Magnetizing Public Education:

The Lingering Effects of Magnet Schools in the Cincinnati Public School District, OH

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Abstract

This paper examines the racial and socioeconomic enrollment patterns resulting from magnet school programs in the Cincinnati Public School district (Ohio). The analysis employs the measure of interracial exposure and independent t-tests to compare magnet schools with non-magnet schools across eight years, 1999-2006, and finds that there are significance differences in racial exposure and neighborhood income level of student populations. Further, magnet school literature is reviewed in the context of the "roll-out" of market-oriented Neoliberal policy reforms where emergence of these reforms coincides with Civil Rights era desegregation, resulting in 'voluntary choice' of magnet schools as the court accepted and government supported policy reform. This research is integral in broadening the discourse of contemporary school choice debates.

Keywords: Magnet Schools, Race, Income Levels, School Choice, Neo-liberalism

$\mathscr{A}$ recent Cincinnati Enquirer article illuminates concerns that choice in public schools, even in 'magnet schools' that were ostensibly designed to solve segregation, has resulted in (re) segregation of student populations by ethnicity (Fischer, 2009).

The issue of racially segregated schools is just one of the many real and/or perceived issues (e.g. inadequate funding and resources, unequal educational opportunities, high dropout rates and low academic achievement, student alienation, racial segregation, race and class inequality

within and amongst urban schools, and so on) plaguing public education over the last forty years or so (Lipman, 2004). All of these issues have been impacted if not shaped by post WWII think tanks, policy makers, elected officials, and academics; and encompassed within the evolving nature of urban governance since the Neoliberal shift of the 1970s (Hackworth, 2007). Since public education is situated at the intersection of politics, economics, and social contexts at various scales and across geographical space, any attempt to understand aspects of education must, in some way, address all of these components. This paper examines the socioeconomic effects of magnet schools in the Cincinnati Public School District (Cincinnati, OH, USA) within the context of the school choice movement, which is imbedded in the Neoliberal project.

Literature Review

In their broad review of the social geographies of education in the English-speaking world, Collins and Coleman (2008) observe that schools have received little attention from geographers though they are central in construction of family life and social identities, thereby making significant social and political mechanisms. In fact, they highlight how the emergence of 'public' education institutions in North America is intertwined with nation-building projects. With this context, they further suggest how schools generally provide similar social and political roles across nations though they have substantially different organizations. This paper contributes to this literature by exploring the manifestation of one aspect of public schooling, choice as defined by magnet school models, situating this development within the political economic restructuring brought on by Neoliberal policy initiatives during the turmoil of racial desegregation of

public schools in the United States. This restructuring of the process for enrollment in public schools promises long-term, ingrained consequences for community and national identities and social reproduction.

Hanson Thiem (2009) considers the state of geographical research in education and observes that the rise of education as a significant research theme is due to structural transitions. These emergent streams inquiry are divergent from the earlier and marginal themes of educational access and achievement, especially inherently spatial topics such as student migrations, education industry location and structure, the knowledge economy, and, of course, *school choice*. She distinguishes between inward- and outward-looking analysis; the former being the investigation of spatial variations in the provision, consumption, and outcomes of schooling themselves and the latter utilizing these same patterns to inform the greater social, economic, and political context. Her proposition is orienting towards an outward-looking agenda that "deliberately situates its object(s) of analysis relative to broader research programs where "the restructuring of education sectors in advanced capitalist political economies can inform discussion of globalization, neoliberalization, and knowledge economy formation" (p. 155) toward refining existing concepts and theories.

This paper reorients the historical emergence of school choice as implemented by magnet school models during the era of public school desegregation in the United States towards the theoretical context of Neoliberalism as informed by persistent socioeconomic and racial polarization in school choice paradigms, specifically in the Cincinnati Public School District. There is a synergistic relationship where the theoretical revision drives the hypothetical inquiry for

analysis and analytical results further strengthen the theoretical foundation proposed. In fact, this paper explicitly conforms to Hanson Thiem's final and most targeted proposition; to utilize critical case study analyses to understand institution transformations during Neoliberal governance since education is central in this cultural political struggle.

Holloway et al. (2010) utilize Hanson Thiem's 'decentered' geography of education as a foundation to argue for a reorientation towards an approach that also integrates the inward- and outward-looking approaches that explicitly focuses on children, youth, and families. While the argument intentionally departs from a political-economic perspective, the more intimate proposition delivers important observations for connecting the inward- and outward-looking strands of the geography of education. As context, the authors identify the benefits of quantitative studies that highlight the emergence of educational inequality and inequity through the introduction of school choice models driven by Neoliberal policy initiative; and further suggest approaches that focus on family decision-making processes that serve to flesh out the patterns existing in the quantitative research. While this paper does not address the behavioral geography of decision-making in school choice environments, it utilizes a statistical approach for the local analysis which does draw from and strengthen conclusions from the bulk of research that does explore both individual and family-oriented decision-making differences based upon differentiating characteristics such as ethnicity and socioeconomic class.

Additionally, Holloway et al. (2010) suggest broadening approaches in the geography of education to include more social and cultural contexts, including but not limited to class and race/ethnicity. This paper first provides an historical-theoretical paradigm for understanding the creation of magnet schools in the United States as synonymous with the rollout of early Neoliberal policy initiatives in public education. Moreover, the subsequent analysis aims to illuminate patterns of socioeconomic inequality/inequity that persist with the legacy of magnet school choice structures.

