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Segregation within Pennsylvania's Charter School Transfers

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Abstract: Using individual-level student data from Pennsylvania, this study explores the extent to which charter school racial composition may be an important factor in students' self-segregative school choices. Findings indicate that, holding distance and enrollment constant, Black and Latino students are strongly averse to moving to charter schools with higher percentages of White students. Conversely, White students are more likely to enroll in such charter schools. As the percentage and number of students transferring into charter schools increases, self-segregative school choices raise critical questions regarding educational equity, and the effects of educational reform and school choice policies on the fostering of racially diverse educational environments.

Keywords: charter schools; racial segregation; educational equity; diversity; school reform

La exploración de la elección de escuela y los consecuencias para la segregación racial de los estudiantes dentro de las transferencias escuelas charter de Pennsylvania

Resumen: El uso de datos de los estudiantes a nivel individual de Pennsylvania, este estudio explora la medida en la composición racial escuela autónoma que puede ser un factor importante en la selección de escuelas auto-segregadora de los alumnos. Los resultados indican ue, la celebración de la distancia y la inscripción constante, los estudiantes latinos y negros son fuertemente reacios a trasladarse a las escuelas autónomas con mayor porcentaje de estudiantes blancos. Por el contrario, los estudiantes blancos son más propensos a inscribirse en este tipo de escuelas autónomas. Como el porcentaje y el número de estudiantes que se transfieren al charter escuelas aumenta, opciones de escuelas auto-segregadora plantean cuestiones críticas con respecto a la equidad educativa, y los efectos de las políticas de reforma y de elección de escuelas de educación sobre el fomento de diversas razas entornos educativos.

Palabras-clave: escuelas charter; segregación racial; equidad educativa; la diversidad; reforma de la escuela

A exploração de escolha da escola e as consequências para a segregação racial de alunos em escolas charter transferências Pennsylvania

Resumo: A utilização de dados de estudantes a nível individual da Pensilvânia, este estudo explora a extensão a composição racial escola charter pode ser um fator importante na seleção de escolas os alunos auto-segregação. Os resultados indicam ue, mantendo constante a distância e inscrição, os estudantes latinos e negros são fortemente relutantes em mudar-se para as escolas charter com o maior percentual de alunos brancos. Por outro lado, os alunos brancos são mais propensos a se inscrever neste tipo de escolas charter. Como a percentagem eo número de alunos que transferir para as escolas charter aumenta, a escolha da escola de auto-segregação levantar questões críticas sobre a equidade educacional, e os efeitos das políticas de reforma e escolha da escola de promoção de educação racialmente diversos ambientes educacionais.

Palavras-chave: escolas charter; segregação racial; equidade educacional; diversidade; reforma da escola

Introduction

Although charter schools have very high levels of segregation as compared to traditional public schools (Cobb & Glass, 1999; Frankenberg, Siegel-Hawley, & Wang, 2011), some have argued this is due to their disproportionate location in urban areas (see Carnoy, Jacobsen, Mishel, & Rothstein, 2005). Because of the continuing importance of school racial composition for students' experiences and outcomes in schools and beyond (e.g., Linn & Welner, 2007; Mickelson & Nkomo,

2012), federal law and policy endorse the importance of pursuing diverse student bodies and/or eliminating racial segregation for traditional public schools (hereafter, TPS) and charter schools alike. At a time of persisting neighborhood segregation, it is critical to assess how student movement to and from charter schools affects school segregation, as well as whether students and parents make these choices while more integrative options exist. Few studies have been able to ascertain how movements to charter schools affect segregation, but those that have suggest that the moves to charter schools for Black students result in more segregated school contexts; findings for White and Latino students, where studied, are more mixed (Bifulco & Ladd, 2007; Kotok, Frankenberg, Schafft, Fuller, & Mann, 2015; Stein, 2015; Zimmer et al., 2009).

This study focuses on the extent to which transfers from TPSs to charter schools in Pennsylvania metropolitan areas provide students with opportunities to enroll in racially diverse educational environments, and how the racial composition of “destination” charter schools compares to racial composition of the TPS the student left. Our study uses school-level and individual-level data from Pennsylvania to examine the extent to which student choices influence racial segregation in 10 Pennsylvania metropolitan areas with more than one charter school so that students have multiple charter school options. Specifically, this study addresses two main research questions:

- 1) Does the racial segregation of Black, White, and Latino students differ between the TPS they exit and the charter schools they enroll in? If so, to what extent?
- 2) Do students of different races choose charter schools where the racial composition is similar to theirs and to what extent does the school’s distance influence enrollment?

We answer these questions by analyzing the transfers of more than 8,000 students who left a Pennsylvania TPS in 2010–11 and transferred to charter schools the following year within the same metropolitan area. Although several other studies use individual data to examine charter school racial composition and segregation, our study makes a unique contribution by considering students’ enrollment decisions in the context of the supply of charter school options of differing composition available to them. As we describe below, Pennsylvania is an ideal site to study these questions because of its legal and demographic context pertaining to charter schools. The number of charter schools has increased 54% between 2006–07 and 2010–11, and charter schools are located disproportionately in the state’s metropolitan areas (Schafft et al., 2014).

Perspectives

Theory of School Choice

Assumptions. Historically, public school choice in the United States has long been geographically constrained. For many students, the only choices they have regarding where they can attend school are tied to their families’ residential locations within certain neighborhoods, which are associated with specific school districts and often a particular school.² Initially advocated by Milton Friedman in the 1950s who proposed school vouchers, the market theory of school choice suggests that allowing families more choice would spur competition among schools. Schools are also freed from certain governmental regulations. Together these processes would improve educational outcomes for all students. Friedman (1955) and others (e.g., Hoxby, 1996; Moe, 2001) argued that while all students would benefit, disadvantaged students would benefit the most from a more market-oriented system of schooling since markets are color-blind (Henig & McDonald, 2002).

² Of course, given discrimination in the housing market, and community zoning restrictions, residential choice is not equally available for all (e.g., Rothwell, 2012).

School choice today takes many forms (Orfield & Frankenberg, 2013). One of the oldest and most widespread forms of choice has been magnet schools and some districts also operate choice systems that govern the assignment of students to all schools. While both magnet schools and controlled choice policies began to try to create more integration, not all magnet schools or districtwide choice or transfer policies are now aimed primarily to achieve diversity. Charter schools began in the early 1990s as a means to provide more flexibility than TPS in exchange for accountability. While charter schools are publicly-funded schools of choice, they are often separate from public school districts and may have their own admissions process. More recently, implementations of vouchers have provided public funding for students to use at private schools.

The implementation of school choice during the last several decades has not delivered improved outcomes for all students as Friedman and Moe predicted, although school choice advocates might argue that the reason choice in practice has not delivered is that it has not been implemented fully (Scafidi, 2015). Charter schools have emerged as the most rapidly increasing form of school choice, spurred in part by governmental policy incentives in recent decades. The effects of charter schools on academic achievement are vigorously debated, though most analyses suggest that many students' scores do not increase after moving to charter schools (e.g., Bettinger, 2005; Bifulco & Ladd, 2007; Chingos & West, 2015; Clark, Gleason, Tuttle, & Silverberg, 2015), that charter schools may have mixed or negative effects on a TPS (Bettinger, 2005; Zimmer et al., 2009), and there may be high student attrition from charters (Miron, Urschel, & Saxton, 2011). Moreover, most researchers agree that there is considerable variety in student outcomes within the charter school sector (Berends, 2015; Buddin & Zimmer, 2005).

