Exiting Detroit for School: Inequitable Choice Sets and School Quality

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Abstract

Research has documented the complexity of parent-decision making within school choice marketplaces, including the ways in which individual preferences, social networks, and geography influence where parents choose to enroll their children in school. Yet, parent choices are constrained by the ways in which these dynamics intersect with existing school characteristics and locations. By constructing unique choice set "landscapes" for 194 Detroit neighborhoods, taking into account where current neighbors attend school in the city, this paper contributes new evidence on the influence of peer enrollment on school choosing, and how peer choice sets differ from students' nearest schools. We find that parents are responsive to lower quality schools in their choice sets when choosing to exit and that choice set quality varies by race, with Black students having lower quality schools in their Detroit choice sets.

Keywords: school choice; school quality; geography; equity; race; Detroit

Purpose

Millions of families in the United States and Europe choose a public school option outside of their zoned catchment area. In Michigan, like many other U.S. states, school funding follows students to the school districts where they enroll, creating an incentive to compete for students. The exodus of families from neighborhood schools has enormous consequences for the viability and sustainability of local public school districts, particularly in depressed urban areas that have experienced disinvestment and state takeover. Although researchers have studied what and why parents choose for decades (see Bowe, Ball, and Gewirtz 1994; Fossey 1994; Goldring and Hausman 1999; Jabbar and Lenhoff 2019), there is increasing evidence that school choosing is a cognitively complex endeavor that is constrained by the policy landscape, geography, preferences, information, and social networks (Hastings, Van Weelden, and Weinstein 2007; Wilson 2015). While the rational choice model, in which parents are expected to consider all the available options, weigh the pros and cons, and select the most optimal school, has been critiqued both theoretically (Jabbar 2011; Simon 1947) and empirically (e.g. Bell 2009a; Rowe and Lubienski 2016), parents do choose, and many are satisfied with their choices. Better understanding how the constraints of choosing intersect with individual preferences and supply-side school characteristics, particularly beyond test scores, is important in advancing our understanding of school choice decision-making and has critical policy importance for city and school leaders interested in attracting students to their schools.

Nearly a quarter of the students who live in Detroit, Mich., attend a public school outside the city. In choosing to exit Detroit, families take on the burden of enrolling in a nonresident school system or charter school, typically travel further to get to school, and take their state per pupil funding with them (Lenhoff 2020). For every Detroit resident student who enrolls in a

nonresident traditional public school district, the lesser of the DPSCD per pupil state foundation allowance and the receiving district's allowance would be sent to the receiving district, rather than DPSCD. In 2017-18, the foundation allowance for the Detroit Public Schools Community District was $7,670 (Senate Fiscal Agency 2019). Receiving districts that enrolled Detroit students received this same per pupil allowance if their resident foundation allowance was higher and received their own allowance if lower than Detroit's. In 2017-18, all charter schools received $7,631 per pupil from the foundation allowance. Even with these variable per-pupil foundation allowances, it is clear that, when Detroit students enroll in schools outside the city, their nonresident districts receive funding to educate them and Detroit districts, both DPSCD and charter, do not. Therefore, exiting Detroit students represent a shift in school funding of tens of millions of dollars each year from the city to the suburbs. Political officials (Levin 2019) and scholars (e.g., Arsen and Ni 2012) have concluded that this exodus from city schools has had a detrimental effect on school infrastructure and economic revitalization. Fewer students means fewer dollars have been available to invest in improving city schools by raising teacher salaries, remediating facilities, and purchasing instructional materials. The large number of students who exit also signals to prospective residents and businesses that Detroit may not be a desirable place to live and raise a family. Given the large number of school choices available to students in Detroit, understanding why so many students enroll in suburban schools is important for advancing knowledge on the theoretical factors pushing students away from local schools and pulling students into nonresident schools.

This paper builds on prior work on school choice by combining traditional approaches of assessing parent revealed preferences with new methods to approximate socially- and geographically-influenced choice sets. In particular, we uniquely estimate the influence of social

networks on families' perceptions of their choice sets by testing a model that weighs school characteristics by the proportion of students' neighbors who are enrolled. We examine how choice set characteristics are associated with exiting Detroit for school and the differences in suburban schools Detroit students choose. In particular, we answer the following questions: (1) How do nearest school and neighborhood peer choice sets differ by groups in Detroit? (2) What choice set characteristics are associated with pushing students to exit Detroit for school?

Theoretical framework

Research suggests that families are "pushed" to consider school alternatives because of concerns about their zoned schools (Ellison and Aloe 2018; Stewart and Wolf 2014). When families decide to search for a non-zoned school, they are "pulled" by positive characteristics (Ellison and Aloe 2018; Schneider and Buckley 2002). School choices are influenced by families' social networks (Holme 2002), perceptions of school quality, student demographics (Schneider and Buckley 2002), and geography (Bell 2007). Therefore, even in contexts where families have many more choices than they would if they were mandated to attend a zoned school, their choices are constrained by the tradeoffs they perceive between the schools that are technically accessible to them, their preferences, and their resources (Altenhofen, Berends, and White 2016; Bell 2009a; Bell 2009b; Bifulco and Ladd 2007; Diamond and Gomez 2004; Harris and Larsen 2018; Holmes Erickson 2017; Kleitz et al. 2000; Schneider et al. 1998). Research on parental preferences must seek to combine what we know about the influence of social networks, preferences, geography, and individual preferences and constraints in order to paint a multi-dimensional landscape of what parents consider and why.

Individual preference influences on choice

School choice policies theoretically allow families to choose schools based on their individual preferences, allowing for more diversity in school characteristics within choice sets (Fuller, Gawlik, Gonzales and Park 2003; Garcia 2008). Research examining stated and revealed preferences has found that, while parents value academic performance, most parents also have strong preferences for other school characteristics and educational goals (Holmes Erickson 2017; Valant and Newark 2017). For instance, Lincove, Cowen, and Imbrogno (2018) found that parents in New Orleans that consider both public and private schools rank private schools higher and are willing to accept lower performance among private schools than public. Parents also value more than just test score performance, with research showing that parents prioritize safety, extracurriculars, and school organizational characteristics such as class size and teacher quality (see Holmes Erickson 2017), in addition to desiring schools that will develop their child's democratic character and contribute to their individual success (Valant and Newark 2017).

