

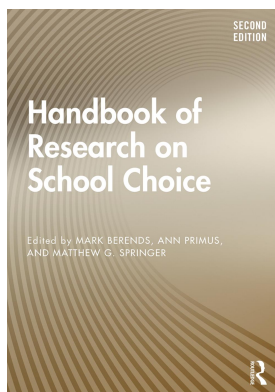
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Publisher: *Routledge*

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Handbook of Research on School Choice

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Charter School Competition

Publication details

<https://test.routledgehandbooks.com/doi/10.4324/9781351210447-11>

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Published online on: 25 Jun 2019

How to cite :- Megan J. Austin. 25 Jun 2019, *Charter School Competition from: Handbook of Research on School Choice* Routledge

Accessed on: 03 Oct 2023

<https://test.routledgehandbooks.com/doi/10.4324/9781351210447-11>

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11

CHARTER SCHOOL COMPETITION

Megan J. Austin

Charter schools were conceptualized as providing an alternative to traditional public schools, with greater freedom from regulations and greater autonomy in decision-making. One rationale has been that schools that are less burdened by bureaucracy can test out innovative educational programs and policies and better respond to the needs and interests of students and their parents. This, in turn, will lead to increased student achievement.

A broader rationale for charter schools has been that they foster competition among all schools, creating a “rising tide that lifts all boats” (Hoxby, 2003; Wohlstetter, Smith, & Farrell, 2013). Market theory posits that as charter schools enter an education market, their innovative practices and higher student achievement will attract students away from traditional public schools. In response to losing students—and the funding that accompanies them—traditional public schools will be induced to make improvements to their educational programs to compete for students. As a result, achievement will also improve in traditional public schools.

As Chapter 12 in this volume discusses, some charter schools do increase student achievement and attainment (see also Berends, 2015; Austin & Berends, 2018). It should be noted, however, that after nearly 30 years, the charter student population remains a relatively small share of all students. The broader rationale for charter schools—that they generate competitive pressures that lead to improvements in traditional public schools—is perhaps most relevant to arguments for charter schools’ potential to transform the educational landscape and benefit the greatest number of students. However, although competitive effects may improve outcomes for the larger number of students who attend traditional public schools, they are indirect and can be difficult to identify: Actors in the traditional public school sector must perceive competitive pressures and respond to them by making changes to their own educational product.

Market theory outlines the conditions under which competitive effects are expected to occur and provides a framework for investigating those effects. The theory relies on several assumptions about how the education market will function in the presence of charter schools (Friedman, 1962; Chubb & Moe, 1990; Betts, 2005; Wohlstetter et al., 2013). The goal of this chapter is to outline these assumptions, present the empirical literature that tests them, and discuss the theoretical and methodological implications of each assumption. The chapter focuses first on research that examines *whether* competitive effects occur, and second on research that examines *how* competitive effects may occur. It concludes by offering some suggestions for further research that could increase knowledge and understanding of charter school competition.

Key Assumptions Underlying the Market Theory of School Choice

Arguments for the competitive effects of charter schools assume that markets will operate as intended, on both the supply and the demand sides. On the supply side, at the most basic level, market theory assumes the presence of charter schools. From there it assumes that charter schools will have the autonomy to develop and implement innovative practices that increase student achievement. If these conditions occur, then students and their families will leave their traditional public schools and move to charter schools to take advantage of the higher-quality educational opportunities they provide. Furthermore, traditional public schools will feel competitive pressure from charter schools and respond by implementing innovative academic practices of their own that increase student achievement in an effort to entice students back (Goldhaber & Eide, 2003; Wohlstetter et al., 2013; Cremata & Raymond, 2014; Gill & Booker, 2015).