Indeed, Orfield & Frankenberg (2013) argued that market-based school choice is based on several assumptions. First, all potential consumers (e.g., families) have equal access to accurate information about their possible options (Bell, 2009; Holme, 2002). Second, it assumes there is widespread competition with many providers (e.g., schools), which would provide incentives for providers to improve and differentiate their product (Lubienski & Lee, 2016). Third, all consumers must have equal choice opportunities. National and state-level educational policies have often been implemented to increase access to school choice (U.S. Department of Education, 2014). However, for school choice to produce the intended improved outcomes for all students under the market theory, families need access to appropriate information in a means that is understandable. Moreover, competition assumes that there is a shared set of criteria across all groups by which schools are being judged; this is often assumed to be standardized test or accountability scores of schools (Orfield & Frankenberg, 2013). Yet research suggests that higher income families may have more access to information to make choices (Teske & Schneider, 2001). When coupled with other advantages such as reliable transportation, because of the overlap between family socioeconomic status and race, choice may further stratification (among public school districts, see Carlson, Lavery, & Witte, 2011). Further, some forms of academic achievement data are less comprehensible to parents (Hastings & Weinstein, 2008). For example, test scores are not necessarily significant predictors of parents' school choices (Butler, Carr, Toma, & Zimmer, 2013), nor do they always choose the "optimal" school (Villavicencio, 2013). Recent research also suggests that while some charter schools are located in "high need" areas, they are rarely located in the "highest need" areas (LaFleur, 2016). Given the consistent enrollments of some charter schools that have weak academic outcomes, it is questionable whether these assumptions of the market theory hold in a complex system like public schools. In this case, school choice might result in increasingly segregated school environments instead of a competitive "market-driven" system of school choice that spurs educational innovation through open competition.

Charter Schools and Segregation. Early advocates of charter schools argued that these schools would yield educational competition and institutional innovation (Chubb & Moe, 1990), while other charter school advocates later argued that choice afforded by charter schools would in fact foster educational equity and racial diversity (Finn, Manno, & Wright, 2016). The logic of the latter argument was that families from racially segregated, high-poverty neighborhoods would no longer be bound by traditional school attendance zones when evaluating options for the education of their children. That is, new choice options afforded by charter schools would create new opportunities for students to attend schools with more racially integrated student bodies than existing options within TPS (Frankenberg, et al., 2011; Lubienski, Gulosino, & Weitzel, 2009). While some students would remain within racially segregated TPSs, the overall charter “school choice” outcome could well be the creation of more racially diverse schools without having to address the politically thornier and far more complex issues of deeply entrenched racial and socioeconomic housing segregation, or contentious school catchment boundaries. It is exactly the enduring school segregation (Orfield & Frankenberg, 2014) coupled with the suggestion that charters can yield educational equity that at least partially explains why many proponents frame school choice as a civil rights issue (Scott, 2011). This underscores the importance of looking more systematically at how charter school choice may, in fact, yield integrative or segregative outcomes with regard to school enrollments.

Despite the optimism among some proponents that school choice would create racially diverse student bodies, charter schools have been found to be more racially homogenous than TPSs (Frankenberg et al., 2011; Garcia, 2008). For example, in several studies, Black students attended charter schools where the percentage of Black students was 15 or more percentage points greater than the TPS they exited (Kotok et al., 2015; Weiher & Tedin, 2002). Additionally, studies of individual charter movers in Arizona (Garcia, 2008), North Carolina (Bifulco & Ladd, 2007), Texas and California (Booker, Zimmer, & Buddin, 2005), and Ohio (Zimmer et al., 2009) support the claim that students—especially Black students—tend to leave more racially diverse TPSs for more segregated charter schools. Some studies also find that White students’ transfers to charter schools are also segregative (Zimmer et al., 2009).

Some scholars (Ritter, Jensen, Kisida, & McGee, 2010) argue that racial segregation in charter schools simply reflects their disproportionate location in high-minority neighborhoods within metropolitan areas and suggest school comparisons only in central cities where segregation is perceived to be the highest. This argument, while provocative, tends to ignore: a) how the charter marketplace theoretically empowers parents to exit their neighborhood schools and even their district in some cases; and b) increasing levels of segregation outside of central cities. Ultimately, a more accurate means of examining the effect of school choice on racial composition involves using individual data on students enrolling in charter schools and examining the school choices that these students make.³

Understanding School Choices

Researchers have suggested several factors to explain *de facto* charter school racial segregation, including strategic location of charter schools (Lubienski, Gulosino, & Weitzel, 2009), lack of transportation among parents, particularly for low-income families (Siegel-Hawley & Frankenberg, 2011), school closings (Zimmer et al., 2009), and the continued role of housing segregation despite the assumption that school choice policies would decrease the segregating effect

³ Considerable debate exists about how to measure charter school segregation because of concerns about the appropriate geographic scale of comparison between TPSs and charter schools (see Frankenberg et al., 2011; Garcia, 2008). Because of our access to longitudinal student-level data, we avoid this methodological debate.

of neighborhood boundaries on school choice (Booker, Zimmer, & Buddin, 2005). Although in some instances parents may transport their children long distances to schools, parents typically make school enrollment decisions based heavily on proximity and are therefore still constrained to a certain set of choices (Lubienski & Dougherty, 2009).⁴ In fact, Bifulco & Ladd (2007) found that parents rarely travel more than 10 miles to a charter school and usually far less (see also Butler et al., 2013). It should be noted that, nationally, high school students typically travel further to school than elementary and middle school students (U.S. Department of Transportation, 2008). However, high school students able to choose their school often consider younger siblings school location, their neighborhood friends' school choice, and they simply may be more aware of nearby school choices. Additionally, state charter school laws may restrict enrollment eligibility based on school district boundaries. Therefore, boundaries still matter in a school choice context.⁵

Some studies have sought to understand the role in which preference for similar-race students influences families' school choice decisions, including the choice of charter school enrollment. In general, studies find discrepancies between parents' *reported* preferences and the options they eventually take when choosing a school. In one of the earlier studies of preferences among charter school enrollees, Weiher & Tedin (2002) found that charter school parents, regardless of race, reported it was not important to put children in schools that are majority of the same race (see also Schneider, Marschall, Teske, & Roch, 1998). Yet, they found that students of each race (Black, White, and Latino) transferred to charter schools in which their own racial group was a higher percentage than the public school from which they transferred. Indeed, they concluded that race was one of the strongest predictors of charter school choices, despite parents' reported preferences on the survey.⁶ The researchers, however, were not able to ascertain whether families had more diverse options available or whether they made segregative choices because those were the only charter school options they had. Indeed, a subsequent study of charter school movers in North Carolina found that only 19% of Black movers in five large metropolitan areas had integrative charter school options (Bifulco & Ladd, 2007).

Other research has found links between school racial composition and parents' school choices. In Washington, DC, parents' preferences of charter schools were also more racially-based than their responses to a survey in which parents reported that school composition did not matter (Buckley & Schneider, 2007). Research in other contexts found that a school district's diversity was associated with higher enrollment by Whites into disproportionately White charter schools, a trend that did not seem to be significantly affected by a school's academic quality (Renzulli & Evans, 2005; see also Saporito & Sohoni, 2006 for school choice more generally). A study of upstate New York metropolitan areas—demographically similar in many respects to Pennsylvania—found that White parents' school choices were strongly influenced by wanting their children to attend a school with fewer non-Whites (Lankford & Wyckoff, 2005). A more recent study echoes these issues, showing that given hypothetical school choices, White parents are less likely to select a school if it has a high percentage of Black students, even if the school is rated as high performing (Billingham & Hunt, 2016; see also Holme, 2002). Finally, a national analysis of students' choices in 2003–04 found that

⁴ Miron, Urschel, & Saxton (2011) found differences by grade level in students' exit rates from KIPP charter schools, suggesting that school choice preferences may operate differently based on whether a student attends primary or secondary school.

⁵ Even with the growing number of cyber charter schools, the majority of school choice options remain in brick and mortar schools, which logistically have some geographic constraints.