Parents' perceptions of quality, and ultimately their school choices, are "emotional, value-laden, and culturally relevant...informed by how parents are politically situated within greater society and the educational structure" (Cooper 2005, 175). These "positioned choices" (Cooper 2005) can become an expression of a parent's identity (Cucchiara and Horvat 2013). In addition, a small subset of "marginal chooser" parents will have more and more accurate information on schools and will be better able to align their preferences to their choices (Schneider, Teske, and Marschall 2000). These families may put pressure on schools to increase school quality overall and create spillover effects for families who have less information or are less able to actively choose. However, highly active families may also push schools to accommodate their preferences at the expense of less active choosers' preferences, creating opportunity hoarding dynamics in which more privileged families are given priority over others

(Lewis and Diamond 2015; Posey-Maddox 2014; Posey-Maddox, Kimelberg, and Cucchiara 2014) Ultimately, school choices may be shaped by implicit preferences rather than an expressed desire for higher value-add schools, producing greater stratification (MacLeod and Urquiola 2018). As such, some scholars have critiqued frameworks that ask parents to rank their school preferences from a predetermined list, which presume that the items on the list are the most salient (Bowe, Gewirtz, and Ball 1994).

Parents' preferences are often revealed through their attention to the characteristics of students at a school. Abdulkadiroglu, Pathack, Schellenberg, and Walter (2017), for example, find that parents in New York City prioritized schools with higher-achieving peers rather than measures of school effectiveness or academic match. The racial composition of a school often plays a role. As Schneider and Buckley (2002) found, parents making school choices searched for information about a school's racial composition more than other indicators of school quality, such as information about the teachers or the school's test scores. Several studies have found that white families exercise choice out of schools or districts where the non-white population increases (e.g. Billingham and Hunt 2016; Lankford and Wyckoff 2005; Pogodzinski and Lenhoff 2018; Saporito 2009; Bifulco and Ladd 2007). Other studies have documented mixed evidence on the enrollment patterns of Black families, with some finding that Black families choose charter schools and nonresident district schools that are more racially segregated than their assigned schools (Bifulco and Ladd 2007; Edwards and Cowen 2019). However, Egalite, Mills, and Wolf (2017) found that 92% of Black families using private school vouchers reduce racial stratification in their sending schools and that 42% reduce stratification in their receiving schools (Egalite, Mills, and Wolf 2017). Although these patterns may reveal explicit racial,

ethnic, or religious preferences, they may also reflect issues of access that intersect with and exacerbate racialized patterns of enrollment and segregation (Scott and Quinn 2014).

School choice architecture can also influence the schools parents choose, suggesting that individual preferences are mediated by the presentation and perception of qualities in available schools (Corcoran, Jennings, Cohodes, and Sattin-Bajaj 2017; Hastings, Van Weelden, and Weinstein 2007; Valant 2014). For instance, Glazerman et al. (2018) found that "nudging" parents by sorting the presentation of schools by academic performance, rather than distance, induced parents to choose schools that were higher performing and farther away from home.

Social network influences on choice

Parents are influenced by their social networks when determining where to send their children to school (Altenhofen, Berends, and White 2016; Denessen, Driessena, and Sleegers 2005; Diamond and Gomez 2004; Holme 2002; Kleitz et al. 2000), and word-of-mouth information is the most common way parents find out about schools (Boyer 1992; Wilson 1992; Witte 1996). By contrast, families get less information from "formal networks," such as public meetings, published test results, and publicly available information (Ball and Vincent 1998; Goldring and Phillips 2008). Importantly, parents with higher incomes and higher education levels rely more on social networks, whereas lower income parents and parents with less education rely more on formal networks for information about schools (Schneider, Teske, and Marschall 2000; Smrekar 2009).

Social networks may be especially influential on stratified enrollment in highly desirable schools. Evidence from Detroit (Hamlin 2018) and Memphis (Smrekar 2009) suggests that parents who enroll in magnet or application schools, who often have higher incomes or higher levels of education, are motivated to explore these schools through their social networks.

Likewise, advantaged parents learn about "prestige" charter schools through word-of-mouth (Brown and Makris 2018). If parents make group-specific decisions based on class, race, or other group characteristics, school choice systems risk increasing student stratification (Ball, Bowe, and Gewirtz 1996).

Geography and perceptions of choice sets

Bowe, Gewirtz, and Ball (1994) reconsider parents' choice sets as situated within a 'landscape' in which policy context, preferences, and existing stratification intersect to shape how families perceive their options. This theoretical landscape is also influenced by the physical geography of school choices and homes. When studies have asked parents what is important to them when choosing a school, one of the top-cited attributes is proximity to home (Bell 2009a; Jabbar 2016). Parents have different conceptions of what is within a reasonable distance from their home, and those perceptions are influenced by both physical and socially-constructed boundaries (e.g., neighborhood and district boundaries; catchment areas; location of roads and sidewalks) as well as family and social resources. Geography also influences the dynamics of school choice through the social dimensions of space and place. Education policy researchers have begun to draw upon critical geography (Yoon, Gulson, and Lubienski 2018), which moves beyond positivistic approaches to geography information systems (GIS) research (Crampton 2010; Pavolvskaya 2006) and recognizes that places embody spatial histories and meanings, often associated with inequality and social stratification (Yoon and Lubienski 2017). Thus, geography affects school choice through both spatial positions and spatial dispositions.

The Detroit families Bell (2007; 2009a; 2009b) interviewed used similar methods to choose schools among their choice sets, but the schools that they considered varied by geography, with middle-class parents often choosing among a greater number of non-failing,

selective, or tuition-based schools than poor and working-class families. All parents prioritized geography when choosing schools, but they understood geographic constraints differently based on demands on their resources and in relation to their other priorities. Many families weighed whether another family member or friend would be able to pick up or drop off their child, or considered how a farther trip to school might disrupt the child's development or the whole family's dynamics (Bell 2009a). Also, families tended to attribute a school's neighborhood characteristics to their school, prompting some families to rule out schools in certain neighborhoods and compelling others to prioritize their neighborhood's school out of interest in community-building (Bell 2007).

A 2012 survey study of Detroit parents documented this stratification, finding that nearly 60% of parents were "veteran" shoppers who actively sought new information about a variety of schools, while about one-fifth of parents were unlikely to shop for schools due to "a lack of reliable information, transportation and family resources, and loyalty to [the traditional public school district]" (Wolf and Stewart 2012, 3). Another 20% of Detroit parents fell in between, as emerging or potential shoppers.