On the demand side, market theory makes several assumptions about how parents and students act as education consumers. It assumes that parents make schooling decisions for their children based on information regarding the school's academic performance, rather than on factors such as the school's racial or ethnic diversity, safety, or other non-academic schooling preferences (Henig & MacDonald, 2002). It assumes parents have access to good information on the school choices available to them. It further assumes that parents have the resources to transfer their child to a new school—resources which may include the ability to research and navigate schooling options and the time and transportation to take their children to the school if buses are not available.

To date, research on the competitive impact of charter schools on traditional public schools using the most rigorous methods has most often found neutral effects (Buddin & Zimmer, 2005; Bifulco & Ladd, 2006; Zimmer et al., 2009), small positive effects (Booker, Gilpatric, Gronberg, & Jansen, 2008; Cordes, 2018), or mixed positive and neutral effects (Sass, 2006; Nisar, 2012; Winters, 2012; Epple, Romano, & Zimmer, 2016; Gill, 2016). Negative findings have been less common (Imberman, 2011). Most of the studies have focused on charter schools' effects on changes in student-level or school-level academic achievement, but a few studies have examined their impact on non-academic student outcomes or on mechanisms by which student outcomes may be affected, such as teacher mobility, finances, or schools' academic and organizational practices. Differences in findings across studies may be due to different state or district charter school policies or contexts as well as to different research methods and measures of competition (Arsen & Ni, 2011; Wohlstetter et al., 2013). The following section discusses the most commonly used measures of competition and the methodological and conceptual considerations relevant to each.

Measures of Competition

In the research literature to date, competition is most commonly measured using one of the following definitions: 1) presence at the district level, that is, whether charter schools are located in a district; 2) proximity within districts, that is, the number of charter schools within a given radius of a traditional public school (e.g., the number of charter elementary schools within 5 miles of a traditional public elementary school); and 3) student penetration at the school level, that is, the number of students who left a given public school to attend a charter school. Each of these measures makes assumptions about the causes of competitive pressures; namely, that charter schools must be present within a district, must be proximal to traditional public schools, and must attract students away from those schools. In what follows, I discuss the three commonly used measures, as well as a more recent measure, school leaders' perceptions of competitive pressure. I highlight methodological concerns and approaches when using each measure as a proxy for competition. I also identify some conceptual challenges that should be carefully considered before selecting a measure of competition.

Charter School Presence

The presence of charter schools is considered a precondition for the existence of competitive effects. If charter schools have no or only a small presence in a district, few charter seats may be available, and the actual or potential enrollment decline in traditional public schools may be marginal. Although charter schools are now located in most states and many districts, their presence remains relatively small. In some states, charter legislation caps the number of charter schools or provides other restrictions limiting their number and influence (Cannata, 2011).

As of 2015–2016, about 2.4 million students attended charter schools nationwide—6 percent of the total student population (U.S. Department of Education, 2018). In 2015–2016, charter schools made up 10 percent or more of the market share of schools in only four states: Louisiana, Colorado, Utah, and Arizona (U.S. Department of Education, 2018). Within states, charter schools are not evenly distributed; more than half are in urban areas (Berends, 2015), and in 2016, about 70 districts nationwide, most of them urban, had charter enrollment shares greater than 20 percent (National Alliance for Public Charter Schools [NAPCS], 2016). These districts include New Orleans, LA (92 percent of students enrolled in charter schools); Detroit (53 percent) and Flint, MI (53 percent); Washington, D.C. (45 percent); Gary, IN (43 percent); Kansas City, KS (40 percent); and Camden, NJ (34 percent) (NAPCS, 2016).

Studies focusing on the presence or relative portion of charter schools within a district have examined school-level performance in districts where the share of charter school enrollment is at or above a particular threshold. For example, Hoxby's (2003) early study of competitive effects compared school productivity (test scores divided by spending per pupil) in districts where the total share of charter enrollment was above and below 6 percent. Using a difference-in-differences model, she found mostly positive effects of charter school entry on traditional public schools' performance.