Magnet Schools

By definition, magnet schools are selective and academically demanding, and typically urban, public schools with generally superior facilities and programs that gained support because they are ostensibly more readily received by white citizens than forced busing (Blank et al., 1983; Ascher, 1990; Orange, 2002). More specifically, magnet schools have "(a) a distinctive curriculum based on a special theme or method of instruction; (b) a unique district role and purpose for voluntary desegregation; (c) voluntary choice of the school by the student and the parent; and (d) open access to school enrollment beyond the regular attendance zone" (Dentler, 1990). The presumption of magnet schools is that they will attract a "cross section of students across all racial, socioeconomic, and ethnic backgrounds,", thereby creating equity of access, although limited, while at the same time creating a student population more representative of the wider community (Orange, 2002, p. 102; Ascher 1990; Creating Successful…, 2004).

Magnet schools typically have programmatic differences or unique themes as opposed to neighborhood schools; revolving around the creative and performing arts, ecological issues, open structured classes, schools without walls, career option, exploration programs, etc.

(Warren, 1978; McMillan, 1980; Bortin, 1982; Blank et al., 1983; Creating Successful…, 2004). The assumptions underlying magnet schools are that (1) all parents will be well informed, (2) representation of policy development and management will be broadly based, (3) the location will be centralized, assuring access for all populations, and (4) the enrollment process will be equitable (Blank et al., 1983; Yu and Taylor, 1997; Meeks et al., 2000; Banks and Green, 2008). Metz (1990) identifies magnets schools as "revolutionary" in severing the connection between student body composition and residential patterns and force poor and minority children to become the productive citizens "who provide the labor force and the tax base on which depends the prosperity of the society" (p. 145).

Christenson et al. (2003) briefly describes how magnet programs became supported by the federal government; first through the Emergency School Aid Act (ESAA) in 1972 to "encourage the voluntary reduction, elimination, or prevention of minority-group isolation. " next as a 1976 amendment to ESAA that specifically authorized grants to support the planning and implementation of magnet programs in school districts attempting to desegregate, and again in 1985 with the enactment of the Magnet Schools Assistance Program (MSAP). MSAP grants were intended to support magnet schools that were part of an approved desegregation plan designed to bring students from different socioeconomic, ethnic, and racial backgrounds together. In fact, MSAP funding has been a significant factor in the development and operation of magnet programs where districts that receive these funds have proportionately more magnet programs than districts that do not receive this funding (Henig, 1996).

It must be mentioned that the concept of open enrollment, or the option to attend any school within, and sometimes outside, a district has technically been around longer than magnet schools. However, early involvement was typically low since there was no real diversification of school amenities (Armor, 1989). Alternative programs, similar to magnets, have also been part of early open enrollment plans. It is the desegregation component (or race quotas for enrollment) that differentiates magnets from the earlier vocational oriented alternative programs. In other words, the alternative school model was adopted with the additional purpose of desegregation by tracking race ratios to produce what is known as magnet schools (Ascher, 1990; Harris et al., 1991). In this majority-to-minority open enrollment, free transportation was afforded to students who wanted to transfer as long as they were moving from a school where they were members of the ethnic majority to a school where they would be a minority (Armor, 1989). When alternative magnet programs that offered something different and more educationally attractive than neighborhoods schools were added to open enrollment policies, participation dramatically increased (Raywid, 1985). In other words, differentiation of program and quality, as oppose to racial integration, created the disparities necessary to spur the decision to geographically transfer schools.

Magnet Schools, School Choice, and Neoliberalism

Brenner and Theodore (2002) argue that through this globalized capital, Neoliberalism has varied and particular manifestations in specific local and regional spaces by implementing a wide range of policy experiments and political strategies intended to restructure institutions as to enhance labor market flexibility,

competitiveness, and location-specific assets. Herod and Aguiar (2006) employ a similar perspective where instead of producing a borderless world, Neoliberal projects shape and are shaped by local and national social struggles and institutional histories. In combining these perspectives, Neoliberalism is a fairly well-defined ideology championed largely by economic elites and political institutions at multiple scales where the intersection of broader social struggles – namely the Civil Rights Movement and the court-ordered desegregation of public schools – partly determine the shape and form that Neoliberal policies take at the local level.

Peck and Tickell (2002, 2007) argue that Neoliberalism first took meaningful shape in the 1970s through policies dedicated to market (and market-like) reforms and has evolved over three decades in order to sustain its influence and control across all spheres of life. Neoliberalism begins as a relatively abstract economic doctrine (1970s) with societal underpinnings reaching back to the post WWII period. In this early stage of the "proto-neoliberalism" policy implementation, cities were flashpoints of economic dislocations and sociopolitical struggles, particularly in the sphere of social reproduction (Brenner and Theodore, 2002), or more specifically public education. These flashpoints of the political and economic crisis in the 1970s provided the rationale for early and widespread Neoliberal policy reforms (Smith, 2002; Conway and Heynen, 2006). Magnet schools, for example, were seen as a way to desegregate public schools through the mechanism and rhetoric of "school choice". In the 1980s, or the "roll-back" era, governments and municipalities were increasingly economically constrained and implemented a range of cost-cutting measures such as cutbacks in public services and the privatization of infrastructural facilities with the aim of promoting a good business climate for cities (Brenner and Theodore, 2002). In the 1990s, Neoliberalism emerges as a form of market-guided regulations to encourage economic growth in the short term while managing decreasing public expenditures (Brenner and Theodore, 2002).

