

Choice, Competition, and Organizational Orientation:

A Geo-Spatial Analysis of Charter Schools and the Distribution of Educational Opportunities

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ABSTRACT

School choice is intended to generate competition between schools largely to leverage new and better educational opportunities for disadvantaged students. Yet we know very little about how competition impacts whole populations of schools, or different types of schools, in distributing different educational options across segregated social landscapes. This analysis maps new educational options for families, as different types of charter schools respond to market competition within a highly competitive and segregated environment — examining school and organizational strategies in “positioning” themselves within metropolitan Detroit in order to measure the overall impact of these strategies on alternatives for disadvantaged students. Dynamic mapping illuminates the kinds of charter schools that have opened, relocated, and closed relative to racial and ethnic distributions in neighborhoods, providing a comprehensive picture of supply-side responses to competition since the emergence of choice policies. We offer a brief outline of the policy context, considering the primary equity impetus for choice, and the policy implications as they are expected to reverberate through the organizational behavior of schools. Then we present a more complex theoretical framework for understanding likely strategic responses from organizations in competitive education markets. In doing this, we draw on theories from the literatures on industrial organization and locational theories as they apply to what we are calling “local education markets.” We then describe the geo-spatial analyses, providing graphic maps to represent the patterns evident in this case. The concluding discussion offers a brief overview of the equity implications for employing the profit motive to expand educational access.

**Choice, Competition, and Organizational Orientation:
A Geo-Spatial Analysis of Charter Schools
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School choice is intended to generate competition between schools largely to leverage new and better educational opportunities for students attending failing schools, a form of what Frank (2000) calls “market populism” where competition-based reforms such as charter schools and vouchers can provide equitable opportunities for disadvantaged groups (Chubb & Moe, 1990; Friedman, 1962; e.g., Holt, 1999; McGroarty, 1996). Yet, we do not know how competition between schools actually generates and arranges quality options for families across urban areas. Specifically, how does choice and the consequent competition by schools for those choices influence organizational behavior in the education sector in creating options for those disadvantaged students most in need of alternatives?

We know that competition is shaping incentives for individual schools; for instance, some schools add all-day kindergarten to attract families (Arsen, Plank, & Sykes, 1999). Yet we know very little about how competition impacts whole populations of schools in distributing different educational options across varied, and often segregated, social landscapes. This is critical because parents report geographic proximity as a central consideration in choosing schools (Henig & MacDonald, 2002; Kleitz, Weiher, Tedin, & Matland, 2000; Schneider & Buckley, 2002; Witte, 2000). Yet, as with some other choice-driven goods and services, competition between schools may cause some organizations to “cherry-pick” by offering services in some areas, while not in others, exacerbating overall inequalities in proximity to preferred options. Furthermore, although much theorized, we know little about how competition affects how different types of schools engage the public, or how the missions of those schools can be impacted by competition.

This paper examines this issue by mapping educational options for families, as different types of schools respond to market competition in a racially segregated urban area. It draws from an ongoing effort — the “Social Geography of School Choice” project — in examining school and organizational strategies in “positioning” themselves and/or their services within a highly competitive environment, which seeks to measure the overall impact of these strategies on alternatives for disadvantaged students. While the larger project is studying school choice across public, private and charter school sectors in metropolitan Detroit, the District of Columbia, and New Orleans, this current paper focuses on physical location of different types of charter schools (the most mobile of the three sectors) in and around Detroit — the most racially segregated metropolitan area in the nation.

Using geo-spatial analyses of school location affords us a unique view of schooling options across a segregated urban area. Dynamic mapping illuminates the kinds of charter schools that have opened, relocated, and closed relative to racial and ethnic distributions in neighborhoods, providing a comprehensive picture of supply-side responses to competition since the emergence of choice policies. This paper uses such analyses in an integrated study of education options and the social characteristics of students and communities. Mapping the geography of school choice and competition

will address the gap in our knowledge of how schools actually respond to competitive incentives *in context*, giving us invaluable insights into the workings of markets for education in segregated urban areas. Because disadvantage students may represent a competitive burden to schools in terms of increased operating costs and lower test scores, determining how different types of schools position themselves and their services in such contexts is essential if we are to understand how competition can arrange opportunities for disadvantaged students.

In the section that follows, we offer a brief outline of the policy context, considering the primary equity impetus for choice, and the policy implications as they are expected to reverberate through the organizational behavior of schools. Then we present a more complex theoretical framework for understanding likely strategic responses from organizations in competitive education markets. In doing this, we draw on theories from the literatures on industrial organization and locational theories as they apply to what we are calling “local education markets.” Next we provide an overview of our methodology and data, concentrating on the tools used in a geographic analysis such as this. In the penultimate section we lay out the results of the geo-spatial analyses, providing descriptive maps to represent the patterns evident in this case. The concluding discussion offers a brief overview of the equity implications for employing the profit motive to expand educational access.

Context

School choice is one of the most popular school reform movements of the last two decades, with efforts such as chartering, voucher programs, and open-enrollment plans providing families with new educational opportunities. Market populists see this as a key step toward more equitable distribution of opportunity, since school choices — especially access to the “better” and more highly desirable educational options — were previously limited only to those who had the financial means to pursue alternatives to their local public schools, including purchasing a home in another district (Henig & Sugarman, 1999). Thus, some have argued that school choice is the new civil rights issue of our time, since it provides access to more and presumably better educational options, particularly for disadvantaged communities (e.g., Bennett *et al.*, 1998; Holt, 1999; Will, 2003).

Furthermore, not only is choice expected to open up pre-existing options for families in need of alternatives, but the competitive effects of choice — as schools compete for the choices of consumers — are also expected to improve the options for poor families. This is thought to happen in two ways. First, pre-existing schools will be forced to improve. They will have to adopt more effective educational processes in order to attract and retain students, or risk going “out of business” (Gilder, 1999; Ladner & Brouillette, 2000; Stossel, 2006). Second, in areas underserved by appropriate educational options, new schools (or campuses of existing schools) will emerge as supply responds to market demand of consumers for higher quality options in different areas (Friedman, 1994). Charter schools closely reflect this thinking in areas where they are intended to expand existing options for families, and generate competition within the publicly funded sector.

Positioning Strategies in Competitive Local Education Markets

While theories and policies endorsing school choice generally assume static consumer-provider relationships (as supply responds to demand), emerging evidence indicates more dynamic interactions between supply and demand, as schools formulate responses not only to other schools, but also to *differentiated* consumers (Lauder et al., 1999; Lubienski, 2005; Taylor, 2002). Although market-populists see students as a leveled client-pool for schools to pursue (for the per-pupil funding they bring), research indicates that schools competing in uneven social landscapes recognize students as differently-valued clients (Fiske & Ladd, 2000; Lacireno-Paquet et al, 2002; IDENTIFYING INFORMATION REMOVED, 2005, in press-a, in press-b, in press-c). Given the difficulties of enhancing organizational effectiveness (Rothstein, 2004), schools can improve market position by adopting “positioning” strategies not to produce, but to attract, “better” students.

This analysis draws on industrial organization and location theories in outlining possible strategic responses for different organization types in competitive environments. An organization’s essence as either a mission-driven non-profit or profit-driven entity shapes its priorities in engaging competitors and clients (Weisbrod, 1998; e.g., Lacireno-Paquet, Holyoke, Moser, & Henig, 2002). Profit-oriented competitors introduced into a traditionally non-profit sector give non-profit organizations incentives to behave more like for-profits, with firms accounting for costs and profit potential in situating services for potential or preferred clients (McCann, 2002; Sinitsyn & Weisbrod, 2003; Smithies, 1941).¹ Consequent “positional warfare” in sectors such as education (e.g., Kirp, 2003) can take two forms:

- Literal positioning—*where* schools (especially new ones) locate relative to particular student types
- Figurative positioning—*how* schools position their services in the market, through image management, to enhance their relative status

Both strategies have implications for disadvantaged students’ access to quality educational options. However, for the sake of brevity, we focus here on literal, geographic or physical positioning of school options, with particular emphasis on charter schools.² These school are typically new, and therefore exemplify the advantage for this study of having been recently located in particular neighborhoods as a result of conscious decisions by managers and founders, in light of local contextual factors.

In view of the institutional structures and incentives at play in competitive local education markets, we can work from the following hypotheses with regard to the organizational behavior of charter schools:

- 1) As competition emerges, many schools will embrace competitive strategies that provide access to students with more “desirable” and less-costly demographic characteristics to enhance the schools’ market position.
- 2) Both non-profit and profit-driven organizations adopt positioning strategies associated with for-profit behavior in shaping enrollment.

¹ An emerging literature focuses on social patterns around school choice in Britain, (Parsons, Chalkley, & Jones, 2000; Taylor, 2002), and on charter school location in the US (Arsen, Plank, & Sykes, 1999; Cobb & Glass, 1999; Glomm, Harris, & Lo, 2005; Henig & MacDonald, 2002).

² For analyses of figurative positioning in these and other local education markets, see IDENTIFYING INFORMATION REMOVED (2005, in press-a, in press-b, in press-c).

