School Choice and Competitive Incentives: Mapping the Distribution of Educational Opportunities across Local Education Markets

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Competition sparked by school choice is expected to generate greater educational opportunities, particularly for disadvantaged students. The premise is that competitive incentives will change the organizational behavior of schools (and districts, dioceses, etc.) in ways that will lead to more equitable access for students across varied and often segregated urban landscapes. Drawing from theories of institutional environments and nonprofit firms, this analysis investigates patterns of access across three highly competitive local education markets to determine how school choices are arranged as options expand. The findings indicate that competitive incentives can have similar impacts on different types of organizations, but both policy variations and contextual factors such as demographic distributions may also play critical roles in shaping the market structures in which schools operate. Notably, all three cases showed patterns of exclusionary strategies that schools embraced to enhance market position.

Although there are many compelling arguments for school choice, perhaps none is so appealing as the hope that choice and competition will create better educational opportunities for disadvantaged children. Because of this equity potential, advocates often cast school choice as a new civil right, one that affords poorer students the chance to choose options previously available only to wealthier families. In this thinking, nurturing equitable opportunity is not simply a matter of removing barriers such as district boundaries and attendance zones. Students must have viable access to a range of alternatives to

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their local public school, and competition can be the driving force that generates those options, providing different schools with incentives to better serve disadvantaged students. Since school funding in choice plans is tied largely to a school's ability to satisfy customers, school choice policies are uniquely positioned to create the requisite competition, as rival schools must act to attract families. Thus, these "market-like incentives" can encourage schools to seek out niche markets of underserved students (Hoxby 2002b, 8).

While the theory of competition in education is compelling, we understand very little about how competitive incentives actually play out in local contexts. In particular, even as the market theory of education provides general and generic predictions about how schools should respond to competition by reaching out to underserved students and communities, little is known about how competitive incentives are shaped or how they influence the behavior of different types of schools and educational organizations such as districts, dioceses, and management companies.[1] And less is known about the consequent distribution of options available across varied and often segregated urban landscapes. In fact, some evidence suggests that schools in a local education market (LEM) may recognize competitive incentives to improve their status in the market hierarchy by targeting rather than producing "better" students (Lubienski 2005a, 2007b). Indeed, the question of incentives is crucial since policies that use LEMs to expand school options do not dictate specific school processes but instead establish competitive incentive structures to encourage particular organizational behaviors that, in the aggregate, will provide a greater range of quality educational options for students.

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But such questions regarding theories of organizational behavior are usually framed in ways that are largely acontextual, neglecting the distinctive nature of choice programs and the "markets" they create across different metropolitan areas. To understand the equity potential of school choice, then, we also need to better understand the actual role of competitive incentives for schools in the local contexts in which they operate, rather than simply the idealized, if generic, promise of competition and choice in schooling. In fact, a number of factors may shape the competitive incentive structures to which schools and other organizations in a LEM then respond, including issues such as the availability of information for parents, organizational priorities at the school and district level, the geographic distribution of socioeconomic difference, organizational resources and capacity, institutional reputations and traditions, and the strategies of competitors, in addition to the specific policy parameters that define the LEM. For instance, in some metropolitan areas, choice is limited to the central city or to public or charter schools, while in other cases inner-city students can also choose private schools or schools in more affluent suburbs—so competition may extend across a wider geographical area.[2] Some school choice plans allow schools to set admissions criteria, while others prohibit schools from selecting students. And in some LEMs, such as those with a substantial presence of new charter schools, schools enjoy notable flexibility in choosing which neighborhoods they will serve. Thus, local policy context may be a primary factor in shaping the incentives for different organizational types and, therefore, the geographical distribution of educational options.

We are interested here in the civil rights potential for school choice to promote more equitable access for disadvantaged students to a range of higher-quality school options: how whole populations of schools—both public (including charter) and private—in LEMs distribute their services in response to competitors and, particularly, how they serve different students across often segregated urban landscapes. However, while equity may be a goal for policy, it is an aggregate concern and, as a wider systemic issue, is not necessarily a driving force for individual schools seeking competitive advantages. Therefore, individual schools might sense incentives to shape their own student enrollment either directly through admissions policies or indirectly through location strategies. Understanding competitive incentive structures, as evidenced by the distribution of educational options, is the key to understanding internal dynamics of LEMs and their potential to advance policy goals such as equitable access.

These questions of individual and aggregate school responses to competition are essentially spatial concerns that require descriptive analyses of the arrangement of educational options in LEMs. Assessing the physical distribution of educational opportunity is critical because parents cite geographic proximity as a central consideration in their decision-making processes for choosing

schools for their children (Kleitz et al. 2000; Schneider and Buckley 2002; Witte 2000). Thus, determining where educational services are physically located relative to different communities can help us gauge the degree to which competition is promoting equitable access to various educational options, especially for underserved populations. Spatial questions of location within and across segregated urban areas are particularly salient for more autonomous and newly created schools, which is the case for many charter schools, and may represent a crucial strategy for schools in competitive LEMs. Indeed, physical place itself carries connotations about prestige and position in a market hierarchy, as indicated by the real estate maxim "Location, location, location."

In order to understand the role of competitive incentives in arranging the geography of opportunity in LEMs, we conduct geospatial analyses of three of the most competitive LEMs in the United States. In the next section, we consider distinctions between theoretical predictions and what is actually known about competitive contexts, incentives, and organizational behavior, focusing on the implications for equitable educational opportunities. Then we examine the school choice plans in Detroit, the District of Columbia, and post-Katrina New Orleans, using computer mapping of various educational options available across diverse social landscapes. The findings suggest that immediate competitive concerns generated by market-style incentives can trump specific policy goals such as increased equity, with different types of schools in different contexts competing to improve their market position.

Competitive Incentives, Organizational Type, and Context in Local Education Markets

A number of activists, theorists, and reformers have pointed to the serious deficiencies in the district-run public school system, particularly how those problems fall more heavily on minority and disadvantaged communities, noting a civil rights argument for access to a quality education through school choice (Holt 1999; McGroarty 1996; Shlaes 1998; Shokraii 1996). Columnist George Will (2003), for example, contends that "school choice for poor children is . . . today's principal civil rights fight. It's poor parents trying to emancipate their children from the public education plantation." Martin Luther King Jr.'s niece, Alveda King (1997, 2001), and conservative luminary Steve Forbes (Silva 1999) have highlighted the potential of choice to address urban school problems. For instance, Brown and colleagues (2004) argue for making student transfer provisions under No Child Left Behind more available in order to animate disadvantaged students' civil right to a quality education,

which has been diminished by bureaucratic administration of a monopolistic public school system.

Using market-style competition to give schools the necessary incentives to meet the needs of all students is a compelling idea. Past efforts of policy makers to dictate specific outcomes often failed, market-oriented reformers note, because government entities lack the extrinsic motivation and local knowledge to perform effectively and too frequently focus only on their own budgets and power rather than on policy goals or clients' needs (Chubb and Moe 1990; Walberg and Bast 2003). On the other hand, competitive incentives can encourage or compel desired behaviors from organizations. If policy makers and the public seek greater efficiencies, market mechanisms can be used to create the incentive structures that will induce organizations to pursue that outcome—for instance, by making organizations more operationally autonomous while making per-pupil funding portable. If wider access is a goal, policies can arrange the competitive incentives to support that objective, for example, by using differentiated vouchers that account for individual student needs (Rothstein 2001). The key concern is to align incentives with the preferred organizational behaviors, mitigating potentially negative consequences (Moe 2008).

Of course, LEMs are not the pure markets idealized by some thinkers. Government still plays a substantial role in funding, for instance, or in regulating or authorizing schools. Nevertheless, LEMs leverage key market mechanisms of consumer choice and often include substantial degrees of operational autonomy for schools (as well as for districts, dioceses, and management groups) so that they may compete for students. The emergence of myriad federal, state, and district policies that provide multiple school options across and between public and private sectors creates competitive conditions that approximate purer markets in important ways. In this regard, LEMs are a useful unit of analysis for examining how market-oriented reforms may alter the distribution of educational options for different types of families and students.

Policies that create LEMs generally use per-pupil funding models to incentivize enrollment, presumably to improve performance of schools. In this "incentivist" model, vouchers, charter schools, tuition tax credits, and open-enrollment plans liberate consumers on the demand side and typically free up entry for new education service providers on the supply side as well. Accordingly, in this less regulated and more competitive environment, schools will respond to the threat of losing students and funding by innovating or otherwise improving their effectiveness (on incentivists, see Greene et al. [2008]; Stern [2008]). Presumably, families will choose schools with superior academic quality, and schools that fail to perform may face the prospect of literally "going out of business" (Bast and Walberg 2004; Boldt 1999; Car-

penter 2005; Gilder 1999; Ladner and Brouillette 2000). This competitive drive for academic quality thus represents the primary mechanism for school change.

Yet while this idea of using competitive incentives to promote equity through education markets is compelling and popular with policy makers, evidence of how these theoretical incentives actually work in the real world of schooling is in fact quite limited and often disputed. Perhaps most importantly, some evidence suggests that instead of encouraging schools to find more effective practices, competitive incentives could also guide schools to adopt organizational strategies around student enrollment—which is directly relevant to the present question of equitable access (Glatter et al. 1997; Hsieh and Urquiola 2002; Lauder et al. 1999; Lubienski 2003, 2005a). This may appear in terms of marketing, admissions policies, and location decisions.[3] Yet while some schools (particularly private schools) are able to set admissions criteria, most publicly funded schools are not allowed to select students. With a few exceptions (as we report below), publicly funded schools are open-access institutions that must give equitable opportunity for admission to all applicants. When there are more applicants than spots—as is often the case for charter schools in LEMs—schools must use a randomized selection process, such as a lottery, to admit students (Dolle and Newman 2008). Consequently, given the competitive incentive to admit "better" students, schools have an interest in shaping the pool of applicants from which they must randomly select a student body.

This may be most evident in the issue at hand: how schools adopt behaviors that shape admissions through location or enrollment decisions. In consumer markets, firms typically compete through price adjustments—a primary competitive response generally not available to publicly funded schools. Except in the few instances in which private schools are allowed to "top up" tuition costs beyond the value of a voucher, the per-pupil payment is set for most schools receiving public money. However, schools can still impose costs on consumers as a way to shape their pool of applicants. Such costs can be imposed through practices such as parental contracts and obligatory volunteer duties, entrance procedures (even if largely symbolic), and the location of the school relative to populations sought or avoided.

Here we outline two additional issues critical for understanding the role of competitive incentives to promote equity in education markets, noting the distinctions between theoretical assumptions of market theory and the evidence (or lack thereof) on how these incentives work in LEMs. First, while LEMs are structured to encompass different types of organizations (e.g., public, religious, nonprofit, and even for-profit schools) associated with various purposes, attributes, and behaviors, there is some question as to whether those different organizations will maintain their distinct missions, even under shared competitive environmental pressures. Second, while it is important to consider

policy variations between LEMs, little attention has been paid to other contextual factors that may also shape the competitive incentives at play in the market.

Institutional Environment, Organizational Type, and Behavior

The logic of competitive incentives typically posits a relatively generic organizational type, where the incentives operating within an institutional environment shape organizational behaviors within and across populations of schools in that environment. Incentivists posit that since humans respond to incentives, any organization in which people work can be incentivized, and the incentive structures under which organizations operate will then shape the behavior of individuals within that organization and, thus, the organization itself. The problem, according to this logic, is that most public schools are shielded from competitive incentives because of their monopoly status. But if schools can be forced to compete for students, as do private and charter schools, then they will be incentivized to adopt more effective behaviors assumed to be present in the choice-based sector.