Karsten (1999) suggests that neoliberal education reforms began largely during the conservative administrations of Reagan and Thatcher in the US and UK, respectively. However, such reforms in the United States began much sooner with the introduction of voluntary choice plans of magnet schools during the era of desegregation. Magnet schools arguably provided the ideological foundation to initiate more extensive Neoliberal directives at the local scale. Social justice and equality were at the forefront of political upheavals in the 1960s and 1970s, for example, which included desegregation of public schools. Federal court-ordered busing policies fomented anti-state interventionist backlashes, coinciding with wider social movements that saw a common enemy of an intrusive state. By capturing and co-opting the rhetoric of individual freedom, for example, and using them against state interventions and regulations, proponents of neoliberal policies could hope to defend their position and perhaps even co-opt reform movements, including education reform, in ways that enhance their own class interests. Support for ostensibly "non-intrusive" solutions was generally widespread and based upon notions of liberty of consumer choice, or market mechanisms. However, these were not community-led solutions; rather they were typically organized by business policy organizations like the American Chamber of Commerce (Harvey 2005).

Pearson (1993), in a review of choice literature, predicted the socioeconomic polarization that has more recently been associated with school choice reforms, including magnet schools. While seemingly prophetic in her predictions, Pearson lacked an explicit theoretical framework that contextualized the move towards choice in public schools. This book is a trailblazer in examining the emergence of Neoliberal governance and examine a the gambit of issues including but not limited to manufacturing crisis, open enrollment policies, deregulation, supply side, demand side, and finally examining winners and losers of these policies. Since then, others have identified the effects of Neoliberal policies on education from the local to national to international scales. What one realizes while reflecting upon Pearson's work, is that she was identifying and reporting upon the Neoliberal roll-out and retrenchment periods, but still lacked an explicit ideological connection to the earlier periods of voluntary desegregation with magnet schools.

Henig (1995) argues that there has been a shift in the contextualization of magnet school programs. These programs were inextricably tied with mandated government desegregation policy, but have now been reoriented to market force rhetoric as a way to improve schools. While Henig (1995) presents this as a distinct transition of the characterization of magnet programs, there really was never a clear separation of magnet schools from market force rhetoric. Indeed, magnet school programs originated with conservative constituencies and school boards that sought to limit federal oversight and mandates regarding desegregation (Erkins, 2002).

School choice policy proponents have more recently framed their arguments in the context of counteracting declining academic achievement and reducing student dropout rates as opposed to the original desegregation arguments due to the mixed results school choice programs have had in dealing with racial isolation (Harris et al., 1991). While school choice policies have been commonly associated with more conservative arguments of introducing market incentives in order to improve efficiency and to drive out institutions unable to compete, the rhetoric of 'choice' has gained liberal support as well through the argument that it "will provide the less affluent with what the wealthy already have – control over the quality of education their children receive" – a promise that is shown to be empirically challenged unless there is careful oversight in achieving equity (Yu and Taylor, 1997, p. 5).

School choice and magnet school programs were and continue to be an integral part of neoliberal education reform. 'The choice' mechanism in school reform models like magnet schools is key to Neoliberal reforms of public education. Indeed, the school 'choice' mechanism is the rhetorical and ideological foundation upon which neoliberal education reform rests. Public and academic discourses regarding magnet schools, however, have largely taken place within the context of desegregation and, consequently, have primarily centered on themes regarding parental choice, quality of education, technical aspects of implementation, and so on.

Studies of Magnet Schools Desegregation Effects

There are clear common threads in previous studies analyzing the desegregation effectiveness of magnet schools. A small proportion of studies reviewed found magnet programs to be successful in achieving desegregation results (Blank,

1983; Rossell, 1988; Clewell and Joy, 1990; Rossell and Armor, 1996). Interestingly, all but one of these found that plans that were mandatory or more directed as opposed to completely voluntary are more successful and that white flight complicate the results of desegregation plans. The one exception, a study by Rossell and Armor (1996), found that voluntary plans decreased white flight; a finding that is later rebutted by Rossell (2003).

Other studies found mixed results in terms of magnet programs achieving desegregation. Some found that there is limited effectiveness in enforcing desegregation through magnet schools because of increased white flight, leaving many districts with high concentrations of minority populations (Bortin, 1982; Dentler, 1984; Crim and Emmons, 1984; Rossell, 1985; Rossell, 1990; Rossell, 2003). Others, meanwhile, found that while some magnet schools may achieve desegregation measures, non-magnet schools remain racially isolated (Yu and Taylor, 1997; Goldring and Smrekar, 2000).

Most of the literature regarding magnet schools and desegregation considers magnet programs to be unsuccessful in achieving and maintaining desegregation of student populations. Many find that voluntary magnet programs are completely unsuccessful and actually end up *re-*segregating student populations (McMillan, 1980; Willie and Fultz, 1984; Asher, 1990; Levine and Eubanks, 1990; Dentler, 1990; West, 1994; Henig, 1995; Eaton, 1996; Bush, Burley, and Causey-Bush, 2001; Orfield, 2001; Erkins, 2002; Archbald, 2004; Brown et al., 2006). A number of these studies found that not only are magnet programs ineffective in desegregation efforts, but also create a two-tier school system of magnet schools consisting of higher socioeconomic student populations

and non-magnet schools of low socioeconomic student populations (Willie and Fultz, 1984; Levine and Eubanks, 1990; Yancey and Saporito, 1995; Gersti-Pepin, 2002). Finally, there is a clear trend in the literature of an increasing range of criticisms of magnet school programs, including increased racial isolation of students in non-magnet schools, the reinforcing of the socioeconomic hierarchy of households with voluntary choice and magnet programs, transportation costs limiting choices for students of lower socioeconomic backgrounds, and, finally, the "skimming off" of the best performing students by magnet schools from non-magnet schools, and the creation of a two-tier system with magnets as elites is in direct opposition to the philosophy of an equal education for all students.