Methods & Data

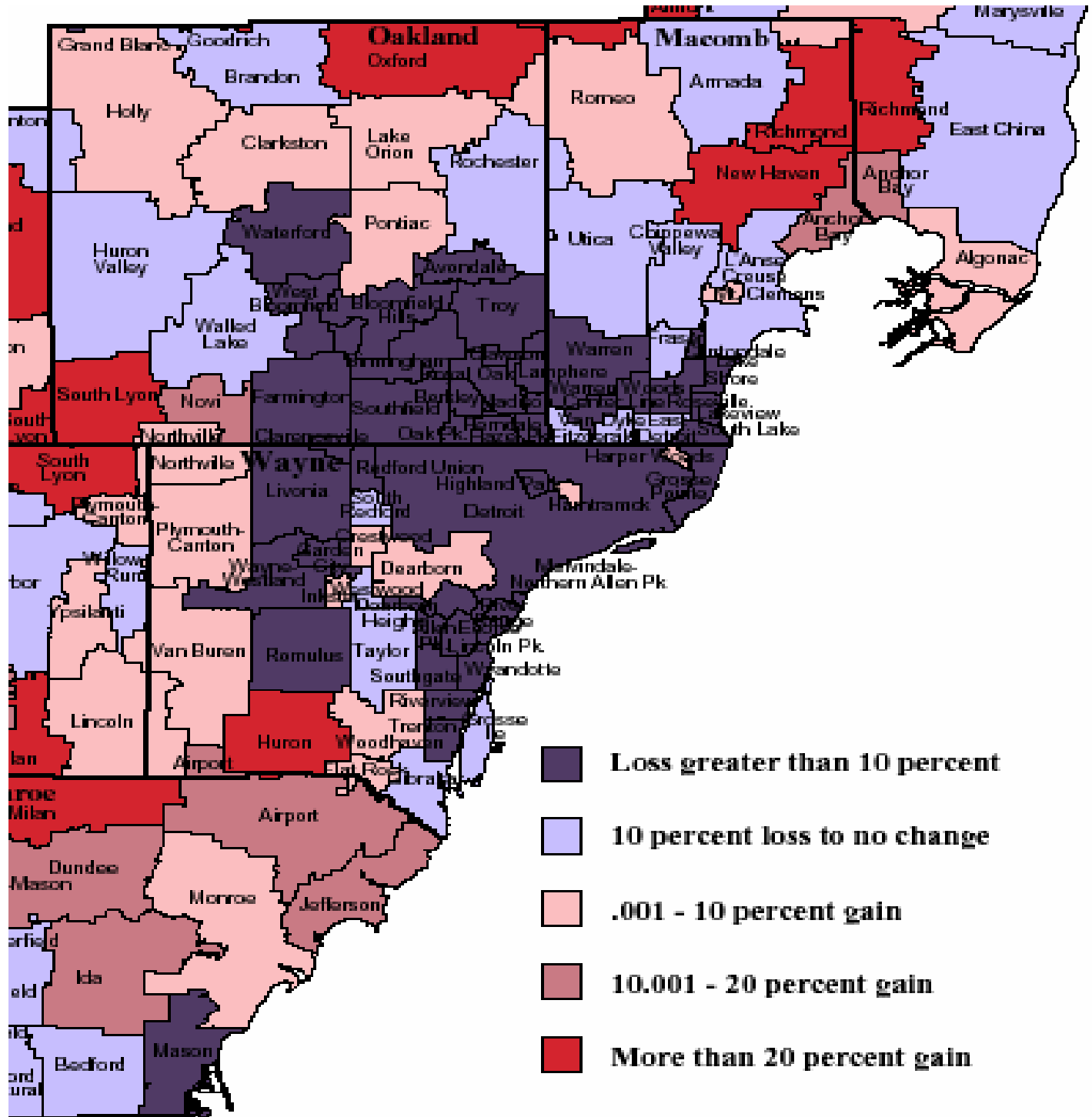
Several sites recommend themselves for the study of the impact of competition of the distribution of education options. While we are currently examining three major metropolitan areas, we focus here on the most mature market — the distribution of school choice options in the three-county area of Michigan comprising metropolitan Detroit. It makes sense to focus on discernable education “markets” such as this, since we can assume that, inasmuch as schools and organizations respond to competitive pressures, they do so in local contexts, in reaction to local conditions, the preferences of local consumers, and to the strategies of competitors.³ As Hesketh and Knight (1998) note, “if the workings of educational markets are to be understood, clusters of geographically close schools need to be studied.”

This project uses geo-spatial and content analyses to delineate positioning strategies of schools, focusing on educational options for neighborhoods across metropolitan Detroit, the largest urban area in one of the leading states for school choice. Geo-spatial or “GIS” methods represent an intriguing approach to questions such as these involving data with spatial characteristics. “Geographic Information Systems” (GIS) are computer mapping programs that “layer” data, allowing researchers to perceive spatial relationships and patterns (Haining, 1990). Rather than de-contextualizing data, as with traditional statistical methods, programs such as ArcGIS (from ESRI) situate school-level data within contextual maps of broader data. While relatively new to educational research, GIS is quite established in other areas, and has great potential for illuminating some key issues of school policy and reform (Cobb, 2003). Using geo-spatial approaches offers an advantage in analyzing data, not only in that it sets data within context, but it allows researchers to both test hypotheses as well as to discern unanticipated patterns in the data that might not be apparent using traditional statistical approaches. Content analysis is also used in order to assess the nature of information made available to parents regarding different school options in a local education market (see IDENTIFYING INFORMATION REMOVED, in press).

Detroit represents an illuminating case for studying competition and the distribution of education options. Charter schools and open-enrollment options are putting pressure on Michigan’s public schools, as well as private schools (Miron & Nelson, 2003) — several Detroit Catholic schools have recently closed, merged, and/or moved to more affluent suburbs. Choice reforms there have created a competitive education market across public and private sectors in which: (1) policies have encouraged entry of new schools through charters, particularly those administered for profit; (2) policies allow students to choose schools across district boundaries; (3) those choices bring per-pupil funding; and (4) over-supply of seats forces public and private schools to compete for students and funding (see Map 1).

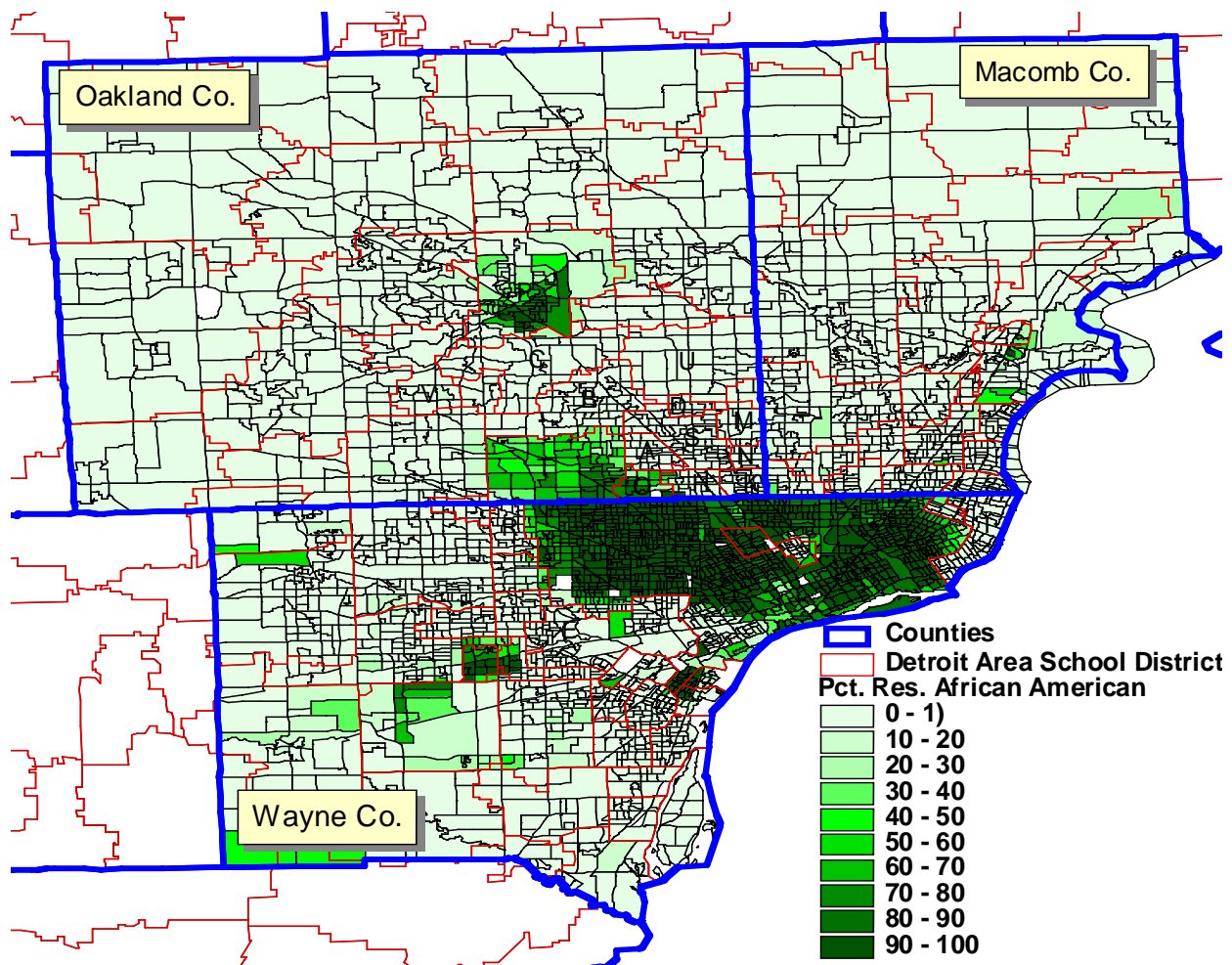
³ The use of the term “markets” with regard to the education sector is not without controversy, since crucial aspects of market dynamics are missing, due to continued state funding, state control of provider entry, or a lack of competition in some areas (see e.g. Merrifield, 2001). Some have noted that “quasi-market” might be a more accurate term (LUBIENSKI, 2006). However, I use the more concise term “market” here because it highlights the emergence of family choice and competition between schools to attract per-pupil funding as an important consideration in shaping the behavior of both consumers and educational organizations.

