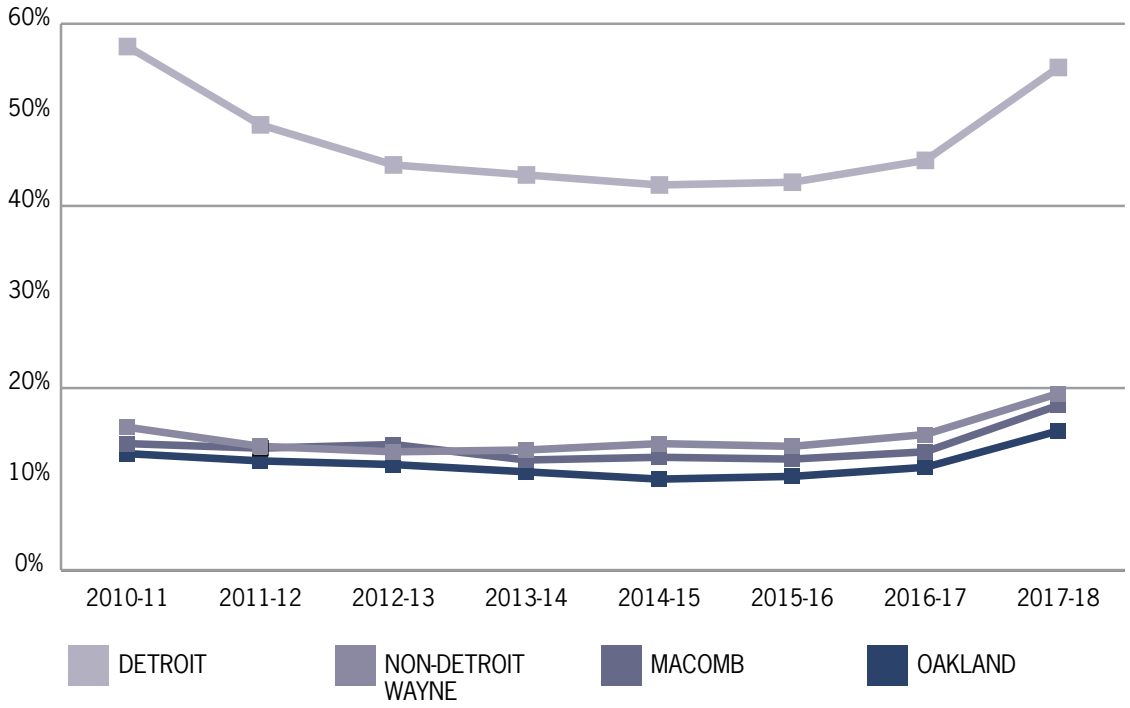
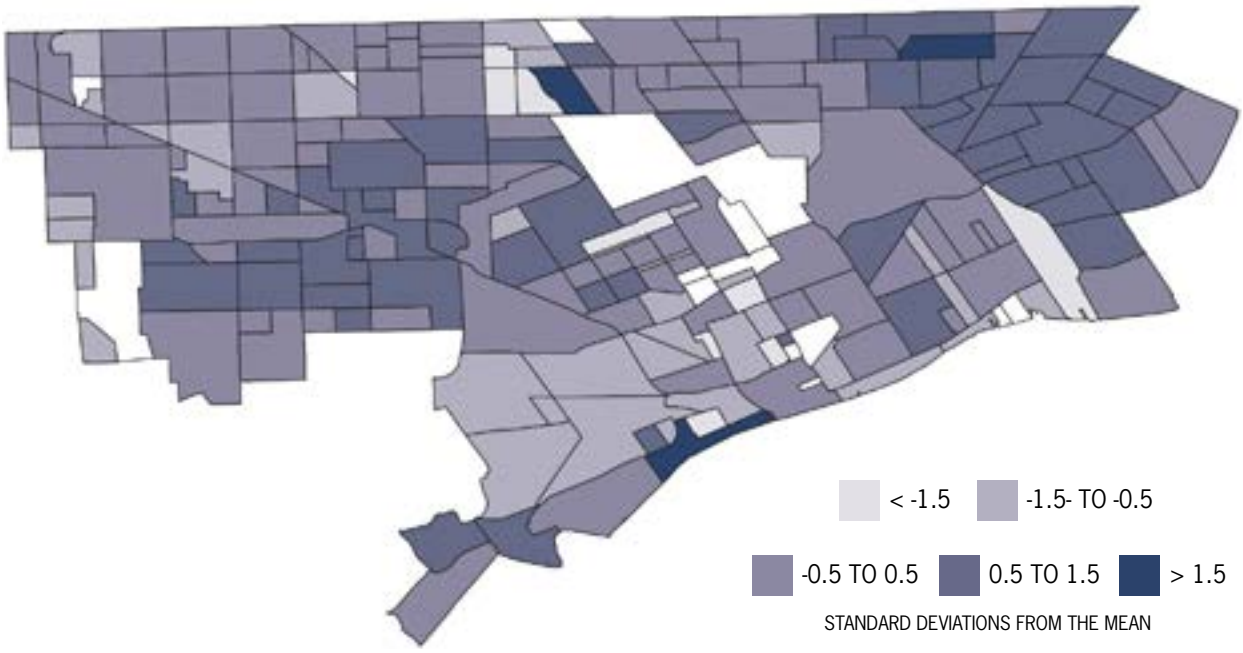


Figure 2: Percentage of Chronically Absent Students by Neighborhood



CHRONIC ABSENTEEISM IN DETROIT

The chronic absence rates across schools in Detroit are some of the highest in the country (Office of Civil Rights, 2016), contributing to poor academic outcomes and disrupted learning environments across schools in the city. Over 40% of students in Detroit schools were classified as chronically absent in each of the eight years of our analysis, and in 2017-18 just over 55% of Detroit school students were chronically absent. Additionally, the chronic absence rate for students in Detroit was nearly 30 percentage points higher than for suburban school students.

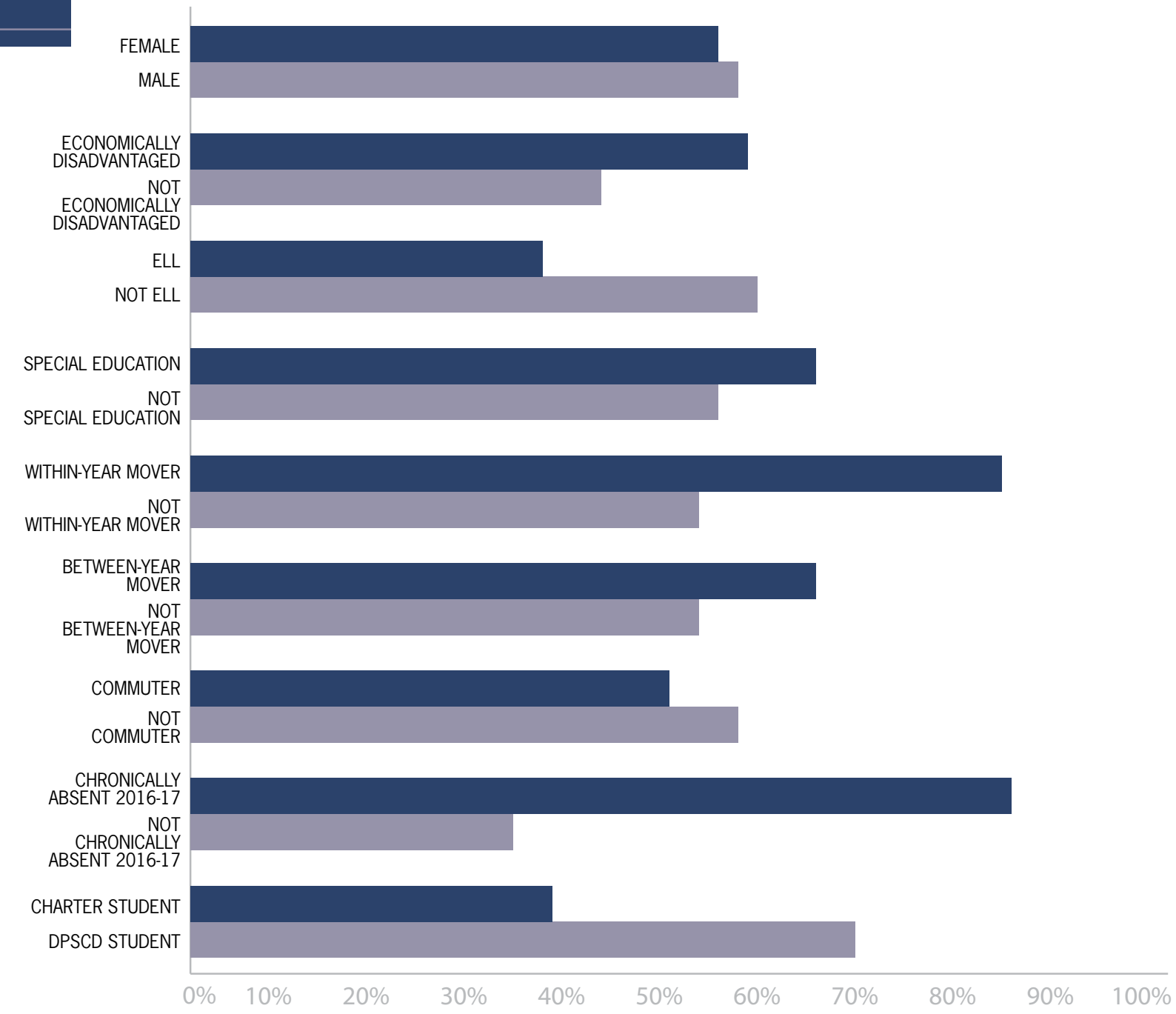
Similar to student mobility rates within Detroit, chronic absence was more prevalent in certain sections of the city. For example, the neighborhoods of Pulaski and Mount Olivet in the northeast part of the city had a combined student population of 1,054, and approximately 67% of those students were chronically absent in 2017-18. Conversely, in the Southwest Detroit neighborhood of Springwells, 39% of the nearly 3,000 students were chronically absent.