More recently, Jinnai (2013) examined the effect of charter entry in North Carolina on achievement. Because many charter schools open with a limited set of grade levels and scale up by adding a level each year as students age, he focused on grade-level rather than school-level achievement. The study found positive effects on math and reading performance in the grade levels that overlapped with those served by charter schools when they entered a district. Mehta (2017) also used North Carolina data to develop an equilibrium model of charter school competition and found that the presence of charter schools in a district had small positive spillover effects on students' achievement in traditional public schools. Ridley and Terrier (2018) found that expansion of the charter school market share in Massachusetts following a 2011 reform had a small positive effect on student achievement in traditional public schools and induced a 4.8 percent increase in per-pupil spending as well as a shift in spending to instruction and salaries from support services.

Proximity Measures

Where charter schools are present, testing for competitive effects based on their proximity to traditional public schools has been the most common approach in research studies to date. The assumption underlying this approach is that charter schools located in closer proximity to a traditional public school will exert greater competitive pressure than those located farther away, because it is easier for students to find and attend a nearby school. Many proximity measures are closely related to the share of charter schools in a district. Typically, they are calculated by defining a geographic radius around a traditional public school and counting the number of charter schools within that radius. The distance used varies across studies, but common radii are 2.5 miles (Bifulco & Ladd, 2006; Sass, 2006; Zimmer & Buddin, 2009; Nisar, 2012) or 5 miles (Bettinger, 2005; Booker et al., 2008; Zimmer et al., 2009).

Alternately, researchers measure the distance from a traditional public school to the nearest charter school, as in studies in California (Zimmer & Buddin, 2009), Florida (Sass, 2006), Michigan (Bettinger, 2005; Ni, 2009; Arsen & Ni, 2011), North Carolina (Bifulco & Ladd, 2006), and Texas (Booker et al., 2008). For example, Zimmer and Buddin (2009) analyzed the competitive effects of charter schools in six California school districts using 1) the distance to the nearest charter school, 2) the presence of charter schools within 2.5 miles, and 3) the number of charters within 2.5 miles. Overall, they found little consistent evidence that greater competition by any of these measures was associated with achievement gains for students in traditional public schools.

Other studies have tested the same proximity measure at difference distances. For example, Sass (2006) found that the presence of charter schools within both 2.5 miles and 5 miles of traditional public schools was associated with achievement gains in mathematics for traditional public school students. Cordes (2018) defined the relevant geographic area as being large enough for other schools to plausibly be present but small enough that it does not include schools too far away for students to feasibly attend; she examined charter schools within 1 mile of a traditional public school, including charter schools that co-locate in the same building with traditional public schools. She found positive effects of nearby charter schools on the math and English language arts (ELA) performance of traditional public school students, which increased with proximity and were largest when charter schools were co-located. When a charter school was located within half a mile, students scored about .021 SD higher in math and .020 SD higher in ELA; when a charter school co-located, students scored .083 SD higher in math and .059 SD higher in ELA. Focusing on charters' competitive effects on teachers, Jackson (2012) examined how charter proximity affected teacher hiring and pay in North Carolina within 2 miles, between 2 and 10 miles, and between 10 and 20 miles of traditional public schools. He found that effects were strongest when charter schools were located between 2 and 10 miles away from a traditional public school.

When defining measures of geographic proximity, researchers should be clear about why the distances they select are appropriate for the study context. Some researchers use the county or district as the relevant unit of proximity, particularly in studies of competition in suburban or rural areas where students may travel farther to attend school (e.g., Booker et al., 2008). Winters (2012) argued that measures of geographic proximity are not useful in urban areas with high population density, because so many students attend a school located within very close geographic proximity. Although public transportation options in cities make it easier for students to travel longer distances, in a high-density city a 5-mile radius encompasses a wide variety of neighborhoods across which residents often do not travel. In New York City, for example, Cordes (2018) found that 75 percent of charter school students attended a school within a mile of their home. Imberman (2011) tested the decrease in a traditional public school's enrollment when charter school enrollment increased by 100 students within varying distances. Charter enrollment increases of 100 students within 1 mile and 1 to 2 miles were associated with significant enrollment decreases of 12 and 7 students, respectively; beyond 2 miles, the enrollment decrease became nonsignificant. Based on his analyses, he suggested that the appropriate measure of proximity varies based on the urbanicity of the study location.