Historical Enrollment Patterns in the Cincinnati Public School District

Through the 1940s and the mid-1960s, the district experienced enrollment increases with an all-time enrollment high of 91,000 students in the 1966-67 school year. From this point, as illustrated in Table 1, the district began its enrollment decline, mirroring the City's population decline, losing over half 1966-67 school year enrollment by the 2001-02 school year, with 42,000 students (Erkins, 2002). During this overall period, white flight and suburbanization had been transforming previously white neighborhoods into predominantly black neighborhoods. The overall enrollment losses, therefore, were disproportionately among white students. While overall enrollment dropped about 36% from 1970 to 1980, the proportion of black students increased from 45.7% to 57.3% (Erkins, 2002).

Declining enrollments in the Cincinnati Public School District has

continued, again mirroring the overall population loss of the City of Cincinnati. However, more recently other trends besides demographic movements have complicated the situation. Higher enrollment in private schools and the proliferation of charter schools in conjunction with the declining perceptions of public schooling, all being components of school choice rhetoric, are factors contributing to continued student enrollment declines within the district (Erkins, 2002).

Method

Given the previous research that indicates the racially and socioeconomically polarizing results from magnet and school choice programs (within a Neoliberal policy framework), it is expected that these results should manifest at localities that pursue these programs, such as the Cincinnati Public School District. The objective, then, of this analysis is to first address the student enrollment data from an approach utilizing a traditionally accepted demographic race ratio analysis (Measure of Interracial Contact) in order to understand the racial distributions between magnet and non-magnet schools (racial polarization). The next step is to apply an alternate statistical method, independent T-tests, in order to understand whether there are significant socioeconomic differences between students of magnet and non-magnet schools (socioeconomic polarization). It is hypothesized that magnet schools (1) have more equitable racial exposures than non-magnet schools and (2) have students that are from neighborhoods of higher socioeconomic status than non-magnet students. The eight years of student enrollment data, ranging from the 1999-2000 to the 2006-2007 school years, was obtained through a formal data request from the Cincinnati Public School District and includes information such as student addresses, grade-level, ethnicity, and school attended.

Study Area

During the study period, the Cincinnati Public School District had an open enrollment policy where students could choose to attend any school within the district no matter in which neighborhood school boundary they reside (Policy 5111.4 – rescinded 11/07). Additional to this is the schools of choice (magnet) program designed by the central administration to specifically attract white students to urban schools and to bring about voluntary desegregation and retain middle-class families (Bass, 1978; Morris and Goldring, 1999). Acceptance into magnet programs is based on application date and maintaining a racial balance. Transportation is provided for students in grades K-8 who live more than one mile from the site by yellow bus service and is provided for all students in grades 9-12 by Metro bus passes (Goldring and Smrekar, 2000).

This study focused on high school facilities only. During the study period, the district went through restructuring of the high school programs by phasing out "traditional" high schools and initiating multiple programs with different educational routes in the same existing facilities; the number of individual high schools peaked during the 2003-2004 school year as this transition of programs takes place (see Table 2). According to the district, all high school facilities/programs, traditional and new, are designated as "citywide magnets," meaning that they are all open enrollment facilities. Additionally, while the CPS district defines all high school programs as magnets, certain programs are referred to as schools of choice, which have enrollment requirements.

This study categorizes the high schools a bit differently than the district

itself; by designating those schools with test-in or perform-in criteria as magnets and those open to transfers without criteria as non-magnets. This is specifically to compare the legacy of the historic magnet programs of the district against the remaining "non-magnet" facilities. Table 2 displays the numbers of magnets and non-magnet programs (indicating the transition described above) and Figure 1 displays the locations, names, and years of active status for non-magnet high schools and Table 3 displays the 3-digit codes for CPS high schools during the study period.

Figure 2 displays names and locations of the magnet high schools during the study period. The number of magnet high schools and their programmatic differences from non-magnets are consistent through the eight year study period with four facilities overall. These are Clark Montessori (135), the School for Creative and Performing Arts (SCPA-333), Dater (380), and Walnut Hills (450). Each of these has specified criteria for enrollment. Both Dater and Walnut Hills are "test-in" or have academic performance based examinations, SCPA is a "perform-in" program, and students enrolled for Clark must have attended Montessori based elementary education.

Geographic Information Systems Preparation

In order to acquire the necessary information to perform the socioeconomic t-test analysis, further preparation had to be undertaken utilizing the geographic information system (GIS) software ArcGIS from ESRI. First the student addresses of residence were geocoded (spatially located) utilizing Hamilton County, OH streets data acquired from Cincinnati Area GIS (CAGIS). Any addresses that were not matched during this process were

interactively matched if possible. For each year, unmatchable addresses were below 1% threshold of the entire dataset. Additionally, CPS high school locations were geocoded.