67%
OF STUDENTS WERE CHRONICALLY ABSENT IN PULASKI/MOUNT OLIVET, WHILE
39%
WERE CHRONICALLY ABSENT IN SPRINGWELLS.

FACTORS ASSOCIATED WITH CHRONIC ABSENCE

Student chronic absence varied across students based on specific characteristics, though chronic absence was high for all groups. For

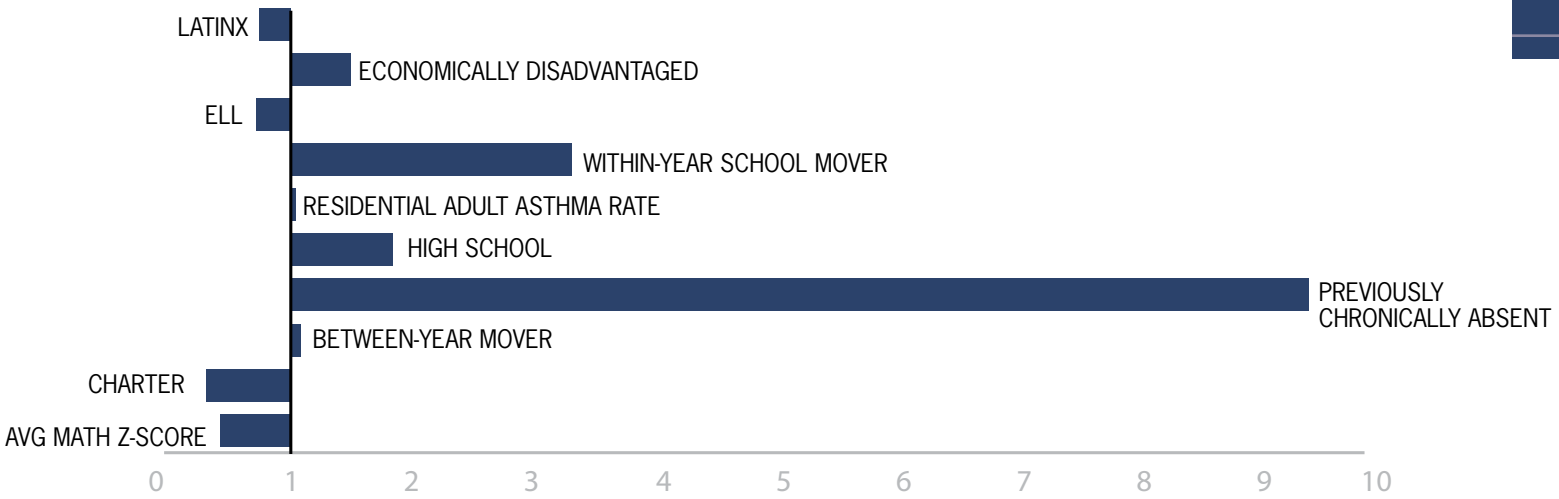
Figure 3: Percentage of Students Who Were Chronically Absent by Group



All group differences were statistically significant.

example, 58% of Black students were chronically absent in 2017-18, statistically significantly higher than all other racial/ethnic groups except Asians. Although all the differences were statistically significant across other student classifications, a few specifically stand out given the magnitude of the difference. Eighty-three percent of students who changed schools during the school year were chronically absent, while 52% of students who

Figure 4: Odds Ratios for Chronic Absence



Note. This is a graphical representation of the odds ratios for being chronically absent in 2017-18. Only the statistically significnt variables ($p < 0.05$) from Model 3 are displayed. Full regression output for Models 1, 2, and 3 can be found in the technical appendix. Race variables are in comparison to Black students.

were not mobile during the year were chronically absent. Additionally, the chronic absence rate for students who were chronically absent the previous year (2016-17) was 51 percentage points higher than those that were not chronically absent in the previous year. Finally, 68% of DPSCD students were chronically absent, compared to 37% of students who were enrolled in a charter school.

Controlling for other variables through regression analysis, Latinx students were 1.4 times less likely to be chronically absent compared to Black students. While economically disadvantaged students and special education students were more likely to be chronically absent, ELL students were less likely to be chronically absent. Notably, students who changed schools during the school year (i.e., within-year school mover) were over 3.5 times more likely to be chronically absent. Although a smaller association, moving to the school between years (i.e., between-year-mover) was associated with 1.07 higher odds of being chronically absent. Additionally, students who were "commuters" (i.e., traveled greater than 2.5 miles to school if in elementary/ junior high or greater than 3.5 miles for high school) were slightly more likely to be chronically absent.

Students who lived in communities with higher rates of asthma had slightly higher odds of chronic absence compared to students in communities with lower rates of asthma. Grade level also showed interesting associations with chronic absence - upper elementary (grades 3-5) and junior high (grades

6-8) students had lower odds of being chronically absent compared to lower elementary students (K-2), while the odds of a high school student being chronically absent was 1.2 times that of a lower elementary student. Finally, if a student was chronically absent in 2016-17, it was associated with 9.5 times higher odds that a student was chronically absent in 2017-18.

NOTABLY, STUDENTS WHO **CHANGED SCHOOLS DURING THE SCHOOL YEAR** (I.E., WITHIN-YEAR SCHOOL MOVER) WERE **OVER 3.5 TIMES** MORE LIKELY TO BE CHRONICALLY ABSENT.

At the school level, higher rates of school stability (i.e., low rates of student transfers) was associated with a much lower likelihood of student-level chronic absence. Additionally, on average, a student in a charter school was nearly 6 times less likely to be chronically absent compared to a student in a DPSCD school, holding all other variables constant. When including school-level math achievement in the model, higher average student achievement was associated with a lower likelihood of student-level chronic absence.

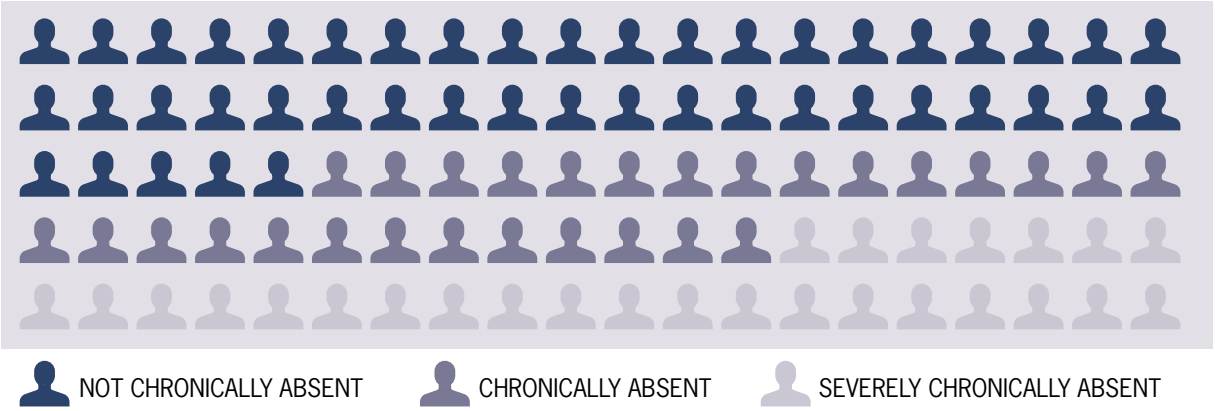
ATTENDANCE RATE

It is important to note that although students are categorized as being chronically absent if they miss at least 10% of possible school days, there was a wide range of missed days beyond the 10% minimum threshold. For example, approximately 27% of Detroit school students attended 80% or fewer days, with nearly 7% (~5,700 student) only attending school 60% or fewer of the possible days. Student attendance was also not evenly distributed across schools. For example, only about 30% of schools had a student attendance rate of 90% or better. Conversely, nearly 10% of schools had a student attendance rate of 70% or lower. Forty-five percent of students had attendance rates above 90%, but 28% of Detroit students had attendance rates between 80 and 90%, making them chronically absent, and 27% had attendance rates lower than 89%, making them severely chronically absent, as shown in Figure 5.

Table 1: Student and Average School Attendance Rates

Attendance Rate (% Days Attended)	Students in Attendance Rate Range N (% of total)	Schools in Average Attendance Rate Range N (% of total)
90+	36,963 (44.91%)	55 (29.57%)
80-90	22,983 (27.93%)	81 (43.55%)
70-80	11,075 (13.46%)	32 (17.20%)
60-70	5,523 (6.71%)	10 (5.38%)
50-60	2,639 (3.21%)	5 (2.69%)
Under 50	3,119 (3.79%)	3 (1.61%)

Figure 5: Percentage of Students Chronically Absent



SUMMARY

Chronic absence has been a persistent problem for students across schools in Detroit, and this report sought to identify the extent of chronic absence across the city and identify student and school factors associated with chronic absence. Our analysis has shown that in addition to specific student-level predictors of chronic absenteeism (e.g., Black, special education, and lower achieving students were more likely to be chronically absent), there are key school and community factors which were associated with student chronic absence. At the same time, such findings suggest the need for greater attention to school-level factors which mediate student- and community-level influences on student attendance. Below we offer the key takeaways, policy implications, and direction for future research.