⁶ Academic achievement was likely not an explanatory factor as students, on average, would have been in schools with a higher proficiency rate had they remained in their public school—even though this was selected as one of the most important factors on the parent survey.

school racial composition was not a significant predictor for students moving to charter schools. Yet, higher percentages of Latino and Black students made magnet schools and other public schools less desirable (Butler et al., 2013).⁷

This body of research largely focuses on the demand-side of charter school selection; on the supply side, charter schools may employ a variety of practices that limit the availability of seats to interested students, including in ways that may disproportionately advantage certain groups over others and which would also affect racial stratification. Some researchers (Jabbar, 2015a; Lubienski, 2007) find that charter schools market themselves to appeal to a certain type of student or are placed in strategic locations that hinder enrollment from certain student demographic groups (LaFleur, 2016). Jabbar (2015b) shows that in New Orleans, a context where virtually all schools are charter schools, school leaders' perception of their competitive networks reflect and often reproduce a market hierarchy within the charter school system. Administrators used strategies such as cream-skimming and targeted marketing as recruitment strategies (Jabbar, 2015a). Other work suggests a level of back-filling seats with high performers in the KIPP charter chain (Nichols-Barrer, Gleason, Gill, & Tuttle, 2016). Overall, strategies such as these have the potential to affect charter school racial composition if school leaders selectively recruit and enroll students who belong to particular racial or ethnic groups.

While the consensus of research finds that parents' actions, if not reported preferences, in making school choices tend to exacerbate segregation, it is unclear whether those decisions are being made in the presence or absence of more diverse charter options. Such information about school choices with respect to the supply of charter school options is the contribution we seek to make with this analysis. If we find that parents have few charter school choices that would provide more integrative experiences, then this suggests segregated choices are being made because of limited supply of charter schools with varied racial composition. On the other hand, if segregative choices are being made even as there are more integrative choices as part of a student's choice set, this implies that such choices are not being driven by supply. Each has different policy implications for educators and advocates.

The Pennsylvania Context

Pennsylvania has 500 school districts, so that there can be many relatively small school districts within metropolitan areas. While this provides choice for families who are willing to (and have the means to) relocate residentially, it may also mean there are relatively few public schools for students to select within a given district. Pennsylvania law also provides for voluntary participation in interdistrict open enrollment, but it is unclear how many districts, if any, participate given that both sending and receiving districts must agree.⁸

The Pennsylvania legislature first authorized charter schools in 1997, and charter school enrollments have grown rapidly since, enrolling 6% of all students in Pennsylvania in 2011–12. There are two types of charter schools: brick and mortar and cyber schools. The latter provide for virtual instruction of pupils and are not limited by practical considerations of distance as are brick and mortar schools. Approximately 32,000 of the 105,000 charter school students in 2011–12 were enrolled in the state's 12 cyber charter schools; the other 73,000 students attended 150 brick and

⁷ The lack of significant effect among charter school choosers could be due to the small number of students ($n=80$) in the sample.

⁸ 24 PS 13–1316. See <http://ecs.force.com/mbdata/mftab8OE?sid=a0i70000006fu14&rep=OE132T>.

Pennsylvania also offers a limited voucher program that low-income students in low-performing schools are eligible for and with which they can transfer to private or public participating schools.

mortar charter schools, the vast majority of whom were concentrated in the state's metropolitan areas (Pennsylvania Department of Education, 2016).

By 2011–12, the year of this analysis, every student had the choice of enrolling in a cyber charter school in lieu of a TPS. There are no enrollment restrictions, costs to the student, or geographic limitations, and cyber charter schools provide Internet and computers to their students. This means any student can enroll in any cyber charter school that offers their grade-level. Although cyber charter students make up a growing share of the overall charter school enrollment in Pennsylvania and are disproportionately White in comparison to TPS and brick and mortar charter schools (Mann, Kotok, Frankenberg, Fuller, & Schafft, 2016), the effects of cyber charter enrollments are beyond the scope of this article, which is principally concerned with the segregative processes within brick and mortar educational contexts (see Kotok et al., 2015, for more details). Additionally, while we focus here on school choice contexts in metropolitan areas, including physical locations of charter schools, cyber charters do not have a geographic location making such analyses impossible.

Pennsylvania is a useful state to examine charter school segregation because it contains two largely minority central cities, racially mixed suburban rings, and vast swaths of rural areas that are largely White. Like most states with substantial charter school enrollments, Pennsylvania's charter schools have a disproportionately lower percentage of White students than TPSs (Frankenberg et al., 2011). Yet, charter school enrollment is racially diverse (just under half of students were White) thereby enabling an analysis that examines the transfer patterns of White students as well as Blacks and Latinos. Approximately half of charter school students attended schools in central cities in 2007–08 while another 30% were in suburban areas, and 15% in towns or rural areas (Frankenberg et al., 2011). With its complex history of housing segregation, partial and unsuccessful legal remedies for school segregation, and metropolitan fragmentation, Pennsylvania offers an ideal opportunity to test proponents' claims that charter schools will foster desegregation given persistent TPS segregation (Kotok & Reed, 2015; Morrison, 2004).

In this paper, we focus on the transfers of students from a TPS to brick and mortar charter schools. An important aspect of Pennsylvania's charter school law is that public school districts are required to transport students residing in their district to any charter school within the district or to any charter within 10 miles of the district's boundary. This provision may enable students to select schools with an important barrier to access—transportation—greatly mitigated (see generally Orfield & Frankenberg, 2013).

Taken together, these legal and demographic reasons make Pennsylvania an informative context to study how students' transfer patterns to charter schools may be more or less segregative. Importantly, we are also able to examine whether these transfers are being made in the presence or absence of charter schools that have different racial composition from one another. Namely, if students are making segregative transfers to charter schools, we will know whether they had less segregative options available than the school they ultimately ended up attending or whether only segregative charter school options existed. Each scenario has different policy implications.

Data and Methods

This analysis utilizes a dataset that allows us to examine our research questions with individual student-level data across consecutive years in Pennsylvania. We use two main data sources. First, we use individual data for 2010–11 and 2011–2012 provided to us from the Pennsylvania Department of Education (PDE) indicating what school a student attended in each year, their race, and their grade. We linked the individual data with school-level data from the

Common Core of Data (CCD) collected by the U.S. Department of Education to provide the student demographics of the school (racial and socioeconomic composition), school type, and location. We limit our analysis to Black, White, and Latino students and schools in the 10 metropolitan areas in Pennsylvania with more than one charter school (see Table 1 for list of metropolitan areas). Because of Pennsylvania's law providing for transportation across district boundary lines, we selected metropolitan areas instead of urban districts only for our analysis of transferring students. In sum, we analyze the records of 8,056 individual students.⁹

The analysis was a multi-stage process. First, we determined which students in the state of Pennsylvania changed from TPSs to brick and mortar charter schools between school years. Some students also switched schools one or more times within the school year. Because we do not know the order of schooling within the year and because they comprised less than 5% of all movers, we have eliminated them from our analysis.¹⁰

To understand the racial segregation that students experience within school settings, we rely on the exposure/isolation index as our measure of segregation because of its ease of interpretation that allows for comparison regarding the school-level racial context that students encounter (Massey & Denton, 1988).¹¹ Isolation refers to the extent to which the enrollment in a given student's school matches that student's own racial group. The exposure index (P^*) is a weighted average of the school-level composition that the "typical" student of group x experiences. We calculated exposure as:

$$P^* = \sum_{i=1}^n \left(\frac{x_i}{X} * \frac{y_i}{t_i} \right)$$

where n is the number of schools, \square_i is the number of the first racial group of students in the school i , X is the total number of the first racial group of students in the larger geographical area (e.g., district, state), \square_i is the number of the second racial group of students in the school i , and \square_i is the total number of students in the school i . If all schools were perfectly integrated, student exposure would be identical across all groups, and would reflect the racial composition of the larger unit (Massey & Denton, 1988). For isolation, in the above equation, \square_i is equal to x_i . We calculate the isolation in the student's sending and receiving school separately for Black, Latino and White students who transferred from a TPS to a charter school. It is useful to interpret isolation in relation to a group's share of the overall population. Since the majority of students in each metropolitan area in our sample is White, the fact that Black students leave TPSs and transfer to charter schools in which they comprise a majority of the enrollment is indicative of segregation. Since there is no universally agreed upon threshold for high racial isolation, we examine how racial isolation values compare in between TPS and charter sector to ascertain the "net effect" of the transfers on student segregation.¹²

⁹ An additional 300 students in these metropolitan areas have race/ethnicity that is not Black, White or Latino and thus were not part of our analysis.