Map 1: Projected Losses/Gains of School-Age Population, by District, 2000-2010
Source: SEMCOG (Southeast Michigan Council of Governments, 2002)



Moreover, Detroit is the most racially segregated metropolitan area in the nation (and has been since the advent of school choice options in Michigan in the 1990s), providing an excellent study site for how competition is arranging school options for different students (see Map 2).

Map 2: Percent African American, by (1990) US Census Block Group



Data for this project was drawn from multiple sources. First, longitudinal school-level data encompassing school location, student demographics, and achievement data (where available) were taken initially from the Common Core of Data (CCD) from the National Center for Education Statistics (NCES) for Oakland, Macomb and Wayne counties in Michigan for the decade following the emergence of charter school legislation in Michigan in 1993. These data were then checked against state and other sources, and geo-coded for the 1,934 public, charter and private schools in the K-12 range in the three-county metropolitan area.⁴ The variable fields used in mapping included school ID, school name, street address, ZIP code, state, year started, school type (charter, magnet, public), management type, and management.

Orientation as a profit- or mission driven organization is a key variable in this analysis. Schools were classified as mission-driven if they met the following criteria: they were managed by an independent or non-profit group such as a community organization, *or* if they were chartered by a local chartering authority. This second criteria was deemed to be an important consideration under the logic that local chartering agencies in Michigan (e.g., local or county-level school districts) are not predisposed to grant a charter to a competitor within their own boundaries; instead, charters authorized by these organizations will be granted to non-adversarial schools, typically those serving a particular need that supports the mission of the district/chartering authority (for instance, a school for students at risk of dropping out of the district's regular educational programs). Schools were classified as profit-oriented if they were managed by one of the several for-profit education management organizations (EMO) active in the area.

Community-level data were drawn from the 2000 US Census tract data SF3 table for Oakland, Macomb and Wayne counties. We chose variables that would offer insights into the racial-ethnic and socioeconomic characteristics of neighborhoods, and used the following demographic variables for mapping those characteristics:

- households
- per capita income
- percentage population age 0-17 years
- female headed households with children under 18
- unemployed population over 16 not in school or military
- percentage population African American
- percentage population over 25 with less than a high school education
- percentage population with public assistance income
- percentage population living below the poverty line
- percentage population in rental housing

The percentage values for population and household variables are calculated in MS Excel. All tabular data are imported into MS Access geodatabases prior to mapping.

Next, we used the following shapefiles (from ESRI): Michigan county polygons, Michigan census tract polygons, Michigan school district polygons, and Michigan ZIP code area polygons. The software used for the maps in this paper is ESRI's ArcGIS 9.1 ArcMap, Arc Catalog and Spatial Analyst extension. Ianko Tchoukanski's Easy Calculate 5.0 expressions are used in ArcMap's Field Calculator to convert the polygon

⁴ Efforts to include a layer of data on individual students were confounded by unreliable data sources from the state, due by unsystematic collection methods at the school level, and are therefore not reported here.

shapefiles for census tracts to new point features centroids for their respective polygons. The polygon shapefiles for the three Michigan counties are selected interactively within ArcMap from the Michigan dataset and exported as polygon features to the MS Access geodatabase. The Michigan shapefiles for census tracts and school districts within the three county study area are selected by overlaying the three county polygon features and exporting the selected census tract polygon shapefiles as polygon features to the MS Access geodatabase. Three county polygon feature data for census tracts are imported into ArcMap from the geodatabase. Using the Field Calculator, x and y fields are added to each attribute table and Ianko Tchoukanski's expressions are used to calculate x and y centroids values for each polygon for both datasets. The new attribute tables are exported to the geodatabase. The new tables for census tracts are mapped in ArcMap as point features using their x and y values. Their point features are exported to the geodatabase.

For geocoding by street address, the compiled table of all charter school addresses opened by 2003 is geocoded using an ESRI locator file and associated street address/ZIP/state database. The resultant point features and attribute table including latitude and longitude coordinates for each location is exported to the geodatabase. Separate point feature datasets by charter school start dates are created in ArcMap by selecting from all charter school point features by the start date attribute and exporting the selected features to the geodatabase.

Census tract data are mapped using the census tract centroid point features joined to the geodatabase census tract data tables. The common fields for the join are the unique census tract identification or tract number. Within the Spatial Analyst extension, the value for each selected variable such as percentage of households receiving public assistance, percentage of population that is African American, etc., for each census tract point is interpolated between points and mapped into a raster grid of cells, each cell assigned an interpolated value for a specified census variable. The rasters cell values may be queried using ArcMap's Raster Calculator. The rasterized census variable cell values are queried in Structured Query Language (SQL) to create a raster showing two classes of raster values – for example, one class of all cells with greater than 15% of households receiving public assistance income and one class of those less than or equal to 15%. Raster layers also can be combined using the Spatial Analyst extension's Raster Calculator. The layers for need indicators representing selected variable ranges are overlaid and the cell values (1 or 0) for each cell representing the same spatial location are summed and a new raster is created for the summed values for each cell location. The combined raster shows the areas of greatest overlap of need indicators with the highest cell value.

Maps are assembled with several layers. One or more are data points or rasters. Other layers serve as a contextual background. Symbols were used in order to distinguish the different data points and layers for the reader. For contextual layers, polygon features for Detroit area counties, ZIP code areas, school districts, and census tracts are used. For point data, specific variables for charter school points such as orientation (mission, for-profit) or management company (National Heritage Academies, Helicon Associates, Synergy Training Solutions, Charter School Administration Services, etc.) are mapped with different point symbol shapes (circles, triangles) and/or colors. For rasters, as described above, each raster grid cell has an assigned value. Those values are displayed in the maps over a range of colors. The cell values may be divided and

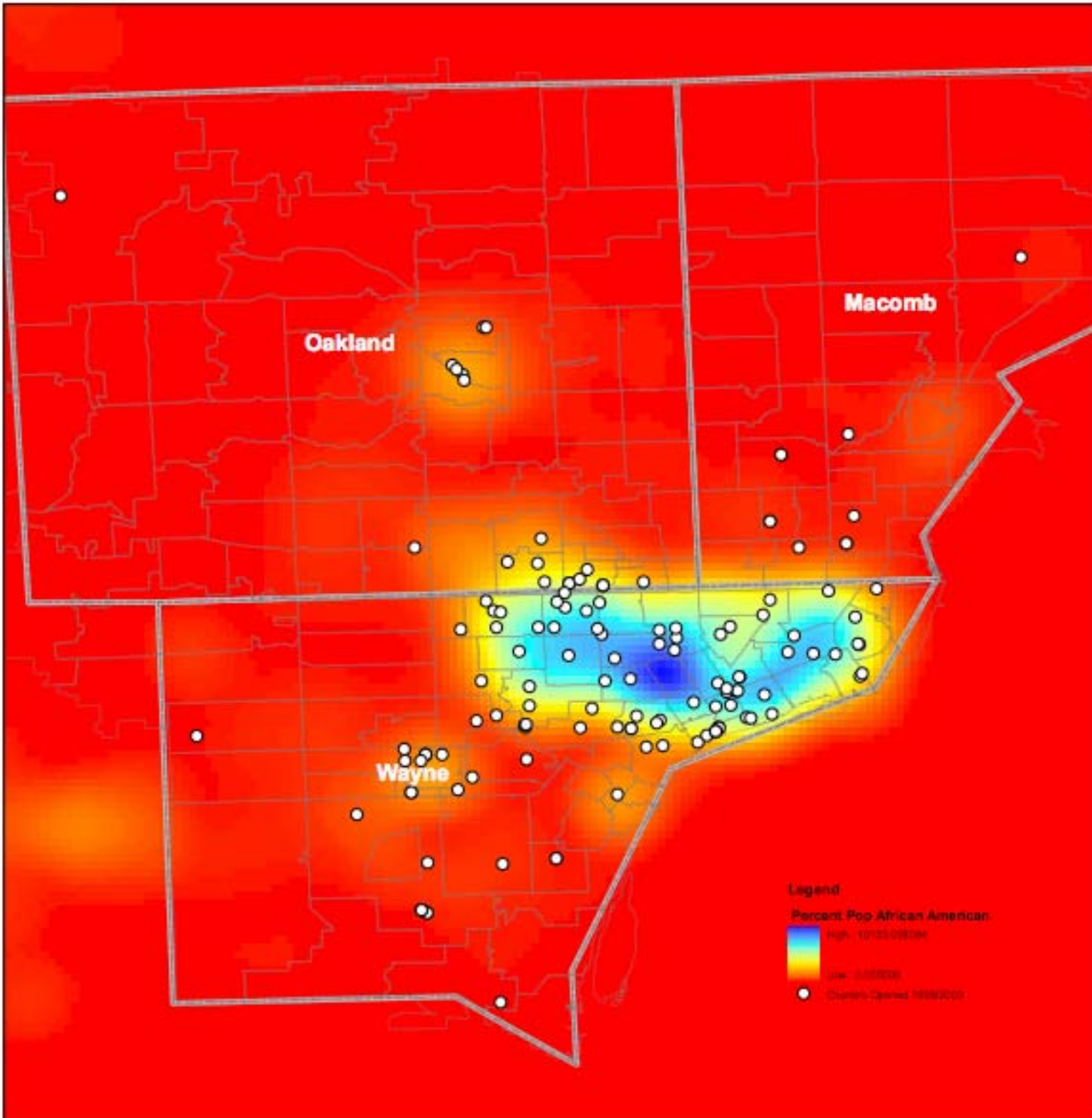
displayed in an assigned number of ranges or in a continuous range. The color symbology used shows high values in blue to low in red in a spectral range of colors. In the case described above of queried rasters for two classes of census variables the resulting rasters are symbolized in two colors. Other rasters are ranked from 1 to 10 according to levels of disadvantaged populations. Each cell in the raster is then assigned a value from 1 to 10 using the Raster Calculator tool.