KEY TAKEAWAYS

- Approximately 27% of Detroit students attended 80% or fewer days of school.
- Rates of student chronic absence varied significantly across geographic communities in Detroit.
- Students who were new to a school either through within-year or between-year mobility were more likely to be chronically absent.
- School factors matter - a student was less likely to be chronically absent if they attended a school with less student mobility and higher average math scores.

POLICY IMPLICATIONS

- In addition to broad measures aimed at reducing chronic absence, continued attention to students with lower attendance rates is warranted, as large percentages of students missed significantly more days than the 10% threshold to be classified as chronically absent.

- In addition to school-level interventions, community based interventions should be explored to address wide discrepancies in the distribution of student attendance across geographic sections of the city.

- Such community based interventions should consider the structural and social dynamics of communities which contribute to student chronic absence; such as health factors, transportation, school location, and community cohesion.

- Chronic absence is related to other structural issues across schools in Detroit, such as the high rates of student mobility in the city. Comprehensive strategies should be developed and implemented to reduce student mobility and improve the schooling experience for all students, and schools should make a plan to support new students early, to prevent chronic absenteeism.

FUTURE RESEARCH

- What are the associations between community characteristics and the characteristics of schools in those communities which may jointly mediate student attendance?

- How do the associations between student-, school-, and community characteristics and student attendance vary by tiers of student attendance?

- What is the association between various indicators of school quality and student attendance?

TECHNICAL APPENDIX

Figure 1: Map of Detroit Neighborhoods

1 AIRPORT SUB
2 ARDEN PARK
3 AVIATION SUB
4 BAGLEY
5 BARTON-MCFARLAND
6 BELMONT
7 BENTLER-PICKFORD
8 BERG-LAHSER
9 BLACKSTONE PARK
10 BOSTON EDISON
11 BOYNTON
12 BREWSTER DOUGLAS
13 BREWSTER HOMES
14 BRIGHTMOOR
15 BRUSH PARK
16 BUFFALO
17 BUTLER
18 CADILLAC COMMUNITY
19 CADILLAC HEIGHTS
20 CAMPAU/BANGLATOWN
21 CARBON WORKS
22 CASTLE ROUGE
23 CHADSEY CONDON
24 CHANDLER PARK
25 CHANDLER PARK-CHALMERS
26 CLAYTOWN
27 COLLEGE PARK
28 CONANT GARDENS
29 CONNER CREEK
30 CONNER CREEK INDUSTRIAL
31 CORE CITY
32 CORKTOWN
33 CORNERSTONE VILLAGE
34 CRARY/ST MARYS
35 CULTURAL CENTER
36 DAVISON
37 DAVISON-SCHOOLCRAFT
38 DELRAY
39 DENBY
40 DETROIT GOLF
41 DEXTER-FENKELL
42 DEXTER-LINWOOD
43 DOWNTOWN
44 EAST ENGLISH VILLAGE
45 EAST VILLAGE
46 EASTERN MARKET
47 EDEN GARDENS
48 ELIJAH MCCOY
49 ELIZA HOWELL
50 ELMWOOD PARK
51 EVERGREEN LAHSER 7/8
52 EVERGREEN-OUTER DRIVE
53 FAR WEST DETROIT
54 FARWELL
55 FISKHORN
56 FITZGERALD
57 FIVE POINTS
58 FOREST PARK
59 FOX CREEK
60 FRANKLIN
61 FRANKLIN PARK
62 GARDEN VIEW
63 GATEWAY COMMUNITY
64 GOLD COAST
65 GRAND RIVER-I96
66 GRAND RIVER-ST MARYS
67 GRANDMONT
68 GRANDMONT #1
69 GRANT
70 GRATIOT TOWN/KETTERRING
71 GRATIOT WOODS
72 GRATIOT-FINDLAY
73 GRATIOT-GRAND
74 GREEN ACRES
75 GREENFIELD
76 GREENFIELD PARK
77 GREENFIELD-GRAND RIVER
78 GREENWICH
79 GRIXDALE FARMS
80 HAPPY HOMES
81 HARMONY VILLAGE
82 HAWTHORNE PARK
83 HENRY FORD
84 HERMAN KIEFER
85 HISTORIC ATKINSON
86 HUBBARD FARMS
87 HUBBARD RICHARD
88 HUBBELL-LYNDON
89 HUBBELL-PURITAN
90 HUNT
91 INDIAN VILLAGE
92 ISLANDVIEW
93 JAMISON
94 JEFFERSON CHALMERS
95 JEFFRIES
96 JOSEPH BERRY SUB
97 JOY COMMUNITY
98 JOY-SCHAEFER
99 KRAINZ WOODS
100 LASALLE COLLEGE PARK
101 LASALLE GARDENS
102 LAFAYETTE PARK
103 LITTLEFIELD COMMUNITY
104 MAPLERIDGE
105 MARINA DISTRICT
106 MARTIN PARK
107 MEDBURY PARK
108 MEDICAL CENTER
109 MELVERN HILL
110 MEXICANTOWN
111 MICHIGAN-MARTIN
112 MIDTOWN
113 MIDWEST
114 MILLER GROVE
115 MILWAUKEE JUNCTION
116 MINOCK PARK
117 MOHICAN REGENT
118 MORNINGSIDE
119 MOROSS-MORANG
120 MOUNT OLIVET
121 NW GOLDBERG
122 NARDIN PARK
123 NEW CENTER
124 NEW CENTER COMMONS
125 NOLAN
126 NORTH CAMPAU
127 NORTH CORKTOWN
128 NORTH END
129 NORTH ROSEDALE PARK
130 NORTHEAST CENTRAL DISTRICT
131 NORTHWEST COMMUNITY
132 NORTOWN
133 O'HAIR PARK
134 OAK GROVE
135 OAKMAN BLVD COMMUNITY
136 OAKWOOD HEIGHTS
137 OLD REDFORD
138 OUTER DRIVE-HAYES
139 PALMER PARK
140 PALMER WOODS
141 PAVEWAY
142 PEMBROKE
143 PENROSE
144 PERSHING
145 PETOSKEY-OTSEGO
146 PIETY HILL
147 PILGRIM VILLAGE
148 PINGREE PARK
149 PLYMOUTH-HUBBELL
150 PLYMOUTH-I96
151 POLETOWN EAST
152 PRIDE AREA COMMUNITY
153 PULASKI
154 RAVENDALE
155 REGENT PARK
156 RIVERDALE
157 RIVERTOWN
158 ROSEDALE PARK
159 ROUGE PARK
160 RUSSELL INDUSTRIAL
161 RUSSELL WOODS
162 SCHAEFER 7/8 LODGE
163 SCHOOLCRAFT-I96
164 SCHULZE
165 SEVEN MILE-ROUGE
166 SHERWOOD
167 SHERWOOD FOREST
168 SOUTH OF SIX
169 SOUTHFIELD PLYMOUTH
170 SOUTHWEST DETROIT
171 SPRINGWELLS
172 STATE FAIR
173 TECH TOWN
174 THE EYE
175 TRI-POINT
176 UNIVERSITY DISTRICT
177 VIRGINIA PARK
178 VON STEUBEN
179 WADE
180 WARREN AVE COMMUNITY
181 WARRENDALE
182 WATERWORKS PARK
183 WAYNE STATE
184 WE CARE COMMUNITY
185 WEATHERBY
186 WEST OUTER DRIVE
187 WEST SIDE INDUSTRIAL
188 WEST VILLAGE
189 WEST VIRGINIA PARK
190 WESTWOOD PARK
191 WILDEMERE PARK
192 WINSHIP
193 WOODBRIDGE
194 YORKSHIRE WOODS

ANALYTIC APPROACH

STUDENT EXIT: SINGLE-LEVEL LOGISTIC REGRESSIONS

To explore student exit, a series of regressions were estimated modeling the likelihood of attending a school outside of Detroit during the 2017-18 school year as a function of student characteristics. Our analytic sample was confined to students living within the geographic boundaries of the city who did not attend either a juvenile detention facility or a virtual school. Because the outcome variable (Exit_i) is binary (i.e., 0 = no exit; 1 = exit), we estimated a set of single-level logistic regressions, with the following model representing our general analytic approach:

$$\ln\left(\frac{Exit_i}{1-Exit_i}\right) = \beta_0 + \beta_1 \text{Asian}_i + \beta_2 \text{Latinx}_i + \beta_3 \text{White}_i + \beta_4 \text{Other}_i$$
$$+ \beta_5 \text{Female}_i + \beta_6 \text{EconDis}_i + \beta_7 \text{ELL}_i + \beta_8 \text{SPED}_i$$
$$+ \beta_7 \text{SchConcDetroit}_i + \beta_8 \text{SchConcMetro}_i$$
$$+ \beta_8 \text{UpperEl}_i + \beta_9 \text{JuniorHS}_i + \beta_{10} \text{HS}_i + \epsilon_i \qquad (1).$$

As shown, the odds of exit are modeled as a function of student race (Black is the excluded category for reference), gender, economic disadvantage status, English language learner status, special education status, concentration of schools near a student's residence both within and outside of the city, and level of schooling (lower elementary is the excluded category for reference). Therefore, the base outcome is a Black male student in a lower elementary grade (Grades K-3) who was not economically disadvantaged, was not an English Language Learner, and did not qualify for special education services. Student demographic data was gathered from the Michigan Student Data System (MSDS), and school concentration was calculated by the number of schools within a specific radius of a student's home residence (2.5 mile radius for elementary students (K-8), and 3.5 mile radius for high school students). The odds-ratios on all of these variables can be interpreted as being relative to that base outcome (e.g., β_1=7.86 indicates that an Asian student is 7.86 times more likely to exit Detroit than a Black student).