Next, 2000 Census data at the block group level was obtained from CAGIS. Utilizing the Analysis tools in ArcGIS, average median income from the Census 2000 dataset (Figure 3) was spatially assigned to the previously geocoded student residence locations.

Measure of Interracial Exposure

In this portion of the analysis, the interracial exposure of student populations attending magnet schools is compared to the interracial exposure of student populations attending non-magnet schools. It is expected that magnet schools have higher levels of racial exposure than non-magnets schools due to the legacy of court oversight, which ended in 1994. The measure of interracial exposure (S_{mw}) was calculated for Black versus White students for both magnet and non-magnet high schools from 1999 to 2006. The measure of interracial exposure is an unstandardized function of racial balance in each school and of the proportion of white students in the whole school district measuring the interracial contact, or proportion of white in the average minority child's school. The equation is as follows:

$$S_{mw} = \frac{\sum_k NkmPkw}{\sum_k Nkm}$$

where k is each individual school, Nkm is the number (N) of minorities (m) in a particular school (k), and Pkw is the proportion (P) of white (w) in the same school (k) (Rossell, 1988, 1990, 2003). Since this is a weighted average, it will reflect any change in white student

enrollment rates from, for instance, white flight.

Independent Samples T-Test

Independent samples t-tests were utilized for the socioeconomic level comparisons. For this, income level (median household income) of the location of residence (census block group) for students is compared for student populations in magnet versus non-magnet schools. Figure 3 displays the spatial distribution of the median income across the district. These income data, attributed to students by location of residence, is categorized by the type of school they attend in order to examine the variations between magnet and non-magnet student populations in terms on income level. It is expected that magnet students should have significantly variation from non-magnets students, where magnet students come from significantly higher income levels. This analysis is conducted for the all years excluding 2001 and 2004. The year 2001 data is incomplete and it was decided to drop the 2004 analysis as to make two-year blocks of analyses through the eight years of data in consideration. The t-tests were conducted in the Statistical Package for the Social Sciences (SPSS).

The independent samples t-test evaluates the mean difference between two populations resulting in the t statistic. The closer the t statistic is to zero, the closer the population means are to each other, and the larger the statistic is, positive or negative, the more variation there is between the two populations. The null hypothesis of the t-test is that there is no difference between the two populations being compared. There are two assumptions that must be satisfied before undertaking this statistical technique; (1) the distribution of the populations should be normal and (2) the two populations should have the same variance. Though the student enrollment data is in violation of being normally distributed, relatively large populations (over 30) are assumed to be normal and therefore the data (the n is in the hundreds for each) satisfy the assumption of normality (Gravetter and Wallnau 1985, Kachigan 1991). In addition, values were assigned from census data at an interval scale and the data contain a high degree of ties when being ranked where nonparametric procedures cannot handle high degree of ties in data values.

Results

Measure of Interracial Exposure

Table 4 displays the results of this analysis where the index represents the average proportion of white students in the schools attended by black students. According to the results, magnet high schools have equitable interracial exposure values with an average of 55.3% of student enrolled being white. On the other hand, non-magnet high schools demonstrate inequitable interracial exposure values with an average of 10.5% of students enrolled being identified as white. Therefore, on average across the eight years of data, magnet high schools clearly have a higher level of interracial exposure than non-magnet high schools.

Additionally, each category of school demonstrates a slight decrease in the level of interracial exposure, with magnets showing a 3.1% decrease and non-magnets showing a 2.6% over the eight years. This finding corresponds with the continued residential trends of White Flight and suburbanization from the inner urban areas of Cincinnati, which results in the CPS district having increasing proportions of black students compared to white students.

Independent Samples T-Test

Table 5 displays the average median household income (Census, 2000) of the location of residence for students that attend CPS high schools for six years of the eight year time span in consideration for this paper. The data is organized as to separate magnet high schools from non-magnet high schools. Across this time span, students that attend magnet schools live in areas (Census 2000 block groups) that have higher median household income levels than students that attend non-magnet schools with an approximate average of $9,000 for each year. Additionally, these data seem to indicate that each individual magnet school has a significant higher average income level for students than any other non-magnet school. Finally, as the CPS district restructured high school education (begins in 2002) with separation of open enrollment programs, for example Western Hills Traditional (470) being split into Western Hills University (471) and Design Tech programs (472), there seem to be less differentiation among non-magnet schools while magnets seem to continue having high average income levels of students that attend. The next question for these data is whether or not these patterns are statistically significant.

Table 6 displays the results of independent sample t-tests for average median household income of the area of residence (Census 2000 block group) that attend magnet schools versus those that attend non-magnet schools. For all years, the *[equal variances not assumed]* row must be utilized since the data did not pass Levene's test for equality of variances as indicated by the p-value, *Sig.* being less than .05 for every year.

The column for the *[95% confidence interval of the difference]* in means indicates that there is a significant variation between the income levels of students that attend magnet schools and non-magnet schools since the range between the lower and upper values do not overlap zero. The most important values are the t-test value (*t*) and its p-value, or *Sig. (2-tailed)*; the *t* score range is between 27.019 and 27.758 and the p-value is less than .05 for every year indicating that the null hypothesis of no difference is rejected at the .05 confidence level. In other words, the difference between average median household income for magnet and non-magnet students is statistically significant at the .05 confidence level. Therefore, magnet high school students come from households with statistically significant higher levels of income than non-magnet students in the CPS district.