¹⁰ Virtually all of such within-year movers were not enrolled in a brick and mortar charter school and they were demographically similar to between-year movers.

¹¹ While other segregation measures, such as H , may be favored in other types of analyses because of their decomposition properties, this analysis did not necessitate such decomposition because we were looking only at charter schools.

¹² Such an approach, we believe, is methodologically superior to those comparing whether charter schools' composition reflects that of the surrounding community for several reasons: there are debates in the literature

For the second research question, we used ArcGIS software to locate all of the charter schools within a 10-mile distance from each TPS as a means of determining the “choice set” for public school students who would transfer to charter schools, which other research suggested encompassed the vast majority of choosers (Bifulco & Ladd, 2007; Butler et al., 2013).¹³ Since charter schools in Pennsylvania (and elsewhere) tend to use diverse grade configurations (e.g. K–8, 5–8, K–12), we separated our analysis into two subsets: K–grade 7 students and grade 8–12 students.¹⁴ For K–7 students, any school that had any elementary or middle school grades was included in their choice set while the latter group included any school enrolling high school students. The purpose of separating the sample into two grade-level groups was to approximate the number of choices available to students in each age group. For example, a fourth grader may be choosing between K–5 schools, K–8 schools, and K–12 schools, but a high school with only grades 9–12 would not be part of the student’s choice set. While this analytic strategy intentionally minimizes structural moves, we focused on whether students switched to charter schools for any reason.

In our analysis, we focus on the 10 metropolitan areas within Pennsylvania where students had more than one potential brick-and-mortar charter school option in the 2011–12 academic year (see Table 1). Each metropolitan area has a majority of White students in TPSs, but this ranges from a slight majority to 90% of the total enrollment. We kept the subset of transferring students in metropolitan areas where there were two or more charter schools in their “choice set” and examined the distribution of the racial composition of these charter schools using quintile groupings for the percentage of White students.

Table 1

Student Transfers from TPS to Charter Schools in Selected Pennsylvania metropolitan areas, 2010–11 to 2011–12

Metropolitan Statistical Area (MSA)	# of Charter Schools	# of Students Transferring	Racial Composition of Public Schools in Each Metropolitan Area			
			% White	% Black	% Latino	% Other
Allentown	3	183	65.20	8.36	22.40	4.20
East Stroudsburg	2	33	58.35	20.17	18.60	2.88
Erie	4	209	78.70	12.28	4.65	4.36
Gettysburg	2	16	85.60	2.70	10.41	1.28
Harrisburg-Carlisle	2	18	69.86	16.33	7.04	6.78
Philadelphia	94	7,164	52.36	30.09	9.56	7.99
Pittsburgh	22	659	81.61	13.41	0.93	4.04
Scranton	2	15	82.17	5.17	10.21	2.45
State College	4	34	90.24	2.04	1.85	5.87
York	5	25	78.77	9.41	8.09	3.73
Total	140	8,356	862,100	252,081	107,604	74,564

Note: The table only includes students who move between TPS to charter and remained in same metropolitan area. An MSA is a metropolitan area that has an urban core with more than 50,000 residents.

as to what is the appropriate scale of the public school comparison for charter schools (Gulosino & d’Entremont, 2011) and the fact that in many areas there is high and increasing segregation among TPSs.

¹³ Ideally, it would be useful to construct a choice set based on a student’s home address, but we do not have that information. Thus, we use the TPS the student attended as a proxy for student’s residential location.

¹⁴ Eighth graders were included in high school subset since they would be changing to a high school during the transfer year. Note, grade 12 movers only included if they repeated grade 12 in 2011–12.

To augment our descriptive analysis of transferring students' choice sets, we used conditional logistic regression to infer the degree to which White, Black, and Latino families transferred to schools based on charter school racial composition and distance. The conditional logistic model, also known as McFadden's choice model (1973), fit our analysis well since it allows multiple alternatives whereas basic logistic regression models only consider one outcome, and analyzes choice specific details such as distance whereas multinomial logit only considers case specific variables. The unit of analysis in conditional logit models is the set of alternatives (e.g., racial composition, distance) and is appropriate to use when individual choices are "a function of the relevant characteristics of [available] alternatives, rather than the attributes of the individuals" (Hoffman & Duncan, 1988, p. 425). We estimated the following conditional logit model for an individual with J set of choices where P_{ij} represents the probability that person i selects the j th alternative:

$$P_{ij} = \exp(Z_{ij} \alpha) / \sum_{k=1}^J \exp(Z_{ik} \alpha)$$

Z_{ij} represents the characteristics of the j th alternative for person i ; α represents the corresponding parameter vector.

To estimate the conditional logit, we first organized the data into pair-wise matches for charter movers with each school composition option (e.g. 0 to 20% White). If a student did not have one of the five options located within 10 miles, that particular alternative was not included amongst their choices. Distance was calculated as an average of all available schools for each alternative. For instance, if a student had two charter school options with 0–20% White enrollment with the first school being three miles away and the second school being five miles away, the average distance for that alternative would be four miles. Similarly, we also included the average logged enrollment for each alternative. Finally, we estimated the conditional logit model separately for each racial group and grade type.¹⁵

After extensive analysis, we decided not to include a measure of low-income students in our analyses for several reasons. The most significant reason for this decision was that several charter schools were missing FRL data. While our dataset includes individual race, it did not provide individual information on FRL status. Second, as is the case among schools nationally, a strong negative correlation exists between the percent of White students and percent of free/reduced price lunch students (FRL) in Pennsylvania charter schools ($r=-0.70$). When examining the distribution of the percentage of FRL students, the distribution of this variable was not normal, but rather had a bimodal distribution clustered around (1) 40–50% FRL and (2) 85–100% FRL. Finally, there was extremely little FRL variation within each racial composition quintile (e.g., very high FRL% for choices in the 0–20% White category and very low FRL% for the 80–100% White schools).¹⁶ Given the irregularities with the FRL data and the overall correlation between race and poverty, we ultimately elected to focus on race for the purpose of this study. However, the high correlation demonstrates that the two factors are strongly related to one another.

¹⁵ We separately estimated models for students only in the Philadelphia metropolitan area and in all non-Philadelphia metropolitan areas because of the large percentage of students in that metropolitan area to ensure that there are not different patterns obscured by the large number of charter movers. We also ran the model separately for students with and without an IEP (see appendix C).

¹⁶ When we did run the analysis including FRL for those schools with data, we find that the results are similar for Blacks and Latinos while including the percent of free/reduced lunch students reversed some of our findings on White students' preference for majority White schools likely due to the lack of variation of FRL percentage within each racial quintile. However, given various issues with the FRL variable, we lacked confidence to make sound inferences and we ultimately chose to present the more parsimonious model.