In a second model, we also controlled for the percent of vacant homes and

number of crimes near a student's residence (tract level). Finally, in a third model, we excluded those residential variables but included a measure of making a residential move between spring 2017 and fall 2017, and whether or not a student had exited the city the previous year.

STUDENT MOBILITY: MULTI-LEVEL LOGISTIC REGRESSIONS

We ran a series of multilevel logistic regressions to explore the associations between inter-year mobility and student- and school-level characteristics. The outcome variable indicates whether a student changed schools between the end of 2016-17 and the start of 2017-18 during a non-transition year (0 = did not move; 1 = moved). Students who were in a transition year at their school were coded as missing. Our outcome variable notation—Mob_{ij}—refers to the interyear mobility status of student *i* in school *j*, with school-level variables measured at t-1 (2016-17 school year). We confined our analytic sample to students who lived in Detroit in both end-of-year 2016-17 and fall of 2017-18, as well as excluded students who attended either a juvenile detention facility or virtual school.

Our base model, which incorporates random intercepts (but not random slopes), is specified as:

Level One Equation:

$$\ln\left(\frac{\text{Mob}_{ij}}{1-\text{Mob}_{ij}}\right) = \beta_{0j} + \beta_{1j}\text{Asian}_{ij} + \beta_{2j}\text{Latinx}_{ij} + \beta_{3j}\text{White}_{ij} + \beta_{4j}\text{Other}_{ij}$$
$$+ \beta_{5j}\text{Female}_{ij} + \beta_{6j}\text{EconDis}_{ij} + \beta_{7j}\text{ELL}_{ij} + \beta_{8j}\text{SPED}_{ij}$$
$$+ \beta_{9j}\text{Commuter}_{ij} + \beta_{10j}\text{InterYearResMover}_{ij}$$
$$+ \beta_{11j}\text{SchConcMetro}_{ij}$$
$$+ \beta_{12j}\text{UpperEl}_{ij} + \beta_{13j}\text{JuniorHS}_{ij} + \beta_{14j}\text{HS}_{ij} + u_j + \epsilon_{ij} \quad (4).$$

Level Two Equations:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}Charter_j + \gamma_{02}PctEconDis_j + \gamma_{03}PctCommuter_j + \gamma_{04}PctChronicAbsent_j + \gamma_{05}SchInDetroit_j$$

$$\beta_{1j} = \gamma_{10}$$

$$\vdots$$

$$\beta_{15j} = \gamma_{150} \quad (5).$$

In this model, the base outcome is a Black male student who is not economically disadvantaged, an ELL, or qualify for special education services who also is not a commuter or an interyear residential mover and enrolled in K-3. We created school-level aggregates based on the MSDS data for percent economically disadvantaged and percent commuter, as well as percent chronically absent. The odds ratios can be interpreted the same as previous output (e.g., $\hat{\gamma}_{80}$=0.9321 indicates that a special education student is 7.3% less likely to change schools than a non-special education student [1/0.9321=1.0728]).

CHRONIC ABSENTEEISM AND ATTENDANCE: MULTI-LEVEL LOGISTIC REGRESSIONS

As with exit and mobility, chronic absenteeism was modeled as a binary outcome (0 = not chronically absent; 1 = chronically absent). To account for the hierarchical nature of the data (i.e., students nested within schools), we used multilevel logistic regression to identify the association between chronic absenteeism and student- and school-level factors. Our analytic sample was confined to all students who attended a school within Detroit in 2017-18. We excluded students who attended either a juvenile detention facility or virtual school.

Our base model, which incorporates random intercepts (but not random slopes), is specified as:

Level One Equation:

$$\ln\left(\frac{CA_{ij}}{1-CA_{ij}}\right) = \beta_{0j} + \beta_{1j}\text{Asian}_{ij} + \beta_{2j}\text{Latinx}_{ij} + \beta_{3j}\text{White}_{ij} + \beta_{4j}\text{Other}_{ij}$$
$$+ \beta_{5j}\text{Female}_{ij} + \beta_{6j}\text{EconDis}_{ij} + \beta_{7j}\text{ELL}_{ij} + \beta_{8j}\text{SPED}_{ij}$$
$$+ \beta_{9j}\text{Commuter}_{ij} + \beta_{10j}\text{ResVacancy}_{ij} + \beta_{11j}\text{ResCrimes}_{ij}$$
$$+ \beta_{12j}\text{IntrayearMover}_{ij} + \beta_{13j}\text{Asthma}_{ij}$$
$$+ \beta_{14j}\text{UpperEl}_{ij} + \beta_{14j}\text{JuniorHS}_{ij} + \beta_{15j}\text{HS}_{ij} + u_j + \epsilon_{ij} \quad (2).$$

Level Two Equations:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}\text{Charter}_j + \gamma_{02}\text{PctEconDis}_j + \gamma_{03}\text{PctCommuter}_j$$
$$+\gamma_{04}\text{StabilityRate}_j$$
$$\beta_{1j} = \gamma_{10}$$
$$\vdots$$
$$\beta_{15j} = \gamma_{150} \quad (3).$$

Therefore, we modeled chronic absence of student *i* in school *j* as a function of both student- and school-level characteristics. In this specification, the base outcome represents a student with the following characteristics: a) Black, b) male, c) not economically disadvantaged, d) not a recipient of special education services, e) not a commuter, f) not an intra-year school mover, and g) was in early elementary (grades K-3). In a second model, we also controlled for student level math achievement z-score as well as school average math achievement z-score.

With respect to student-level data, the student demographic data come directly from the MSDS. We define commuter as a student who attends a school outside a geographic radius of their home (2.5 miles for K-8 students and 3.5 miles for HS students). Resident vacancy rate comes from the American Community Survey, while crime data comes from the city of Detroit and adult asthma rates come from the US Centers for Disease Control. With respect to school-level data, the charter indicator variable comes from the MSDS. We created school-level aggregates based on the MSDS data for percent economically disadvantaged and percent commuter. Finally,

we constructed the school-level stability rate by finding the percentage of students not in a transition year who remained at the school from end-of-year 2017 to fall of 2017.

As with the single-level logit, the binary indicators (e.g., race, gender, etc.) provide odds-ratios that can be interpreted relative to a base outcome. The odds-ratio from a multilevel logistic regression can be interpreted the same as one from a single-level logistic (e.g., $\hat{\gamma}_{6,0}$=1.7221 indicates that an economically disadvantaged student is 72% more likely to be chronically absent than a student who is not economically disadvantaged).

Table 1: T-Tests Comparing Those Who Exited Detroit for School and Those Who Stayed

Variable	Leaver	Stayer	Statistically Significant Difference
STUDENT CHARACTERISTICS			
Black	0.80	0.83	***
Latinx	0.04	0.13	***
White	0.11	0.03	***
Asian	0.04	0.004	***
Other Race	0.02	0.007	***
Female	0.50	0.49	
Economically Disadvantaged	0.90	0.90	
ELL	0.11	0.12	***
Special Education	0.10	0.14	***
ELA MEAP/M-STEP Score	-0.63	-0.68	***
Math MEAP/M-STEP Score	-0.67	-0.77	***
Distance traveled to school (miles)	4.19	2.42	***
Concentration of Detroit schools	5.43	7.06	***
Concentration of non-Detroit schools	4.04	2.52	***
Students in Same Neighborhood who Exit Detroit (%)	0.35	0.21	***
Neighborhood crimes	337.74	312.12	***
Neighborhood vacancies	0.14	0.25	***
Residential Mover	0.17	0.18	***
Prior Year Exiter	0.12	0.95	***
SCHOOL CHARACTERISTICS			
Black (%)	0.72	0.82	***
Latinx (%)	0.04	0.13	***
White (%)	0.17	0.03	***
Asian (%)	0.05	0.01	***
Economically Disadvantaged (%)	0.86	0.90	***
ELL (%)	0.12	0.12	
Special Education (%)	0.11	0.14	***
ELA MEAP/M-STEP School Average	-0.67	-0.74	***
Math MEAP/M-STEP School Average	-0.68	-0.81	***

*p<0.05, **p<0.01, ***p<0.001

Figure 2: Average Number of Suburban Schools in Student Residential Radius by Neighborhood