Indeed, there is a strong theoretical basis for this logic. Neoinstitutionalist perspectives are particularly important in conceptualizing organizational responses within broader institutional environments. Theorists hold that organizations within a particular field are subject to a common set of forces and parameters. Drawing from the field of biology, they note that environmental factors can determine both the internal structures and overall distribution of populations (e.g., Hannan and Freeman 1977). These insights have been leveled at education, where neoinstitutionalists argue that institutional environments engender a remarkable conformity across U.S. schools, largely by shaping societal and professional assumptions about the technical core of schooling (Meyer and Rowan 1992; Meyer et al. 1992, 1994; see also Peterson 1990). Especially for new organizations entering an established institutional field, there is an imperative to demonstrate legitimacy. This pressure to conform to established models can be particularly compelling in environments characterized by risk and uncertainty (Brown 1992; DiMaggio and Powell 1983)—such as in emerging education markets.

However, while this logic is cogent, it is also important to consider the multiple organizational types at play in LEMs and how those types may influence the behavior of organizations differently in various circumstances. For instance, theorists often distinguish between the mission-oriented nonprofit sector and the technical and entrepreneurial tendencies of the for-profit sector, which can be leveraged through competition in public services such as education (Osborne 1999; Osborne and Gaebler 1992). Important work on this

issue has been conducted outside the education field, where economists studying nonprofit groups examine differences in behavior between organizations with different structures: profit-seeking firms, governmental entities, or professional/philanthropic or religious organizations that may embody a particular social goal. Presumably, an organization's orientation shapes its priorities in engaging competitors and clients. Thus, for instance, Ballou and Weisbrod (2003) note differences in the compensation structures of chief executive officers at religious and secular nonprofit hospitals. Elsewhere, Weisbrod (1998) uses similar distinctions between different types of assisted-living facilities, with government entities often positioning themselves to serve a safety-net function (see also Kapur and Weisbrod 2000). The question, then, is whether a school's organizational type (district-run, charter, or private school) may distinguish its unique organizational behavior or whether, as incentivist logic posits, all organizations will respond to competition in ways that open up access to quality options for disadvantaged students.

Thus, a key consideration here is whether the introduction of competition—as with LEMs—differentially influences the behavior of various organizational types. In fact, some research suggests that both public and private organizations may adopt profit-seeking behaviors in response to the emergence of competitive conditions. The primary factor appears to be an organization's perception of its mission as profit maximizing or social goal oriented (Lacireno-Paquet et al. 2002). However, there is some evidence that increased competition causes nonprofit organizations to act more like for-profits—suggesting that competition can encourage "isomorphism," or standardization, to a singular model. An examination of nonprofit hospitals indicates that higher geographic concentrations of for-profit hospitals nearby leads to more profit-seeking behaviors for nonprofits (Duggan 2000). Similarly, nonprofit entities often assume profit-maximizing behavior in at least part of their organizations to generate revenues that will support their nonprofit missions (Sinitsyn and Weisbrod 2008).

In education, private and charter schools span different organizational types. Charter schools, for example, can have a range of different relationships with their host school districts, depending on mission, authorizer, and management. Natalie Lacireno-Paquet and associates (2002) examined variations in charter school type and organizational behavior, finding that charter schools served a higher proportion of underserved students than did district schools in Washington, DC. But they also noted important distinctions in the charter sector according to profit orientation. Nonprofit charter schools served more underserved students, while profit-oriented charter schools were more likely to avoid students with greater needs. Elsewhere, Lacireno-Paquet (2004, 2006) found that charter schools administered by smaller educational management organizations (EMOs) enrolled significantly fewer minority students, while both large and small EMOs operating in urban areas served more econom-

ically disadvantaged students than did independent charter schools. Similarly, in a study of charter schools in metropolitan Detroit, Lubienski and Gulosino (2007) found profit-oriented charter schools locating in more affluent areas; while mission-oriented charter schools initially focused more on serving higher-need areas, that commitment also appeared to decline as competition increased. Such findings suggest the importance of understanding organizational structures in predicting organizational responses to increasingly competitive environments.

The Role of Context

There appears to be a general consensus that policy context is an important consideration in understanding organizational behavior. Indeed, it has been a popular refrain in some circles that "the rules matter" in school choice plans—that the specifics of policy are important in encouraging the desired organizational behaviors in schools competing for students and in avoiding unwanted outcomes (Arsen et al. 1999; Brighouse 2000; Hill 2005; National Working Commission on Choice in K–12 Education 2003; Witte 2000). For instance, if policy makers are concerned that competition might create a disincentive for schools to serve more costly special education students, policies can be designed to provide the proper incentive for schools to meet those specific needs (Moe 2008; Rothstein 2001). However, considerations of context have tended to focus almost exclusively on policy issues, which may possibly diminish in importance compared with other contextual factors, given market incentives.

The idea that policy context is important is perhaps nowhere better illustrated than in the case of charter schools. Although only one of a range of school options in LEMs, charter schools present a particularly interesting example because they are typically relatively new organizations explicitly advanced to create more competitive conditions for schools and to provide new and higher-quality options for disadvantaged students (Nathan 1996). However, it increasingly appears that the singular notion of a "charter school" does not capture the important nuances between different state and local contexts that lead to wide variation in what is meant by the term. For instance, for-profit EMOs run an overwhelmingly large proportion of the charter schools in Michigan, and charter schools there are typically not authorized by local school districts, which suggests a more competitive relationship with the district in which they operate. Washington, DC, has two authorizing boards, one of which is affiliated with the local school district, so that the numerous charter schools in the District actually reflect two distinct relationships with the host district. Louisiana embraced charter schools as the primary model to rebuild

the school system in post-Katrina New Orleans, granting charter schools the ability to control their admissions processes, unlike most other charter schools in the United States. Although all charter schools share the basic characteristics—they are schools of choice that must attract students—the variation in policy context across states and localities is substantial and likely has serious implications for the organizational behavior of such schools. Similarly, some cities, such as Cleveland, Milwaukee, and Washington, DC, have overlapping voucher and charter school programs that generate competition across sectors, while states like Michigan have comprehensive interdistrict choice options, allowing multiple districts to compete with charter schools.

But it could be that the focus on policy "rules" overemphasizes the centrality of policy context alone. LEMs explicitly unleash competitive incentives on both the supply and demand sides for organizations and individuals, respectively, to pursue their own self-interest, albeit theoretically constrained by policy regulations. Yet just as there is evidence that parents sometimes skirt regulations in order to pursue the best interests of their children, it may also be reasonable to suspect that schools, as organizations, may respond to competition in ways that do not always comport with policy-based restrictions. For instance, concern about charter schools promoting greater segregation has caused some states to require racial balancing in charter school enrollment, yet research suggests that charter schools in many states admit students regardless of such regulations (Rapp and Eckes 2007). So while the rules may matter, competitive incentives might matter even more once marketlike dynamics are set in motion.

And while policy context and competitive incentives can shape organizational behavior, so too do the social, institutional, and market contexts in which schools operate. Thus, independent and public schools in segregated cities with strong traditions of Catholic schooling might be expected to behave differently than new schools established in new suburban housing developments. Likewise, a new school started in a district with a history of poor academic outcomes may assume an advantageous market position, while an alternative school that seeks to bring a child-centered option into a high-performing but traditionally oriented district may focus more on niche marketing. Furthermore, the specific market structure will differ, with variations on issues such as ease of entry for new providers, political boundaries for choice programs, state subsidies for competition, or consumer access to information (Lubienski 2008; Lubienski and Gulosino 2007). In understanding different LEMs, it is also important to consider demographic distributions—whether there is a surplus of seats in schools (as in Rust Belt cities with declining populations, such as Detroit) or whether school space is limited (as in New Orleans when the population first began to return after Katrina).

These types of contextual issues can also affect the strategic and competitive decisions of larger educational organizations like public school districts. Studies

of the voluntary interdistrict open-enrollment plan in Detroit have also demonstrated that public school districts facing competitive pressures may respond like private organizations, targeting potential consumers according to their hierarchical position in the market rather than taking a more mission-driven approach of serving students in need (Lubienski 2005b). For example, most suburban districts immediately adjacent to Detroit have open seats but chose not to admit any of the many students dissatisfied with Detroit schools, despite considerable per-pupil revenues that would follow incoming students. Rather, they directed their marketing at more advantaged suburban students. This finding suggests that larger organizations like public school districts, by adopting particular management strategies, can play a crucial role in shaping the schooling options available to different types of students in competitive markets.

In summary, incentivist logic presents a compelling critique of "government-monopoly" school systems and offers an intriguing prescription for competition to force schools to become more effective in meeting the needs of underserved communities. But the research on the underlying assumptions of competitive incentives raises significant issues regarding how these incentives actually play out in the real world of schooling.

- While LEMs are intended to encourage schools to adopt more effective approaches to teaching and curriculum, such incentives may also cause schools to seek out more advantaged students associated with academic success, thus avoiding students in less affluent communities.
- Differences between organizational type, such as district-run or for-profit schools, may point to important distinctions in organizational behavior, particularly with respect to underserved populations, but the degree to which increasingly competitive environments negate such distinctions is unclear.
- While variations in policies between LEMs may be significant, factors such as institutional hierarchies, proximity, geographic barriers, demographic distributions, and other socioeconomic considerations may also substantially shape the strategies organizations use to respond to competitive incentives and, thus, the opportunities for disadvantaged children.

In fact, these extrapolicy issues of demographic distributions and geographic context point to the importance of spatial factors in understanding the dynamics of LEMs. Access for disadvantaged students is a question situated in an institutional environment characterized by segregative patterns. Yet little is known about how school options in competitive environments are arranged across varied urban landscapes, thus highlighting the need for descriptive analyses of these issues.

Studying Equity in Competitive Local Education Markets

Despite considerable theorizing on organizational responses to competitive conditions, there are still significant questions about the equity effects of increased competition in real world local circumstances. In this descriptive analysis of LEMs, we focus on the critical issues noted in the previous section where evidence on competitive incentives remains unclear. We focus here on the ways that whole populations of schools may arrange educational opportunities for different communities through location and admissions policies—policy strategies that have spatial attributes (i.e., they are geographically identifiable) in LEMs.

In this foray into the distribution of options in competitive LEMs, we note the organizational type of different schools and groups of schools in examining distributional patterns across segregated but competitive LEMs. In light of research on organizational type and competitive environments, we looked across school types to see whether different educational organizations adopted similar strategies for engaging particular communities over time. We also examined the question of organizational responses to competitive incentives of schools and groups of schools in different policy, institutional, demographic, and socioeconomic contexts. We considered the policy as well as the socioeconomic and other factors that may distinguish various LEMs from one another, attempting to explore how these factors may influence the range of schooling options offered to different types of students by schools and districts. Given the differences in context, we might expect to see substantial differences in the patterns of organizational behavior and, thus, in the distribution of educational opportunity across various education markets.

To examine the issue of equity effects from various educational organizations' responses to competition, we analyzed geographic patterns in three competitive LEMs. Geospatial analyses allow us to examine questions of physical space—the geography of schools, homes, neighborhoods, and districts—as a primary consideration. To date, most research on school choice has examined variables such as family demographics, school resources, and student outcomes acontextually, not paying close attention to where or in what physical or social context these choices occur. Yet research has strongly indicated that contextual matters—proximity, in particular—are very important in understanding choice patterns. For instance, location, convenience, and information on school programs, quality, and social and racial composition as derived from (segregated) social networks are all issues that have been shown to be important in parents' decision-making processes (Bell 2008; Betts et al. 2006; Cobb and Glass 1999; Hsieh 2000; Kleitz et al. 2000; Schneider et al. 1998).