Jochim et al. (2014) found that 29% of Detroit families reported difficulty with finding transportation for their child to get to school. District and charter school leaders in Detroit also cite challenges with managing the logistical complications and costs of providing school transportation (Sattin-Bajaj 2018). These challenges have implications for how schools recruit students, affecting the supply of school options available to students. Despite the constraints of geography and limited transportation infrastructure, Detroit families are active choosers. Cowen et al. (2018) found that less than a quarter of Detroit students attended their closest school in 2015-16.

Studies on students' choice sets tend to use geographic or policy-imposed boundaries to determine students' choice sets, often conceptualizing all schools that are technically available to families as within their choice sets (e.g., Lincove, Cowen, and Imbrogno 2018). To the extent that families' choices are constrained and that social networks influence parent decision-making (Bell 2007, 2009a), however, universal choice sets may not adequately capture the range of schools parents consider, nor the dynamics associated with choosing schools where many neighbors attend school. Social networks that can provide information, access, or even transportation to schools further afield from home could potentially make schools feel more accessible to families. In this study, we fill this gap in the literature by approximating student choice sets based on where students' neighbors attend school, accounting for the relative influence of schools where many neighbors attend, theorizing that these schools may be viewed as more accessible and may have logistical advantages for families who have social support to attend school.

School choice policies have undeniably expanded school choice options compared to strict residential assignment to schools. Geographic information systems and more sophisticated student data management have made it possible for researchers to study the choice behavior of students and how that relates to myriad school, neighborhood, and policy dimensions. This study takes advantage of both technologies to measure the complex landscape of parental choice by creating unique measures of school characteristics that are dependent on families' residential geographies and the school choices already being made by their neighborhood peers. We theorize that families' decisions to exit their city for school is a process that involves the conceptualization of their choice set (through e.g., social networks, knowledge about or from teachers, visual cues) and the subsequent assessment of that choice set (through e.g., formal and

informal information on student discipline, attendance, and student achievement), given their preferences and resources.

Context

Detroit provides a unique context in which to better understand how parents may perceive their choice sets, where they choose to attend school given those choice sets, and how these factors may vary by student characteristics and geography. Although students can attend their neighborhood zoned school in Detroit Public Schools Community District (DPSCD), the boundaries for these schools are not well-defined or known to parents and less than a fifth of students attend the public school for which they are zoned. Students can attend the school that they are assigned by DPSCD, or a different school in DPSCD through intra-district choice (Wixom 2019) or by applying to one of DPSCD's application schools. Outside the district but within the city, they can also attend a charter school, most of which are available to any student applicant and are not over-subscribed. Students can exit the city for school in two ways: either through the state's inter-district choice policy or by enrolling in a charter school located outside of the city. Between 2010-11 and 2017-18, 17% of Detroit kindergarten students attended a public school outside the city, with 19% of those enrolled in a nonresident public school district, and 81% enrolled in a charter school outside of the city. According to the 2010-14 Census estimates, approximately 6% of Detroit resident students attended private school. Michigan does not collect data on homeschooling rates, but national estimates suggest that about 3% of students in the country are homeschooled.

Detroit policymakers and school leaders have a strong interest in bringing back students who exit the city for school. The Community Education Commission, an initiative of the mayor's office, publishes a schools guide to encourage parents to find options within the city near them

(Higgins 2019b) and has promoted a new initiative involving a bus loop and after school programs as a way to entice exiting families back to Detroit schools (Levin 2019). Likewise, DPSCD's superintendent promoted the district's new application-based school, and a plan to create more "new and unique schools," as a strategy for attracting families who attend schools in the suburbs back into the district (Higgins, 2019a). These initiatives are part of a broader effort to bolster Detroit's enrollment and improve the city's schools after years of declining enrollment and state interventions (Park and Rahn 2018).

Yet, individual preferences, municipal and school infrastructure, and policy constraints complicate the efforts to reverse student exit from Detroit. Our prior research has documented many of the individual and neighborhood factors that may be pushing families to exit Detroit, including race, grade, concentration of schools, blight and vacancies, crimes, residential mobility, and proximity to the border (Lenhoff et al. 2019; Singer et al. in press). Cowen et al. (2018) found that the supply of "high quality" schools (as measured by academic outcomes, chronically absent students, student-teacher ratio, and graduation rates for high schools) is disproportionately outside the city of Detroit and that the few Detroit students who attend those schools are more likely to be from historically advantaged groups than disadvantaged groups.

In the current study, we use a novel approach to estimating families' perceived choice sets in the city by weighting the characteristics of the schools attended by the peers in their neighborhoods. We focus on how the characteristics of schools that parents may view as accessible to them, including low academic performance, school discipline, demographics, and school instability, may be pushing families to exit. In a context where the vast majority of Detroit schools have low academic performance, other characteristics may become more salient for families who are choosing. For instance, families may increasingly be aware of the connection

between school discipline and student outcomes and may seek out schools with lower racial disproportionality in assigning disciplinary penalties (Anderson and Ritter 2018). In addition, because most Detroit students do not have access to school-sponsored transportation (Singer et al. 2020), their perception of schools as accessible may be more relevant than the universe of schools legally accessible, in terms of how to make sense of why they exit the city for school. Our findings have implications for other regions where policymakers are interested in understanding declining enrollment due to school choice, and they speak to the dimensions of schools that parents may be considering when making that choice.

Methodology

Data

This study uses confidential student-level administrative data from the Michigan Student Data System, managed by the Michigan Department of Education and the Center for Education Performance and Information. The dataset includes student-year records for every student who was enrolled in a public school (traditional or charter) in Metro Detroit during the school years 2010-11 to 2017-2018. Each record includes demographic information (race/ethnicity, gender, indicators of economic disadvantage, special education, and English language learner, and grade); residential information (residential school district, geocode for the Census block in which the student lives); and school information (school building and district where the student is enrolled). For this analysis, we used the student-level data associated with the primary school in which the student was enrolled during the fall of each school year.

These data were used to identify our population of interest, Detroit resident kindergarten students. To identify a student as a Detroit resident, we first flagged all students for whom the state administrative dataset had labeled as having a residential district code for Detroit Public

Schools Community District, meaning that their zoned district was the main Detroit school district. Then, we mapped all of those students' geocodes onto a district shape file in QGIS. Any students for whom the state data identified as a Detroit resident but the mapping analysis identified as living outside of the Detroit district, we dropped from our analysis. Our sample included 50,052 unique student-year records for kindergarten students who lived in the city of Detroit during the fall of a school year in years 2010-11 through 2017-18. We also created a new variable for each record indicating whether a student attended a school outside Detroit in the fall of the school year. About 17% of Detroit kindergarten students were identified as having enrolled in a non-Detroit public school across all years.