Discussion

It was hypothesized that non-magnets schools contain racially isolated student populations, or are racially polarized due to magnet schools skimming off white populations due to the history of race quotas that strove to achieve "better" racial balances in magnet schools themselves. To examine the degree of polarization, the measure of interracial exposure was calculated for black versus white students for all eight years of analysis. This hypothesis is confirmed by the results. Across all eight years, magnet schools have a higher level of exposure (55.3%) than non-magnet schools (10.5%), with the level of exposure decreasing across the eight years due to the socioeconomic inertia of White Flight and neighborhood secession of an aging population from the urban areas of Cincinnati.

It was also hypothesized that students attending magnet schools are from residences with higher median household

income than non-magnet students, or there is socioeconomic polarization between magnet and non-magnet schools. The t-test, was utilized to compare the household income levels (Census 2000) of magnet and non-magnet student populations that were assigned by geocoding individual student addresses. This hypothesis is confirmed by the results. The t-test results for student household income levels classified by magnet and non-magnet categories demonstrate that the underlying distribution of income levels for students attending magnet schools is significantly different than those attending non-magnet schools, with magnet students having significantly higher median household income levels. Therefore, there is socioeconomic polarization between students that attend magnet and non-magnet schools.

All of the hypotheses for this research were confirmed indicating that polarization between magnet and non-magnet student populations is occurring in the CPS district across the eight years in question; a finding that supports the conclusions of previous studies of magnet schools in districts across the United States. Additionally, this study reinforces arguments contradicting that voluntary choice structures alone are sufficient in solving education issues, including desegregating schools. White Flight (residential racial polarization) and its socioeconomic inertia makes it increasing difficult for magnet schools to effectively achieve desegregation results (Bortin 1982, Dentler 1984, Crim and Emmons 1984, Rossell 1985, Rossell 1990, Rossell 2003) and non-magnet schools remain racially isolated while magnet schools achieve better racial exposure (Yu and Taylor 1997, Goldring and Smrekar 2000). The results of the analysis further indicate that there is re-segregation by race (McMillan 1980, Willie and Fultz 1984, Ascher 1990, Levine and

Eubanks 1990, Dentler 1990, West 1994, Henig 1995, Eaton 1996, Bush, Burley, and Causey-Bush 2001, Orfield 2001, Erkins 2002, Archbald 2004, Brown et al. 2006) and by household income levels. Finally, the results point to the findings in previous studies that the marketized choice of magnet programs creates a two-tier school system of higher socioeconomic magnet schools and lower socioeconomic non-magnet schools (Willie and Fultz 1984, Levine and Eubanks 1990, Yancey and Saporito 1995, Gersti-Pepin 2002). Overall, the results of the analysis of magnet schools demonstrate that socioeconomic polarization is occurring, patterns that mirror the polarizing effect of Neoliberal reforms in other institutions of society.

Limitations

This study was limited by the availability of data. In general, race ratios can be calculated for spatial data, but student residence address locations enabled the geographic assigning of income data. This CPS data was only available for the years presented here. During these years, the district employed a GIS specialist that compiled and organized the digital data. Since this level of digital data is not available before 1999, previous years could not be considered in terms of income level and distance traveled. Additionally, due to budgetary issues, this individual was let go, so essentially the district's GIS department was decommissioned and this type of data was no longer available. This situation speaks to the fact that finding appropriate ways to answer questions in the scientific method relies upon the availability of data. Extension of this analysis to include the entire legacy of magnet programs would yield a more comprehensive understanding of magnet schools in the CPS. In addition, during the eight years of consideration in this study, CPS high school programs went

through a restructuring that may affect some enrollment patterns due to changing attraction characteristics of new programs. While this does not undermine the analysis of this study, a further examination of programmatic differences may yield new classifications beyond magnet and non-magnet. Somewhat related, students that lived in the district, but attended private, parochial, and charter schools were not considered. Exploring these components could prove illuminating especially in the era of public funded vouchers that are intended to siphon students from the public school system to private and charter schools.

Significance to Wider Literature

Considering the results of the analyses and the mixed history of magnet schools in desegregation, why did magnet schools emerge and become so commonplace in school districts all across the nation when they seemingly fail to accomplish? This answer appears to be fairly simple in hindsight examination; magnet schools were the first incarnation of government supported and induced choice policy supported by local business elites as more measured alternatives to forced busing. This occurs in an era of political and social upheaval, Civil Rights desegregation, where educational disparities between white and black children in public schools stemming from the socioeconomic residential disparities of white and black populations came to the forefront of political and social discourse. This turmoil provided the cover what Davies and Bansel (2007) describe as "piecemeal functionalist" implementation, a calculated tactic designed to avoid analysis and resistance, of Neoliberal education reform. It seems that the less intrusive ideological promises of magnet school's voluntary choice to solve segregation were more palatable than forced busing.

Magnet schools have emerged as the dominant technique for desegregating public schools, though lacking any conclusive evidence of their efficacy, because they were a less intrusive "solution" to segregated educational patterns than forced busing schemes. While there has been some evidence throughout the years that magnet schools achieve some desegregation results in more or less ideal conditions, more issues of their effects arise in this body of research, such as long-term socioeconomic and racial isolation/desegregation, complications of white flight, and the emergence of a racialized two-tier education system. Therefore, as evidenced in much of the critical literature and in the results of the analysis of this research, that magnet schools have produced outcomes of (re) segregation for which they were originally prescribed as a solution. However, this socioeconomic and racial (re) segregation/isolation is no longer dependent upon segregated residential patterns; it has more complexity since schools no longer have discrete catchment boundaries and programmatic differences and disparities have been explicitly designed into the district (e.g. magnet vs. non-magnet, differences in pedagogy, etc.).