In fact, the issue of location is well known as a central consideration in business strategies, with theories of locational decisions producing useful hy-

potheses of the distribution of producers relative to market demand (e.g., Smithies 1941). While geography has always been important in public education in terms of district boundaries and attendance zones, the rise of competitive education markets amplifies this issue, even as political boundaries are often discarded (Hoxby 2000). Although charters, voucher programs, and other forms of publicly funded school choice often prohibit schools from charging additional fees on top of the government-subsidized amount, the ability of many schools—such as new charter schools and even some private schools—to select a location in effect allows them to impose added search and transportation costs on more distant families while reducing costs on those in the community in which the schools are located.[4] These issues have spatial characteristics—that is, they can and should be understood not as isolated instances but within geographic contexts. Spatial analysis allows us to examine data like admission policies or school demographics in the wider context of neighborhood demographics and in relation to other schools nearby. This capability enables us to discern patterns within and across contexts.

Three LEMs

To analyze strategic responses to competitive incentives in education markets, we examined patterns across three major metropolitan areas in the United States. In choosing these cities, we looked at larger cities in which traditional patterns of racial and socioeconomic segregation were widespread and distinct, to see how competitive incentives countered such patterns. Urban areas with a greater range of subsidized options would presumably generate greater levels of competition, as different types of schools would have to compete with one another for students.[5] We were particularly interested in areas with new charter schools (as opposed to those converting from district administration) that would have more latitude for making locational decisions.[6] Furthermore, chronic patterns of school failure in the selected central cities—as evidenced by low performance, proficiency, and graduation rates—would suggest a higher demand for new school options from underserved communities. But we also looked for cities representing different areas of the country, with distinct school choice policies that would differentiate them from one another. Thus, in studying competitive incentives in education markets, we analyzed patterns in metropolitan Detroit, with its vibrant charter and interdistrict choice market; the charter schools and voucher program in Washington, DC; and New Orleans, which has used highly autonomous charter schools as the model for rebuilding the city's schools since Hurricane Katrina.

Michigan was one of the leading states in implementing a relatively strong charter school law in the early 1990s, with approximately 145 charter schools

operating in the three-county metropolitan area—many with waiting lists. The vast majority of charter schools in this case are run by EMOs. Although Detroit has no publicly funded voucher program, Michigan has established comprehensive schools-of-choice plans that allow students to choose schools outside their neighborhoods, including schools in other districts and counties. Since per-pupil funding follows the student, districts are competing to attract students, with many districts adopting sophisticated marketing campaigns (Lubienski 2005a). (Some more affluent districts allow nonresidents to apply for admission in tuition-based plans.) The Detroit Public Schools (DPS), which has been in a state of administrative turmoil for over a decade, has been losing about 10 percent of its students a year to charter schools and other forms of choice, so that the city—which in the 1950s had almost 2 million residents—now has fewer than 100,000 students in DPS, while over 50,000 attend charter schools in the city or surrounding suburbs. And general declines in school-age populations are also affecting the suburban districts as well, particularly the inner-rim suburbs near Detroit (Lubienski and Gulosino 2007). Finally, Detroit—the most segregated metropolitan area in the nation—is the prototypical Rust Belt city. Although it has a well-established private/Catholic school system, demographic shifts mean a dramatically declining school-age population in the city and inner-tier suburbs, leading to an oversupply of seats in both public and private schools, which must then compete to attract students or risk joining the rapidly growing list of school closures.

Washington, DC, offers a rather different education market, although it too is highly segregated and has seen much turnover in public school administration. While approximately 70,000 students are enrolled in the District of Columbia Public Schools, it is often derided as the most inefficient and ineffective big-city school system, and a number of reforms have created myriad options for families. Traditionally, the city and suburbs have had a vibrant private school sector, including approximately 150 both church-affiliated and (unlike Detroit or New Orleans) more secular day schools within 10 miles of central Washington. Charter schools were introduced in the District in 1996 to provide competition for failing public schools, with the understanding that "excellence may be fostered when schools compete for students."[7] Currently, over 70 charter schools in the city enroll some 20,000 students, and administrators in many of the more profit-oriented charter schools are indeed behaving in increasingly entrepreneurial ways (Lacireno-Paquet et al. 2002). These dynamics were expected to result in pupil movement away from public schools, but charter schools often appeal also to families currently paying tuition in private schools.[8] The implementation of a publicly funded, means-tested voucher program in the District in 2004 not only increased the alternatives available to families but also created a more comprehensive market in terms of the potential for competition across public, charter, and private

school sectors. Almost 2,000 children receive vouchers worth upward of $7,500 to attend one of the 54 private schools in the District accepting vouchers—a majority of the District's private schools. Notably, charter and voucher programs are restricted to residents and schools in the District, eliminating the cross-boundary competition seen in metropolitan Detroit, except for private schools in the DC suburbs that seek to attract nonvoucher, tuition-paying District residents.

Finally, New Orleans offers a unique case, perhaps best epitomizing competitive models for education, with by far the largest market share for charter schools of any place in the country (Ziebarth 2006). In the wake of the 2005 hurricane, Louisiana embraced charter schools as the primary model for reconstructing the city's school system, with advocates arguing that increased choices and competition would provide the dynamics necessary to spur systemwide improvements in this traditionally underperforming district (Friedman 2005; Richmond 2007). Prior to Hurricane Katrina, the state created the Recovery School District (RSD) to manage failed New Orleans public schools that had been taken over by the state. After Katrina, Louisiana passed legislation that enabled the state to take over 104 of the 115 public schools. The RSD and the Orleans Parish School Board, which runs the New Orleans Public Schools (NOPS), began granting charters in the months following Katrina. Notably, charter policy in New Orleans differs from many such policies elsewhere, in that charter schools are allowed to set academic and behavioral admissions standards. This autonomy gives schools additional options for shaping their enrollment and positioning themselves in the local educational market—in line with theorists' arguments that school autonomy should include control of admissions in order to better respond to competitive incentives (Chubb and Moe 1990; Walberg and Bast 2003). New Orleans also provides an interesting case on the management strategies and chartering tendencies of school districts because the NOPS and RSD districts have overlapping boundaries and can charter schools anywhere in the parish. Publicly funded schools in post-Katrina New Orleans operate under one of five different governance arrangements. Both NOPS and RSD operate regular public schools that generally give enrollment preference to students in their geographic area but can enroll other students if seats remain. Both NOPS and RSD can grant and oversee charters in the parish limits, and the Louisiana Board of Elementary and Secondary Education has also granted charters to two schools in the parish. The traditionally vibrant private school sector now includes a voucher program to subsidize enrollments, a development too recent for results to be included in this analysis (Simon 2008).

These three LEMs offer notable cases in which policy makers are leveraging increased competition across public, independent, and/or private sectors in order to change the institutional and organizational landscape of education.

Furthermore, policies have supported the creation of more autonomous new charter schools that can control their curriculum and, in many cases, their locations and admissions. All three cases are known for their poorly performing public schools, which have largely failed the substantial minority and disadvantaged populations in their districts. Consequently, there should be substantial demand for better-quality alternatives. Yet the cities offer distinct examples of competitive incentive structures. Competition in Detroit-area schools is driven largely by an oversupply of seats in light of demographic and institutional changes, while New Orleans had a critical lack of school spaces, at least in the immediate wake of Katrina. Likewise, private schools in Detroit and New Orleans tend to be more religious in orientation than many of the elite private schools in Washington. And while voucher programs in Washington (and now New Orleans) increase competition with private schools, Detroit's LEM is more regional—not confined by the political and geographic barriers of the other two cases. Nevertheless, these examples reflect the hope that choice and competition will generate better-quality educational options in cities with traditional patterns of segregation in both residence and schooling. Thus, while these cases are not representative of LEMs in the United States, they epitomize the use of competition to address deep-seated inequities in educational opportunity.

Data and Method

This analysis draws on several sources that provide insights into how school choice plans are shaping schooling options for students from different neighborhoods and different racial and socioeconomic backgrounds. The data and analysis were standardized as much as appropriate across the three analyses, although—as we note below—differences in these cases necessitated different data and approaches in a few instances. Longitudinal school-level data encompassing school location were taken initially from the Common Core of Data and the Private School Survey from the National Center for Education Statistics for Detroit, Washington, DC, and New Orleans, focusing on the period in which competition likely increased most rapidly (the years following the expansion of choice options in each city). These data were then checked against state and other sources and were geocoded to get a match rate of 100 percent for the public, charter, and private schools in the K–12 range in the three metropolitan areas.

This study then used U.S. census variables that would offer insights into the demographic, economic, and social characteristics of neighborhoods and used the following variables for mapping those characteristics of socioeconomic need: percentage of the population age 0–17 years, percentage of single-headed

households with children under 18, percentage of the population over 16 that is unemployed (not in school or military service), percentage of the population that is African American, percentage of the population over 25 with less than a high school education, and percentage of households with public assistance income. The need index for each census tract or block group is displayed in figures 1–6 in geographic information systems (GIS) maps, where shades of gray represent the range from the lowest (white) to the highest (black) need index values. The GIS maps are assembled with several data layers, encompassing school- and community-level data (represented as geographic points and polygons, respectively). School-level data (e.g., charter school orientation as mission or profit driven) are represented with different point symbol shapes (circles, triangles, etc.). The variables used in mapping include school type (charter, private, public), year started, year moved, year closed, and management/orientation type.

For the three cities, census socioeconomic need attributes were summed with ArcGIS 9.2 software to form a socioeconomic need index at the census tract and block group level.[9] The breakdown of the six socioeconomic need variables that make up the socioeconomic need index for each of the three cities is shown in tables 1–3. The need index is the unweighted sum of the average percentages for each of the socioeconomic need variables at the census tract or block group level. In the figures, the census socioeconomic need base maps for Washington, DC, and New Orleans are shown at the block group level, with the block group need index symbolized in equal intervals and color densities for the block group polygons. Metropolitan Detroit covers a larger geographical area than the other two cases; thus, the Detroit base maps are shown at the census tract level. The points representing charter, public, and private schools are overlaid on this context map, showing the socioeconomic need dimensions of their spatial locations. The map is a necessary contextual background for meaningful exploration of the literal positioning of schools vis-à-vis their surrounding neighborhoods. In a similar method, maps for real estate demand or rent levels are created with census attributes of the percentage of vacant housing units as their proxy attribute value assigned to the census tract or block group centroid points.

Data tables describing the schools' socioeconomic need index and real estate demand context values were assembled by spatially joining the school location points to the tract or block group polygons in which they are located. Tables 1–3 show the count of schools and the context attributes of the polygons they fall inside, which are used to calculate the percentages of various community socioeconomic and demographic characteristics (described here as socioeconomic need index) and housing-related variables at the census tract or block group level vis-à-vis point data representing school types.

The loss of the New Orleans population in the aftermath of Hurricane

Katrina makes 2000 U.S. census data somewhat less reliable as an indicator of current neighborhood demographics.[10] Data on population loss by block group between the second and fourth quarter of 2005 are mapped for Orleans Parish, along with the 2000 census block group need index, supplemented with more current data sources (described below) as an indication of the current surroundings of New Orleans public and charter schools.