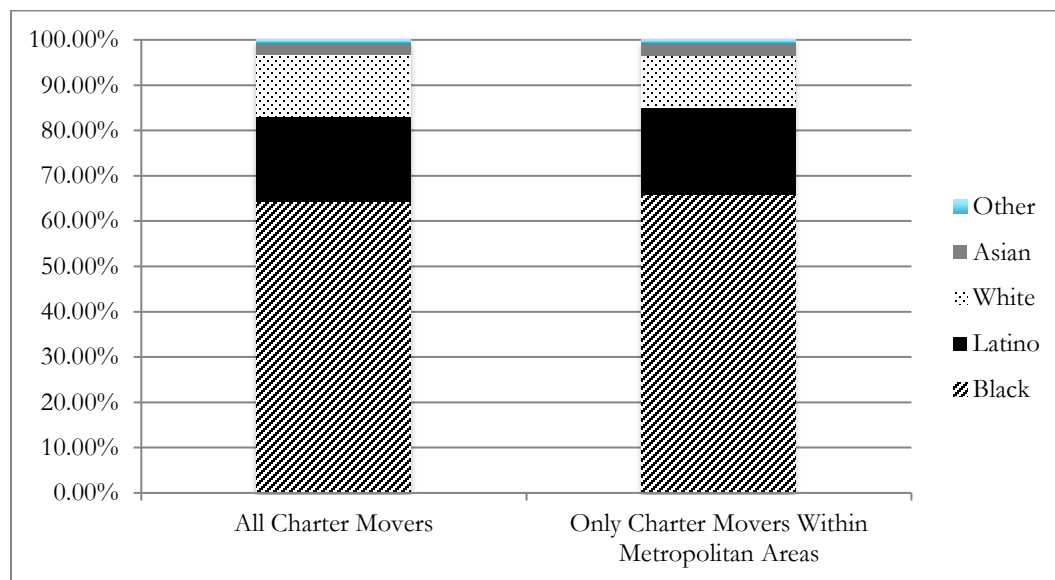
Limitations

Because each state’s charter school law is unique, as are the demographic contexts and school boundary configurations, our findings in Pennsylvania cannot be generalized to other states or other forms of school choice than brick and mortar charter schools. However, because of the explosive growth of charter schools across the country, we think this focus is important for informing our understanding of these federal and state policies. Further, there are other individual characteristics that might be salient to explore in terms of the transfers students make to charter schools, such as individual students’ socioeconomic status. Ideally, we would like to include both racial and economic composition of charter schools to understand how that relates to students’ transfers, but were unable to because of the aforementioned data concerns and the fact that some schools were missing FRL data. We also don’t have information on the extent to which spaces are available at the particular grade level that students are in, which may limit their consideration of some choices. Finally, these analyses do not include students transferring to cyber charter schools, which are a growing share of students in Pennsylvania.

Findings

Racial Isolation of Charter School Choosers

We focus here on analyzing the choices of students transferring to charter schools from TPSs between 2010–11 and 2011–12. Importantly, our analysis focuses on the movers within the selected 10 metropolitan areas, and their racial composition is almost identical to that of all students moving to charter schools in Pennsylvania after the 2010–11 school year (Figure 1).



Source: Pennsylvania Department of Education

Figure 1. Racial Composition of Pennsylvania Students Moving from TPS to Charters, 2010–11 to 2011–12.

Note: All Charter Movers refers to any student who attended a TPS in 2010–11 and a charter school in 2011–12 (n=10,169). Only Metropolitan Areas is a subsample of these students representing only charter movers who lived in the same metropolitan both years of attendance (n=8,356).

Between the two school years (2010–11 to 2011–12), Black and Latino students moved into charter schools where they were more racially isolated than the already segregated TPS they left (see Table 2).¹⁷ For example, the typical Black mover left a TPS in 2010–11 with around 68% Black students to attend a charter with 80% Black students—an increase of nearly 12 percentage points. These patterns hold regardless of grade level, with younger students experiencing slightly more segregative settings, post-school transfer.¹⁸

Table 2

Racial Isolation for Students Moving from a TPS to Charter School in Selected Metropolitan Areas, 2010–11 to 2011–2012

	Number of Students	Sending TPS	Receiving Charter	Difference in isolation experienced by transferring student
Black				
Grades K–7	2,673	68.54	80.66	12.12
Grades 8–12	2,827	67.49	78.89	11.40
Total	5,500	68.00	79.75	11.75
White				
Grades K–7	596	63.41	61.96	-1.45
Grades 8–12	349	62.39	63.81	1.42
Total	945	63.03	62.64	-0.39
Latino				
Grades K–7	684	43.87	53.62	9.75
Grades 8–12	927	39.06	53.21	14.15
Total	1,611	41.10	53.38	12.28

Source: Pennsylvania Department of Education; NCES Common Core of Data

Note: Student grade level is from 2010–11.

Latinos did not end up in charters as racially isolated as Blacks and did not leave TPSs that were as racially isolated. These lower isolation numbers are probably a function of being a lower proportion of overall student population. Still, Latino movement patterns were similar to that of Blacks in that they enrolled in charter schools with higher racial isolation than the public schools they left. The typical Latino mover left a TPS with 41% other Latinos for a school with over 53% other Latinos—an increase of 12 percentage points, as was the case for Black students (who left and transferred to more isolated schools). Latino students enrolled in charter schools where a majority of students were also Latino. These trends were similar for Latino students regardless of grade level, although older students experienced a larger difference in racial isolation than younger students

The trend for White movers to charter schools was mixed with the net effect overall of White students moving to charter schools with roughly the same racial isolation, on average.

¹⁷ These trends are similar to statewide trends in Pennsylvania in 2011–12 and earlier years (Kotok et al., 2015).

¹⁸ One possible explanation for these segregative moves is that charters with high Black isolation had a mission focused on African American history. We did not systematically analyze charter schools' missions since other work had found ethnocentric themes to not be significant predictors in addition to racial composition of student transfers (Bifulco & Ladd, 2007).

Younger students moved to charter schools with slightly lower isolation while high school White students' moves were to charter schools that resulted, on average, in slightly higher isolation. Like Black students, White students in the 10 metropolitan areas examined had attended TPSs with fairly high White isolation, similar to national trends (e.g., Orfield & Frankenberg, 2014).

Because most of the sample lived in the Philadelphia metropolitan area, we separately analyzed students in Philadelphia and those in all other metropolitan areas to see if statewide patterns were influenced by dynamics unique to Philadelphia (see Appendix A and B). We found that the trends for Black and Latino students were consistent regardless of whether they were in Philadelphia or another metropolitan area: students' transfers were to charter schools with more same-race peers. The pattern was mixed among White students. Transfers by White students in the Philadelphia metropolitan area were segregative in that they enrolled in charter schools that, on average, had a higher percentage of White students while White students in non-Philadelphia metropolitan areas moved to slightly more diverse charter schools than the TPSs they left.

Types of Choices Available to Charter School Choosers

We examine the types of charter school choices available to movers in more detail, first for K–7 students and then for high school movers (grades 8–12). We first examine descriptive data to understand whether students are making segregative choices because those are the only options available to them. Since the majority of the movers lived in the Philadelphia metropolitan area, we provide an analysis of all “Pennsylvania Metropolitan Areas” and a subsample of movers in “Other Metropolitan Areas” not including Philadelphia. Regardless of whether choosers are in Philadelphia or elsewhere, K–7 students transferring to charter schools usually had a substantial number of choices (see Table 3). White students were mostly likely to have only one choice; approximately one-eighth of White elementary school movers had only one charter school option. Conversely, around 75% of Black and Latino K–7 students had more than 20 charter school options.¹⁹ Even in the non-Philadelphia metropolitan areas—which have fewer choices—nearly half of White movers had six or more charter school options in their choice set; higher percentages of Black and Latino students in these nine other metropolitan areas also had a similarly large number of choices.

In addition to having a number of charter school choices, most student movers, regardless of race and metropolitan area, had charter school choices of varying compositions. Across all 10 metropolitan areas, at least two-thirds of students, regardless of race, had one or more charter school in each of the quintiles of charter school racial composition. White students were less likely to have heavily non-White charter school options (83% overall had a charter school choice with fewer than 20% White students) as well as overwhelmingly White charter schools (68% lived near an 80–100% White school). Higher percentages of Black and Latino students had school choices in each quintile than did White students, indicating they had more diverse sets of choices. This somewhat surprising finding is likely due to a few overwhelmingly White charter schools in urban centers. In non-Philadelphia metropolitan areas, the pattern is more like what would be expected: Blacks and Latinos, in comparison with White students, were less likely to have a charter school option that was 80% or greater White enrollment. In sum, students of all races had charter schools of varying racial composition in their choice set.

White students lived further, on average, from the nearest charter school and also furthest, on average, from their chosen charter schools. The difference between the nearest charter school and chosen charter school for White students was shorter than the difference for Black students.