As part of our confidential data agreement, we also received data on teachers in Metro Detroit schools over the same time period. These data included where they were employed over time, allowing us to calculate school-level rates of return each year, as a measure of staff stability. From the student-level data, we calculated additional school-level variables by year, including aggregate student demographics, z-scores on the state math assessments, and the percentage of students who left the school when they were not in a grade-transition year. We also used the Civil Rights Data Collection public use files to calculate the number of student discipline infractions per 100 students each year. All school-level aggregates were standardized at the school level and were used to represent the school characteristics that parents may be weighing when choosing among the schools in their local choice sets or seeking suburban schools. In particular, we focus on the stability of the teaching force, which may be of concern to families in a context with a well-documented shortage of qualified teachers (Ingersoll 1999; 2001; Higgins 2019c). We examine discipline infractions because of the increased focus on racial disproportionality in school discipline in the academic literature (e.g., Anderson and Ritter

2018; Skiba et al., 2014) and popular press. Descriptive statistics of all variables in our model are shown in Table 1. School-level statistics are based on prior-year data and are shown for both the set of all schools that were the nearest school to a student in our data set, as well as for students' peer school choice sets.

[insert Table 1 about here]

Construction of neighborhood choice sets

Like many urban cities with rich cultural histories, Detroit has non-uniform neighborhoods that organize social and cultural life. Many of these neighborhoods are used as shorthand to describe geographic areas of the city. The City of Detroit has formally adopted a neighborhood map with 194 named neighborhoods across the city's 143 square miles. We downloaded a map file with these neighborhood boundaries for our analysis. In order to determine the influence of students' choice sets on exiting Detroit for school, we conceptualized them in two ways: their closest school and the set of schools that are attended by peers in their neighborhood. We restricted choice sets by school year, so that students' neighborhood choice set characteristics were based only on the characteristics of those schools in the prior year, to ensure that students' own data were not included in the choice set characteristics and to approximate the characteristics that parents would be aware of as they make a decision about where to enroll their child for kindergarten.

The peer choice set specification accounts for the possibility that students who live in different areas of the city may have different means of accessing schools further from home, due to infrastructure (i.e., school site location, city bus routes, neighborhood safety, and availability of childcare) or concentrations of economic disadvantage that are not observable in our data (i.e., access to a personal automobile, housing insecurity). Importantly, we included all schools that

neighborhood peers attended and weighted the neighborhood choice set characteristics by the percentage of neighborhood students who attended each school. For each student, every school in their neighborhood was represented in their choice set because every neighborhood school had neighborhood students who attended it. This procedure allowed us to approximate the potential influence of families' social networks, considering that, if more of a family's neighbors enroll in a particular school, there will be a greater likelihood that a family will have heard about the school, have social connections with families who attend, and have social capital to support transportation to the school. In our results section, we display maps that reveal the significant differences in the distribution of K-8 students across schools in the city, based on their residence in four neighborhoods with unique histories and demographics.

Analytic approach

First, we ran t-tests to compare the mean individual characteristics and Detroit choice set characteristics of students who stayed in Detroit for school (Stayers) and those who exited Detroit for school (Exiters). We also compared Black Detroit kindergarteners to their non-black counterparts, as a first step in determining whether students' available choice sets may differ by race. We then ran a series of linear probability models predicting exit as a function of individual characteristics and choice set characteristics.

We estimated three models to examine the association between student and neighborhood choice set characteristics and whether a student attended school outside Detroit. First, we estimated an unconditional linear probability model (Model 1). We then estimated two conditional models using this basic formula, with robust standard errors clustered at the choice set:

$$y_{is} = \alpha \cdot X_i \cdot \beta + \gamma \cdot Z_{st} + \eta_t + \pi_s + \varepsilon_{is}, \qquad\qquad (1)$$

where y_{is} is an indicator of whether student *i* with choice set *s* exited Detroit for school. X$_i$ represents a set of student-level characteristics, such as race (Black is the omitted variable), English language learner status, special education status, and distance from the student's resident to Detroit's border. Z_{st} represents the student's choice set characteristics, such as student stability, teacher return rate, percentage of students who are economically disadvantaged, percentage of students who are Black or Latinx, the discipline rate, and the average math z-score on the state assessment. Model 2 choice set characteristics were based on the student's nearest school. Model 3 choice set characteristics were based on the student's peer choice set. In both models, we also included the percentage of students in the neighborhood who attended their nearest school, as an indicator of the extent to which students in that neighborhood were able to enroll in a school farther from home.

Results

How do Detroit choice sets differ between groups?

As shown in Figure 1, rates of exit from Detroit vary dramatically by area of the city and neighborhood, with the highest rates concentrated at the borders. The lowest rates of exit are in Southwest Detroit, where large concentrations of Latinx families live. These patterns are reflected in the t-tests comparing Exiters to Stayers in Table 2. While 12% of kindergarteners who enrolled in a Detroit school were Latinx, just 5% of Exiters were Latinx. Three percent of Stayers were white or MENA (Middle Eastern and North African), and just 1% of Exiters were white or MENA. Conversely, 3% of Exiters were Asian, and just 1% were Stayers were Asian. Exiters on average lived a half mile closer to a non-Detroit border than Stayers, and they also lived in neighborhoods where lower percentages of students attended their nearest school,

indicating that Exiters lived in neighborhoods where families are either less satisfied with the

nearest school option and/or had more resources to attend school further from home.

[insert Table 2 about here]

[insert Figure 1 about here]

Although Detroit is a majority Black city, there are higher concentrations of Latinx,

Asian, and white or MENA students in geographic pockets throughout the city. This geographic

racial sorting may have implications for equitable access to higher quality schools in the city. We

also analyzed differences in Detroit choice sets by Black and non-black students and found that

schools in Black students' choice sets had much higher rates of discipline, had lower student

stability, a lower teacher return rate, and lower student performance z-scores in math in their

choice sets, as shown in Table 3. In other words, Black students had lower quality schools on

several dimensions in their choice sets than did non-black students in Detroit. This is reinforced

by the fact that Black students had lower percentages of neighborhood peers who attended their

nearest school, suggesting that Black students may have neighbors that perceived their nearest

school as lower in quality than non-black students. Although average math test scores were

higher in students' peer choice sets than in their nearest school choice set, other characteristics

were about the same or slightly worse. This further suggests that, although many families are

choosing schools farther from home, those schools may not be, on average, significantly higher

quality on dimensions other than academic performance.