Results

Detroit-Area Patterns

The analysis of the Detroit education market examines the locations of private schools as well as different types of charter schools in relation to the socioeconomic needs in their immediate areas.[11] Since we have already analyzed Detroit-area public school/district responses elsewhere (Lubienski 2005b), we focus here on charter and private schools. In particular, we focus on where these different types of schools open, close, or move to during the period from the expansion of choice options in the region in the mid-1990s until charter school growth began to level off in the early to middle part of this decade.

Table 1 illustrates that, between 1995 and 2003, private schools that closed were more often found in higher-need areas (mean need index of 1.08) than were private schools overall (mean need index of 0.85) in the Detroit metropolitan region. Nearly all of the closed private schools were urban-core, religiously affiliated schools. Nine mission-oriented charter schools opened within 1 mile of closed private schools, while 10 profit-oriented charter schools also opened at the exact locations as closed private schools (see figs. 1 and 2). Essentially, this would suggest that many communities are seeing their local tuition-based private schools replaced by privately managed but publicly funded charter schools. As table 1 shows, the mean need index is 1.08 for closed private schools, 1.26 for open profit-oriented charter schools, and 1.90 for open mission-oriented charter schools. So it appears that the charter schools opening at or near closed private schools are in communities with lower need than those in which mission and for-profit charter schools are located. These results reveal that the closure of some private schools in Detroit is giving mission and for-profit charter schools a market opportunity to capture those private schools' share of the education market—and possibly to gain the benefit of better-prepared students from closed private schools. Also, some for-profit charter schools appear to be benefiting from the availability of the private schools' real estate.

The breakdown of socioeconomic and demographic variables composing the need index is shown in table 1. Across all variables, mission-oriented

charter schools as a whole demonstrate more attention to high-need areas than do for-profit charter and private schools. Mission-oriented charter schools appear to locate in block groups where 72 percent of the population is African American, compared with profit-oriented charter and private schools that locate where there are lower percentages of African Americans (46 and 25 percent, respectively). Mission-driven charter schools are attracted to block groups with the highest percentage of children (27 percent) but also to areas with relatively greater disadvantage in general, characterized by less than high school education (27 percent), unemployment (7 percent), public assistance income (11 percent), and single-headed households with children (54 percent).

Viewing locations as choices of business opportunities connects location decisions to competition in the education market. Thus, we could interpret the location of new mission and for-profit charter schools in proximity to closed private schools as reflecting incentives to use their autonomy to respond to market opportunities—"better" students and an enhanced pool of potential applicants.

Our geospatial analysis also reveals the sequence in which both mission-oriented and profit-oriented charter schools opened, moved, and closed in different years between 1995 and 2003 (the period of rapid expansion) across the metropolitan Detroit area.[12] Of the 80 for-profit charter schools that opened, a total of 21 moved once, two moved twice, and three closed down (table 1). As indicated in figures 1 and 2, the distribution of charter schools initially appears to be more or less randomly arranged across the metropolitan region. Though there are many more profit-oriented charter schools than mission-oriented charter schools, mission-oriented schools are much more concentrated in the highest-need areas. For-profit charter schools' need densities vary over a huge range, suggesting their presence both in higher-need areas and lower-need areas. But over time, profit-oriented charter schools as a whole appear to be increasingly avoiding areas with more disadvantaged student populations, with several moving to more affluent areas. The mean need index is 1.26 for all opened for-profit charter schools, 1.25 for moved for-profit charter schools, and 1.78 for closed for-profit charter schools (table 1). Figure 1 reveals that several profit-oriented charter schools moved from the urban core to lower-need areas at the periphery of the city center (as have some private schools, not shown here). And many such schools are positioned in low- to medium-need areas at the edge of the highest-need communities. Overall, this appears to reflect a "ringing" phenomenon, where more profit-oriented schools position themselves around—but not within—higher-need areas. (This phenomenon is explored more with the other LEMs.)

Examining the movement of mission-oriented charter schools using opened, moved, and closed schools is illuminating. Our study of the sequential movement of charter schools suggests that mission-oriented schools are more likely

TABLE 1

Detroit Real Estate Demand and Socioeconomic Need Index of School Locations

		Vacancy Rate				Socioeconomic Need Index				African American				Less than High School			
	n	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD
All tracts	1,158	0	58	6	.06	.07	3.11	.96	.75	0	100	28	.38	0	100	15	.11
Private:																	
All	492	0	30	5	.05	.07	2.86	.85	.68	0	99	25	.36	0	54	13	.09
Moved from	15	2	25	10	.08	.07	2.28	1.08	.84	0	96	36	.37	2	26	12	.07
Moved to	15	0	14	5	.04	.20	2.51	1.07	.84	0	97	35	.41	5	39	18	.12
Closed	143	0	30	6	.05	.07	2.78	1.08	.76	0	98	37	.40	0	49	17	.10
Public:																	
All	1,181	0	30	5	.05	.07	2.91	.86	.71	0	100	23	.36	0	62	15	.10
Closed	28	3	28	11	.06	.66	2.80	2.07	.48	12	98	84	.20	14	49	26	.10
Profit charter:																	
Open locations	80	0	25	7	.06	.11	2.54	1.26	.73	0	99	46	.38	0	51	20	.11
Moved from	21	1	25	7	.06	1.28	2.52	1.78	.35	0	95	49	.39	3	51	23	.12
Moved to 1	21	1	14	6	.04	.28	2.40	1.25	.68	0	96	47	.36	3	51	18	.10
Moved to 2	2	3	5	4	.01	.66	.92	.79	.13	12	33	22	.11	15	18	16	.02
Closed	3	2	9	4	.03	1.17	2.54	1.78	.57	59	95	83	.17	3	25	15	.09
Mission charter:																	
Open locations	27	1	40	11	.09	.26	3.11	1.90	.74	0	99	72	.32	4	63	27	.14
Moved from	3	6	12	9	.03	2.19	2.68	2.45	.20	11	96	64	.38	33	51	39	.09
Moved to 1	3	14	21	18	.03	1.20	2.01	1.68	.35	15	96	63	.35	23	37	28	.07
Moved to 2	2	6	14	10	.04	1.20	3.03	2.11	.92	15	96	55	.40	33	37	35	.02
Closed	2	8	17	12	.05	1.40	1.98	1.69	.29	66	72	69	.03	18	25	21	.03

		Public Assistance Income				Single-Headed Households				Unemployed				Ages 0–17			
All tracts	1,158	0	31	5	.06	0	100	26	.23	0	27	4	.03	0	70	26	.07
Private:																	
All	492	0	27	4	.05	0	95	23	.20	0	18	4	.03	0	48	16	.15
Moved from	15	0	15	6	.07	0	70	28	.28	1	17	7	.06	0	36	19	.12
Moved to	15	1	26	7	.07	0	58	27	.21	1	16	5	.04	0	30	14	.12
Closed	143	0	27	6	.06	0	89	29	.22	0	18	5	.03	0	43	14	.14
Public:																	
All	1,181	0	30	4	.05	0	95	24	.21	0	27	4	.03	0	72	17	.14
Closed	28	3	24	13	.06	28	87	59	.15	3	17	9	.03	0	35	16	.13
Profit charter:																	
Open locations	80	0	26	6	.06	0	84	35	.23	0	14	5	.03	0	35	14	.12
Moved from	21	1	19	7	.05	6	76	38	.22	1	11	6	.03	0	35	17	.12
Moved to 1	21	1	14	6	.04	7	74	33	.22	3	51	18	.10	0	36	16	.13
Moved to 2	2	3	5	4	.01	28	37	33	.04	3	3	3	.00	0	0	0	.00
Closed	3	1	17	7	.07	17	75	47	.24	2	9	5	.03	0	33	22	.15
Mission charter:																	
Open locations	27	2	27	11	.07	13	100	54	.27	1	15	7	.04	7	46	27	.08
Moved from	3	9	27	15	.08	28	95	72	.31	4	15	8	.05	23	41	30	.08
Moved to 1	3	4	13	8	.04	31	77	49	.20	1	11	7	.04	0	23	14	.10
Moved to 2	2	5	27	16	.11	31	91	61	.30	8	15	11	.04	23	41	32	.09
Closed	2	10	15	12	.02	41	47	44	.03	4	5	5	.00	0	35	17	.17

SOURCE.—Authors' calculations using the Private School Universe Survey and Common Core Data (1995–2003) and 2000 U.S. Census Bureau SF3 Data.

NOTE.—All minimum, maximum, and mean values are percentages, except for the socioeconomic need index values. "Moved to 1" indicates the first move location, and "moved to 2" indicates the second move location.

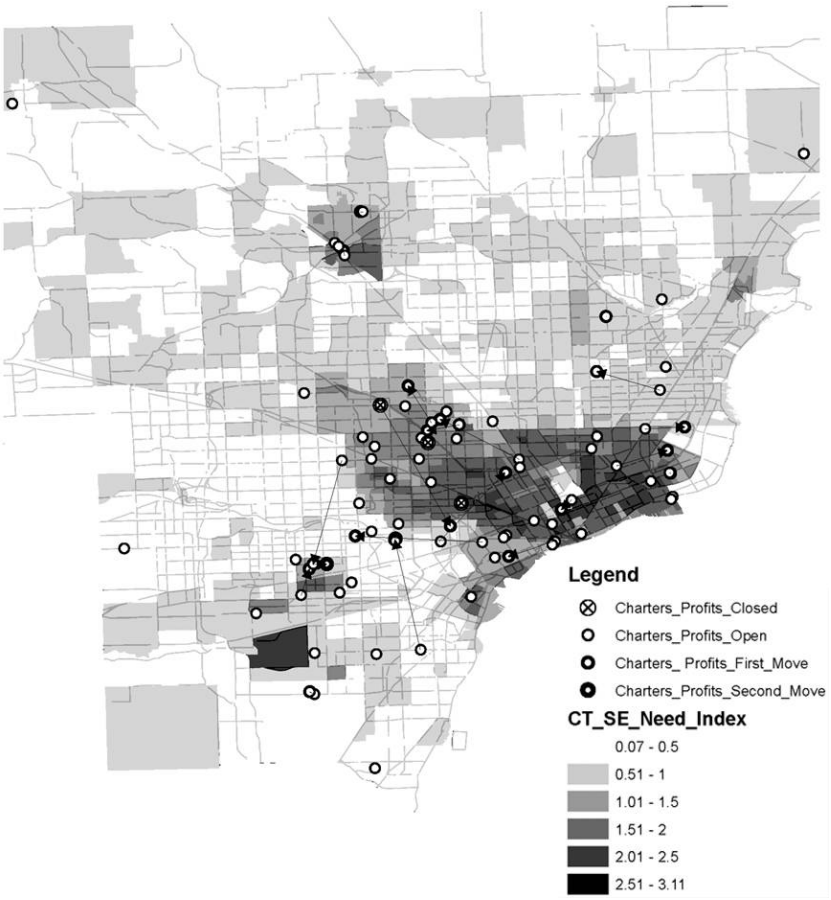

FIG. 1.—Map of Detroit for-profit charter schools that opened, moved, or closed from 1995 to 2003, with census tract socioeconomic need indices shown.

to locate in areas with higher concentrations of high-need populations (fig. 2). Indeed, the only charter schools located in the areas of highest need are mission driven. Although mission-driven charter schools make up 32 percent of the charter school market share in the area (consistent with the statewide average), they comprise a disproportionately higher mean need index compared with private, public, and for-profit charter schools. The mean need index is 1.90 for all opened mission charter schools, 1.68 and 2.11 for moved mission charter schools, and 1.69 for closed mission charter schools (table 1). Figure 2 reveals