Methodological Concerns

There are several methodological challenges associated with studies focusing on the presence or proximity of charter schools within a district. For instance, their presence or distance from traditional public schools may not be random. Studies have found that charter schools are more likely to locate in districts or near schools with low or declining performance, thus creating greater demand for alternative schooling options, as well as in neighborhoods with more racial/ethnic diversity and

lower incomes (Henig & MacDonald, 2002; Glomm, Harris, & Lo, 2005; Stoddard & Corcoran, 2007; Betts, 2009; Imberman, 2011; Bifulco & Buerger, 2015; Ferreyra & Kosenok, 2015). If this is the case, then achievement changes in traditional public schools due to the presence of charter schools are probably underestimated. Similarly, the students who choose to leave traditional public schools for charter schools probably differ in important ways from students who remain in traditional public schools (Berends, 2015; Epple et al., 2016).

Measuring charter school competition over time helps to address these challenges. Longitudinal or time series models can capture achievement trends in a traditional public school before and after a charter school opens and identify whether the trends change. School fixed effects in longitudinal models can account for unobserved characteristics of traditional public schools that may be related to the opening of charter schools. For these reasons, the most rigorous studies of competitive effects have used fixed effects (e.g., Buddin & Zimmer, 2005; Bifulco & Ladd, 2006; Sass, 2006; Booker et al., 2008). However, if students' enrollment is associated with their time-varying characteristics, or performance trends at traditional public schools are changing over time for reasons unrelated to the arrival of a charter school, then these models will not be adequate. Betts (2009) and Imberman (2011) discuss this issue in detail.

Using instrumental variables also can address the endogenous location of charter schools. Imberman (2011) took this approach in a study examining the impact over time of charter school competition in a large urban school district in the southwest. He used building availability as an instrument for charter school location, arguing that the most restrictive constraint on charter school openings is finding a building that is available to rent. Ninety percent of charter schools are start-ups, rather than public or private schools that converted to charter schools (Berends, 2015); most of these new schools rent existing buildings as a more cost-effective alternative to new construction. Imberman (2011) found that an increase in the share of charter schools led to a large achievement decrease in traditional public elementary schools initially, but that over two years the impact became positive but nonsignificant. Importantly, he also found that models using student and school fixed effects showed positive and often significant impacts of charter schools on traditional public school students' test scores, highlighting the limited utility of fixed effects to address endogeneity.

Ridley and Terrier (2018) used a change in charter school funding policy as an instrument for the share of charter schools in a district. In 2011, Massachusetts increased the maximum district funding for charter schools from 9 percent to 18 percent in the state's lowest-performing districts. This led to an increase in the share of students attending charter schools in many of the eligible districts, while other districts did not see their charter share expand. The study compared traditional public school students' achievement in districts whose charter presence was expanding to achievement in a synthetic control group of districts whose charter presence did not expand.

Even when geographic proximity and charter school presence are carefully defined, though, they may not be the most appropriate measures of competition. They assume to capture the processes that generate competitive pressures: that students and their families move from traditional public schools to charter schools to access a higher-quality education, that traditional public schools feel competitive pressure in response to students' departures, and that traditional public schools then take action to improve the academic quality of their schools. However, charter schools that are present or located in close proximity to traditional public schools may not compete for students or create competitive pressure that traditional public school leaders perceive. In these cases, measures that focus on the social dynamics of competition, such as students' transfers between schools and the constraints on their movement, and school leaders' perceptions of competition, may be more effective.