¹⁹ Though not a direct focus of this analysis, the considerable variation between White and non-White students' options implies a fairly high level of residential separation for these students.

Table 3
Choice set characteristics for K–7 school students

	<u>All Pennsylvania</u> <u>Metropolitan Areas</u>			<u>Non-Philadelphia</u> <u>Metropolitan Areas</u>		
	Black	White	Latino	Black	White	Latino
Total number of choices observed	2,673	596	684	415	236	135
# of charter schools in choice set						
% of students with:						
1 choice	0.88	12.54	0.87	1.41	11.34	0.74
2 choices	1.17	6.03	2.61	4.92	9.31	11.85
3–5 choices	4.48	16.20	6.37	20.06	30.37	23.70
6–10 choices	5.45	11.89	12.74	30.21	24.69	60.00
11–20 choices	6.93	11.90	0.86	42.85	24.30	3.70
Over 20 choices	81.09	41.42	76.47	0	0	0
Avg. # of charters to choose from	43.55	23.26	41.48	8.74	6.72	5.24
Avg. enrollment	543.78	531.30	546.38	302.85	294.98	359.16
Racial composition of schools in choice set						
% of students with at least one choice with:						
0–20% White	99.51	83.39	97.66	98.31	78.81	91.11
20–40% White	96.03	75.50	83.63	89.64	69.07	31.85
40–60% White	93.75	72.99	90.79	73.49	51.27	65.93
60–80% White	94.65	81.21	91.23	79.04	71.61	68.89
80–100% White	84.18	68.29	83.77	19.52	33.90	25.93
Distance for choice						
Avg. distance to nearest charter	0.70	1.86	0.76	1.62	2.35	1.55
Avg. distance to furthest charter (within 10 miles)	8.98	8.31	8.56	7.84	7.17	5.74
Avg. distance to chosen charter	2.36	2.96	1.65	3.17	3.20	2.48
Chosen vs. nearest difference	1.66	1.10	0.89	1.55	0.85	0.93
Distance to each choice set						
0–20% White	4.46	5.50	4.26	4.27	4.56	3.21
20–40% White	5.42	4.47	3.97	4.63	4.64	3.10
40–60% White	5.40	5.18	4.95	5.04	5.41	4.82
60–80% White	5.47	4.78	5.67	5.67	5.08	4.92
80–100% White	5.97	5.58	5.28	4.76	4.66	4.49

Note: Students who transferred to charter schools in 2011–12 in the same metropolitan area as their former TPS.

Notably, schools with between 20% and 40% White students were, on average, closer for Whites than any of the other choice sets with different racial composition. Black students overall lived the closest to the nearest charter schools while Latino students outside of Philadelphia were most likely to live closest to and attend charter schools located the closest to them. Although Black students typically had charter school options in all five quintiles of racial composition, they would have to travel about a mile further, on average, to attend a charter school with more than 20% White students. However, outside of the Philadelphia metropolitan area, the differences in distance to charter schools of different quintiles were less pronounced for Black and White students. Latino students lived further, on average, from charter schools with more than 40% White students.

In general, there are fewer charter high schools than K–7 schools but they typically have higher enrollments. Thus, overall, we see fewer choices for high school students, particularly outside of the Philadelphia metropolitan area (Table 4). Black and Latino students, however, still had many choices at the high school level, with over 90% having more than 20 choices, although this was due to most of these students living in the Philadelphia area. White students had fewer choices than their Black and Latino peers. In comparison to younger students described above, lower percentages of White high school students had only one choice. On average, Black high school students had around 33 choices, Latino high school students had more than 35 choices, and White high school students had around 19 choices. However, outside of the Philadelphia metropolitan area, the difference between racial groups was very minor with Black high school students having an average of six choices followed by White students with almost five choices and Latinos with fewer than four choices.

Overall, many high school movers to charter schools also had potential charter school choices with a range of demographics. In non-Philadelphia metropolitan areas, there were very few students who had a choice set including overwhelmingly White charter schools (those with more than 80% White students), but most students had both majority White (60–80% White) and majority non-White schools (<40% White) in their choice sets. Ironically, when contemplating the choices of *all* students, few students from any race had the most diverse schools, schools that were 40–60% White, in their choice sets which indicates the relative polarization of charter school choices in these metropolitan areas. White students were most likely to have such diverse schools to choose from (13%).

As with younger students, White high school students lived, on average, further from the closest charter school, including the charter school they eventually chose. Latino students were closer to charter school options when including those in the Philadelphia metropolitan area. In contrast to the K-7 results, the difference between the nearest and chosen charter school was approximately one mile with Latino students having the smallest discrepancy and White students having the largest. Although, most high school students had varying choices (with the exception of the middle quintile, 40-60% White), Black and Latino students typically had to travel considerably further than Whites if they wanted to attend a school with between 60-100% White students. It should be noted, that the differences in travel distance among charter school racial composition quintiles were not as large when analyzing students outside the Philadelphia metro area.

Table 4
Choice set characteristics for high school students

	<u>All Pennsylvania Metropolitan</u>			<u>Non-Philadelphia Metropolitan</u>		
	Black	<u>Areas</u> White	Latino	Black	<u>Areas</u> White	Latino
Total number of choices observed	2,827	349	927	185	135	26
# of charter schools in choice set						
% of students with:						
1 choice	0.21	3.72	0.11	0.54	3.7	3.85
2 choices	1.31	11.75	1.40	19.46	28.15	50.00
3–5 choices	0.68	15.48	1.29	8.65	33.33	42.31
6–10 choices	4.60	14.04	0.22	70.26	34.81	3.85
11–20 choices	0.53	4.31	0.54	1.08	0	0
20+ choices	92.61	50.07	96.44	0	0	0
Avg. # of charters to choose from	32.97	19.39	35.37	5.99	4.58	3.46
Avg. enrollment	643.53	593.83	669.49	643.53	593.83	669.49
Racial composition of schools in choice set						
% of students with at least one choice with:						
0–20% White	98.62	85.39	98.60	82.70	73.33	53.85
20–40% White	99.01	74.79	98.60	89.73	47.41	50.00
40–60% White	0.32	13.18	1.08	3.78	38.46	32.59
60–80% White	94.98	92.26	98.38	85.41	87.41	57.69
80–100% White	56.03	48.71	85.87	2.70	11.85	0.00
Distance for choice						
Avg. distance to nearest charter	0.57	1.95	0.43	2.12	2.82	2.21
Avg. distance to furthest charter (within 10 miles)	9.12	8.46	8.71	7.23	7.34	4.96
Avg. distance to chosen charter	1.62	3.34	1.17	3.49	4.23	3.45
Chosen vs. nearest difference	1.05	1.39	0.74	1.37	1.41	1.24
Distance to each choice set						
0–20% White	4.50	5.38	4.17	4.19	4.58	3.12
20–40% White	5.03	4.52	5.00	4.62	4.45	2.46
40–60% White	4.81	5.79	3.56	4.71	6.14	4.85
60–80% White	6.67	5.58	5.69	5.56	5.22	5.19
80–100% White	8.57	5.24	8.07	4.79	4.43	4.98

Note: students who transferred to charter schools in 2011–12 in the same metropolitan area as their former TPS.

For both elementary and high school charter choosers, the average distance to their chosen charter was usually a further distance than the average distance to the *closest* charter, suggesting that proximity is not the only factor influencing decision making. As described above, most choosers have charter schools of varying racial composition in their choice set. Yet, large percentages of Black and Latino movers chose schools with few White students while most White choosers chose majority White charter schools. For White students of all grade levels, the closest charter schools, on average, were 20–40% White schools. Black and Latino K–7 students typically had to travel a little further to attend schools with larger percentages of White students. High schools with greater shares of White students were also further for Black and Latino students, but these longer distances may be less daunting for older students (and their families) given expanded modes of transportation such as personal cars and public transportation. This is at least suggestive of a possible role that charter school racial composition might play. The next stage of our analysis helps us to understand the influence of proximity, school size, and racial composition in the choices being made by students leaving a TPS for a charter school.