Results

Charter schools are said by choice advocates to serve higher proportions of racial/ethnic minorities in many areas. However, recent research has noted that, while that may be true, they are probably also serving relatively fewer disadvantaged students within those categories, compared to neighboring public schools (Carnoy *et al.*, 2005). If this is true, it may reflect incentives for schools-of-choice to use their autonomy to select “better” students, or at least to enhance the applicant pool from which they are required to randomly select students in many states. In one of the first uses of GIS in school choice research, Cobb and Glass (1999) looked at this question in terms of enrollment, finding evidence of substantial segregation in charter schools compared to neighboring public schools. Of course, the underlying question is why we are seeing such patterns in some places. That is, by what mechanism is such selection or sorting taking place? Cobb and Glass suggested things like admission practices, parent contracts, or word-of-mouth marketing spreading through segregated social networks. While these may be true, it is worth considering the obvious issue of location as an explanatory factor in understanding enrollment patterns in charter schools.

In the case in point, it appears that charter schools in the Detroit area are generally not avoiding areas with higher concentrations of minority students. For instance, Map 3 represents the location of charter schools opened between 1995 and 2003 in the three-county metropolitan Detroit area, over a representation of the percentage of residents who are African American. In this map, charter schools are more or less distributed around the area, centered on the urban core (where there are also higher concentrations of African American residence). Furthermore, it is apparent that a handful of charter schools have also located in the south-eastern part of Oakland County, where there are a few suburbs with substantial African American communities (see Map 2). So it does not appear that charter schools in general are locating in areas that would likely cause them to under-enroll minority students.

Map 3: Charter School Locations Opened 1995-2003; Percent Population African American

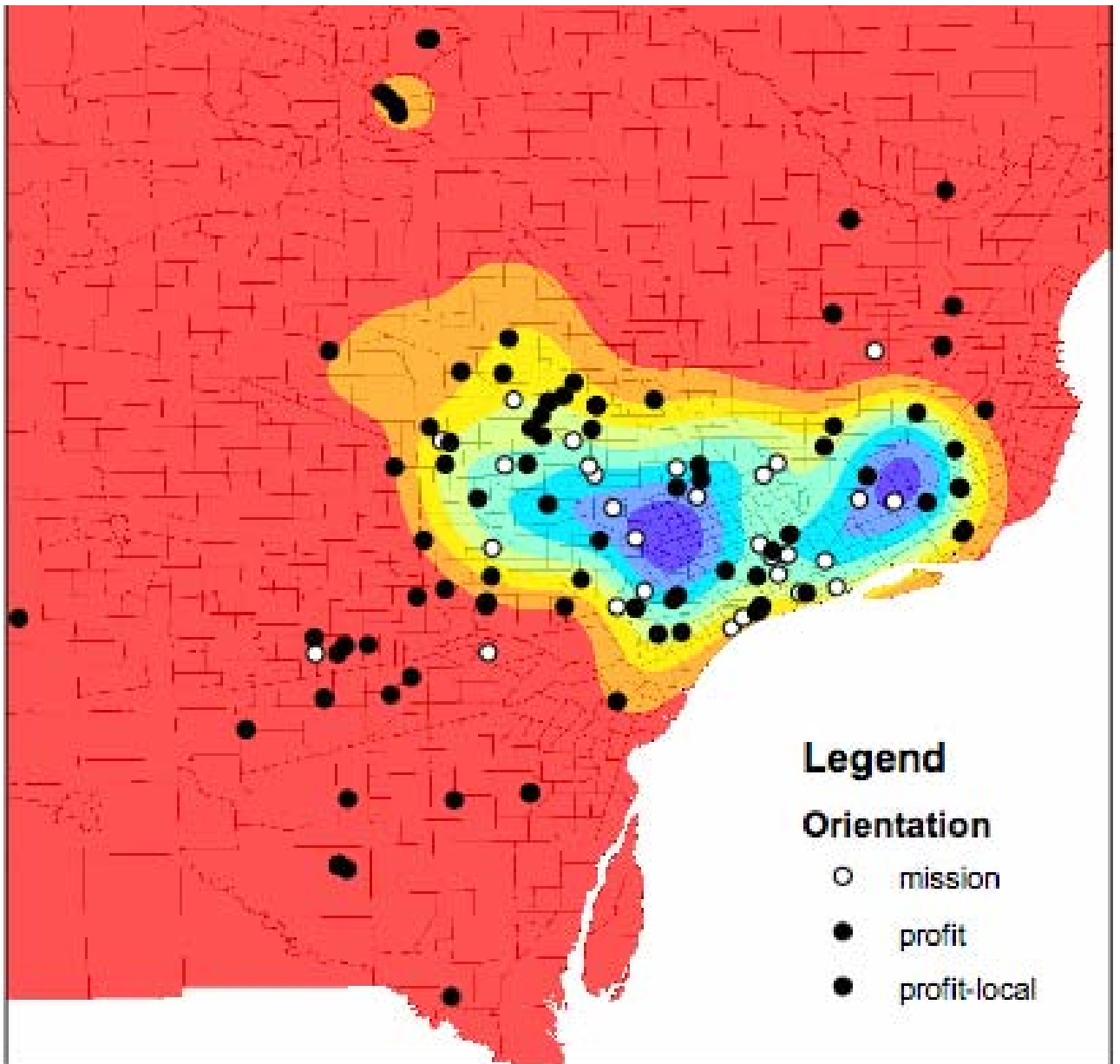


However, the following maps indicate that locational patterns may suggest instead that certain types of charter schools are in fact avoiding areas with higher concentrations of disadvantaged students — a finding consistent with earlier reports, but possibly illuminating one of the mechanisms by which this occurs (Carnoy et al., 2005; Cobb & Glass, 1999). As a reminder, charter school location is a critical factor for serving different populations, since Michigan’s charter school policies do not fund transportation services. Furthermore, Detroit lacks a comprehensive public transportation system. One bus system serves primarily the city, while another serves primarily the suburbs, with few areas of overlap. Finally, approximately one-third of Detroit residents live below the poverty level, suggesting that many Motor City residents may not own cars. Thus, school location is a critical consideration for many in weighing their different school options. Yet when we look at school patterns by sub-type and over time, interesting patterns emerge.

Map 4 represents the location of different types of charter schools across the metropolitan Detroit area, over a representation of the combined at-risk characteristics for residents, by census tract.⁵ Once again, the distribution of charter schools appears to be more-or-less randomly arranged across the metropolitan region. However, closer inspection suggests that mission-oriented schools (those represented by a white dot) may be more likely to be located in areas with higher concentrations of high-need populations. Indeed, the only charter schools located in the area of highest need (represented in darker purple) are mission-driven. Although mission driven charter schools make up 24% of the charter school market share in the area (consistent with the state-wide average), they comprise a disproportionately high percentage (62.5%) of all charter schools in the areas of medium-high to high need (purple), and still the majority (52.9%) of charter schools when we expand the area of analysis to include areas of moderate need (blue). On the other hand, mission-oriented charter schools are under-represented as a small proportion (about 10%) of charter schools in areas of relative affluence — suggesting that profit-oriented schools are much more likely to seek out locations where they will serve already advantaged students.

⁵ Initially we began the analysis by disaggregating not only mission- and profit-oriented schools, but also with a sub-category of profit-oriented schools that were authorized by local public universities (the primary mechanisms for authorization in the state, as opposed to those authorized by public universities in other regions of the state. These last two categories were later combined since no noticeable patterns emerged.