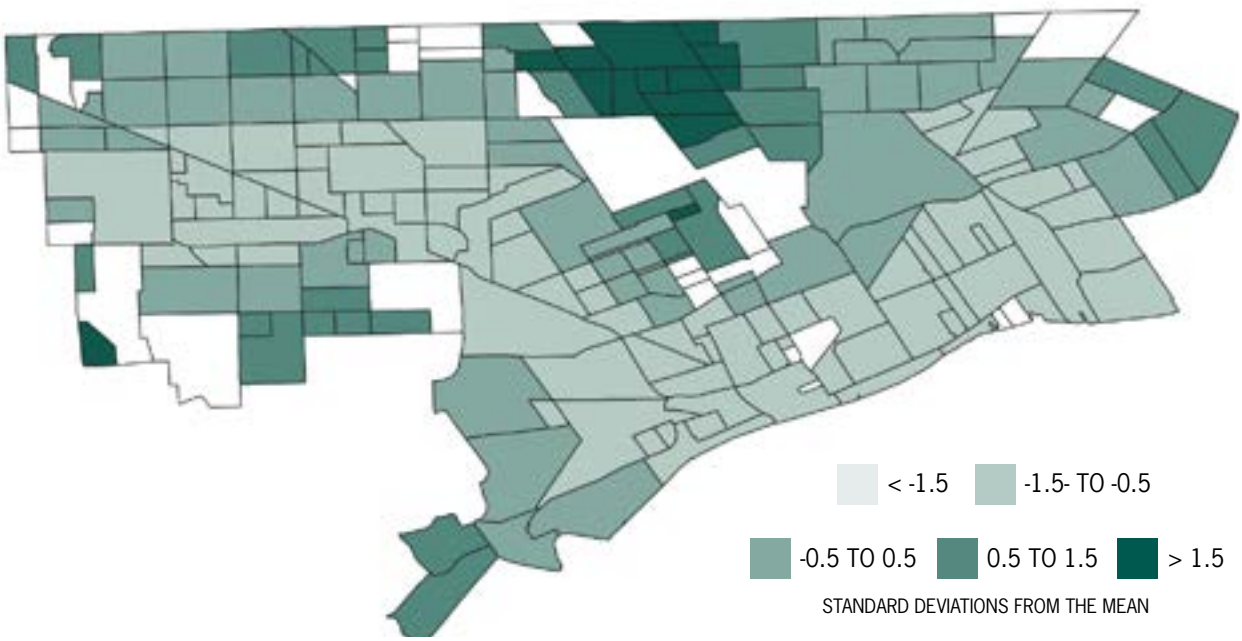


Table 2: Estimated Odds Ratios for Attending a School Outside Detroit

Variable	(1) Student Characteristics and School concentration	(2) Student, Concentration, and Neighborhood Characteristics	(3) Student, Concentration, and Prior Year Characteristics
Asian	7.8629***	8.8083***	1.7048***
Latinx	0.5252***	0.5558***	0.6677***
White	3.0435***	3.2007***	1.9586***
Other Race	2.7784***	2.8486***	2.3902***
Female	0.9860	0.9863	0.9637
Econ Disadvantaged	1.0289	1.0220	1.1757***
ELL	0.7057***	0.7123***	0.8309*
Special Education	0.6535***	0.6523***	0.7558***
School Concentration in Detroit	0.9173***	0.9176***	0.9254***
School Concentration outside Detroit	1.1404***	1.1305***	1.0741***
Grades 3-5	1.3510***	1.3534***	1.1011*
Grades 6-8	1.6101***	1.6044***	1.1745***
Grades 9-12	1.3356***	1.3505***	1.0009
Residential Percent Vacant Homes		0.5122***	
Residential Number of Crimes		1.0044***	
Previous Residential Mover			0.3648***
Previous Detroit Exiter			134.8354***
N	95,847	95,832	84,581
Intercept	0.2814***	0.2294***	0.0531***
Pseudo-R^2	0.0938	0.0994	0.6044

***p < 0.001; ** p < 0.01; * p < 0.05

Table 3: T-Tests Comparing Movers and Non-Movers

Variable	Non-School Mover	School Mover	Statistically Significant Difference
Female	0.50	0.50	
Economically Disadvantaged	0.90	0.92	***
ELL	0.14	0.26	***
Special Education	0.14	0.14	
Commuter#	0.34	0.34	
Residential Mover	0.11	0.44	***
School Concentration Metro	9.54	9.34	***
Math Z-Score	-0.70	-0.91	***
Charter#	0.47	0.39	***
School in Detroit	0.76	0.80	***
Pct School Economic Disadvantage#	0.86	0.87	***
Pct School Chronic Absent#	0.39	0.47	***
Pct School Commuter#	0.36	0.29	***
School Avg Math Z-Score#	-0.76	-0.88	***

Measure taken from 2016-17 school
***p < 0.001; ** p < 0.01; * p < 0.05

Table 4: Estimated Odds Ratios for Between-Year Mobility

Variable	(1)	(2)
Asian	0.463***	0.379***
Latinx	0.477***	0.496***
White	0.679***	0.703**
Other Race	0.960	0.955
Female	0.995	1.051
Economically Disadvantaged	1.082	1.105
ELL	1.226**	1.192
Special Education	0.945	0.833***
Commuter#	1.019	1.028
Residential Move	6.029***	6.401***
School Concentration Metro	0.994	0.992
Math Z-Score		0.833***
Charter#	1.047	1.349***
School in Detroit#	1.009	0.892**
School % Economically Disadvantaged+#	0.138***	0.065***
School % Chronically Absent+#	2.047***	3.090***
School % Commuter+#	0.832***	0.824***
School Avg Math Z-Score#	0.650	0.577***
Grades 3-5	1.107	
Grades 6-8	0.908**	
Grades 9-12	0.834***	
N	64,772	37,073
AIC Intercepts Only	54,123.189	29,713.721
AIC w/Covariates	47,600.623	25,698.0.94
Psuedo R2	0.0964	0.1036
Fixed Effects	N	N

+ Grand-mean centered
# Measure taken from 2016-17 school
***p < 0.001; ** p < 0.01; * p < 0.05

Table 5: T-Tests Comparing Chronically Absent and Not Chronically Absent Students

Variable	Not Chronically Absent Students	Chronically Absent Students	Statistically Significant Difference
STUDENT CHARACTERISTICS			
Attendance Rate (%)	0.95	0.76	***
Black	0.77	0.87	***
Latinx	0.17	0.09	***
White	0.04	0.02	***
Asian	0.01	0.01	
Other Race	0.009	0.006	***
Female	0.51	0.48	***
Economically Disadvantaged	0.87	0.92	***
ELL	0.17	0.08	***
Special Education	0.11	0.17	***
ELA MEAP/M-STEP Score	-0.47	-0.89	***
Math MEAP/M-STEP Score	-0.54	-0.99	***
Commuter	0.35	0.28	***
Vacant Homes (%) of Residential Census Block Group	0.25	0.28	***
Adult Asthma Rate (per 100) in Census Tract	12.8	13.1	***
Number of Crimes Yearly in Residential Census Tract	295.63	316.40	***
Chronic Absenteeism in Previous Year	0.15	0.65	***
Attendance Rate in Previous Year (%)	0.94	0.83	***
Within-Year Mobility	0.03	0.11	***
Between-Year Mobility	0.16	0.24	***
SCHOOL CHARACTERISTICS			
Chronic Absenteeism (%)	0.41	0.66	***
Attendance Rate (%)	0.87	0.81	***
Economically Disadvantaged (%)	0.89	0.90	***
ELA MEAP/M-STEP School Average	-0.58	-0.84	***
Math MEAP/M-STEP School Average	-0.66	-0.91	***
Charter	0.59	0.29	***
School Stability Rate of Peers (%)	0.84	0.81	***

*p<0.05, **p<0.01, ***p<0.001

Table 6: Estimated Odds Ratios for Chronic Absence

Variable	(1)	(2)	(3)
STUDENT LEVEL			
Asian	0.8104	0.8226	0.8173
Latinx	0.7012***	0.7416***	0.7368***
White	1.0389	0.9780	0.9827
Other Race	0.9061	0.8567	0.8675
Female	0.9863	0.9962	0.9932
Economically Disadvantaged	1.7221***	1.5007***	1.5019***
ELL	0.6301***	0.7130***	0.7105***
Special Education	1.1687***	1.0403	1.0420
Commuter	1.0670**	1.0500	1.0484
Residential Pct Vacancy	1.1311	1.1286	1.1163
Residential Number of Crimes	1.0001	1.0000	1.0001
Within-year School Mover	3.6166***	3.3332***	3.3432***
Residential Adult Asthma Rate	1.0567***	1.0343*	1.0355*
Upper Elementary	0.8205***	1.0340	
Junior High	0.7006***	1.0622	1.0572
High School	1.2319*	1.8802***	1.8532***
Previously Chronically Absent		9.5843***	9.4765***
Between-year Mover		1.0754*	1.0783**
SCHOOL LEVEL			
Pct Economically Disadvantaged	202.4338***	26.1016***	6.6295
Charter	0.1688***	0.2275***	0.3025***
Stability Rate	0.1701***	0.2280**	0.5833
Pct Commuter	1.1502	1.0313	1.0465
Avg Math Z-Score			0.4126***
N	73,619	58,948	58,213
Number of Schools	185	184	173
Intraclass Correlation Coefficient	0.1839	0.1744	0.1652
School Stability Rate of Peers (%)	0.84	0.81	***

Note. All school-level variables except for "charter" are grand-mean centered.