Charter Penetration

A third measure of competition that multiple studies have used examines student departures from traditional public schools to charter schools, also referred to as charter penetration. Schools experiencing greater outflows of students to charter schools are expected to experience greater competitive pressures than schools from which fewer students leave. The primary source of such pressure is likely to be the loss of funding associated with decreases in enrollment (Epple et al., 2016). In some cases, state and federal funding allocated on a per-pupil basis “leaves” with the student. In other cases, traditional public schools may have to make payments to charter schools (Epple et al., 2016). Some states counteract this loss by providing relief to traditional public schools through refunds of revenues that went to charter schools; in these cases, competitive pressures may be dulled somewhat (Cremata & Raymond, 2014; Ridley & Terrier, 2018).

Booker et al. (2008) introduced a measure of charter school penetration, calculated as the difference between the number of students who leave a traditional public school to attend a charter school (the outflow) and the number of students who enter the traditional public school after having attended a charter school (the inflow). The difference is expressed as a percentage of the total students who had attended the traditional public school. Other studies simply use outflows of students from traditional public to charter schools.

To measure competition in this way, researchers need longitudinal student-level data. That is, researchers must be able to observe individual student transitions between schools to identify student outflows from traditional public schools and inflows into charter schools, which calls for multiple time points. Longitudinal data are also useful for detecting lagged effects. It is possible that traditional public schools may not respond immediately to students’ departures, or that their response may not immediately impact student achievement. When this is the case, modeling the effects of student departures one year or more after students leave will better capture true competitive effects.

Betts (2009) described early studies using measures of charter school penetration (Booker et al., 2008; Buddin & Zimmer, 2005). Booker et al. (2008) applied the measure to study the impact of charter school competition in Texas, where only a handful of districts had any charter penetration and those that did had an average enrollment share of 1 percent to 2 percent. They found that each 1 percent increase in charter penetration was associated with a small increase per year in achievement scores in both mathematics and reading. In addition to proximity measures, Buddin and Zimmer (2005) also tested measures of charter penetration, including the share of students in traditional public schools and the number of students lost to other schools located within 2.5 miles. Neither of these measures was a significant predictor of achievement gains. Winters (2012) measured competition in New York City as the percentage of students in a traditional public school who transferred to a charter school at the end of a school year. He found mixed results, identifying either no effect or small positive effects of enrollment loss to charter schools on students’ math and ELA achievement.

Methodological Concerns

Just as charter schools’ choice of location is not random, students’ choice to transfer to a charter school also is not random. As stated above, students who transfer to charter schools often differ in multiple ways from those who choose to remain (Berends, 2015; Epple et al., 2016). In addition to school fixed effects, student fixed effects can be used to account for student characteristics that do not vary over time and may be associated with their choice to enroll in a charter school (e.g., prior academic performance, race, parental education, socioeconomic status) (Hanushek, Kain, Rivkin, & Branch, 2007).

Most studies of competitive effects have not distinguished among charter schools. However, it is likely that charter schools with different characteristics compete differently with traditional public schools. Cremata and Raymond (2014) were the first to explicitly model differences in the quality of charter schools to which students were transferring. They found that the competitive effects of charter schools on traditional public schools varied by the quality of the charter school, especially when quality was measured broadly as whether a charter school's average achievement was higher or lower than the district average. Based on these findings, they suggested that failing to account for charter school quality may contribute to the smaller competitive effects found in many studies measuring competition as geographic proximity. Cordes (2018) also found some evidence that effects on achievement in traditional public schools were larger when competing charter schools were of higher quality.

Non-Academic Factors Affecting Demand for Charter Schools

Measures of student transfers to charter schools focus on the demand side of school choice. As mentioned earlier, market theory makes several assumptions about the demand side of choice that should be considered when examining competitive effects. The theory assumes that students have information about the quality of schools available to them and make decisions about which school to attend based on its academic quality. It further assumes that students do not consider other factors, such as family resources and transportation options, in their decisions.