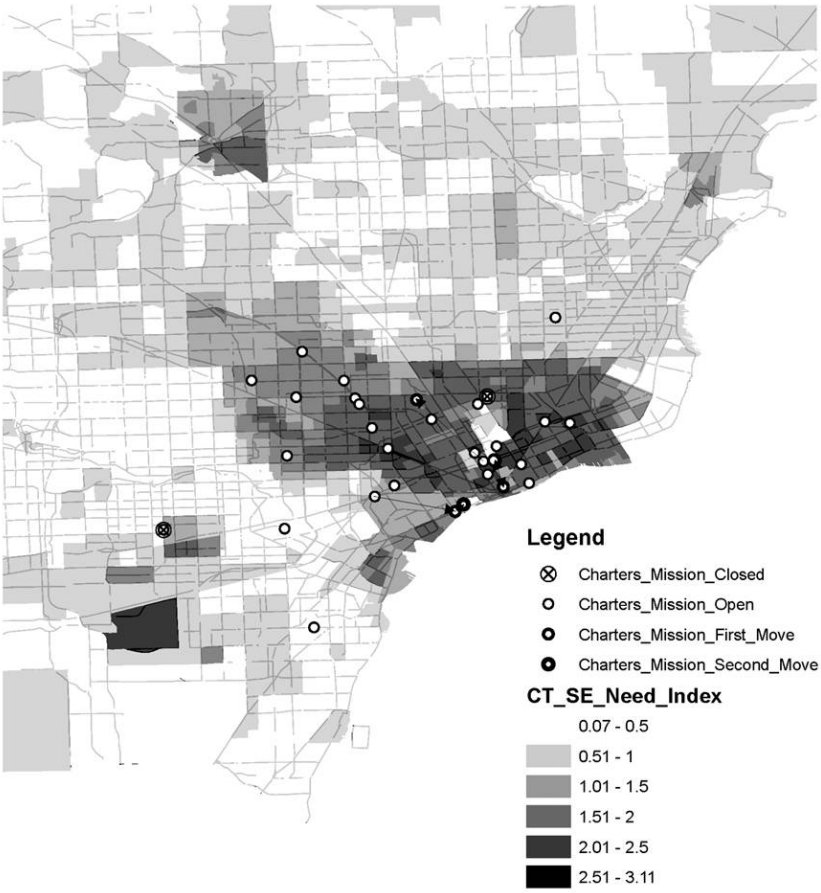

FIG. 2.—Map of Detroit mission-oriented charter schools that opened, moved, or closed from 1995 to 2003, with census tract socioeconomic need indices shown.

that the few mission-oriented charter schools to move have relocated from medium-high-need areas to higher-need areas.

Finally, it is useful to consider area rent levels in order to explore the most likely alternative explanation for the patterns we are seeing: the availability of affordable physical space for schools. The rationale behind the use of a census data (block group or tract) housing vacancy measure is that it captures a general indicator of real estate demand for both rental and owner-occupied housing conditions in a community. Vacancy rate serves as a generalized proxy for the economic cost of schools moving to a particular location, and examining

patterns by school type can shed light on how they respond to market incentives.

Table 1 summarizes the vacancy rate (percentage) for Detroit metropolitan area census tracts as a proxy for demand and rent levels in the real estate market. The mean vacancy rate in metropolitan Detroit is 6 percent. Profit-oriented charter schools appear to locate in higher-cost areas (7 percent vacancy) compared with mission-oriented charter schools that locate in lower-cost areas (11 percent). For-profit charter schools move to higher-cost areas (6 and 4 percent vacancy) and close down in areas with similarly higher property costs (4 percent vacancy). Private schools, behaving like for-profit charter schools, appear to occupy similar locations—that is to say, areas with low vacancy rates indicating higher costs due to higher demand. Private schools open in higher-cost areas (5 percent vacancy) and move to and close down in higher-cost neighborhoods with a similar range of values (5 and 6 percent, respectively). Showing roughly the inverse of the above results, mission-oriented charter schools appear to locate in lower-cost areas (11 percent vacancy). Mission charter schools also move to lower-cost areas with a similar range of values (18 and 10 percent vacancy) and close down in areas with particularly lower property costs (12 percent vacancy). It appears that profit-oriented charter schools and private schools are more willing to pay a cost premium for a desirable location in areas where they may serve more advantaged students. Both for-profit charter and private schools are serving more affluent areas (1.26 and 0.85 need indices, respectively) and are paying a higher premium for that real estate. In contrast, mission-oriented charter schools appear to target needy areas (1.90 need index) and therefore pay a lower premium for real estate.

When examined over time, however, these patterns are consistent with the neoinstitutional perspective noted earlier—as competition increases, both profit-oriented and mission-oriented charter schools are increasingly adopting positioning strategies that provide access to students with more "desirable" socioeconomic and demographic characteristics to enhance the schools' market position. For profit-oriented charter schools, key decisions about where to locate appear to be driven by the willingness to pay high real estate costs in exchange for appealing to less riskier students in neighborhoods with low need indices, utilizing the incentives that arise from choice and competition. For-profit charter schools frequently avoid areas with students who may be most likely to damage their market position.

On the other hand, mission-oriented charter schools may also be increasingly driven by business opportunities, judging by where newer ones are opening. Such charter schools are more inclined to locate in closed private schools. Similar to profit-oriented charter schools, more recently established mission-oriented charter schools may be less likely to serve some high-need populations

than are more established mission-oriented charter schools and traditional public schools. Time-series geospatial analyses suggest that new mission charter schools are much more likely to seek locations where they will serve already advantaged students (Lubienski and Gulosino 2007). These patterns over time suggest that not only are profit-oriented charter schools avoiding areas with more disadvantaged students but that the increasingly competitive climate created through behaviors such as this may also be influencing the locational decisions of new mission-oriented schools. In other words, the new entrants in the education marketplace may likely locate business opportunities that provide access to students with more "desirable" socioeconomic and demographic characteristics to enhance the schools' market position.

District of Columbia Patterns

The analysis of the Washington, DC, education market is similar in focus, examining the locations and opening, closing, and moving actions of public, private, and charter schools in relation to the socioeconomic needs in their surrounding areas. Of the 62 charter schools that opened between 1996 and 2006, a total of 14 moved from their previous locations. Unlike schools in Detroit, most types of schools are more spread out across Washington, serving predominately white, low-need areas (northwest) to predominantly African American, high-need areas (northeast, southeast, and southwest).

Table 2 indicates that charter schools that moved or closed were more often found in higher-need areas (1.75, 1.55, and 1.56 need indices) than were charter schools overall (1.49 need index). On average, census block groups containing charter schools have a slightly higher need index than does the city overall (1.33 need index). The relative sparseness of charter schools in advantaged neighborhoods in the northwest quadrant of DC is visually depicted in figure 3. Only a handful of charter schools in high-need areas border the affluent northwest region. With remarkable consistency, charter schools cluster in predominantly African American neighborhoods and in those with poorer—but not the poorest—residents.

As table 2 shows, census block groups containing public schools have the highest socioeconomic need index (1.57) in the city. Only a handful of public schools are located in the most highly advantaged, predominantly white neighborhoods. As shown by the breakdown of other need variables, the preponderance of public schools in economically disadvantaged areas illustrates the homogeneity of their distributional patterns. By contrast, block groups containing private schools have a low mean socioeconomic need index (1.14) compared with the average need value for block groups in the city, and overall it is lower than the need indices of the other school types. The mean socio-

TABLE 2

Washington, DC, Real Estate Demand and Socioeconomic Need Index of School Locations

		Vacancy Rate				Socioeconomic Need Index				African American				Less than High School			
	n	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD
All block groups	433	0	66	10	.08	.00	3.47	1.33	.77	0	100	63	.38	0	65	22	.16
Private:																	
All	118	2	42	9	.07	.00	3.10	1.14	.77	0	100	52	.40	0	63	19	.15
Moved from	1	4	4	4	.00	1.38	1.38	1.38	.00	95	95	95	.00	23	23	23	.00
Moved to	1	14	14	14	.14	1.78	1.78	1.78	.00	84	84	84	.00	35	35	35	.00
Closed	2	4	20	12	.08	.59	1.35	.97	.38	13	68	40	.28	24	32	28	.04
All public	167	2	66	13	.10	.08	3.47	1.57	.77	0	100	71	.34	0	63	27	.16
Charter:																	
All	62	0	37	13	.09	.00	3.17	1.49	.60	0	100	69	.29	0	63	31	.16
Moved from	12	4	37	15	.09	.76	1.95	1.40	.40	31	97	68	.21	4	63	29	.16
Moved to 1	12	4	37	10	.08	1.12	3.17	1.75	.55	31	97	78	.24	18	63	37	.15
Moved to 2	1	19	19	19	.00	1.55	1.55	1.55	.00	61	61	61	.00	43	43	43	.00
Closed	10	4	34	13	.10	.43	2.50	1.56	.59	21	97	77	.24	6	55	26	.14

		Public Assistance Income				Single-Headed Households				Unemployed				Ages 0–17			
All block groups	433	0	49	6	.08	0	56	10	.10	0	89	11	.12	0	51	20	.11
Private:																	
All	118	0	36	5	.06	0	50	9	.09	0	64	11	.13	0	50	18	.10
Moved from	1	0	0	0	.00	8	8	8	.00	4	4	4	.00	8	8	8	.00
Moved to	1	12	12	12	.00	8	8	8	.00	16	16	16	.00	23	23	23	.00
Closed	2	2	4	3	.01	1	9	5	.04	4	9	7	.02	7	21	14	.07
All public	167	0	39	8	.09	0	56	14	.12	0	54	15	.12	0	50	23	.11
Charter:																	
All	62	0	39	7	.07	0	46	11	.08	0	44	11	.09	0	49	20	.09
Moved from	12	0	11	5	.04	3	22	9	.05	0	18	9	.06	8	34	20	.07
Moved to 1	12	0	39	8	.10	4	46	13	.11	0	44	17	.14	8	49	22	.10
Moved to 2	1	7	7	7	.00	11	11	11	.00	11	11	11	.00	22	22	22	.00
Closed	10	0	16	7	.05	3	23	11	.06	4	33	15	.09	9	31	19	.08

SOURCE.—Authors' calculations using the Private School Universe Survey and Common Core Data (1996–2006) and 2000 U.S. Census Bureau SF3 Data.

NOTE.—All minimum, maximum, and mean values are percentages, except for the socioeconomic need index values. "Moved to 1" indicates the first move location, and "moved to 2" indicates the second move location.