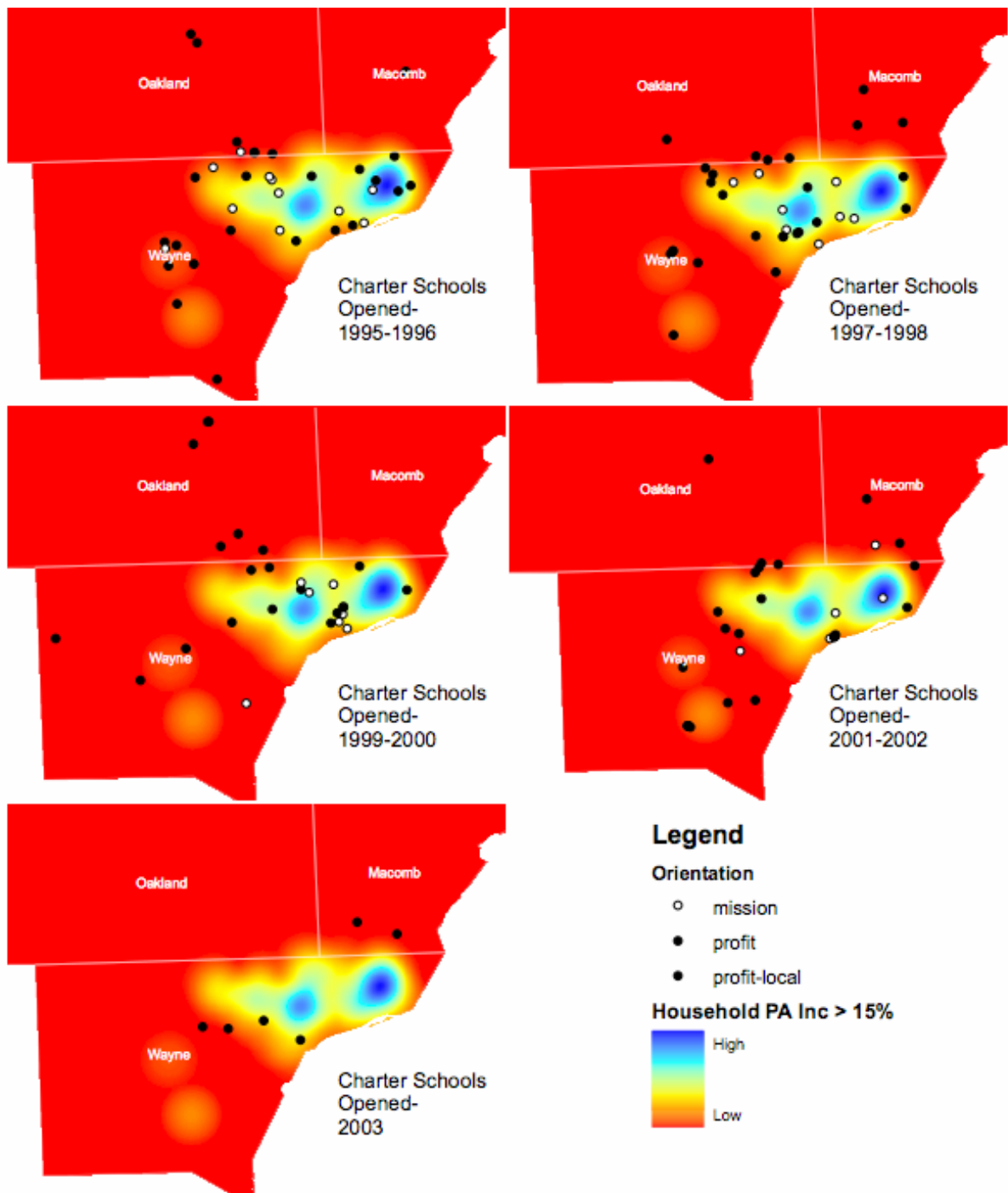
Map 4: Combined Need Indicators and Charter School Locations



Such patterns of organizational behavior are also evident when we examine school openings over time. In a time-series analysis, profit-oriented charter schools as a whole appear to be increasingly avoiding areas with more disadvantaged student populations. Consider Maps 5-6, which show that locations of different types of charter schools opened in different years between 1997 and 2003 (a period of rapid expansion), over a map representing the density of households receiving public assistance income (a useful approximation for degrees of disadvantage). Mission-oriented charter schools are distinguished from profit-oriented charter schools in these maps. The output raster of households receiving public assistance income shows a high density range between 7 and 10 within charter schools (Map 6). In the earlier years, charter school openings were generally distributed across the metropolitan region, although, again, a closer inspection indicates that mission-oriented charters were more likely to open in areas with higher concentrations of public assistance income (areas shaded in blue and purple). As time proceeds, mission-oriented charter schools continued to open in those areas at a higher rate than profit-oriented charter schools (Maps 5 and 6). Yet, by the early part of this decade, only two charter schools (both mission-oriented) were opening in the area with the highest levels of public assistance income, and by 2003, only profit-oriented schools were opening, and none of them in high need areas.⁶ Presented in quick succession, these maps almost appear as an animated feature of circles running away from the center. These patterns over time (Map 7) 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 impacting the locational decisions of mission-oriented schools.

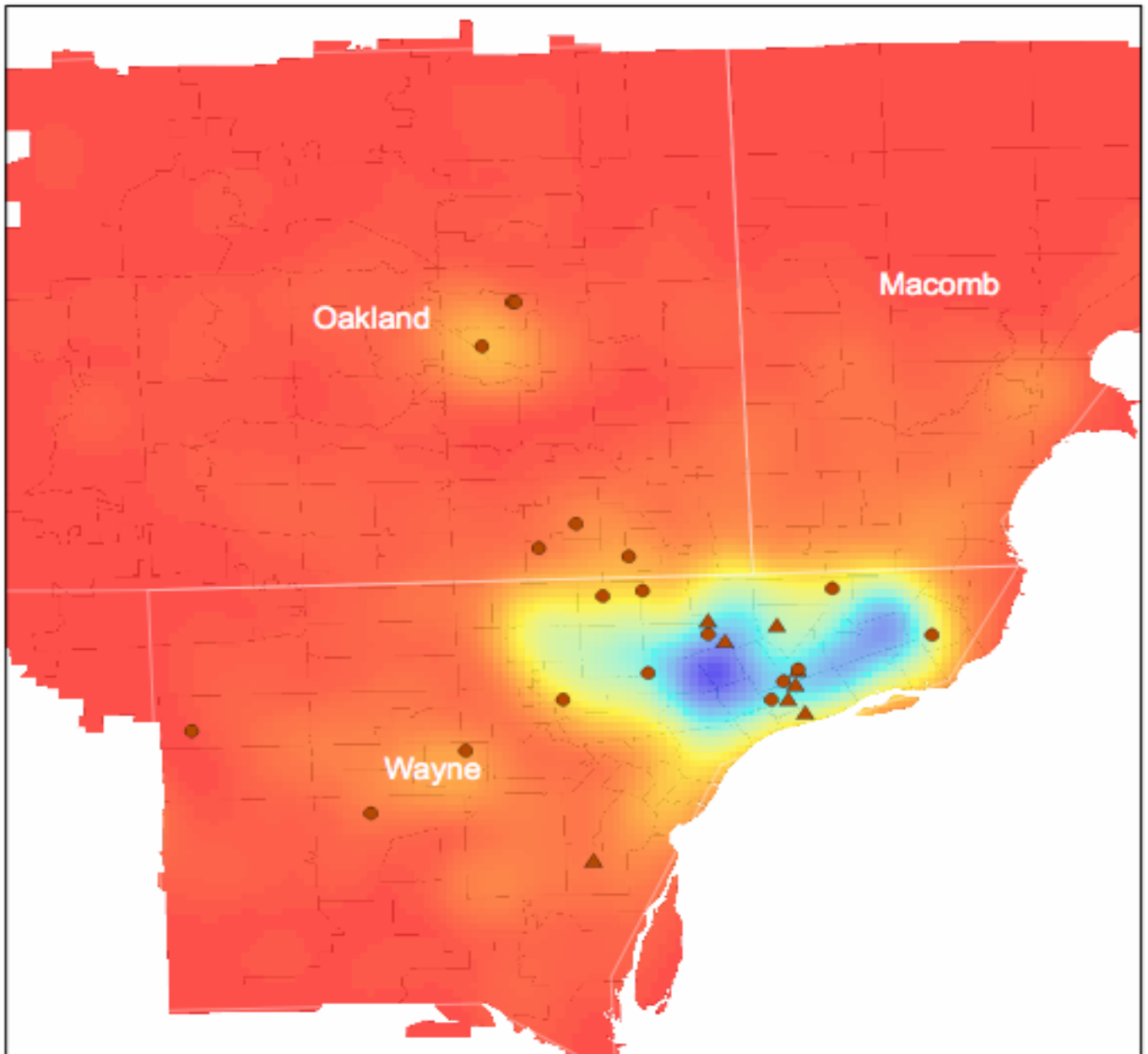
⁶ This may also represent part of a gradual state-wide decline in authorization of mission-oriented schools. It may be that authorizers sought to reduce risk as time went on by authorizing only profit-oriented schools that had the backing of management companies, and the private resources they could bring to the table.