Consistent with market theory, parents overwhelmingly state that academic quality is the most important consideration when choosing a school (e.g., Harris & Larsen, 2015; Billingham & Hunt, 2016; Denice & Gross, 2016; Lincove, Cowen, & Imbrogno, 2018). In Chicago, for example, most students whose parents chose a non-neighborhood school moved into schools with higher test scores (79 percent) and higher graduation rates (87 percent) than their neighborhood school (Stevens, de la Torre, & Johnson, 2011). However, parents' definitions of academic quality vary (Rhodes & DeLuca, 2014; Harris & Larsen, 2015; Altenhofen, Berends, & White, 2016). Parents also identify nonacademic school characteristics as important considerations, such as school safety and discipline, extracurricular opportunities, and distance from home; these priorities vary by race/ethnicity and socioeconomic status (Kleitz, Weiher, Tedin, & Matland, 2000; Harris & Larsen, 2015).

In addition, researchers have consistently shown that what parents say they want often is not what they ultimately choose (Stein, Goldring, & Cravens, 2011; Phillips, Larsen, & Hausman, 2015; Austin & Berends, 2018). Parents may overstate academic preferences and avoid naming less socially acceptable preferences, especially racial ones (Schneider & Buckley, 2002; Goyette, Farrie, & Freely, 2012; Dougherty et al., 2013; Billingham & Hunt, 2016). Or, parents may have strong academic preferences but face barriers to accessing high-quality schools of choice. In Chicago, for example, more White and Asian students moved into higher-performing schools than did Black and Latinx students despite similar preferences for academic quality (Stevens et al., 2011). In New Orleans, high-performing students moved into higher-quality schools while low-performing students moved into lower-performing schools (Welsh, Duque, & McEachin, 2016).

Structural constraints disproportionately impact minority and low-income students and their families. Whereas middle-class families rely heavily on social networks for information about school quality, low-income families rely more heavily on official sources of information (Lareau & Goyette, 2014). However, information often is not available (Hastings & Weinstein, 2008; Pattillo, Delale-O'Connor, & Butts, 2014) or, when available, is overly complex (Stevens et al., 2011; Weininger, 2014; Corcoran, Jennings, Cohodes, & Sattin-Bajaj, 2018). Lack of transportation, unstable housing, limited residential choices, and longer distances to quality schools of choice, especially among families with low incomes or from minority backgrounds, limit options to a narrow set of often lower-quality schools. These factors, along with the complexity of application processes, also make

on-time registration a challenge and can especially limit disadvantaged families' opportunities to participate in lotteries and secure seats in high-quality charter schools (Nathanson, Corcoran, & Baker-Smith, 2013; Rhodes & DeLuca, 2014; Denice & Gross, 2016; Burdick-Will, 2017; Fong & Faude, 2018). Some evidence has suggested that centralized application systems like those in Denver and New Orleans reduce confusion and barriers (Gross, DeArmond, & Denice, 2015). (For more on this topic, see Chapter 25 of this volume.)

If academic quality is not the primary factor in students' transfers to charter schools, market pressures on public schools to increase their academic quality may be diluted. Traditional public schools may receive signals to increase their quality in nonacademic areas motivating student exit, such as extracurricular offerings or school safety; if so, then competition still may induce positive changes in traditional public schools. For example, Imberman (2011) found improvements in student discipline in middle- and high-school grades as a result of charter school competition.

School Leaders' Perceptions of Competition

The presence and proximity of charter schools are necessary but not sufficient preconditions for competitive effects. Similarly, the departure of students from traditional public schools to charter schools does not automatically induce competitive pressures. In some schools, enrollment declines may alleviate overcrowding or may provide an exit for particularly unhappy parents or students (Cardon, 2003; Cannata, 2011). In areas where the market share of charter schools is relatively small (as is the case in many districts and for many studies of competitive effects conducted when charter schools were relatively new), student departure may not induce competitive pressure (Cremata & Raymond, 2014). Two further conditions are necessary for competitive effects to occur: Traditional public school leaders must 1) perceive competitive pressures from charter schools (Kasman & Loeb, 2013; Jabbar, 2015a), and 2) respond with actions to improve academic quality.