Table 7: Detroit Neighborhoods by Student Population, Characteristics, and Schools Concentration

Neighborhood Name	Number of City Resident Students	Percent of City Resident Students	n students who are chronically absent (Quintiles: 51.6, 112.7, 199.7, 436.8)	% of students who are chronically absent (Quintiles: .429, .493, .544, .601)	n students who leave Detroit for school (Quintiles: 13, 39.8, 102, 193.6)	% of students who leave Detroit for school (.084, .159, .254, .352)	Average # of Detroit schools within 2.5/3.5mi of students (4.475, 6.199, 7.599, 9.142)	Average # of schools outside Detroit within 2.5/3.5mi of students
Warrendale	3577	3.73%	1,632	45.63%	1,468	41.04%	5.88	4.36
Warren Ave Community	1897	1.98%	716	37.76%	1,050	55.35%	5.33	6.05
Buffalo	1205	1.26%	386	32.06%	963	79.92%	3.36	5.02
Regent Park	1804	1.88%	1,026	56.89%	671	37.20%	5.28	4.36
Campau/ Banglatown	718	0.75%	288	40.11%	544	75.77%	2.98	6.59
Cornerstone Village	1110	1.16%	634	57.13%	498	44.86%	3.99	5.84
Franklin Park	1699	1.77%	929	54.71%	465	27.37%	6.87	2.80
Bagley	1830	1.91%	900	49.18%	462	25.25%	6.33	2.42
North Campau	678	0.71%	379	55.92%	443	65.34%	1.41	9.03
Farwell	1063	1.11%	555	52.21%	432	40.64%	2.76	6.03
Boynton	827	0.86%	381	46.07%	431	52.12%	1.33	6.27
Greenfield	1370	1.43%	737	53.80%	413	30.15%	6.20	4.99
Moross-Morang	1161	1.21%	669	57.59%	402	34.63%	5.25	4.77
Evergreen Lahser 7/8	1151	1.20%	521	45.29%	363	31.54%	3.30	3.47
Barton-McFarland	1447	1.51%	870	60.13%	360	24.88%	4.48	4.32
Pembroke	1133	1.18%	592	52.22%	349	30.80%	5.38	4.36
Hubbell-Lyndon	2009	2.09%	1,216	60.51%	342	17.02%	8.24	0.24
Airport Sub	1067	1.11%	440	41.22%	341	31.96%	5.07	3.25
Claytown	4376	4.56%	1,463	33.44%	339	7.75%	7.83	3.71
Crary/St Marys	1250	1.30%	677	54.14%	320	25.60%	9.27	0.53
Morningside	1984	2.07%	1,154	58.15%	313	15.78%	6.47	3.26
Brightmoor	1463	1.52%	795	54.31%	309	21.12%	5.39	1.00
Schulze	1186	1.24%	594	50.08%	291	24.54%	7.84	2.85
O'Hair Park	864	0.90%	450	52.03%	291	33.68%	4.64	3.55
College Park	984	1.03%	519	52.77%	252	25.61%	7.43	3.26
Evergreen-Outer Drive	1024	1.07%	514	50.20%	251	24.51%	5.95	1.93

Table 7 continued

Neighborhood Name	Number of City Resident Students	Percent of City Resident Students	n students who are chronically absent (Quintiles: 51.6, 112.7, 199.7, 436.8)	% of students who are chronically absent (Quintiles: .429, .493, .544, .601)	n students who leave Detroit for school (Quintiles: 13, 39.8, 102, 193.6)	% of students who leave Detroit for school (.084, .159, .254, .352)	Average # of Detroit schools within 2.5/3.5mi of students (4.475, 6.199, 7.599, 9.142)	Average # of schools outside Detroit within 2.5/3.5mi of students
Outer Drive-Hayes	1329	1.38%	860	64.71%	243	18.28%	7.50	1.78
Conner Creek	656	0.68%	401	61.16%	242	36.89%	5.23	3.97
Far West Detroit	373	0.39%	154	41.24%	240	64.34%	3.43	8.19
Fitzgerald	1313	1.37%	838	63.79%	234	17.82%	8.97	1.05
Mapleridge	931	0.97%	587	63.04%	232	24.92%	7.04	3.09
Five Points	405	0.42%	174	42.96%	223	55.06%	1.84	5.08
Schaefer 7/8 Lodge	598	0.62%	291	48.74%	221	36.96%	6.82	5.16
Winship	822	0.86%	382	46.45%	220	26.76%	8.20	3.51
The Eye	371	0.39%	157	42.28%	215	57.95%	1.86	4.64
Mohican Regent	513	0.53%	272	52.93%	213	41.52%	5.76	4.17
Schoolcraft-I96	920	0.96%	525	57.02%	196	21.30%	8.63	0.27
Pulaski	763	0.80%	527	69.01%	193	25.29%	5.80	3.41
Von Steuben	811	0.85%	525	64.77%	193	23.80%	6.47	2.09
Aviation Sub	468	0.49%	199	42.52%	188	40.17%	3.46	5.61
Northeast Central District	574	0.60%	211	36.76%	179	31.18%	7.84	0.90
Pershing	378	0.39%	191	50.53%	177	46.83%	1.85	7.40
Plymouth-Hubbell	641	0.67%	380	59.31%	170	26.52%	7.48	3.39
Butler	313	0.33%	149	47.60%	164	52.40%	1.49	8.23
Harmony Village	900	0.94%	523	58.13%	161	17.89%	8.35	1.01
Springwells	2933	3.06%	1,156	39.42%	154	5.25%	7.79	1.81
NW Goldberg	497	0.52%	294	59.15%	154	30.99%	5.13	3.04
Midwest	1339	1.40%	792	59.12%	154	11.50%	9.66	1.56
Castle Rouge	333	0.35%	133	40.00%	150	45.05%	2.41	4.42
Krainz Woods	613	0.64%	308	50.24%	149	24.31%	3.15	5.99
East English Village	740	0.77%	402	54.32%	149	20.14%	4.84	4.79
Northwest Community	290	0.30%	143	49.48%	145	50.00%	1.86	9.18
Dexter-Linwood	1059	1.10%	653	61.67%	145	13.69%	7.90	2.31
Bentler-Pickford	780	0.81%	423	54.24%	145	18.59%	4.81	1.92

Table 7 continued

Neighborhood Name	Number of City Resident Students	Percent of City Resident Students	n students who are chronically absent (Quintiles: 51.6, 112.7, 199.7, 436.8)	% of students who are chronically absent (Quintiles: .429, .493, .544, .601)	n students who leave Detroit for school (Quintiles: 13, 39.8, 102, 193.6)	% of students who leave Detroit for school (.084, .159, .254, .352)	Average # of Detroit schools within 2.5/3.5mi of students (4.475, 6.199, 7.599, 9.142)	Average # of schools outside Detroit within 2.5/3.5mi of students
Yorkshire Woods	628	0.65%	372	59.23%	143	22.77%	6.01	4.12
Oakman Blvd Community	1043	1.09%	564	54.03%	142	13.61%	7.23	1.32
Riverdale	472	0.49%	194	41.06%	138	29.24%	4.50	1.84
Joy Community	745	0.78%	484	64.95%	138	18.52%	7.53	2.70
Southwest Detroit	3026	3.15%	1,380	45.60%	133	4.40%	10.40	0.28
Rosedale Park	499	0.52%	179	35.94%	130	26.05%	8.58	0.11
Seven Mile-Rouge	360	0.38%	157	43.61%	128	35.56%	1.96	4.57
Denby	478	0.50%	272	56.90%	126	26.36%	6.57	3.07
West Outer Drive	220	0.23%	78	35.62%	124	56.36%	3.52	5.41
Fiskhorn	369	0.38%	197	53.26%	123	33.33%	5.86	6.00
Berg-Lahser	513	0.53%	222	43.22%	121	23.59%	2.55	5.07
Greenfield-Grand River	434	0.45%	246	56.58%	119	27.42%	8.74	0.00
Franklin	415	0.43%	278	66.91%	119	28.67%	6.28	3.20
Grixdale Farms	207	0.22%	109	52.43%	115	55.56%	2.49	7.92
Cadillac Heights	230	0.24%	133	57.64%	115	50.00%	2.03	8.81
Davison	184	0.19%	87	47.54%	113	61.41%	3.38	5.77
Blackstone Park	262	0.27%	136	51.91%	107	40.84%	6.63	5.31
Grandmont #1	338	0.35%	145	42.90%	107	31.66%	8.50	0.05
Belmont	375	0.39%	210	55.88%	104	27.73%	7.91	0.18
Hubbell-Puritan	456	0.48%	233	50.99%	102	22.37%	8.52	1.31
Eliza Howell	290	0.30%	141	48.78%	102	35.17%	2.21	3.34
Greenwich	291	0.30%	142	48.79%	101	34.71%	7.26	4.77
Lafayette Park	448	0.47%	279	62.25%	99	22.10%	6.62	0.74
Grant	316	0.33%	172	54.43%	98	31.01%	4.62	3.66
Grandmont	329	0.34%	161	49.09%	96	29.18%	9.84	0.00
Grand River-St Marys	335	0.35%	188	56.12%	94	28.06%	9.36	0.00
Grand River-I96	484	0.50%	304	62.79%	92	19.01%	6.30	1.49
Sherwood	274	0.29%	147	53.68%	88	32.12%	4.66	3.11
Eden Gardens	496	0.52%	315	63.51%	88	17.74%	7.74	0.44