Map 5: Opened Charter School Point Locations, 1995-2003; Density of Households with Public Assistance Income

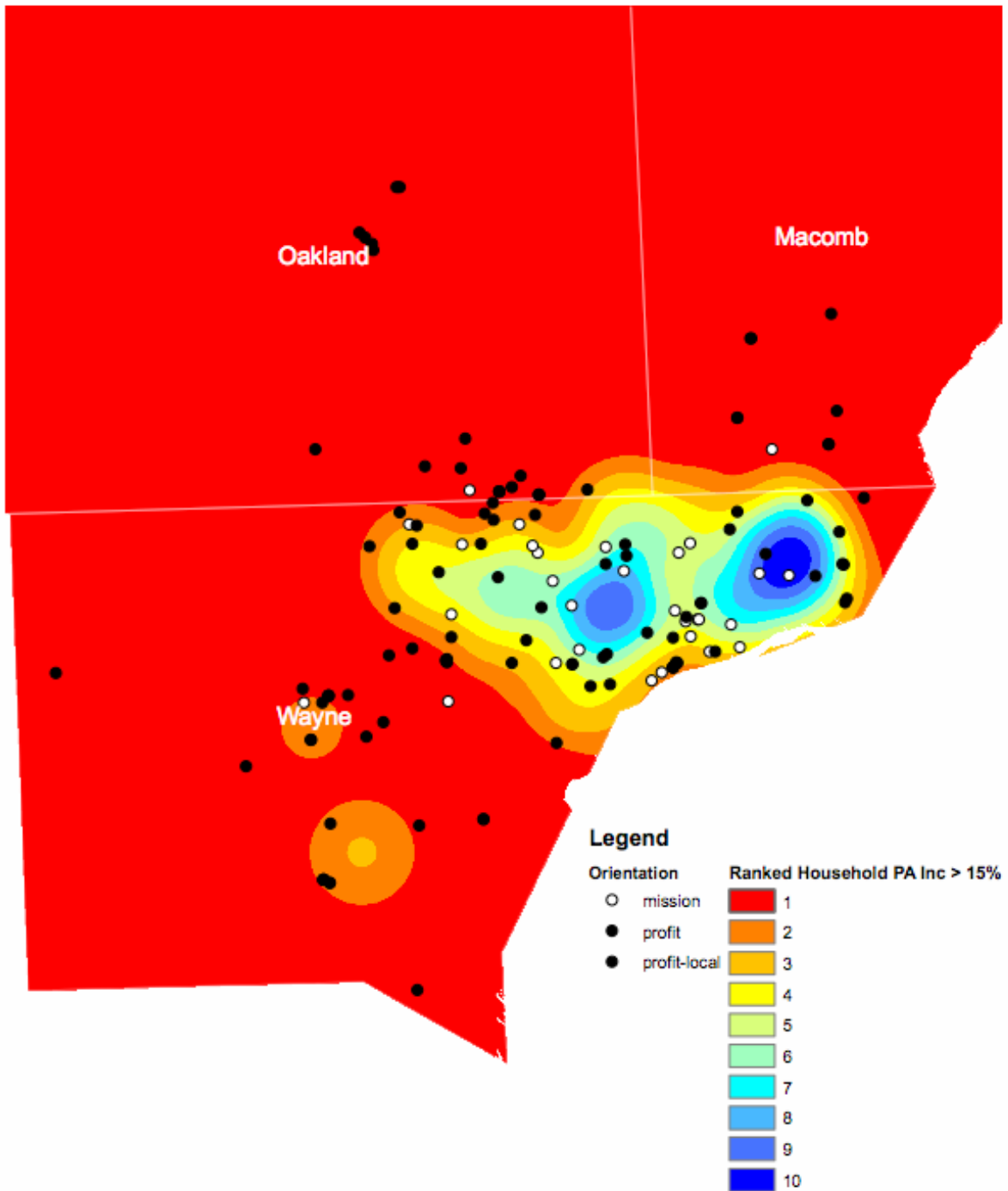


Map 6: Opened Charter School Point Locations, 1999-2000; Density of Households with Public Assistance Income

Point Locations 1999 and 2000- Density of Households With Public Assistance Income



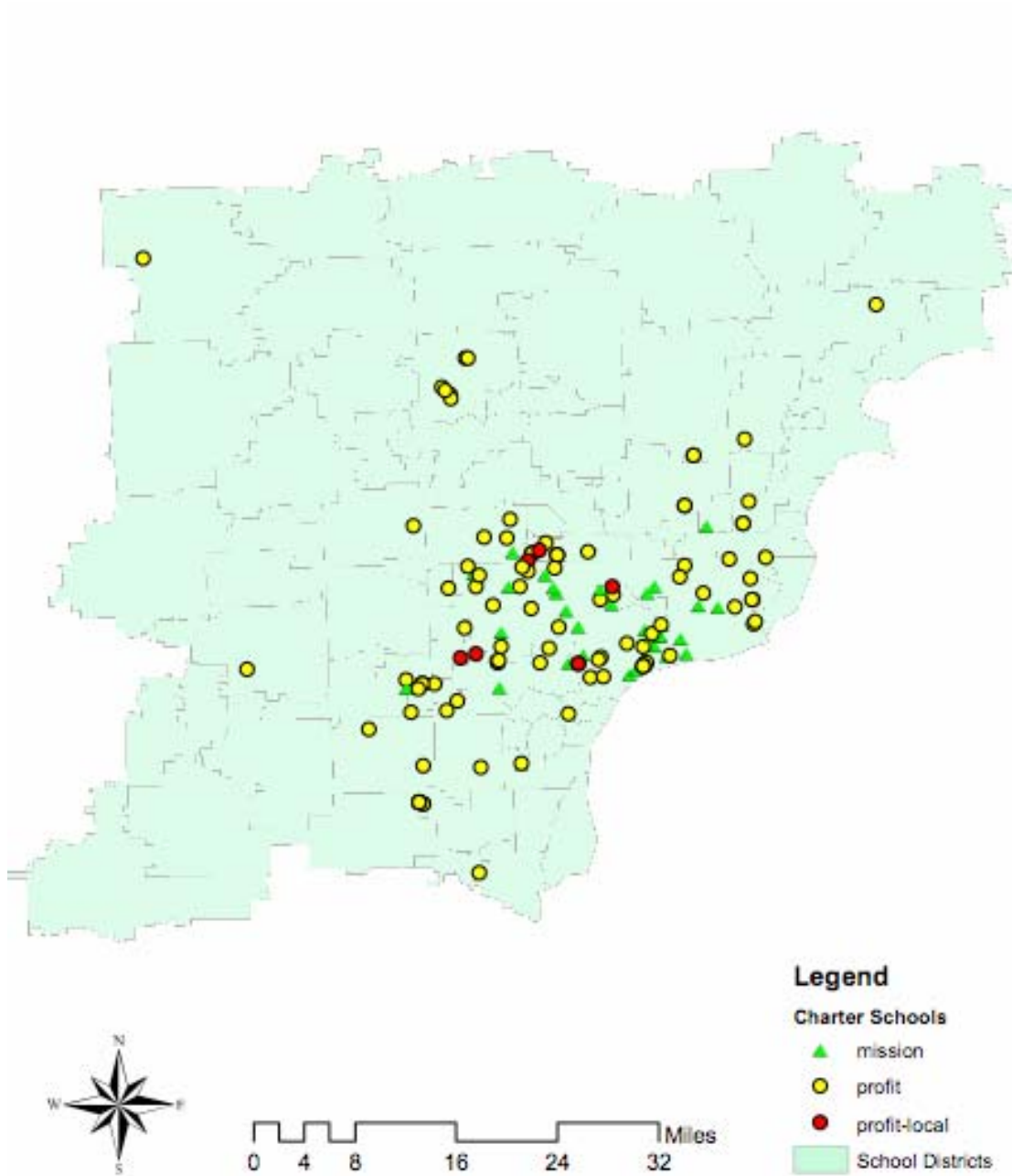
Map 7: Charter Schools by Management Type, 1995-2003; Density of Households with Public Assistance Income