Perceptions of Competition

Several studies have examined the assumption that leaders of traditional public schools perceive increased competition when charter schools are located nearby. This research has found that the charter schools in closest geographic proximity often are not the same schools perceived to be competitors (Buddin & Zimmer, 2005; Bifulco & Ladd, 2006; Zimmer & Buddin, 2009; Jabbar, 2015a, 2015b, 2016). In a California survey of traditional public school principals, 80–90 percent of principals reported that the presence of charter schools in their district had no effect on their school's ability to attract and recruit students, the school's financial security, or teacher recruitment and retention (Zimmer & Buddin, 2009). However, in six districts with a larger charter school presence, about 25 percent of principals reported making changes to their instructional practices or professional development in response to competition from charter schools. In New Orleans, where charter schools have a larger market share than any other location in the United States, most schools felt strong competition for students (Jabbar, 2016).

Other studies based on surveys and interviews of school leaders have identified characteristics of both traditional public and charter schools that influence perceived competition: Charter schools with similar demographic composition and charter schools with higher academic performance were perceived as stronger competitors, as were schools that belonged to charter management organizations (CMOs) (Kasman & Loeb, 2013; Jabbar, 2015a). Studies have found different results regarding how schools' own performance influenced their perceptions of competition. A study of New Zealand schools found that principals perceived greater competition when their own school performance was average (Ladd & Fiske, 2003), whereas a study in New Orleans found that principals whose own schools were high-performing were more likely to perceive competition (Jabbar,

2015a). Principal characteristics such as gender and length of time in the job also influence perceived competition (Jabbar, 2015a).

Responses to Competition

When traditional public schools are motivated by competitive pressures to make changes, their ability to implement new, innovative practices that will increase student achievement still may be limited. Traditional public schools do not have the same flexibility to innovate as charter schools. Indeed, the regulatory constraints they face motivated the creation of public charter schools that could operate without these constraints. In addition, the same disruptions that generate competitive pressures—loss of funding, reduction of staff, and other consequences of student departures—mean traditional public schools may be attempting to respond to competitive pressures while experiencing a loss of resources that makes such a response more difficult (Linick, 2014). Some studies have found that perceived competition does not affect how principals spend their time or how districts allocate their resources (Arsen & Ni, 2011; Cannata, 2011), nor does it change schools' academic or curricular practices (Bohte, 2004; Davis, 2013; Kasman & Loeb, 2013).

In other cases, school leaders do act on perceived competition from charter schools by implementing academic or non-academic changes. Jabbar (2015a) identified a range of strategies schools used in response to competition, including changes to academics and operations meant to “improve quality and functioning” (p. 644), changes in programming or extracurriculars meant to differentiate a school from its competitors, emphasis on marketing and recruitment, and, in some cases, efforts to selectively target and enroll more desirable students through so-called “cream-skimming” and “cropping” practices (Lacireno-Paquet, Holyoke, Moser, & Henig, 2002; Lubienski, Gulosino, & Weitzel, 2009).

Recent research also has highlighted how some traditional public schools must change practices to compete not only for students and the financial resources that accompany them, but also for teachers (Carruthers, 2012; Jackson, 2012). Jackson's (2012) aforementioned longitudinal analyses of teacher mobility and pay before and after the entry of a charter school within 2 miles, between 2 and 10 miles, or between 10 and 20 miles of a traditional public school found that when charter schools opened nearby, traditional public schools hired fewer new teachers and raised salaries in an effort to retain existing teachers. These changes were larger in difficult-to-staff traditional public schools (i.e., those with larger populations of low-income and minority students). For example, charter school entry within 10 miles was associated with a 0.25–0.37 percent increase in teacher pay overall, but a 1.2–1.3 percent increase in pay in difficult-to-staff schools. Despite responding to competition from charter schools by increasing financial resources for teachers, teacher quality declined in difficult-to-staff schools following charter school entry.