Examining Students' Charter School Enrollment Patterns

We now try to ascertain the enrollment behavior of students who have at least two charter school quintile types (e.g., by racial composition, 0–20% White, 20–40% White, etc.) in their choice set. For ease of interpretation, we have focused on three factors: racial composition (measured in quintiles of White percentage), distance, and school enrollment (measured by logged enrollment).²⁰ While there are undoubtedly additional factors that influence student and families' charter school choices and ultimate enrollment, other work suggests that school mission added little value to predictive models and did not affect the relationship between our variables of interest and student preferences (Bifulco & Ladd, 2007). Results are presented in a conditional logistic regression where positive coefficients reflect a greater likelihood and negative coefficients represent a lower likelihood. In some instances, we have added odds ratios to the text where it helps with interpretation.

Across all analyses by student race and grade, the relationship with distance to the school is negative, indicating that, unsurprisingly, students enrolled in charter schools that were closer rather than further away (Table 5). Additionally, older students had fewer choice types (as measured by the quintiles of White percentage of students) in their choice sets than younger students did. For instance, on average, Black, K–7 students had an average of 4.8 choice types compared to the typical Black high school student who had an average of 3.5 choice types. Likewise, Latino K–7 students had 0.6 more choice types than their high school peers while White K–7 students had 0.8 more choice types than their high school peers. These similarities aside, we see distinct patterns in students' choice of charter schools by their racial composition particularly when comparing Black and Latino students to White students.

Black student movers to charter schools were much less likely to enroll in schools with higher percentages of White students (in comparison to our base category of 0–20% White students), holding distance and enrollment constant.²¹ These patterns hold for younger and older

²⁰ We also checked to see whether the relationship with distance was curvilinear by including a variable for distance squared in our models. It was not significant, and thus we only include distance in our final models.

²¹ All results should be interpreted as being compared to the reference group of 0–20% White. We originally used 40–60% White as a reference group under the assumption that such a balanced student composition would reflect racial diversity and would be easier to interpret preferences in relation to this category. Unfortunately, there were very few K–7 schools and almost no high schools that fit this category making it a poor choice for a reference category.

students and all results are statistically significant. The elementary schools with the highest percentage of White students, 60–80% and 80–100% White, were those in which there were the largest negative coefficients. When the coefficients are transformed into odds ratios, we find that Black students were about 99% less likely to attend a charter school with between 60–100% White students compared to a charter school with 0–20% White students. These large disparities suggest that Black students were either resistant to choosing such schools or those schools did not recruit or admit a diverse applicant pool. Although we observe a similar pattern with high schools, Blacks were the least likely to enroll in a school that was between 40–60% White, though this is likely due to the relative scarcity of such options. Notably, on average, an increase in enrollment size was positively associated with enrolling in a particular high school for Black students.

The patterns for Latino students were very similar to those of Black students. Simply put, Latino charter school choosers were significantly less likely to enroll in charter schools with a higher percentage of White students in comparison when holding distance and enrollment constant. As the percentage of White students increased, Latino high school students were less likely to enroll in a given school. However, for K–7 students, all four alternatives were less chosen in comparison to schools that were 0–20% White. In fact, a Latino child was between 95% and 98% less likely to enroll in any of the choices where more than a fifth of the students were White. Like all other students, Latino students enrolled in schools that were closer, but in comparison to students of other racial groups, the magnitude of the coefficient was higher, meaning that distance was more influential for them. And similar to Black and White students, the magnitude of distance was higher for older students.

The patterns for White students who moved from TPSs to charter schools are quite distinct from Black and Latino students. In contrast to their other-race peers, White students were significantly more likely to enroll in schools with higher shares of White students in comparison to the reference group schools of 0–20% White students, holding distance and enrollment constant. The only exception is 40–60% White schools, which is not significant for K–7 or high school students; the lack of statistical significance may be due to the relatively few diverse charter schools. Even when students had a charter school option in the 40–60% White category, it was likely to only be one or two schools. White students were significantly more likely to enroll in majority White schools, although slight variation in racial composition existed based on age of student. Among younger students, the largest value indicates a preference for 80–100% White schools. In fact, the odds of a White student enrolling in a charter school with 80–100% other Whites is six times as high as that of the odds of them enrolling in a school with 0–20% Whites. For older students, 60–80% White schools have the highest positive coefficient indicating particular value by potential White transferees. The odds of a White student enrolling in a charter school with between 60% and 80% other White students is 4.8 times as likely as the odds of them attending a school with fewer than 20% White students. Thus, despite the slight differences, the overall pattern is clear: White students who are transferring to charter schools enrolled in schools with more White students than the reference group (less than 20% White students) and were especially likely to enroll schools with a majority of White students. In terms of enrollment, K–7 Whites were more likely attend a school as elementary enrollment increased, but size was not a significant factor for high school students.

Table 5
Conditional Logit for Students Choosing Charter Schools with Different Racial Composition, by Race and Grade

	Black Students		Latino Students		White Students	
	K-7	Grade 8-12	K-7	Grade 8-12	K-7	Grade 8-12
0-20% White						
20-40% White	-2.13*** (0.10)	-3.54*** (0.16)	-3.42*** (0.21)	-3.14 *** (0.27)	0.93*** (0.17)	1.30*** (0.22)
40-60% White	-4.00*** (0.18)	-20.30 *** (2.41)	-3.96*** (0.32)	-7.33 ** (2.62)	-0.19 (0.21)	-1.53 (0.86)
60-80% White	-4.38 *** (-0.18)	-10.78 *** (-0.84)	-3.87*** (-0.28)	-4.86*** (-0.92)	0.77*** (0.17)	1.57*** (-0.25)
80-100% White	-5.06*** (0.34)	-13.37 *** (1.13)	-3.58*** (0.36)	-9.33*** (1.56)	1.80*** (0.19)	0.87* (0.38)
Distance (miles)	-0.48*** (0.03)	-0.64*** (0.05)	-0.54*** (0.07)	-0.86*** (0.08)	-0.35*** (0.03)	-0.40*** (0.05)
Enrollment (logged)	-0.45 (0.25)	14.47*** (1.67)	2.08*** (0.29)	4.29* (1.84)	0.63*** (0.15)	0.10 (0.34)
Cases	2,618	2,793	671	915	538	319
Observations	12,458	9,831	3045	3,534	2215	1,067
Average Number of choices	4.8	3.5	4.5	3.9	4.1	3.3

*** $p < .001$; ** $p < .01$; * $p < .05$

Note: Student had to have lived in the same metropolitan in consecutive years, moved from TPS to charter in the second year, and had at least 2 charter composition alternatives in their choice set.

Discussion

This research illuminates the extent to which the rapidly growing number of students transferring to charters in Pennsylvania are making choices that are more segregative, and begins to explore reasons for such choices. Research confirms the importance of attending diverse schools for students of all racial groups. Minority students in more diverse school settings have higher short-term and long-term academic outcomes than those who attend racially isolated minority schools (Bohrnstedt, Kitmitto, Ogutn Sherman, & Chan, 2015; Johnson, 2012; Mickelson, 2015; Saatcioglu, 2010). A range of benefits in diverse schools for White students as well as students of color include reduced prejudice and higher likelihood of living and working in integrated environments as adults (Goldsmith, 2010; Stearns, 2010; Wells & Crain, 1994). Because these benefits have important implications for communities' well-being and social cohesion within a democratic society (Mickelson & Nkomo, 2012), federal law and policies have endorsed the importance of policies aimed at creating diverse schools and/or reducing racial isolation (U.S. Departments of Education and Justice, 2011). In 2016, the U.S. Department of Education strongly endorsed using socioeconomic diversity as a school turnaround strategy and requested \$120 million for a new competitive grant program to support local diversity initiatives. Additionally, some states have explicit racial diversity provisions in their charter school laws, which may reflect both this understanding of the benefits of integrated schools and the ways in which school choice was used in the aftermath of *Brown* to avoid desegregation (Frankenberg et al., 2011). More recently, there has been growing attention to

questions of equity and access in charter schools. One such indicator of that interest is the formation of a network of charter schools that seek to implement practices in order to draw a diverse group of students (Kahlenberg & Potter, 2012; Wohlstetter, Smith, & Farrell, 2013). Additionally, the federal government recently released guidance about how charter schools should protect the civil rights of all interested students (U.S. Department of Education, 2014). The federal government has also included funding preferences for diversity in charter school funding as a way to incentivize less segregated charter schools.