Table 7 continued

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South of Six	174	0.18%	78	44.77%	85	48.85%	1.89	4.30
Hawthorne Park	147	0.15%	88	59.59%	85	57.82%	1.88	9.27
Penrose	145	0.15%	87	60.00%	85	58.62%	2.23	8.42
Weatherby	273	0.28%	147	53.85%	83	30.40%	6.58	1.34
Gratiot Woods	914	0.95%	516	56.48%	68	7.44%	6.94	0.02
Mount Olivet	291	0.30%	182	62.50%	67	23.02%	5.30	2.10
Wade	457	0.48%	309	67.69%	63	13.79%	7.39	0.00
Pilgrim Village	454	0.47%	273	60.04%	63	13.88%	7.05	2.52
Chadsey Condon	845	0.88%	373	44.19%	62	7.34%	13.23	0.02
Martin Park	388	0.40%	224	57.73%	60	15.46%	6.16	3.47
We Care Community	272	0.28%	163	59.78%	59	21.69%	5.76	5.00
Joy-Schaefer	173	0.18%	96	55.49%	59	34.10%	4.78	5.79
Jefferson Chalmers	773	0.81%	426	55.12%	59	7.63%	4.57	1.47
Gratiot-Findlay	300	0.31%	201	66.89%	57	19.00%	6.33	0.41
Russell Woods	326	0.34%	144	44.17%	57	17.48%	7.87	1.21
Fox Creek	712	0.74%	436	61.24%	56	7.87%	6.87	1.31
Garden View	203	0.21%	112	54.95%	56	27.59%	7.21	5.58
New Center	465	0.48%	287	61.72%	56	12.04%	8.05	0.97
University District	337	0.35%	110	32.74%	54	16.02%	5.42	3.85
Chandler Park	532	0.55%	337	63.35%	53	9.96%	8.50	0.58
North Corktown	86	0.09%	54	62.79%	53	61.63%	2.48	8.06
Green Acres	171	0.18%	67	39.18%	53	30.99%	3.66	5.27
Palmer Park	109	0.11%	80	73.39%	49	44.95%	4.63	5.20
Westwood Park	135	0.14%	71	52.59%	48	35.56%	7.52	0.30
Minock Park	130	0.14%	62	48.06%	48	36.92%	7.34	0.48
Conant Gardens	157	0.16%	82	51.92%	47	29.94%	2.14	7.84
North Rosedale Park	343	0.36%	169	49.26%	45	13.12%	7.91	6.11
Pride Area Community	195	0.20%	102	52.06%	41	21.03%	5.97	3.05
Petoskey-Otsego	356	0.37%	202	56.78%	38	10.67%	10.30	0.98

Table 7 continued

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Miller Grove	171	0.18%	73	42.69%	38	22.22%	5.64	1.28
Elmwood Park	898	0.94%	499	55.58%	36	4.01%	9.00	0.00
Delray	277	0.29%	124	44.77%	36	13.00%	6.22	1.61
Southfield Plymouth	119	0.12%	59	49.58%	35	29.41%	8.57	0.40
Boston Edison	244	0.25%	71	29.10%	33	13.52%	8.56	3.98
Midtown	441	0.46%	191	43.31%	33	7.48%	10.53	0.33
Plymouth-I96	142	0.15%	86	60.56%	32	22.54%	8.32	1.51
Old Redford	106	0.11%	38	35.85%	31	29.25%	3.83	3.15
Islandview	460	0.48%	280	60.87%	30	6.52%	7.96	0.00
Oak Grove	64	0.07%	28	43.55%	29	45.31%	3.73	3.42
Littlefield Community	273	0.28%	170	62.27%	29	10.62%	5.82	0.99
Pingree Park	270	0.28%	113	42.01%	29	10.74%	6.83	0.13
Greenfield Park	48	0.05%	23	47.92%	28	58.33%	2.56	7.67
Herman Kiefer	344	0.36%	199	57.77%	26	7.56%	9.14	2.79
Forest Park	455	0.47%	233	51.11%	24	5.27%	10.62	1.41
Paveway	95	0.10%	58	61.05%	24	25.26%	8.13	2.86
Gateway Community	215	0.22%	109	50.70%	24	11.16%	5.66	5.53
Davison-Schoolcraft	274	0.29%	161	58.61%	24	8.76%	8.14	0.23
Gratiot-Grand	268	0.28%	146	54.31%	22	8.21%	7.65	0.33
Cadillac Community	100	0.10%	50	50.00%	22	22.00%	8.15	0.00
LaSalle College Park	179	0.19%	115	64.25%	21	11.73%	11.41	1.88
Nortown	155	0.16%	76	49.35%	20	12.90%	7.13	0.09
Carbon Works	54	0.06%	30	55.56%	20	37.04%	4.04	3.02
Core City	235	0.24%	106	45.11%	19	8.09%	13.72	0.00
Brewster Homes	218	0.23%	150	68.81%	19	8.72%	11.22	0.29
Wildemere Park	159	0.17%	97	60.76%	19	11.95%	13.31	0.99
Tri-Point	61	0.06%	23	37.70%	19	31.15%	7.79	4.13

Table 7 continued

Neighborhood Name	Number of City Resident Students	Percent of City Resident Students	n students who are chronically absent (Quintiles: 51.6, 112.7, 199.7, 436.8)	% of students who are chronically absent (Quintiles: .429, .493, .544, .601)	n students who leave Detroit for school (Quintiles: 13, 39.8, 102, 193.6)	% of students who leave Detroit for school (.084, .159, .254, .352)	Average # of Detroit schools within 2.5/3.5mi of students (4.475, 6.199, 7.599, 9.142)	Average # of schools outside Detroit within 2.5/3.5mi of students
Chandler Park-Chalmers	146	0.15%	81	55.48%	18	12.33%	7.88	1.19
Jamison	168	0.18%	101	60.12%	17	10.12%	9.63	1.22
Henry Ford	141	0.15%	76	53.57%	17	12.06%	9.40	2.95
Wayne State	186	0.19%	88	47.57%	16	8.60%	10.12	0.56
East Village	528	0.55%	282	53.35%	15	2.84%	6.01	0.00
Poletown East	122	0.13%	69	56.56%	15	12.30%	10.03	3.16
Gratiot Town/ Ketterring	203	0.21%	136	67.16%	15	7.39%	6.72	1.62
Michigan-Martin	351	0.37%	125	35.61%	14	3.99%	10.45	0.67
Nolan	133	0.14%	81	60.90%	13	9.77%	9.11	4.43
Sherwood Forest	102	0.11%	24	23.53%	13	12.75%	4.62	4.02
Elijah McCoy	195	0.20%	89	45.88%	12	6.15%	10.35	1.61
Dexter-Fenkell	102	0.11%	52	50.98%	12	11.76%	7.25	1.27
Piety Hill	157	0.16%	81	51.28%	12	7.64%	7.60	5.94
Hunt	211	0.22%	109	51.67%	12	5.69%	10.10	1.14
Cultural Center	130	0.14%	43	33.08%	11	8.46%	12.08	3.18
Jeffries	185	0.19%	49	26.63%	10	5.41%	11.39	0.23
North End	174	0.18%	84	48.28%	10	5.75%	13.61	0.00
Ravendale	76	0.08%	47	61.84%	10	13.16%	8.87	0.00
Rouge Park	10	0.01%	2	20.00%	9	90.00%	4.20	7.30
Woodbridge	68	0.07%	26	38.24%	8	11.76%	12.15	0.26
Hubbard Farms	105	0.11%	72	68.57%	8	7.62%	11.97	0.00
Palmer Woods	34	0.04%	11	32.35%	8	23.53%	2.68	8.35
Medbury Park	61	0.06%	26	42.62%	8	13.11%	11.44	4.03
Gold Coast	61	0.06%	29	47.54%	8	13.11%	7.39	0.00
Nardin Park	89	0.09%	50	56.18%	8	8.99%	11.45	0.62
LaSalle Gardens	100	0.10%	44	44.00%	7	7.00%	7.82	0.00
Historic Atkinson	75	0.08%	29	38.67%	7	9.33%	9.29	3.36
Arden Park	44	0.05%	15	34.88%	6	13.64%	6.14	6.82
Hubbard Richard	64	0.07%	19	29.69%	5	7.81%	11.23	0.00

Table 7 continued

Neighborhood Name	Number of City Resident Students	Percent of City Resident Students	n students who are chronically absent (Quintiles: 51.6, 112.7, 199.7, 436.8)	% of students who are chronically absent (Quintiles: .429, .493, .544, .601)	n students who leave Detroit for school (Quintiles: 13, 39.8, 102, 193.6)	% of students who leave Detroit for school (.084, .159, .254, .352)	Average # of Detroit schools within 2.5/3.5mi of students (4.475, 6.199, 7.599, 9.142)	Average # of schools outside Detroit within 2.5/3.5mi of students
Melvern Hill	15	0.02%	11	73.33%	5	33.33%	3.73	4.53
Conner Creek Industrial	15	0.02%	6	40.00%	4	26.67%	5.67	0.33
West Side Industrial	17	0.02%	10	58.82%	4	23.53%	10.82	0.00
Oakwood Heights	18	0.02%	10	55.56%	3	16.67%	2.67	4.78
Happy Homes	48	0.05%	34	70.83%	3	6.25%	7.13	0.00
Marina District	60	0.06%	27	44.83%	3	5.00%	6.08	0.03
West Village	58	0.06%	36	62.50%	3	5.17%	7.76	0.00
Mexicantown	68	0.07%	32	47.06%	3	4.41%	11.51	0.00
Medical Center	97	0.10%	45	46.39%	3	3.09%	10.86	1.01
Corktown	81	0.08%	37	45.68%	2	2.47%	10.05	0.00
Detroit Golf	12	0.01%	3	25.00%	2	16.67%	4.00	8.00
West Virginia Park	31	0.03%	10	32.26%	2	6.45%	9.32	2.42
Indian Village	60	0.06%	24	40.00%	2	3.33%	7.17	0.00
Virginia Park	20	0.02%	9	47.37%	1	5.00%	9.35	5.35
Downtown	40	0.04%	21	51.85%	1	2.50%	11.78	0.00
Brush Park	66	0.07%	7	11.11%	1	1.52%	16.18	0.76
Rivertown	51	0.05%	23	45.10%	0	0.00%	8.71	0.00
Tech Town	<10	-	-	-	-	-	15.67	4.33
Eastern Market	<10	-	-	-	-	-	8.00	1.00
Milwaukee Junction	<10	-	-	-	-	-	6.60	2.00
Joseph Berry Sub	<10	-	-	-	-	-	6.44	0.00
Waterworks Park	<10	-	-	-	-	-	6.40	0.00
New Center Commons	<10	-	-	-	-	-	6.00	2.75

REFERENCES

Alexander, K. L., Entwisle, D. R., & Horsey, C. S. (1997). From first grade forward: Early foundations of high school dropout. *Sociology of Education, 70*, 87-107. doi:10.2307/2673158

Allensworth, E. M., & Easton, J. Q. (2007). *What matters for staying on-track and graduating in Chicago public high schools: A close look at course grades, failures, and attendance in the freshman year*. Chicago, IL: Consortium on Chicago School Research.