Magnet schools are the policy link between the ideological movement of Neoliberalism and the subsequent conventional wisdom of market authority (choice) reforms in public spheres, including education. The sociopolitical turmoil of Civil Rights in public education and the subsequent court rulings in favor of desegregation set the stage for negotiations at local and national scales that brought about the marketized choice structure of magnets school desegregation strategies. Despite this academic debate, magnet schools have achieved acceptance at local, state, and federal scales as evidenced by funding from governmental agencies and

from the support of seemingly incongruent sociopolitical groups at these scales. In fact, the greater school choice movement gains its credibility from the supposed success of magnet programs throughout the last 30 years. In addition to being commonplace, the concept of magnet schools has been extended beyond desegregation as a method to reform other perceived issues of public education.

While it is argued that the distribution of students to school facilities by residential location is inherently inequitable due to the increasing socioeconomic and geographic segregation of residential areas, proponents of market-based choice schemes to solve or mitigate these segregation issues fail to identify the inherent disparities within these schemes. Choice within market structures imposes disparities themselves since the choice of markets will reflect the very same preferences that produce the general

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socioeconomic and racial disparities of residential patterns. Additionally, choice enables "consumers" with higher levels of income or sociopolitical clout to exercise a higher level of opportunity to pursue their preferences, especially in a market with a scarce or limited resource or service, such as seats in school facilities. Therefore, there are winners and losers in the choice structures of education. In the end, instead of schools directly reflecting societal disparities of residential segregation of race and class, these disparities are reinforced along with a new hierarchy of disparity enabled by the ability to pursue societal preferences that have been shaped by the underlying spatial segregation of society, i.e. race, ethnic, class divisions, etc. So, while the Neoliberal movement views the power of the state to regulate and provide services as tyranny, any discussion or critique of these issues must acknowledge the inherent tyranny of the market.

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About the Author

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Table 1

Cincinnati Public School Enrollment, years 1946-47 through 2001-02

Year	Enrollment
1946-47	54,799
1949-50	57,119
1954-55	69,478
1959-60	77,586
1966-67	91,000
1968-69	86,053
1970-71	84,229
1975-75	68,546
1979-80	56,833
1980-81	53,633
1984-85	51,528
1989-90	50,901
2001-02	42,000

Table 2

Number of Magnet and Non-Magnet High Schools, 1999-2007

School Year	Magnet HS	Non-Magnet HS	Total HS
1999-2000	4	6	10
2000-2001	4	6	10
2001-2002	4	7	11
2002-2003	4	13	17
2003-2004	4	16	20
2004-2005	4	16	20
2005-2006	4	15	19
2006-2007	4	12	16

Table 3

Key for CPS High School 3-Digit Numeric Codes

Code	School Name	Type
135	Clark Montessori	Magnet
333	SCPA	Magnet
380	Dater	Magnet
450	Walnut Hills	Magnet
340	Shroder	Non-magnet
395	Jacobs	Non-magnet
405	Aiken Traditional	Non-magnet
406	Aiken University	Non-magnet
407	Aiken Public Service Learning	Non-magnet
410	Taft	Non-magnet
420	Hughes	Non-magnet
460	Western Hills Traditional	Non-magnet
461	Western Hills University	Non-magnet
462	Western Hills Design Technology	Non-magnet
470	Withrow Traditional	Non-magnet
471	Withrow University	Non-magnet
472	Withrow International	Non-magnet
480	Woodward Traditional	Non-magnet
482	Woodward Technical	Non-magnet
943	Virtual High School	Non-magnet

Table 4

Measure of Interracial Exposure Results

	Black vs. White Students (S):								
	1999	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*Mean*
Magnet	.584	.586	.537	.569	.569	.549	.525	.502	.553
Non-magnet	.131	.134	.143	.107	.100	.083	.077	.064	.105

Table 5

Income Level of CPS High School Students, Census 2000 Blockgroup

Median Household Income of Student Residents Location							
School	1999	2000	2002	2003	2005	2006	*Mean*
Magnet High Schools							
135	36,544	35,394	34,814	36,375	36,220	36,819	*36,028*
333	34,368	34,087	35,049	34,483	34,945	34,580	*34,585*
380	31,745	32,441	32,902	33,443	33,623	34,191	*33,058*
450	38,612	39,599	39,938	40,267	40,626	40,466	*39,918*
Mean	*36,282*	*36,791*	*36,951*	*37,245*	*37,435*	*37,448*	*37,025*
Non-Magnet High Schools							
340	-	-	32,598	32,175	28,480	34,294	*31,887*
395	-	-	25,656	25,656	-	-	*25,656*
405	26,116	26,783	26,601	26,732	29,072	-	*27,061*
406	-	-	-	26,659	28,322	28,474	*27,818*
407	-	-	-	25,931	25,958	27,117	*26,335*
410	19,696	20,876	22,295	22,611	22,918	22,099	*21,749*
420	28,600	28,989	29,205	28,935	28,771	28,148	*28,775*
460	28,169	28,088	28,289	29,015	33,936	-	*29,499*
461	-	-	27,383	28,036	28,889	29,278	*28,397*
462	-	-	27,645	28,916	28,922	27,943	*28,357*
470	31,748	31,771	32,116	32,357	27,108	-	*31,020*
471	-	-	31,077	31,064	31,476	31,641	*31,315*
472	-	-	30,379	31,303	30,685	30,061	*30,607*
480	25,839	26,811	26,578	28,014	29,792	27,001	*27,339*
482	-	-	-	28,052	28,459	28,455	*28,322*
943	-	-	29,066	29,538	32,921	31,408	*30,733*
Mean	*27,456*	*27,784*	*28,195*	*28,523*	*28,887*	*28,800*	*28,274*