[insert Table 3 about here]

What pushes Detroit students out?

In our linear probability models, shown in Table 4, white or MENA, Asian, and Other

Race students were more likely to exit than Black students. Special education students and

students who lived further away from a Detroit border had lower probability of exiting across all models. English language learner status, economically disadvantaged status, and being female were not significantly associated with the probability of exiting.

[insert Table 4 about here]

Students whose Detroit choice set schools had higher student stability year-over-year and higher percentages of students attending their nearest school had lower probability of exiting, controlling for other covariates. Students whose choice sets had higher discipline rates were more likely to exit across both models. The percentage of economically disadvantaged students was positively associated with exit in the nearest school model, but insignificant in the peer choice set model. The average z-score on the state math assessment was negatively associated with exit in the peer choice set model, but insignificant in the nearest school model. Individual student characteristics, particularly student race, had stronger relationships with exit than did choice set characteristics. Among choice set characteristics, the percentage of neighbors attending their nearest school had the strongest relationship with the outcome, with students being significantly less likely to exit as the percentage of their peers attending their nearest school increased. The adjusted r-squared was 0.054 in Model 2 and 0.059 in Model 3.

Geographic patterns in choice sets and exit

We mapped four Detroit neighborhood choice sets to show how the patterns of enrollment in Detroit varied dramatically by geography, and we also mapped the patterns of exit from those neighborhoods, to show how different Exiters from different neighborhoods chose different types of schools.

Brightmoor

In Figure 2, we display the choice set for Detroit students who live in Brightmoor, on the city's far west side. Brightmoor has a strong cultural history and was a thriving working class community of single-family homes during Detroit's boom years. Like other areas in the region, it lost population over the last 30 years and suffered from divestment and blight. Nearly all of Brightmoor's residents are Black and economically disadvantaged. Over time, many of the neighborhood's schools were closed, leaving only one traditional public school within its 4-square-mile boundary. In 2017-18, the largest proportion of Brightmoor students attended the lone traditional public school in the neighborhood, with a charter school north of the neighborhood the second highest attended. Other Brightmoor students were scattered far afield, with just a few students from the area attending schools in dozens of other neighborhoods. About 30% of Brightmoor's students attended school outside of Detroit, mostly in traditional public and charter schools within a few miles of Detroit's northwest border.

[insert Figure 2 about here]

Springwells

The patterns of choice sets and exit enrollment are dramatically different in Springwells, a neighborhood in southwest Detroit. Southwest Detroit is home to the vast majority of Detroit's Latinx residents and has high rates of English Language Learners. As shown in Figure 3, students in Springwells have access to schools that are much more concentrated near where they live. The majority attended school within the Springwells neighborhood, which has four schools, or an adjacent neighborhood in southwest Detroit. Very few Springwells students attended school outside of Southwest, and just 5% of Springwell's students exited Detroit for school.

[insert Figure 3 about here]

Warrendale

Warrendale is a neighborhood on the west side of Detroit that borders Dearborn, home to the largest population of people of Middle Eastern descent outside of the Middle East. Warrendale's student population is largely categorized as white, we believe largely due to reporting rules that require MENA students to be categorized as white. Warrendale also has a large population of non-native English speakers. As shown in Figure 4, more than a quarter of Warrendale students attended school in the neighborhood, but the rest were distributed widely throughout the city. Nearly three-quarters of Warrendale students attended non-Detroit schools, throughout the suburbs of Detroit, including many in charter schools in the districts surrounding Detroit to the south, west, and even some to the north.

[insert Figure 4 about here]

Franklin

Finally, we mapped the choice set for students who lived in the Franklin neighborhood, with fewer than 400 students. As shown in Figure 5, there were no schools in Franklin itself, but most students attended school at three traditional public schools and one charter school near the neighborhood. Many of Franklin's students exited Detroit for school, mostly to charter and traditional public schools very near their neighborhood, just over the border in places like Harper Woods. Some Franklin students did attend school much farther away, in suburbs far north and south of Detroit.

[insert Figure 5 about here]

Discussion

Families are positioned within a "landscape" of choices, they evaluate what they perceive to be their options, consider their personal resources, and make judgments that may or may not lead them to make a choice (Bowe, Gewirtz, and Ball; 1994). This paper built on the metaphor of the

landscape to construct unique school choice sets for each of the 194 neighborhoods in Detroit, taking into account where neighbors attended school, individual student characteristics, and geographic constraints such as distance from the border. While school choice policies have undoubtedly expanded the options available to Detroit families, our findings indicate that families' choices continue to be constrained by where they live in the city and their social position and that non-test score characteristics may be influencing parents' decision-making.

In this study, Detroit families were more likely to exit Detroit for school if the Detroit schools accessible to them were lower quality in terms of student stability and discipline rates across both choice set models, as well as student achievement in the peer choice set model. However, Detroit students had different school choices accessible to them in the city. A clear example is around student discipline – an important indicator of quality because it is associated with student safety, attendance, and engagement. In the U.S., Black students are disproportionately punished through exclusionary discipline and for subjective infractions than are white students (Skiba et al. 2014), with disproportionalities more pronounced between schools than within schools (Anderson and Ritter 2018). Perceptions of discipline may play an outsized role in shaping family school choice decision-making in Detroit, where the vast majority of students are Black. Students with higher discipline rates in their Detroit choice sets had greater probability of exiting Detroit for school, controlling for student race and other demographics. Black Exiters had schools with higher discipline rates in their Detroit choice sets than non-Black Exiters.

These findings illustrate how families' choices are positioned both socially and geographically and underscore the importance of grappling with the complexity of choosing within a particular policy context. Many Detroit students leave the city for school every day, but

they do so for different reasons and at different rates depending on both who they are as individuals and the choices they have available to them in the city. Although Detroit is unique in its breadth of school choice options and extreme poverty and segregation (Singer et al. in press), these findings have important implications for other contexts where students are choosing among local and nonresident schools. Although the specific characteristics of students and schools may be different in other metro regions and non-urban communities, these findings help to illuminate how both individual and school choice characteristics are related to choosing schools far from home, and they draw attention to the potential differences in choice set characteristics between groups of students. These differences can inform policymakers about where to site new schools or invest more resources into improving existing schools, regardless of the context.