Balfanz, R., & Byrnes, V. (2013). *Meeting the challenge of combating chronic absenteeism: Impact of the NYC Mayor's Interagency Task Force on chronic absenteeism and school attendance and its implications for other cities*. Baltimore, MD: Everyone Graduates Center, Johns Hopkins University School of Education. Retrieved from http://eric.ed.gov/?id=ED544570

Bell, A. J., Rosen, L. A., & Dynlacht, D. (1994). Truancy intervention. *Journal of Research & Development in Education, 27*, 203-211.

Bimler, D., & Kirkland, J. (2001). School truants and truancy motivation sorted out with multidimensional scaling. *Journal of Adolescent Research, 16*, 75–102. doi:10.1177/0743558401161006

Bryk, A. S., Sebring, P. B., Allensworth, E., Easton, J. Q., & Luppescu, S. (2010). *Organizing schools for improvement: Lessons from Chicago*. Chicago, IL: University of Chicago Press.

Catsambis, S., & Beveridge, A. A. (2001). Does neighborhood matter? Family, neighborhood, and school influences on eighth-grade mathematics achievement. *Sociological Focus, 34*, 435–457. doi:10.1080/00380237.2001.10571212

Community Education Commission. (2019). Community Education Commission Story. Retrieved February 5, 2019, from https://cecdetroit.org/

Condron, D. J., Tope, D., Steidl, C. R., & Freeman, K. J. (2013). Racial segregation and the black/white achievement gap, 1992 to 2009. The Sociological Quarterly, 54(1), 130–157. https://doi.org/10.1111/tsq.12010

Corville-Smith, J., Ryan, B. A., Adams, G. R., & Dalicandro, T. (1998). Distinguishing absentee students from regular attenders: The combined influence of personal, family, and school factors. *Journal of Youth and Adolescence, 27*, 629–640. doi:10.1023/A:1022887124634

Cowen, J. M., & Creed, B. (2017). Public school choice and student achievement: Evidence from Michigan's interdistrict open enrollment system. *AERA Open, 3*(3), 1–12. https://doi.org/10.1177/2332858417731555

Cowen, J., Creed, B., & Keesler, V. (2015). *Dynamic participation in inter-district open enrollment: Evidence from Michigan 2005-2013* (No. Working Paper #49). East Lansing, MI: The Education Policy Center, Michigan State University. Retrieved from http://education.msu.edu/epc/library/papers/WP-49-Dynamic-Participation-in-Open-Enrollment-Cowen.asp

Dahl, P. (2016). Factors associated with truancy: Emerging adults' recollections of skipping school. *Journal of Adolescent Research, 31*, 119–138. doi:10.1177/0743558415587324

Engec, N. (2006). Relationship between mobility and student performance and behavior. *The Journal of Educational Research, 99*(3), 167-178.

Entwistle, N., & Ramsden, P. (2015). *Understanding student learning (Routledge Revivals)*. Abington, UK: Routledge.

Epstein, J. L., & Sheldon, S. B. (2002). Present and accounted for: Improving student attendance through family and community involvement. *The Journal of Educational Research, 95*, 308–318. doi:10.1080/00220670209596604

Foy, E. J. (2005). *A study of attendance and its effects on academic achievement in Alliance Public Schools*. Retrieved from http://digitalcommons.unl.edu/dissertations/AAI3180799/

Gershenson, S. (2016). Linking teacher quality, student attendance, and student achievement. *Education Finance and Policy, 11*, 125–149. doi:10.1162/EDFP_a_00180

Gershenson, S., Jacknowitz, A., & Brannegan, A. (2017). Are student absences worth the worry in US primary schools?. *Education Finance and Policy, 12*(2), 137-165.

Gottfried, M. A. (2014). Chronic absenteeism and its effects on students' academic and socioemotional outcomes. *Journal of Education for Students Placed at Risk (JESPAR), 19*(2), 53–75. https://doi.org/10.1080/10824669.2014.962696

Gottfried, M. A. (2017). Linking getting to school with going to school. *Educational Evaluation and Policy Analysis*, 0162373717699472. https://doi.org/10.3102/0162373717699472

Gruman, D. H., Harachi, T. W., Abbott, R. D., Catalano, R. F., & Fleming, C. B. (2008). Longitudinal effects of student mobility on three dimensions of elementary school engagement. *Child development*, *79*(6), 1833-1852.

Hamlin, D. (2017) Are charter schools safer in cities with high rates of crime? Hypotheses in Detroit. American Educational Research Journal, 54(4), 725–756

Hanushek, E. A., Kain, J. F., & Rivkin, S. G. (2004). Disruption versus Tiebout improvement: The costs and benefits of switching schools. *Journal of public Economics*, *88*(9-10), 1721-1746.

Hartman, C. (2002). *High classroom turnover: How children get left behind.* Retrieved from http://eric.ed.gov/?id=ED466506

Herbers, J. E., Cutuli, J. J., Supkoff, L. M., Heistad, D., Chan, C. K., Hinz, E., & Masten, A. S. (2012). Early reading skills and academic achievement trajectories of students facing poverty, homelessness, and high residential mobility. *Educational Researcher*, *41*(9), 366-374.

Jacobsen, R., Frankenberg, E., & Lenhoff, S. W. (2012). Diverse schools in a democratic society: New ways of understanding how school demographics affect civic and political learning. American Educational Research Journal, 49(5), 812–843. https://doi.org/10.3102/0002831211430352

Jeynes, W. H. (2003). A meta-analysis: The effects of parental involvement on minority children's academic achievement. *Education and Urban Society*, *35*, 202–218. doi:10.1177/0013124502239392

Lleras, C., & McKillip, M. (2017). When children move: Behavior and achievement outcomes during elementary school. *The Journal of Educational Research*, *110*(2), 177-187.

London, R. A., Sanchez, M., & Castrechini, S. (2016). The dynamics of chronic absence and student achievement. *Education Policy Analysis Archives*, *24*. doi:10.14507/epaa.24.2471

Mehana, M., & Reynolds, A. J. (2004). School mobility and achievement: A meta-analysis. *Children and Youth Services Review*, *26*(1), 93-119.

Mickelson, R. A., Bottia, M. C., & Lambert, R. (2013). Effects of school racial composition on K–12 mathematics outcomes: A metaregression analysis. Review of Educational Research, 83(1), 121–158. https://doi.org/10.3102/0034654312475322

Orfield, G., & Lee, C. (2005). Why segregation matters: Poverty and educational inequality (K-12 Integration and Diversity). Cambridge, MA: Civil Rights Project at Harvard University. Retrieved from http://escholarship.org/uc/item/4xr8z4wb

Per-pupil foundation allowance ten-year history for schools: FYs 2009-10 through 2018-19 (estimated). (2018). Senate Fiscal Agency. Retrieved from http://www.senate.michigan.gov/sfa/departments/datacharts/dck12_foundationhistory.pdf

Reardon, S. F. (2011). The widening academic achievement gap between the rich and the poor: New evidence and possible explanations. In G. J. Duncan & R. J. Murnane (Eds.), Whither opportunity? Rising inequality, schools, and children's life chances (pp. 91–116). Russell Sage Foundation.

Romero, M., & Lee, Y. (2007). *A national portrait of chronic absenteeism in the early grades*. New York: National Center for Children in Poverty, Columbia University, Mailman School of Public Health. Retrieved from https://academiccommons.columbia.edu/catalog/ac:126480

Rumberger, R. W. (2003). The causes and consequences of student mobility. *Journal of Negro Education*, 6-21.

Rumberger, R. W., & Larson, K. A. (1998). Student mobility and the increased risk of high school dropout. *American journal of Education*, *107*(1), 1-35.

Rumberger, R. W., Larson, K. A., Ream, R. K., & Palardy, G. J. (1999). *The educational consequences of mobility for California students and schools*. Berkley, CA: Policy Analysis for California Education, Research Series.

Schlossberg, M., Greene, J., Phillips, P. P., Johnson, B., & Parker, B. (2006). School trips: Effects of urban form and distancse on travel mode. Journal of the American Planning Association, 72(3), 337–346.

Sheldon, S. B. (2007). Improving student attendance with school, family, and community partnerships. *The Journal of Educational Research*, *100*, 267–275. doi:10.3200/ JOER.100.5.267-275

South, S. J., Haynie, D. L., & Bose, S. (2007). Student mobility and school dropout. *Social Science Research*, *36*(1), 68-94.

Tinkelman, D., & Schwartz, A. (2004). School-based asthma disease management. *Journal of Asthma*, *41*, 455–462. doi:10.1081/JAS-120033988

Welsh, R. O. (2017). School hopscotch: A comprehensive review of K–12 student mobility in the United States. *Review of Educational Research*, *87*(3), 475–511. https://doi.org/10.3102/0034654316672068