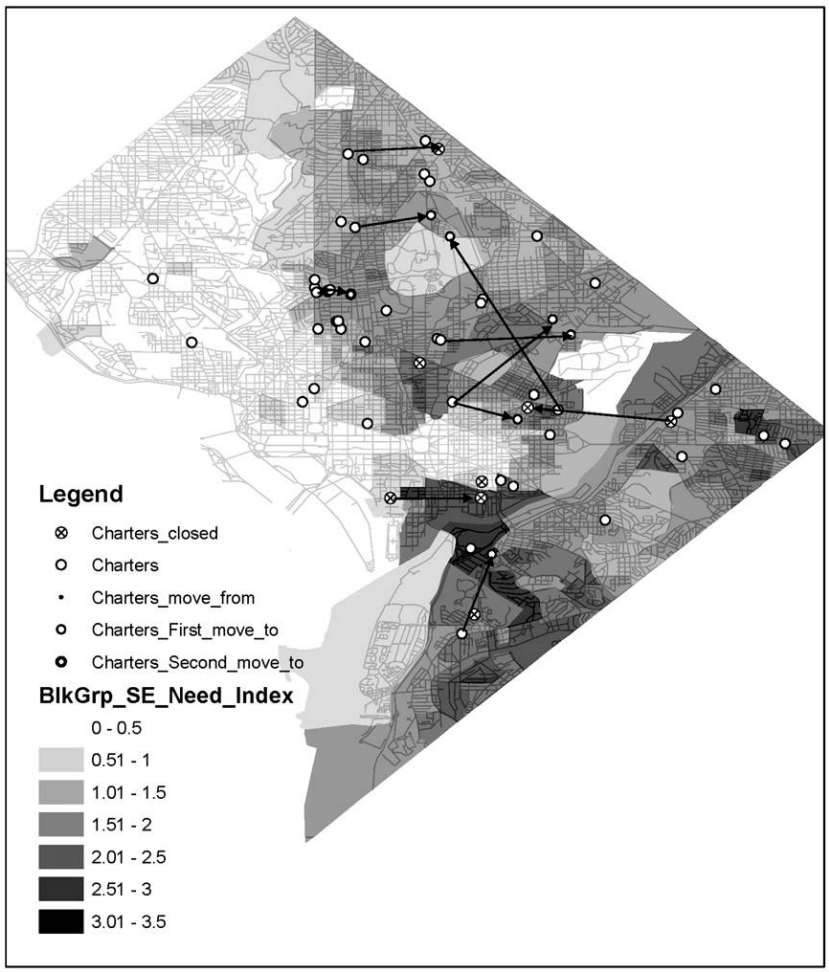

FIG. 3.—Map of DC charter schools that opened, moved, or closed from 1996 to 2006, with block group socioeconomic need indices shown.

economic need index for closed private schools is 0.97. Private schools are present in both low-need areas (northwest) and high-need areas (northeast, southeast, and southwest) with the cumulative effect of a lower need index for private schools than for charter schools that have little presence in low-need areas. Private schools in the three higher-need quadrants encircle, or "ring," the highest-need areas but do not locate within them (fig. 4).

As expected, the percentage breakdown of need indicators for public schools resembles the average need levels for all census block groups in the city (table

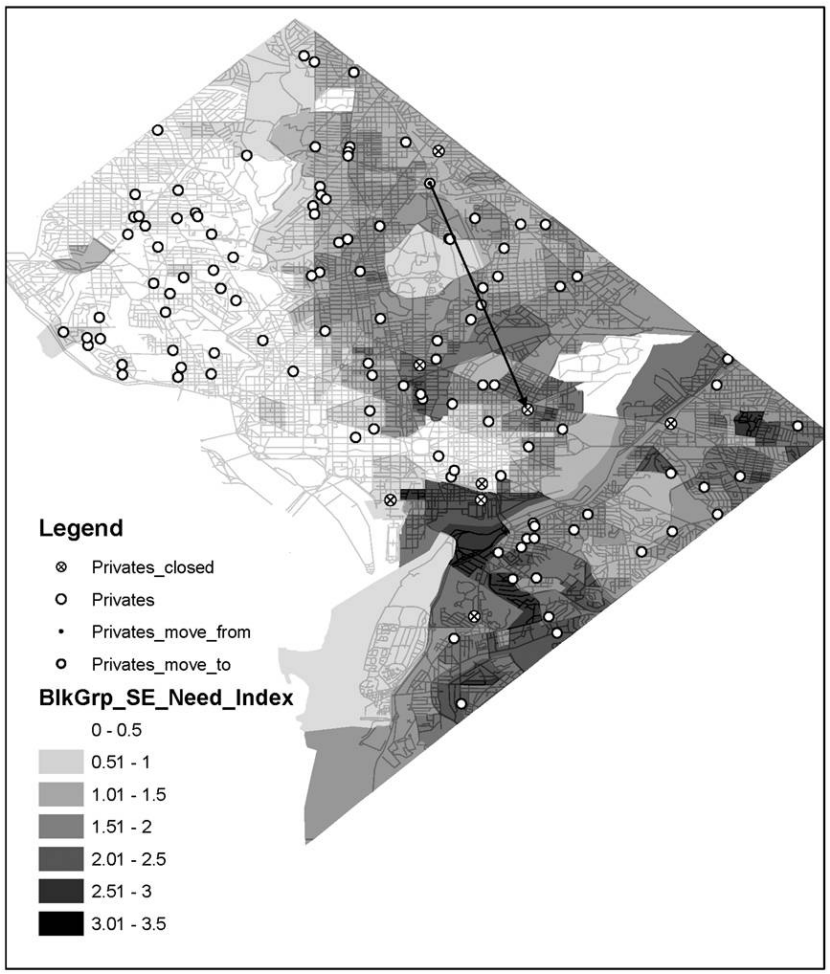

FIG. 4.—Map of DC private schools that opened, moved, or closed from 2000 to 2006, with block group socioeconomic need indices shown.

2). Public schools are located in census block groups with 71 percent African Americans, 8 percentage points higher than the average for block groups in the city. Charter schools across organizational types appear to have need levels that are 1–16 percentage points higher than the city's averages for indicators such as less than high school education, unemployment, public assistance income, and single-headed households with children under 18. On the other hand, a breakdown of need indicators for private schools reveals slightly lower percentages than the city as a whole. Private schools are located in block

groups with an average of 52 percent African American residents and a low need average compared with their charter school counterparts and the city in general (69 and 63 percent African Americans, respectively).

As in the Detroit case, vacancy rate serves as a proxy for real estate rental market demand. The mean vacancy rate in metropolitan DC is 10 percent. Charter schools that either move or close appear to locate in slightly lower-rent areas compared with all charter schools. On the whole, charter schools tend to locate in lower-rent areas (13 percent vacancy). Private schools locate in higher-rent areas (9 percent vacancy). The two private schools that closed were located in lower-rent neighborhoods (12 percent vacancy). The interpretation of low vacancy rates must be considered in conjunction with the socioeconomic need index. Our analysis illustrates a strong spatial correlation between low-rent areas and predominantly disadvantaged neighborhoods. Low real estate demand follows similar spatial patterns, shown in figures 3 and 4 as dark gray areas comprising high socioeconomic need indices.

These findings offer an interesting twist to the story that emerged from the Detroit data. The distributional patterns of charter schools and private schools reveal that they ring areas with the highest levels of socioeconomic need. Compared with Detroit, a greater proportion of private schools in DC position themselves across a slightly wider socioeconomic spectrum of 0.00–3.10 (versus 0.07–2.86 for Detroit private schools). Their mean need index value of 1.14 is higher than Detroit's value of 0.85. Compared with DC charter schools, they are located in areas with lower levels of real estate market demand, with up to 42 percent vacant units compared with 37 percent for DC charter schools. When we look at charter schools' mean need index value of 1.49 compared with 1.33 citywide, following Henig and MacDonald (2002), our findings show that charter schools appear to serve areas of Washington where needs presumably are greater and where there is a more affordable rental property market (13 percent vacancy rate) compared with the city's overall rental market (10 percent vacancy rate).

The addition of the federal voucher program in 2004 may also incentivize DC private schools to serve higher-need areas (1.14) than those served by Detroit private schools (0.85). As indicated in table 2, the 12 charter schools that opened in 2005–6 are in areas with a lower need index compared to that of all block groups and private schools. The five opened charter schools with the lowest need indices have a lower mean socioeconomic need index than do their counterpart private schools that opened in the same year. Block groups containing two private schools have the highest socioeconomic need indices (3.01 and 2.51) among choice schools that opened in 2005–6 (fig. 3). Private schools may be taking advantage of a financial opportunity to locate in high-poverty neighborhoods where potential voucher recipients live. In contrast, charter schools, bound by annual achievement expectations, may choose the

less risky option of locating in less demanding locations and may not harness the financial incentives of locating within block groups containing high-need populations. (As a caveat, the connection between DC vouchers and new school openings we analyze here are preliminary. There is reason to expect that a more mature voucher program may have led to changes that could alter the distributional patterns.)

New Orleans Patterns

Unlike our analyses of Detroit and Washington, our analysis of the relatively recent New Orleans market focuses on the strategic decisions of larger organizations—specifically, the overlapping districts and entities that administer and/or authorize charter and other public schools—and how these strategies appear in the distribution and policies of these schools.[13] The Orleans Parish School Board (OPSB) and the RSD, which was created by Louisiana the year before Katrina, both administer noncharter public schools and authorize charter schools in the city. The Louisiana Board of Elementary and Secondary Education also approved two charter schools prior to Katrina (classified here as "LA charter schools"), and these schools continue to operate. Because the Katrina catastrophe came more than five years after the 2000 census and the major population changes that followed make the census data of limited value, we used a combination of the census block group data and the 2005 post-Katrina population loss by block group to create a comparable measure of socioeconomic need index for both the New Orleans public schools and their charter school counterparts (see table 3). More recent geographic data, including crime rates, home sale prices, and Internal Revenue Service (IRS) income data, are also examined for areas around each public and charter school in New Orleans to provide more useful indicators of neighborhood demographics.

An examination of the socioeconomic need and population loss indicators for New Orleans schools indicates differing locational tendencies across categories of schools. As table 3 shows, census block groups containing RSD public and charter schools have substantial post-Katrina population losses in the fourth quarter of 2005 (58 and 57 percent, respectively). Both school types also have the highest need indices (2.16 and 1.85, respectively) compared with those of OPSB and OPSB-approved charter schools, LA charter schools, and citywide block groups. Private sectarian schools have lower population losses (55 percent) than those of OPSB public and charter schools but are contained in similar-need block groups. On the other hand, LA-approved charter schools are contained in block groups with the lowest need index. A breakdown of the need indicators reveals a consistent pattern of school types associated with

TABLE 3

New Orleans Real Estate Demand and Socioeconomic Need Index of School Locations

		Vacancy Rate				Post-Katrina Population Loss				Socioeconomic Need Index			
	n	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD
All block groups	482	0	58	13	.08	0	100	65	.28	.08	3.97	1.87	.87
All private	38	3	43	13	.08	14	94	55	.27	.13	3.36	1.24	.87
Public:													
RSD	33	2	45	13	.08	21	95	58	.28	.35	3.48	2.16	.75
OPSB	5	6	18	9	.04	25	94	67	.33	.27	2.61	1.23	1.01
Charter:													
RSD	25	3	37	13	.08	24	92	57	.23	.62	3.73	1.85	.86
OPSB	13	3	17	9	.05	28	88	62	.19	.32	2.50	1.32	.72
LA	2	6	14	10	.04	29	87	58	.29	.39	1.33	.86	.47
		African American				Less than High School				Public Assistance Income			
All block groups	482	0	100	65	.35	0	80	27	.16	0	35	6	.07
All private	38	0	100	36	.33	0	59	17	.14	0	18	3	.04
Public:													
RSD	33	5	100	72	.27	3	61	32	.17	0	23	7	.06
OPSB	5	2	95	39	.41	5	45	20	.18	0	7	3	.03
Charter:													
RSD	25	0	100	62	.34	3	61	26	.16	0	35	6	.08
OPSB	13	0	94	43	.31	0	55	18	.18	0	10	4	.03
LA	2	2	33	18	.15	7	24	15	.09	0	9	5	.05
		Single-Headed Households				Unemployed				Ages 0–17			
All block groups	482	0	100	52	.28	0	77	11	.09	1	66	26	.09
All private	38	0	100	38	.28	0	34	8	.07	1	35	19	.09
Public:													
RSD	33	0	100	63	.26	2	77	14	.13	7	66	27	.10
OPSB	5	0	76	35	.33	3	15	6	.05	13	31	20	.06
Charter:													
RSD	25	7	100	53	.26	1	26	10	.07	3	66	27	.15
OPSB	13	0	72	35	.21	0	14	7	.04	11	35	25	.06
LA	2	11	36	24	.12	5	11	8	.03	14	20	17	.03

SOURCE.—Authors' calculations using the 2000 U.S. Census Bureau SF3 Data and data from the Louisiana State Department of Education (2007–8) and Louisiana Recovery Authority (2007).