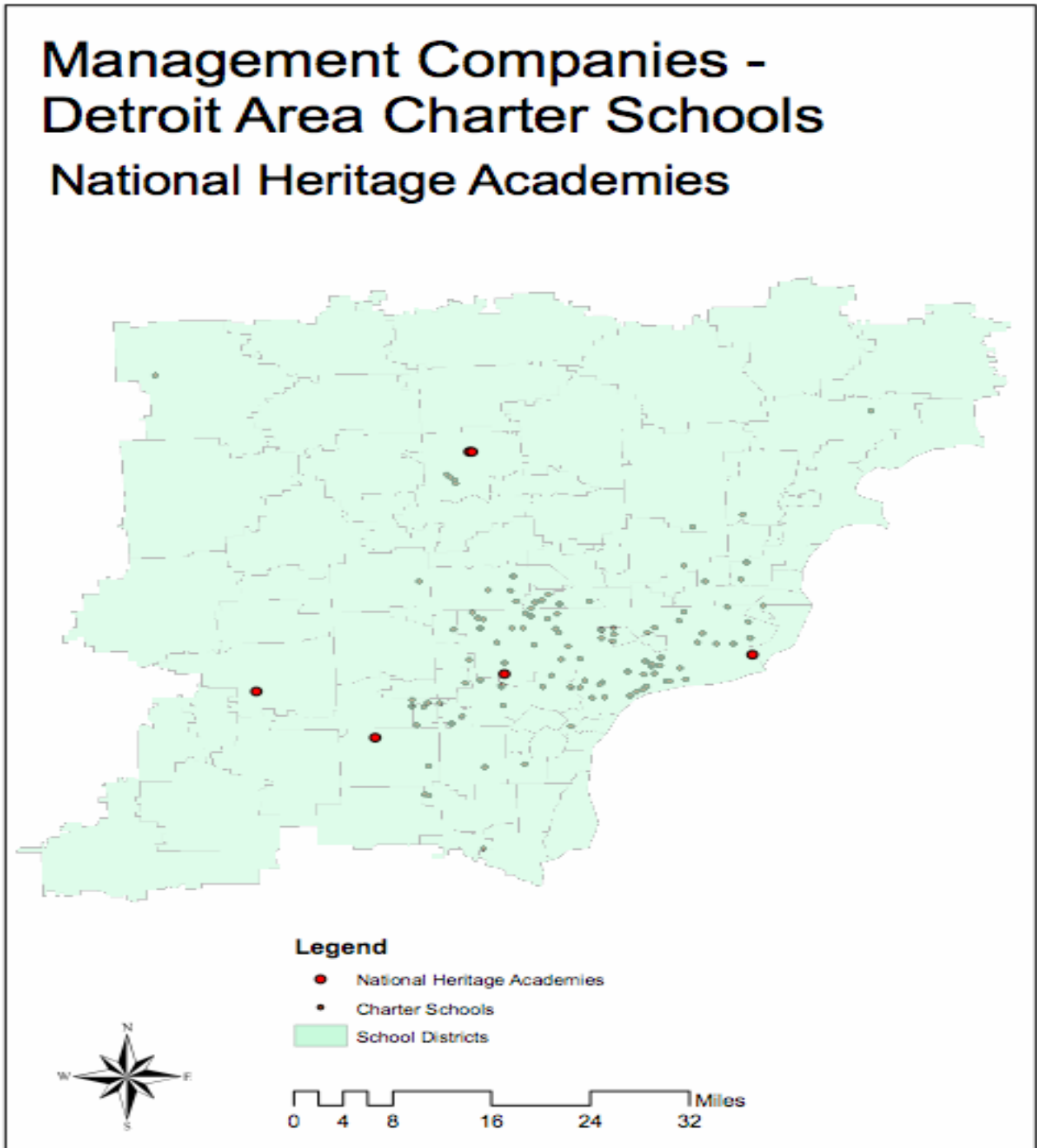
Finally, it is useful to consider the locations of the different profit-oriented charter schools run by particular EMOs or management companies, in order to approximate how these patterns are driven by specific corporate business strategies. While a number of for-profit EMOs are active in the Detroit area, and a few (such as the Leona Group and Edison Schools) have actually located some of their schools in areas where they may serve more disadvantaged students, several EMOs exemplify the avoidance behaviors that, in the aggregate, may lead to student selection and sorting. Maps 9-12 highlight the charter schools currently managed by four of the leading companies in the area — National Heritage Academies, Helicon Associates, Synergy Training Solutions, and Charter School Administrative Services, respectively — over a map of all school district boundaries in the metropolitan area; mission-oriented schools are represented by green triangles (all charter schools open in 2003 are represented on Map 8).⁷

⁷ Please note: In order to fit the information in these representations, these maps are not drawn to scale, which does not impact the integrity of these particular representations.

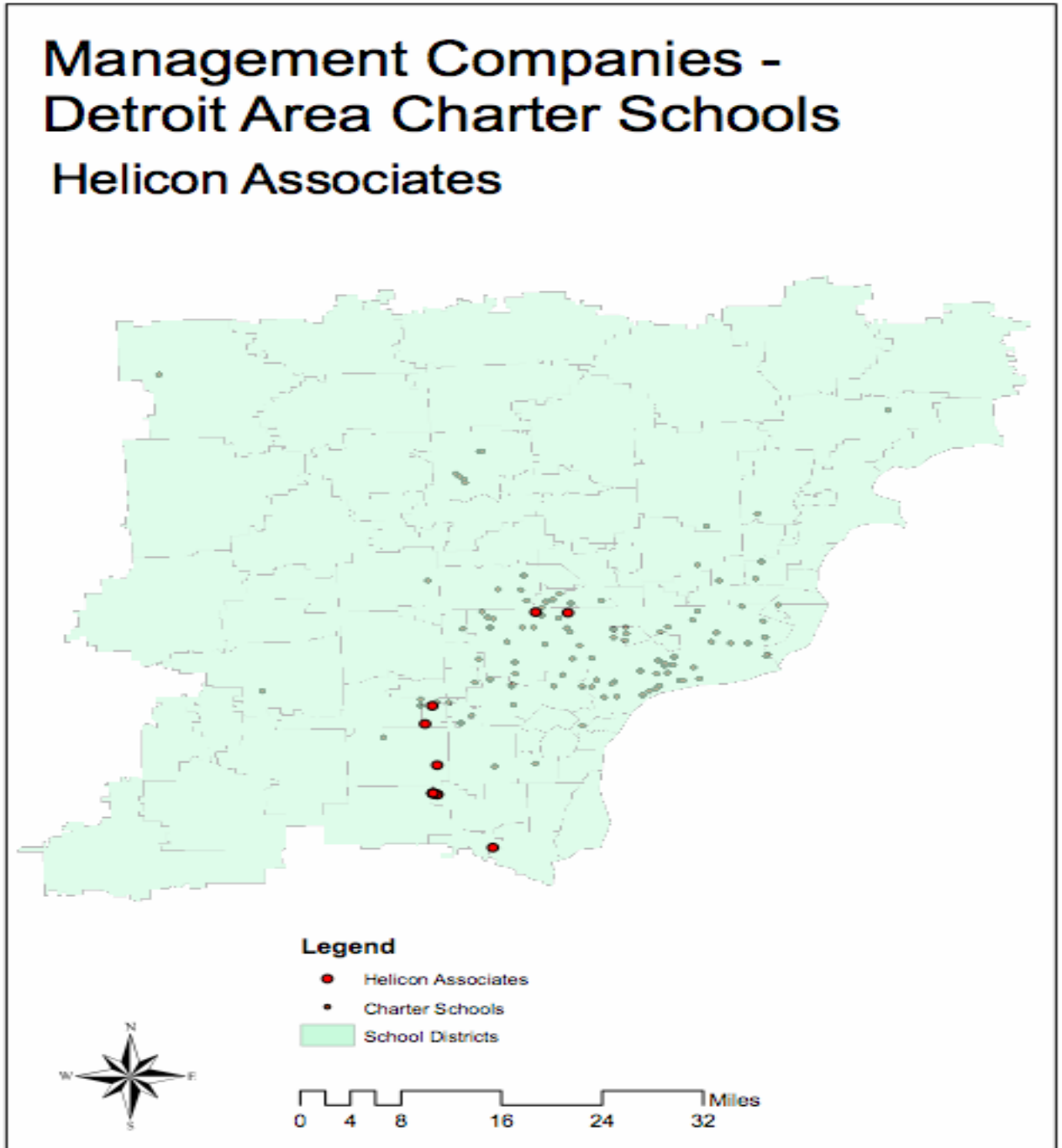
Map 8: Orientation of Open Charter Schools, 2003



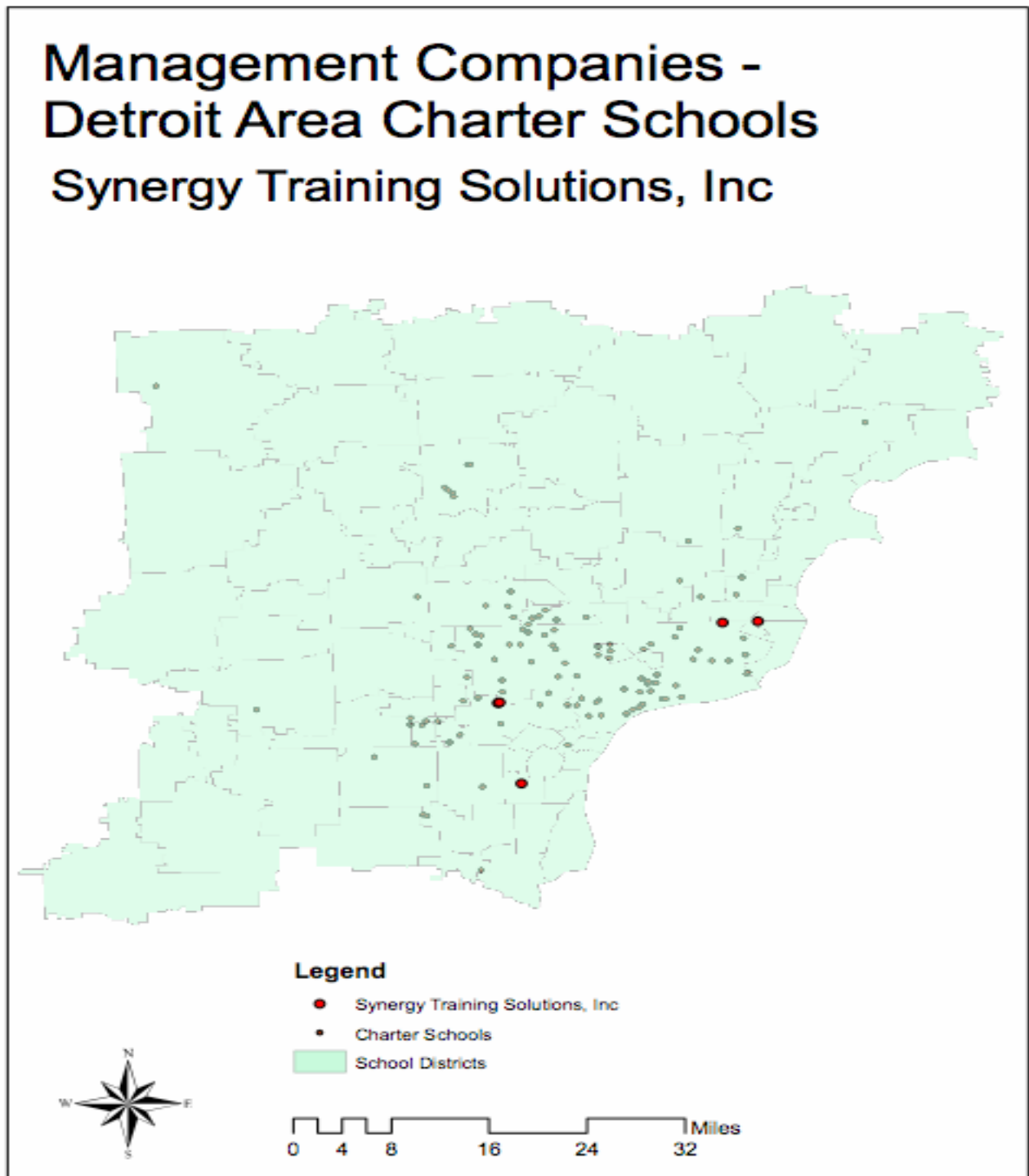
Map 9: Point Locations of Charter Schools Managed by National Heritage Academies, and All Charter Schools