This article advances our understanding of charter schools and racial segregation in four ways. First, as the percentage of students transferring to charter schools has increased rapidly in recent years, Black and Latino students tend to move to charter schools with majorities of same race students. Moreover, Black and Latino students experience particularly large increases in racial isolation when transferring to charter schools. Given findings about the importance of reducing racial isolation and increasing school diversity, these patterns are concerning especially considering the high levels of segregation already existing in TPSs in Pennsylvania. Second, in seeking to understand *why* such segregation is occurring, we find that most students transferring to charter schools had a demographic range of charter school options (although, notably, students were least likely to have schools with the most diversity, 40–60% White, as part of their choice sets). Third, while distance is certainly an influential factor in students' charter school choices—closer schools are more preferred—it is not the only factor given that the average distance to students' charter school choice is further than their closest charter school option. For students in charter-dense metropolitan areas, the marketplace may give them a number of options within a relatively short distance (Henig & MacDonald, 2002). In fact, the average distance to a chosen charter school was at least twice as far as the nearest charter school for Black and Latino students regardless of age group. In the case of Black K–7 students, the average distance of a chosen charter school was almost four times greater than the nearest charter school, which is especially noteworthy considering the challenges of transporting younger children. Additionally, White students traveled, on average, an additional mile for their chosen school compared to their closest TPS. Finally, the enrollment patterns in terms of charter school demographics indicate sharp differences between Black and Latino choosers who tend not to enroll in schools with higher percentages of White students and White choosers who were more likely to enroll in charter schools that are at least 60% White. Such diverging behaviors, holding other factors constant, complicate efforts to create diverse schools when allowing for extensive family choice—and may help to explain the relatively few racially diverse charter options that exist.

These findings have important policy implications including the need to consider opening charter schools that provide demographic diversity for potential students and to consider efforts to inform students more broadly of their charter school options. One possible policy mechanism would be to encourage the use of weighted lotteries that would prioritize certain groups in charter school admissions that would enhance diversity where schools have more demand than available seats. An encouraging finding, for integration efforts, is that proximity is not an overwhelmingly decisive factor in charter school choice. A state with a charter school context like Pennsylvania's allows the opportunity to overcome district boundary lines that has left the state's public schools deeply segregated (Kotok & Reed, 2015). This presumes, of course, that both urban and suburban parents know what charter school options are available to them, particularly when located in other districts. A key implication is the need to educate the public about the benefits to students of all races/ethnicities that stem from attending racially diverse schools, whether a charter school or a TPS.

Further research should examine how other factors influence how students determine school choice decisions, including qualitative work to understand the decision-making contexts related to

charter school choice. For instance, to what extent do parents consider achievement and to what degree do certain schools target certain families through advertising, outreach, or even a school name/theme (e.g., a classical curriculum)? How do charter school selection practices, where charter schools are over-subscribed, contribute to the patterns described here? However, at least in Pennsylvania, it is difficult to identify oversubscribed charter schools, as the Pennsylvania Coalition of Charter Schools acknowledges that there is no universal system for accurately measuring waiting lists and some charter schools misrepresent this data as to seem more popular (Mezzacappa, 2014). Further, given the preference for selecting charter schools with same-race peers, future research should examine how strong this preference is to have children attend racially segregated schools. While some qualitative research has explored why White parents make self-segregative choices for their children's schooling (e.g., Roda & Wells, 2013), research on why Black and Latino parents are also making segregating choices is needed. Such research has implications for advocates who seek to further diverse schooling options.

These findings help us understand how this growing form of choice may further or impede efforts to attain educational equity for all students. While policymakers expand school choice through the provision of charter schools—which is rapidly occurring in Pennsylvania and across the country—such an expansion may involve a tradeoff with other policy goals such as fostering racially integrated educational environments. Policy efforts should focus on how outreach efforts can appeal to families across racial lines, and help to fully inform families of all schooling options, including those that will be effective and offer diverse student bodies. Finally, charter school authorizers may wish to consider charter school effectiveness in attracting (and retaining) diverse groups of students in granting or renewing school charters.

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Appendix A

Racial Isolation for Students Moving from a TPS to Charters in Philadelphia Metropolitan Area, 2010-11 to 2011-2012

	Number of Students	Sending TPS	Receiving Charter	Difference in isolation experienced by transferring student
Black				
Grades K-7	2,258	74.53	84.00	9.47
Grades 8-12	2,642	72.42	81.75	9.33
Total	4,900	73.39	82.79	9.39
White				
Grades K-7	360	58.94	63.67	4.73
Grades 8-12	214	57.10	66.66	9.56
Total	574	58.25	64.79	6.53
Latino				
Grades K-7	549	42.38	55.00	12.62
Grades 8-12	921	39.07	55.22	16.15
Total	1470	40.31	55.14	14.83

Source: Pennsylvania Department of Education; NCES Common Core of Data; student grade level is from 2010-11.

Appendix B

Racial Isolation for Students Moving from a TPS to Charters in Non-Philadelphia Metropolitan Areas, 2010-11 to 2011-2012

	Number of Students	Sending TPS	Receiving Charter	Difference in isolation experienced by transferring student
Black				
Grades K-7	415	50.89	60.87	9.98
Grades 8-12	185	49.44	62.19	12.75
Total	600	50.44	61.28	10.83
White				
Grades K-7	236	66.84	58.38	-8.46
Grades 8-12	135	66.99	54.85	-12.14
Total	371	66.89	57.10	-9.80
Latino				
Grades K-7	135	46.21	49.15	2.94
Grades 8-12	26	39.06	44.71	5.65
Total	161	45.06	48.43	3.38

Note: Pennsylvania Department of Education; NCES Common Core of Data; student grade level is from 2010-11.

Appendix C

Conditional Logit for Students with an IEP Choosing Charter Schools with Different Racial Composition, by Race and Grade

	<u>Black Students</u>		<u>Latino Students</u>		<u>White Students</u>	
	K-7	Grade 8-12	K-7	Grade 8-12	K-7	Grade 8-12
0-20% White						
20-40% White	-2.53*** (0.29)	-2.81*** (0.23)	-6.01*** (1.26)	-8.50** (2.41)	0.13 (0.40)	0.72 (0.49)
40-60% White	-3.85*** (0.44)	-21.86 (26.87)	-6.80 ** (2.04)	-90.44** (30.10)	-1.37* (0.58)	-15.26 (1002.21)
60-80% White	-7.27*** (1.11)	-4.60*** (0.96)	-5.08*** (0.97)	-38.78** (11.44)	-0.46 (0.45)	-0.80 (0.60)
80-100% White	-6.40*** (1.53)	-7.30 (3.88)	-3.73** (1.08)	-62.81 (9979.43)	1.15 * (0.50)	0.17 (0.85)
Distance (miles)	-0.70*** (0.10)	-0.48*** (0.10)	-0.45* (0.19)	-1.80** (0.60)	-0.36*** (0.09)	-0.53*** (0.14)
Enrollment (logged)	-0.07 (0.65)	0.90 (1.95)	5.10 *** (1.36)	67.38** (22.39)	1.81*** (0.51)	0.09 (0.61)
Cases	401	622	83	206	80	46
Observations	1,906	2,199	381	795	305	161
Average Number of choices	3.8	3.5	4.6	3.9	3.8	3.5

*** $p < .001$; ** $p < .01$; * $p < .05$

Note: Student had to have lived in the same metropolitan in consecutive years, moved from TPS to charter in the second year, and had at least two charter composition alternatives in their choice set.

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