NOTE.—All minimum, maximum, and mean values are percentages, except for the socioeconomic need index values.

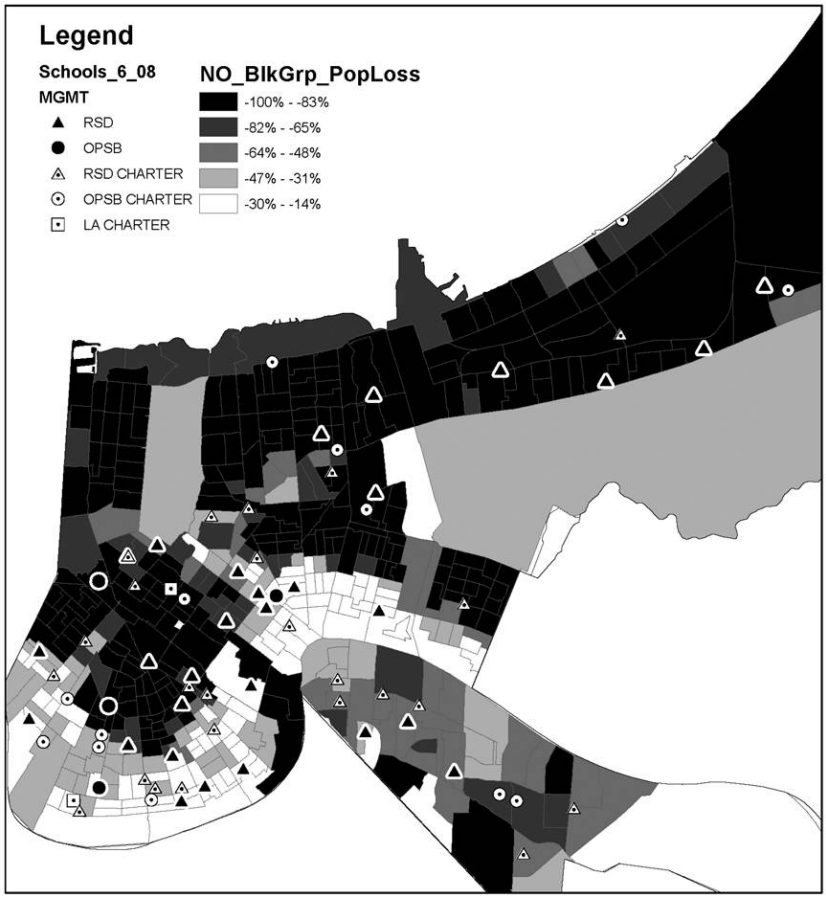

FIG. 5.—Map of New Orleans schools in 2007–8, with post-Katrina population loss shown

similar percentages of population loss and need indices. For example, RSD public and RSD-authorized charter schools appear to locate in block groups with 62–72 percent African Americans, compared with other school types that locate in areas with lower percentages of African Americans. The rent levels for various school types are nearly identical across census block groups.

The above findings correspond with the GIS results in figures 5 and 6. Figure 5 reveals that nearly all RSD public and RSD-authorized charter schools are located in block groups with the highest percentages of population loss (65–100 percent). Figure 6 also shows that they are present in the most disadvantaged block groups in the city, with a mean index of 2.51–3.50. By contrast, a greater proportion of OPSB public and charter schools and LA-

FIG. 6.—Map of New Orleans schools in 2007–8, with socioeconomic need indices shown

approved charter schools position themselves across a slightly wider socioeconomic spectrum of 0.86–3.44. The maps show the contrasting and uneven distributions of OPSB charter schools in low-need locations and RSD charter schools in more challenging, high-need areas.

The presence of multiple charter-granting agencies in the same geographic area in New Orleans provides a unique opportunity to examine how larger governing organizations might play a role in shaping educational opportunity in a LEM. There are indications that the OPSD and RSD districts have adopted somewhat different strategies for granting charters. In the post-Katrina environment, the OPSB district is at a unique crossroads. On one hand,

this district served a largely high-minority and high-need population prior to Katrina. Many of their schools performed poorly, and the district board and central office developed a reputation for inefficiency, corruption, and mismanagement. However, before Katrina, the district's low-performing schools were taken over by the state, leaving OPSB with a handful of relatively high-performing schools. In a sense, OPSB was left with a high position in the new market hierarchy, and the unique charter policies in New Orleans gave the district a range of options for how to expand and rebuild the district. The locations and enrollment policies of their approved charter schools, along with enrollment policies for their own public schools, may give some indication of the district's long-term strategy.

In the years following the Katrina disaster, the chartering actions and enrollment policies of OPSB would suggest that the district may be targeting middle-class families and higher-achieving students. In some ways, OPSB is acting like a private school system, using school location and enrollment standards in ways that can shape school enrollment. As noted in figure 6 and table 3, OPSB public and charter schools tend to be located in lower-need areas. A strong majority of OPSB schools have implemented academic, behavioral, or even parental requirements for initial admission or for continued enrollment (Rasheed 2007). The RSD public and charter schools, in contrast, are located in both high-need and low-need areas and have not implemented academic standards for admission or continued enrollment. In general, as OPSB transitioned from being the primary provider of publicly funded education in New Orleans to operating in a more competitive environment, the district began acting in manner that could serve to maintain or enhance its hierarchical position and organizational prestige. This finding would tend to support the hypothesis that competition causes nonprofit organizations to adopt profit-oriented strategies, since many of these same approaches to strategic management are characteristic of schools managed by for-profit groups.

These chartering trends have continued in the years since Katrina. Of the five OPSB charter schools added in the 2006–7 and 2007–8 school years, three have implemented standards for admission or continued enrollment, and three are located in relatively lower-need areas. In comparison to these OPSB practices in chartering, only one of the 27 RSD charter schools has implemented academic or behavioral standards for admission. The RSD charter schools are also more likely than OPSB charter schools to be located in high-need areas. Table 4 includes the enrollment characteristics of several categories of schools in the 2007–8 school year. Charter schools in general enroll lower percentages of black students and higher percentages of white, Hispanic, and Asian students than do traditional public schools. However, RSD charter schools do not differ substantially from RSD public schools or public schools in general on these enrollment measures, apart from higher Hispanic enroll-

TABLE 4

Enrollment Means for Public and Charter Schools in New Orleans Parish

Schools	Enrollment	% Female	% Asian	% Black	% Hispanic	% White	% FRL	% LEP	% At-Risk Minority	% At-Risk White
All public	397 (169)	47.9 (4.3)	.8 (2.9)	97.4 (3.4)	1.1 (1.6)	.6 (.6)	83.5 (8.8)	1.5 (2.8)	83.5 (8.8)	58.4 (42.8)
All charter	450 (255)	49.4 (4.9)	2.4 (6.5)	88.3 (19.5)	3.3 (8.4)	5.9 (13.2)	87.9 (15.4)	2.6 (7.2)	89.7 (11.6)	54.5 (40.1)
RSD public	380 (127)	47.2 (3,8)	.4 (1.8)	97.9 (2.6)	1.1 (1.8)	.5 (.4)	84.2 (7.9)	1.2 (2.3)	84.2 (7.9)	66.2 (39.5)
OPSB public	510 (342)	51.9 (5.5)	3.4 (6.7)	94.3 (6.3)	.8 (.6)	1.3 (1.4)	78.8 (13.4)	3.3 (5.1)	78.9 (13.5)	86.2 (18.9)
RSD charter	388 (202)	47.6 (4.2)	.5 (1.3)	95.7 (9.8)	2.6 (9.4)	.9 (1.2)	94.6 (4.4)	1.5 (4.5)	94.7 (4.4)	59.0 (44.0)
OPSB charter	589 (326)	52.7 (5.0)	6.6 (10.9)	74.9 (25.1)	2.7 (1.6)	15.7 (20.2)	75.7 (19.9)	5.8 (11.1)	80.6 (14.1)	43.1 (29.2)
LA charter	415 (45)	53.1 (1.6)	.6 (.8)	71.4 (36.3)	14.1 (16.2)	13.7 (19.0)	75.1 (32.6)	.0 (.0)	79.4 (26.6)	64.4 (50.2)

SOURCE. —Louisiana State Department of Education, 2007–8 school year.

NOTE.—Standard deviations are given in parentheses. FRL = free and reduced-price lunch; LEP = limited English proficiency.

ment for RSD charter schools, suggesting that the enrollment composition of OPSB and LA charter schools are largely responsible for the enrollment differences between charter and public schools overall. Indeed, OPSB and LA charter schools in general enroll substantially higher percentages of white and Hispanic students and somewhat lower percentages of students receiving free and reduced-price lunches. The OPSB charter schools in general also enroll substantially higher percentages of Asian students than do other categories of schools. The OPSB charter schools and charter schools in general tend to have greater variance on most enrollment measures than do the other categories of schools, as indicated by the standard deviations in table 4.

Given the mobility of the New Orleans population in the aftermath of Hurricane Katrina, there are significant limitations to the reliability of 2000 census data as an accurate representation of current neighborhood attributes. In attempt to address this issue, more recent geographic data, including crime rates, home sale prices, and IRS income data, were also collected for each public and charter school in New Orleans parish. Although these data are more recent, they lack the geographic precision of the U.S. census because they often rely on relatively large zip codes, which can contain a range of neighborhood demographics. Table 5 includes these recent geographic indicators according to several categories of schools. Charter schools in general are located in zip codes with marginally lower crimes rates per household than are public schools in general. Compared with RSD public schools, OPSB public schools tend to be substantially closer to private schools and are located in zip codes with higher mean home sale prices and mean adjusted gross incomes. Compared with RSD charter schools, OPSB charter schools are slightly farther from private schools on average but are located in zip codes with higher mean adjusted gross incomes. Although many of these differences are not particularly large, there is some indication that OPSB schools are located in somewhat more advantaged areas. The detail and geographic precision provided by the next U.S. census will help provide a higher-resolution portrait of neighborhood demographics in post-Katrina New Orleans.