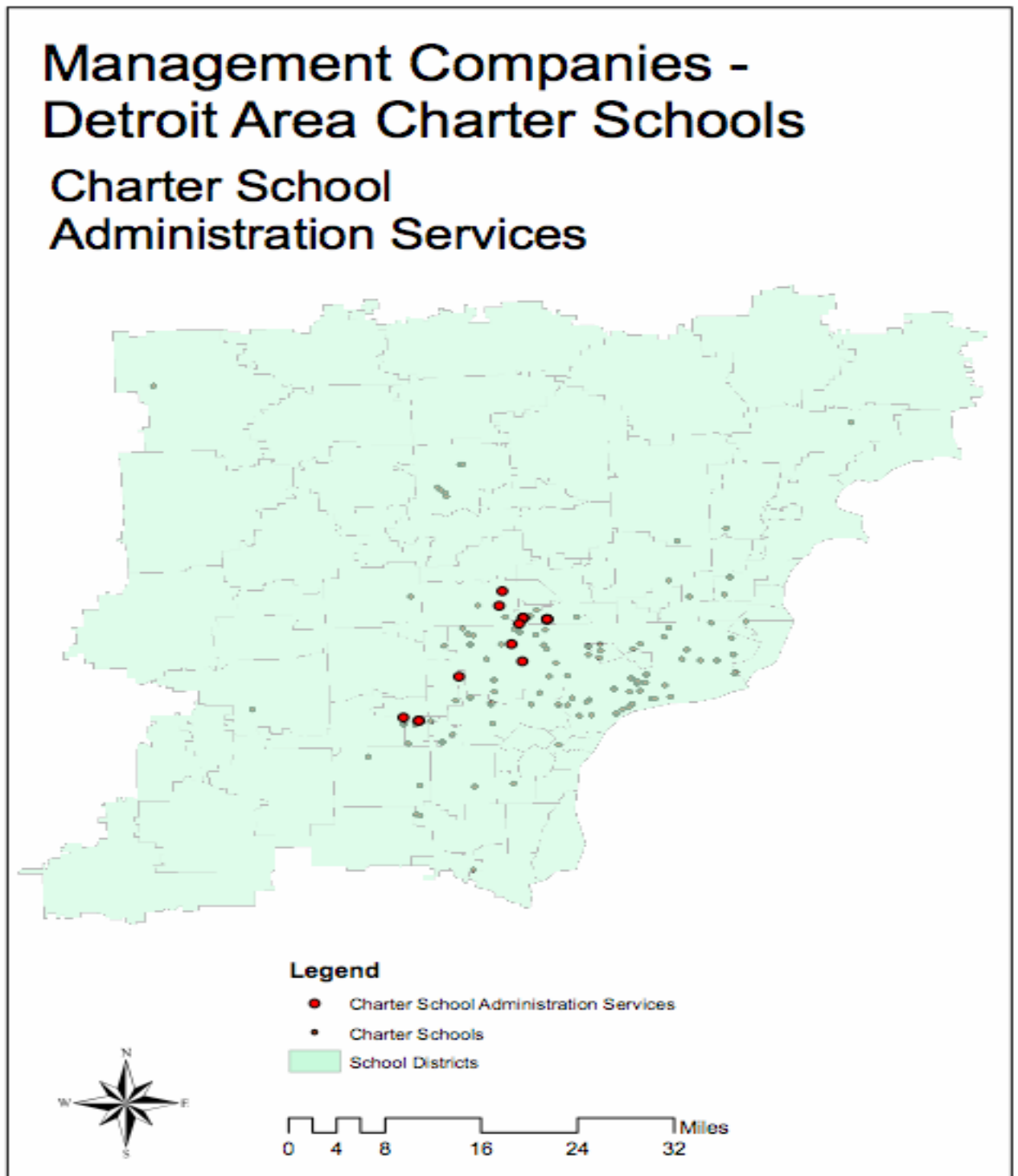
Map 10: Point Locations of Charter Schools Managed by Helicon Associates, and All Charter Schools



Map 11: Point Locations of Charter Schools Managed by Synergy Training Solutions, and All Charter Schools



Map 12: Point Locations of Charter Schools Managed by Charter School Administrative Services, and All Charter Schools



As is apparent in these maps, these EMOs appear to be using clustering and ringing strategies, whereby the schools that they manage are located in ways that essentially ring areas with higher levels of poverty (especially compared to their mission-oriented competitors). These patterns are notable because these are some of the more financially successful EMOs, and they appear to be adopting strategies through which they reduce risk by avoiding students who may be most likely to damage their market position. These findings have implications for the potential of the profit motive in enhancing equitable access to educational options.

Discussion

While this analysis represents only one part of a larger effort to understand schools' organizational responses to competition, the focus on different types of charter schools illuminates some important patterns closely associated with equitable educational access. Current and future research from this project includes analysis of other important factors, including:

- overall arrangement of different types of educational options, including different types of district, charter, and private schools; including analyses of opened and closed schools, and enrollment changes compared to neighboring schools of comparable grade levels.
- the types of programs and curricular options available to different communities
- internal characteristics of schools, including student demographics and academic outcomes, and changes in enrollment
- non-locational strategic responses in areas such as curriculum and marketing
- the nature of different types educational markets, in areas as distinct as the District of Columbia (where a comprehensive voucher system serves approximately one of every four students in the public sector, while a voucher system now offers access to private schools for many students), and New Orleans (where the post-Katrina school system is now being rebuilt largely around a charter school model — charter schools now enjoy about a 70% market share⁸)

Yet the current analysis, despite its limited scope, points to some interesting implications. It appears that efforts to harness the profit motive to promote equitable educational opportunities may not only be off target, but may in fact undercut efforts around such goals. In fact, the patterns highlighted by this geographic analysis suggest that competitive incentives may encourage organizational strategies aligned with tendencies toward segregation.

While Michigan is somewhat unique in the extent to which it encourages the participation of private, for-profit companies in managing charter schools, that unique attribute offers us an interesting case from which to study the impact of the profit motive. Organizational theorists have predicted that the introduction of competitive incentives can re-shape a sector, often leading to sorting of clients as organizations gravitate toward desirable clients, while minimizing risk by avoiding others. Moreover, these competitive incentives may be recognized initially more by profit-driven organizations, which are more attuned to such incentive structures. However, as competition increases, non-profit

⁸ See Ziebarth (2006).

organizations will also begin to recognize such incentives, and those pressures may also shape their behavior as well. The preceding analysis of different types of charter schools in the Detroit metropolitan area appears to lend some support to these hypotheses. Furthermore, while others have noted a tendency for some charter schools to serve more advantaged students, this analysis may illuminate one of the primary mechanisms by which this happens — location. Further study is needed in other contexts in order to determine the extent to which this is the case.

Applying GIS to a time-series analysis of school location affords us a unique view of the availability of schooling options across a segregated urban area. Dynamic mapping can portray what kinds of schools have opened, relocated, and closed relative to racial and ethnic distributions in neighborhoods and in schools, providing a comprehensive picture of supply-side responses to competition since the emergence of choice policies. Mapping the geography of school choice and competition helps us address the gap in our knowledge of how schools actually respond to competitive incentives in context, giving us invaluable insights into the workings of markets for education in segregated urban areas. Determining how different types of schools position themselves physically and figuratively in such contexts is essential if we are to understand how competition can arrange opportunities for disadvantaged students.

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