Directions for Future Research

The body of research that examines *how* competitive effects occur is growing and provides important contextual information for the evidence regarding *whether* competitive effects occur, which overall shows small positive, but still mixed, effects of charter school competition. More research, including more qualitative research, is needed that examines assumptions about the mechanisms underlying competitive effects, such as nonacademic motivations or constraints influencing families' schooling choices. Similarly, researchers should also expand questions about competitive effects to outcomes beyond student achievement, such as student attainment, behavior, attendance, and social-emotional outcomes (Imberman, 2011). In addition, more needs to be known about whether and how competitive pressures across schools have system-wide impacts on important outcomes such as school segregation (Lubienski et al., 2009).

Despite the growth in charter schools over time, charter school students still make up a small share of the total student population in most cities and states. Most of the research regarding the competitive effects of charter schools took place in years when and locations where charter schools made up a small share of the market, with research in New Orleans the notable exception. Competitive effects may differ in different locations or when the market share held by charter schools differs, and prior findings may not continue to apply if the numbers of charter schools and charter school students continue to grow. Other potential sources of heterogeneous competitive effects include differences in the quality of the traditional public schools that students transfer from or the charter schools they transfer to, or different levels of resources with which to respond to competitive pressures. These and other potential sources of heterogeneous effects deserve further study.

Competitive pressures also may increase as the charter school sector expands and students choose from an increasing set of alternatives to their traditional public schools. The increased competitive pressure could result in greater positive effects on student achievement in traditional public schools. Alternately, increased charter school attendance could translate into fewer resources for traditional public schools and reduced capacity to respond to competitive pressure, resulting in no change or negative effects on student achievement in traditional public schools.

To date, New Orleans is the primary location in which researchers have sought to study the effects of charter schools as a larger share of the education market. Some have argued that, because a small number of CMOs control a large percentage of the schools in that city, the school choice market is in danger of being replaced by a charter monopoly—returning to a privatized version of the education monopoly charter schools were meant to disrupt (Scott, 2013; DeBray, Scott, Lubinski, & Jabbar, 2014; Jabbar, 2015b). Most systems, however, fall much closer to the opposite end of the spectrum. Longitudinal research will be helpful in understanding how competitive effects vary as district or local policy context, charter market share, and demographic composition change. Longitudinal research also can provide a better understanding of short-term versus long-term impacts of charter competition (Imberman, 2011).

There is very little research on the financial pressures created by flows of students from traditional public to charter schools (Ni, 2009; Ni & Arsen, 2011; Bifulco & Reback, 2014; Schafft et al., 2014). These pressures may occur in the form of an initial shock from which schools eventually recover, or a slow draining of resources from traditional public schools. They also may differ across locations, as some charter policies include funds for traditional public schools meant to act as a safety valve or to offset some of the funds lost to declining student enrollment. The financial effects, however, require further study (Epple et al., 2016).

Researchers usually evaluate the competitive effects of charter schools on traditional public schools. However, charters also could produce competitive effects for other charter and private schools (Jabbar, 2015a). How these effects differ from those in traditional public schools is an area for further study. Given that charters have more flexibility to respond, we may see larger effects in other charter schools than in traditional public schools. But, some charter schools may be more market-oriented than others. The few studies that have examined private schools have found that they lose a larger proportion of students to charter schools than do traditional public schools (Toma, Zimmer, & Jones, 2006; Buddin, 2012; Chakrabarti & Roy, 2016). Less is known, however, about how private schools respond to competition from charter schools.

Finally, the focus on competition overlooks another possibility: that traditional public schools respond to the presence of charters by collaborating, not competing. Increasingly, funding is available to support the sharing of innovative practices, professional development, or other resources among charter and traditional public schools (Holley, Egalite, & Lueken, 2013). These collaborations present an alternative mechanism by which charter schools could “lift all boats”; however, more information about these collaborations and their effects is needed.

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