At the same time, our findings also suggest that administrative data may not be able to account for most of the variation in school choosing decisions. The low adjusted r-squared in both models indicate that school choosing may be driven by unobservable characteristics in families individual or school choice sets, or they may be somewhat idiosyncratic. While the significant coefficients do suggest meaningful variation in exit patterns based on student and choice set characteristics, it may be that families do not generally perceive enrolling in a non-Detroit school as a meaningful decision, since Detroit schools themselves have open choice, and DPSCD attendance zones are not well known. In other words, it may be that choosing a school outside of the city is similar to choosing a school within the city.

These contributions to our theoretical understandings of choice have several important takeaways that may inform policy and practice. First, students have drastically different choice sets depending on where they live in the city, both in the number of schools available and in the qualities of those schools, particularly when looking beyond test scores. Policymakers may want

to consider this distribution of schools when making decisions about opening new schools, expanding or adding new programs, or piloting interventions to improve school qualities like discipline policy or instructional effectiveness.

Second, our findings suggest that Black students have lower quality choices available to them in the city, on average, than other-race students. While school choice policies have increased the supply of schools available to Detroit students, these policies have not been able to fully disentangle the associations among race, geography, and access that have defined the landscape of educational opportunity in Detroit for generations. Redlining, white flight, and a proliferation of local school districts in the Metro area contributed to a segregated educational system that school choice policies alone cannot overcome. Scholars have argued that educational policies are unlikely to reduce racial inequity without explicit remedies to these historical wrongs, in addition to increased investment in schools serving historically disadvantaged groups (Cobb and Glass 2009; Holme, Finnigan, and Diem 2016; Kiel 2016; Orfield and Frankenberg 2013). Because the geography of Detroit is racialized, with non-black students living primarily in racial/ethnic enclaves, policymakers may want to consider how their school improvement efforts are being distributed across those geographies.

Third, families appear to be sensitive to differences in school quality on dimensions beyond student test scores. Holding average achievement scores within choice sets constant, families were more likely to exit Detroit for school if their schools had higher discipline rates and less likely to exit if they had higher student stability. This is important for policymakers as they continue to refine systems of public information on school performance. Our findings suggest that more nuanced information about schools may be used by parents and that systems that attempt to rate schools should consider a broader set of characteristics beyond test scores.

This paper contributes to the literature on how families may be conceptualizing their school choice sets, how the characteristics of those choice sets are associated with their decisions to exit local schools, and whether there are inequitable choices for students based on race and geography. Rather than treat all families as if they have the same access to schools within a certain distance from their home, we constructed a measure of choice sets that considered the differences in social networks, access to transit, school infrastructure, and other variables that influence where families believe they can enroll their children. Taking this approach allowed us to demonstrate the unique tradeoffs that families may be making, given the complexity of their landscapes and the constraints around them.

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Tables

Table 1. Descriptive statistics of resident Detroit Kindergarten students and their school choice sets, 2012-13 through 2017-18

	N	Mean	Std. Dev.	Min	Max
Student-Level					
Exit Detroit for School	50,052	0.17	0.37	0	1
Female	50,052	0.49	0.50	0	1
Special Education	50,052	0.09	0.29	0	1
English Language Learner	50,052	0.11	0.32	0	1
Latinx	50,052	0.11	0.31	0	1
White or MENA	50,052	0.04	0.20	0	1
Asian	50,052	0.01	0.10	0	1
Other Race	50,052	0.01	0.10	0	1
Economically Disadvantaged	50,052	0.91	0.29	0	1
Distance from home to Detroit border+	50,052	0.00	1.00	-1.96	2.81
Nearest School					
Student stability rate+	487	0.81	0.09	0.21	1.00
Discipline Rate+	487	19.45	13.85	0.00	88.61
Teacher Return Rate+	487	0.68	0.20	0.00	1.00
% Economically Disadvantaged+	487	0.88	0.10	0.42	1.00
% Black or Latinx students+	487	0.96	0.08	0.51	1.00
Average Math MEAP/M-STEP z-score+	487	-0.86	0.38	-1.60	0.60
% Attending Nearest School	487	0.25	0.11	0.00	0.64

Peer Choice Set

Student stability rate+	523	0.82	0.04	0.72	0.95
Discipline Rate+	523	18.59	6.63	2.90	37.89
Teacher Return Rate+	523	0.65	0.08	0.34	0.84
% Economically Disadvantaged+	523	0.89	0.04	0.72	0.97
% Black or Latinx students+	523	0.96	0.06	0.61	0.99
Average Math MEAP/M-STEP z-score+	523	-0.85	0.20	-1.39	-0.14

Table 2. T-Tests: Kindergarten stayers compared to exiters on push factors (2010-11 through 2017-18)

	Kindergarten Stayers	Kindergarten Exiters
Student-Level		
Black	0.83	0.80***
Female	0.49	0.50
Special Education	0.09	0.08***
English Language Learner	0.12	0.11*
Latinx	0.12	0.05***
White or MENA	0.03	0.1***
Asian	0.01	0.03***
Other Race	0.01	0.02***
Economically Disadvantaged	0.90	0.91
Distance from home to Detroit border	3.08	2.57***
Nearest School		
Student stability rate	0.81	0.80***
Discipline Rate	0.21	0.22***
Teacher Return Rate	0.69	0.69
% Economically Disadvantaged	0.89	0.91***
% Black or Latinx students	0.96	0.94***
Average Math z-score	-0.91	-0.90***
% Attending Nearest School	0.25	0.24***
Peer Choice Set		

Student stability rate	0.82	0.81***
Discipline Rate	0.19	0.21***
Teacher Return Rate	0.64	0.63***
% Economically Disadvantaged	0.898	0.902***
% Black or Latinx students	0.955	0.949***
Average Math z-score	-0.87	-0.89***

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

Table 3. T-Tests: Choice set characteristics of Black students and non-black students (2010-11 through 2017-18)

	Non-black	**Black**
Nearest School		
Student stability rate	0.88	0.80***
Discipline Rate	0.12	0.23***
Teacher Return Rate	0.74	0.68***
% Economically Disadvantaged	0.89	0.90***
% Black or Latinx students	0.86	0.97***
Average Math z-score	-0.78	-0.94***
% Attending Nearest School	0.29	0.24***
Peer Choice Set		
Student stability rate	0.87	0.80***
Discipline Rate	0.11	0.21***
Teacher Return Rate	0.67	0.63***
% Economically Disadvantaged	0.92	0.90***
% Black or Latinx students	0.86	0.97***
Average Math z-score	-0.74	-0.90***