In the wake of the Katrina disaster, the OPSB underwent a dramatic transformation from having mostly low-performing schools and minimal competition to having mostly high-performing schools in a very competitive environment. State action drastically downsized the district's governing authority to oversight of only five public schools, but the district had options for expansion through charter schools. Although it is, of course, difficult to infer intent, the locations and enrollment policies of the schools chartered by OPSB suggest that the district is targeting higher-achieving, more affluent students, possibly including students attending private schools. The five OPSB public schools, which largely cater to gifted or accelerated students, are at the high end of the market hierarchy, and it would appear that OPSB has chartered

TABLE 5

Geographic Indicators for Public and Charter Schools in New Orleans Parish

Schools	Mean km to 5 Nearest Private Schools	Mean No. of Private Schools		Mean Home Purchase Price in Zip, 2007–8 ($)	Mean Adjusted Gross Income in Zip, 2005 ($)	No. of Crimes in 1-Mile Radius		No. of Crimes per 100 Households in Zip, July 2007–June 2008
		In 3-km Radius	In 5-km Radius			January–June 2007	January–June 2008	
All traditional public	2.5 (2.0)	7.8 (5.4)	19.6 (11.2)	209,077 (97,041)	47,997 (32,605)	553 (414)	541 (427)	14.7 (6.4)
All charter	2.2 (1.7)	7.8 (5.3)	20.2 (10.2)	214,195 (74,014)	45,477 (17,054)	436 (324)	411 (313)	10.7 (4.0)
RSD public	2.7 (2.1)	7.4 (5.6)	18.4 (11.4)	202,424 (100,792)	47,209 (34,680)	524 (409)	519 (414)	15.0 (6.6)
OPSB public	1.1 (.3)	10.6 (2.2)	27.6 (6.0)	252,978 (55,319)	53,201 (13,157)	743 (444)	685 (529)	13.1 (4.3)
RSD charter	2.0 (1.0)	8.3 (5.0)	21.0 (9.3)	213,824 (67,939)	42,790 (17,097)	476 (360)	457 (347)	10.8 (4,1)
OPSB charter	2.8 (2.6)	6.7 (6.2)	17.1 (11.7)	211,304 (87,381)	50,308 (16,591)	345 (229)	313 (216)	10.4 (4.3)
LA charter	1.1 (.4)	8.5 (2.1)	29.5 (.7)	237,817 (104,298)	49,011 (22,504)	519 (424)	464 (415)	11.7 (2.4)

NOTE.—Standard deviations are given in parentheses.

schools in a manner to maintain or expand its position in this portion of the New Orleans educational market.

Discussion: Competitive Incentives and Equitable Access

Although there are many reasons to employ school choice policies to address problems in American education, perhaps none is so compelling as the potential to create marketlike incentives that will induce schools, in the aggregate, to provide high-quality options for all students and particularly for disadvantaged students otherwise assigned to failing schools. Yet the findings from our geospatial analyses of school location and movement suggest reasons for concern as to whether incentives will necessarily promote equitable access to higher-quality schools for such students. Despite the hope of reformers that competition may level the playing field, it appears that schools in competitive environments are instead arranged into hierarchies based on who is likely to be served. While the type of schools occupying the top (or bottom) of the market differs across cities, with contextual factors apparently playing a crucial role in configuring the arrangement, it is significant that these hierarchies seem to be an integral part of the market dynamics in education. In each of these competitive environments, geographic patterns suggest that some types of schools demonstrated a willingness to limit access for some types of students.

This study used data from three LEMs to examine the equity impacts of increased competition. The three metropolitan areas represent significant examples of the potential of competitive markets translated in the context of racially and economically segregated neighborhood environments. Detroit, Washington, and New Orleans are similar in that they all evince competitive pressures for different school types and incorporate multiple school choice options. Yet although similar on those key aspects, the patterns are substantively different on critical dimensions, as indicated by varying distributional and locational responses across school types.

Research on neoinstitutional theory and economics of nonprofit sectors suggested the possibility of similar organizational responses across school types in how they engage various communities. The patterns emerging in the geospatial analyses are telling, in light of the substantive differences between the three LEMs. Overall, there appears to be a high level of market acumen among charter schools and private schools, as well as in some public districts. In Detroit, profit-oriented charter schools, behaving like business entities, are apparently willing to pay premiums to locate in more affluent neighborhoods. While initially focusing on areas with greater needs, even mission-oriented charter schools increasingly appear to target students in more advantaged neighborhoods where they can maximize market advantages but avoid "un-

desirable" students. In these cases, both types of charter schools increasingly ring areas with higher concentrations of need. In this way, they are likely to serve more advantaged students who live near the schools while effectively limiting access to students from more distant, poorer neighborhoods—except, presumably, those students whose families have the means and desire to overcome such barriers.

In the District of Columbia, competitive incentives seem to be driving organizational behavior somewhat differently across organizational types. In light of education policies that encourage competition across different sectors, both charter schools and private schools are engaging underserved communities. Charter schools, for example, are often located in areas of high need but ring areas with the highest need. Yet the voucher program may be spurring some private schools into areas with potential voucher recipients—suggesting that the right incentives can focus attention on areas of high need. Likewise, in New Orleans, the public school district is adopting behaviors associated with private-style entities focused on maintaining an advantageous market position, largely through locational and admissions strategies that effectively exclude high-need students. Thus, the findings from the geospatial analyses on the whole illustrate the importance of incentives in driving different types of organizations in the same direction.

However, while there is evidence of similar patterns of institutional isomorphism toward profit-seeking models in all three LEMs, there are also significant variations in these patterns that appear to highlight the importance of understanding market structures in context. Despite the centrality of competitive incentives in each case, there are also substantial differences in the patterns of organizational behavior and thus the distribution of educational opportunity across various education markets. In New Orleans and Washington, DC, charter schools have lower percentages of African American and minority students than do public schools. And we find significant (and perhaps growing) differences between charter and private school behaviors in Washington. Charter schools there appear to locate in areas with lower rent costs, yet some charter and some private schools are adopting strategies to serve poorer students, perhaps because of the subsidies—and subsequent competitive incentives—created by the DC voucher program. Since the voucher program is limited to DC residents and schools, it focuses the competitive incentives within the city, without spillover into the suburbs (except for nonvoucher private schools). On the other hand, the market in Detroit is broader, since suburban districts also compete. In that case, it appears that market competition induces most charter schools to locate in areas where they have a competitive advantage (often on the periphery), capitalizing on the opportunity to target students with less risky socioeconomic and demographic backgrounds. Such differences highlight the importance of policy and social context.

Yet it is important to emphasize that in all cases, market segmentation and hierarchies began to emerge across individual schools and school types following the intensification of competition. In all three LEMs, at least one set of schools showed evidence of ringing strategies—avoiding areas with more disadvantaged students. That is, competitive incentives appear to have encouraged schools to sort themselves based largely on their preferred clientele, with different groups of schools asserting their advantageous position to serve more affluent students. But the fact that it was different types of school that did this in each case highlights the importance of contextual considerations. Ultimately, the findings from our geospatial analyses suggest that, under certain conditions, schools may recognize more effective strategies for engaging in educational markets by locating in areas with preferred student enrollments.

The geospatial analyses of these cases have limitations. Although we do not address causality, the underlying premise for charter school locational decisions specified for the analysis is that similar values for nearby features (i.e., need indices and vacancy rates) occur because of similar conditions. Also, with these data we cannot infer intentions with regard to school locational decisions. As noted, a limitation of this analysis is that the U.S. census data are from 2000. For this reason, although school movement data are available over time, in this article they are overlaid onto a statistical "snapshot" of selected economic, social, demographic, and geographic census data, although we believe the 2000 data to be a relatively useful approximation of residency patterns in the years immediately before and after 2000 (except in New Orleans). Vacancy rates and property values are not collected over time to coincide with the opening, moving, and closing of charter schools in specific locations. Nonetheless, the census data serve as proxy measures for describing a variety of neighborhood-level variables between 1995 and 2006 in a period of rapid expansion of school choice options. In New Orleans, although school-level data is available for 2006–7, it is compared here with the demographic data largely from the pre-Katrina city, although we used other proxies that would provide post-Katrina indicators of demographic distributions. Moreover, available data on schools differed substantially across the three cases. For instance, school-level data on private schools in New Orleans were suspect, as were school-level demographics in the other cases. So the analyses are not uniform but were standardized as much as appropriate.

In summary, applying geospatial analyses to an investigation of school locations affords us unique insights into the availability of educational options across three segregated urban areas. Dynamic mapping portrays the school types that have opened, relocated, and closed relative to racial and socioeconomic distributions in neighborhoods and in schools, providing a comprehensive picture of organizational responses to competition since the emergence of choice in these various local markets. Mapping the geography of school

choice and competition can help us understand how schools actually respond in various education markets. Determining how different types of schools position themselves in different contexts suggests that the hope for more equitable opportunities emerging from choice plans may run up against the logic of how markets actually work in education. In each case in this study, groups of schools also appeared to assert competitive advantages by avoiding certain types of students. Thus, instead of simply opening up options for all students, competitive incentives may also cause schools to arrange themselves in ways that may limit access for the most disadvantaged.

Notes

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1. On "market theory" in education, see Davies et al. (2006); Howell and Peterson (2002); Walberg (2000); Walberg and Bast (2003).

2. We recognize that charter schools are "public" schools. However, our interest here is in the impact of incentives on organizational type, so for analytical purposes we use these separate labels to distinguish between (noncharter) public schools and charter schools.

3. We have analyzed school marketing campaigns elsewhere (Lubienski 2005a, 2006, 2007a, 2007b), so we focus here on the location and admission strategies. In incentivist logic, there are clear benefits to such organizational behaviors. Schools should have control over their own admissions, for instance, since this comports with the idea of greater autonomy and less regulation and can be used to establish a distinctive school that serves a group of like-minded families—a characteristic associated with effective schools (Chubb and Moe 1990).

4. In Cleveland, vouchers cover 75–90 percent of the tuition costs, in line with Milton Friedman's (1995) argument that schools should be allowed to "top-up" vouchers.

5. Competition is often measured by the degree to which students utilize nonassigned schools. Hoxby (2002a) considers the enrollment of charter schools compared to the enrollment of the school district in which they operate—placing the apparent threshold at about 6 percent before competitive incentives emerge. Sandström and Bergström (2002) look at the percentage of students in all independent schools, with higher percentages indicating greater degrees of competition. Of course, this approach is somewhat limited—it assumes competition is happening if students do not attend their neighborhood public school. Questions of operational autonomy, portability of funding, ease of entry for new providers, and scarcity of supply relative to demand are all also important. Still, in lieu of a more developed empirical basis, this appears to be the consensus approach for researchers.

6. To that end, we chose urban areas with the highest levels of market penetration from charter schools but that also had other comprehensive, subsidized choice options such as voucher programs or interdistrict open-enrollment plans. Charter schools hold about 70 percent of the market share in New Orleans; in Washington, DC, between one-fourth and one-third of students in the public sector are enrolled in charter schools; and charter schools enroll about 20 percent of such students in Detroit, Southfield, and Pontiac, MI (Ziebarth 2006).

7. See "Findings and Purposes," D.C. Law 11-135, § 103, 43 DCR 1699 (May 29, 1996).

8. Recent declines in Catholic school enrollment have caused several Catholic schools to convert to charter school status (Labbé 2007).

9. Because of confidentiality considerations, the U.S. Census Bureau provides less detailed information at more localized levels.

10. Given the temporary or permanent displacement of significant numbers of New Orleans residents after Hurricane Katrina, using 2000 census data to map city demographics is less than ideal. Although estimates of total residents by zip code have been made post-Katrina, the 2000 census remains the only source with detailed data on the racial and socioeconomic composition of neighborhoods. The vast majority of schools and residents currently in New Orleans are located outside the areas of heaviest flooding. Although there may be demographic changes in the city overall, we have no indication that the spatial distribution of residents by race and income has been altered considerably (i.e., affluent neighborhoods have not become poor neighborhoods, etc.).

11. Following Lacireno-Paquet et al. (2002), we classified charter schools as mission or profit oriented depending on whether they were managed by nonprofit or for-profit organizations.

12. The cap on charter schools was essentially reached in 1998, although a community college was able to offer additional charters through a loophole in the state law. By the early part of this decade there were notable calls for raising the limit on new charters (Commission on Charter Schools 2002).

13. Because the New Orleans LEM was built around charter schools (at least until the recent addition of a voucher program) and since we lacked reliable data on private schools in New Orleans, private schools were not included in this analysis.

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