Table 4. Linear probability regression models of exit for Kindergarten Detroit Students

	Model 1	Model 2	Model 3
Student Characteristics			
Female		0.00	0.00
		(0.00)	(0.00)
Special Education		-0.03***	-0.02***
		(0.01)	(0.01)
English Language Learner		0.00	0.00
		(0.02)	(0.04)
Latinx		-0.02	0.04
		(0.02)	(0.04)
White or MENA		0.23***	0.26***
		(0.03)	(0.07)
Asian		0.32***	0.35***
		(0.04)	(0.08)
Other Race		0.25***	0.26***
		(0.03)	(0.03)
Economically Disadvantaged		-0.01	0.00
		(0.01)	(0.01)
Distance from home to Detroit border+		-0.04***	-0.04***
		(0.00)	(0.01)
Choice Set Characteristics			
Student stability rate+		-0.01*	-0.04***
		(0.01)	(0.01)
Discipline Rate+		0.02***	0.02*
		(0.00)	(0.01)
Teacher Return Rate+		0.01	0.00
		(0.01)	(0.01)
% Economically Disadvantaged+		0.02***	0.00
		(0.00)	(0.01)
% Black or Latinx students+		0.00	-0.01
		(0.01)	(0.01)
Average Math MEAP/M-STEP z-score+		0.00	-0.01*
		(0.00)	(0.00)
% Attending Nearest School		-0.18***	-0.14*
		(0.05)	(0.06)
Intercept		0.20***	0.18***
		(0.02)	(0.02)
Adjusted R-squared	0.00	0.054	0.059

N students	50,052	47,026	50,052

Note. Robust standard errors in parentheses.
*p<0.05, **p<0.01, ***p<0.001
+standardized

Figures

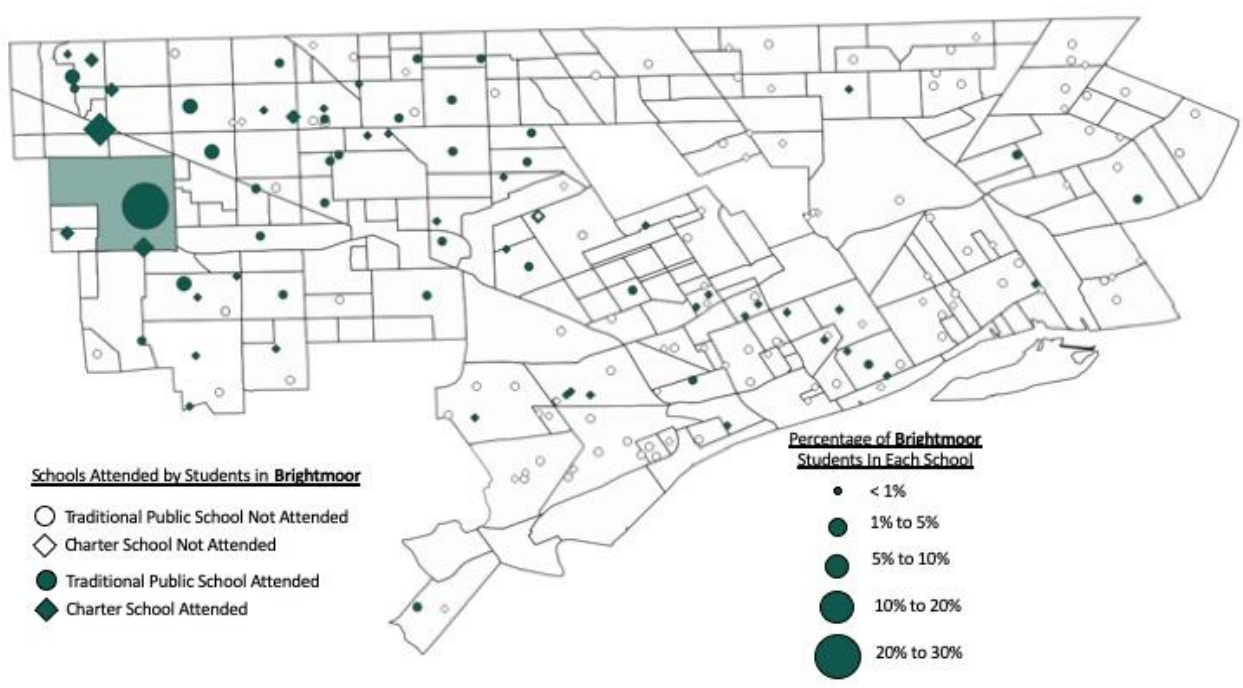Figure 1. Percentage of students that exited Detroit for school in 2017-18, by neighborhood
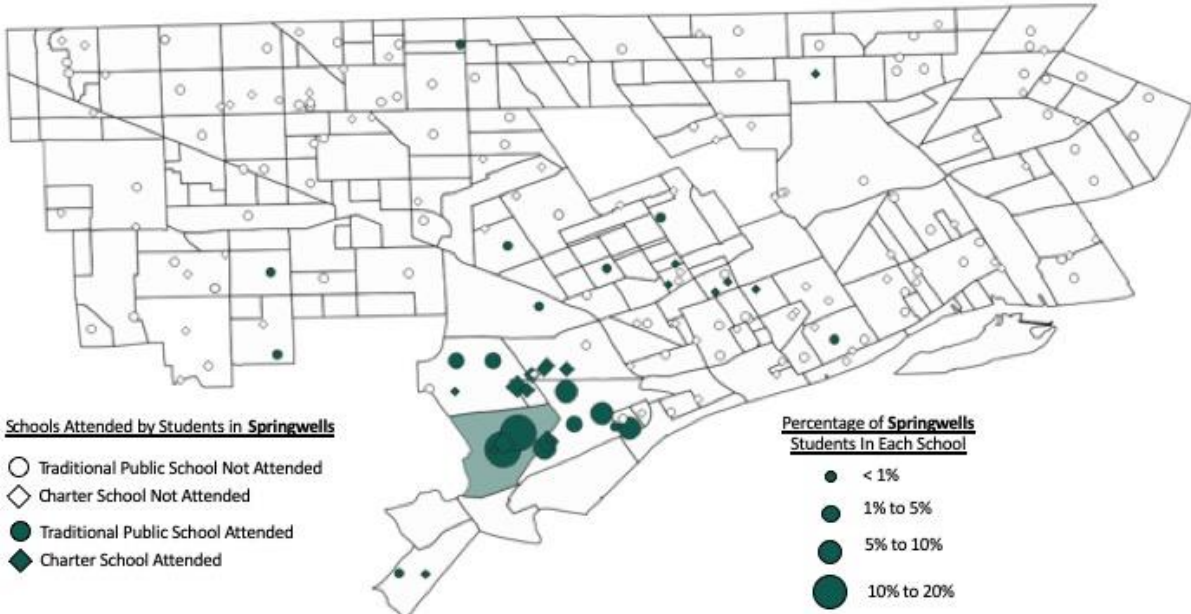
Figure 2. Brightmoor K-8 choice set, 2017-18
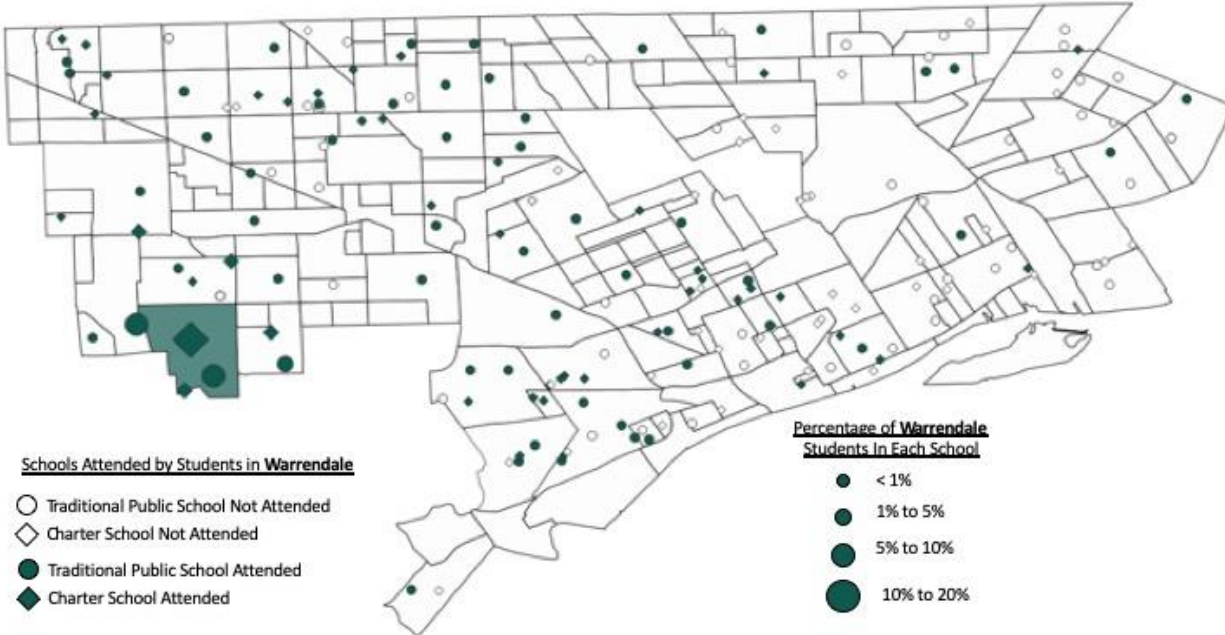
Figure 3. Springwells K-8 choice set, 2017-18

Figure 4. Warrendale K-8 choice set, 2017-18

Figure 5. Franklin K-8 choice set, 2017-18

Figure 1. Percentage of students that exited Detroit for school in 2017-18, by neighborhood

Figure 2. Brightmoor K-8 choice set, 2017-18

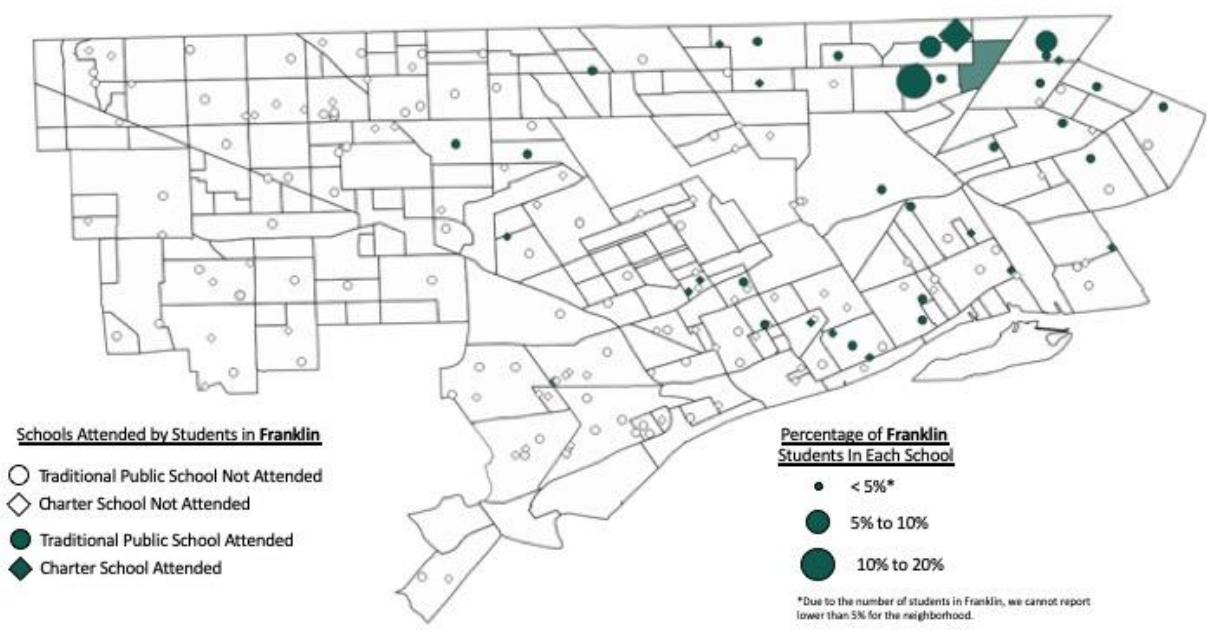Figure 3. Springwells K-8 choice set, 2017-18

Figure 4. Warrendale K-8 choice set, 2017-18

Figure 5. Franklin K-8 choice set, 2017-18