Table 6

T-Test Results for Income Level of Students, Magnets vs. Non-Magnets

Med HH Income		Levene's Test for Equality of Variances							95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
1999	Equal variances assumed	71.610	.000	29.195	8949	**.000**	8826.507	302.325	8233.880	9419.134
	Equal variances not assumed			27.019	4902.534	**.000**	8826.507	326.674	8186.079	9466.935
2000	Equal variances assumed	74.887	.000	28.944	8241	**.000**	9006.611	311.179	8396.622	9616.599
	Equal variances not assumed			27.043	5050.326	**.000**	9006.611	333.047	8353.693	9659.528
2002	Equal variances assumed	129.153	.000	30.178	9454	**.000**	8755.641	290.138	8186.909	9324.374
	Equal variances not assumed			27.758	5413.003	**.000**	8755.641	315.429	8137.273	9374.009
2003	Equal variances assumed	159.181	.000	29.984	9612	**.000**	8722.219	290.892	8152.008	9292.429

Med HH Income		Levene's Test for Equality of Variances				Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.	t	df				Lower	Upper
1999	Equal variances assumed	71.610	.000	29.195	8949	**.000**	8826.507	302.325	8233.880	9419.134
	Equal variances not assumed			27.501	5466.495	**.000**	8722.219	317.163	8100.452	9343.985
2005	Equal variances assumed	163.955	.000	29.234	9228	**.000**	8548.288	292.409	7975.102	9121.473
	Equal variances not assumed			27.025	5577.323	**.000**	8548.288	316.305	7928.206	9168.369
2006	Equal variances assumed	133.886	.000	29.162	9297	**.000**	8647.881	296.544	8066.589	9229.172
	Equal variances not assumed			27.107	5657.859	**.000**	8647.881	319.025	8022.469	9273.293

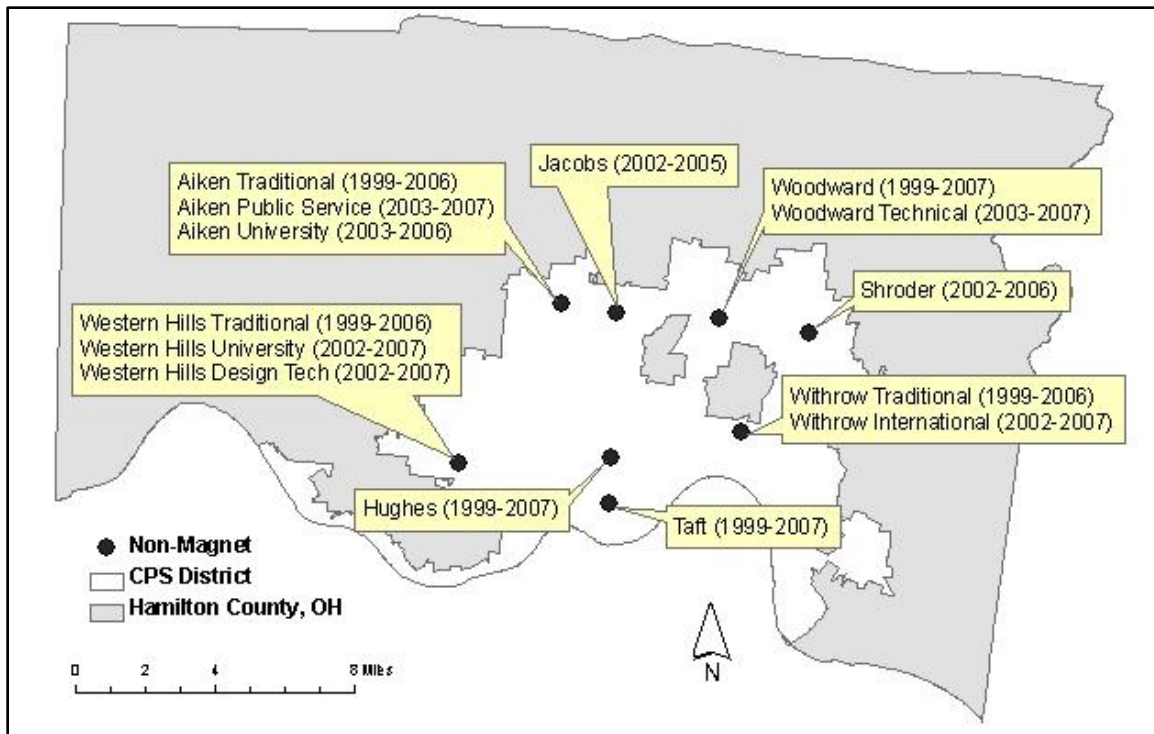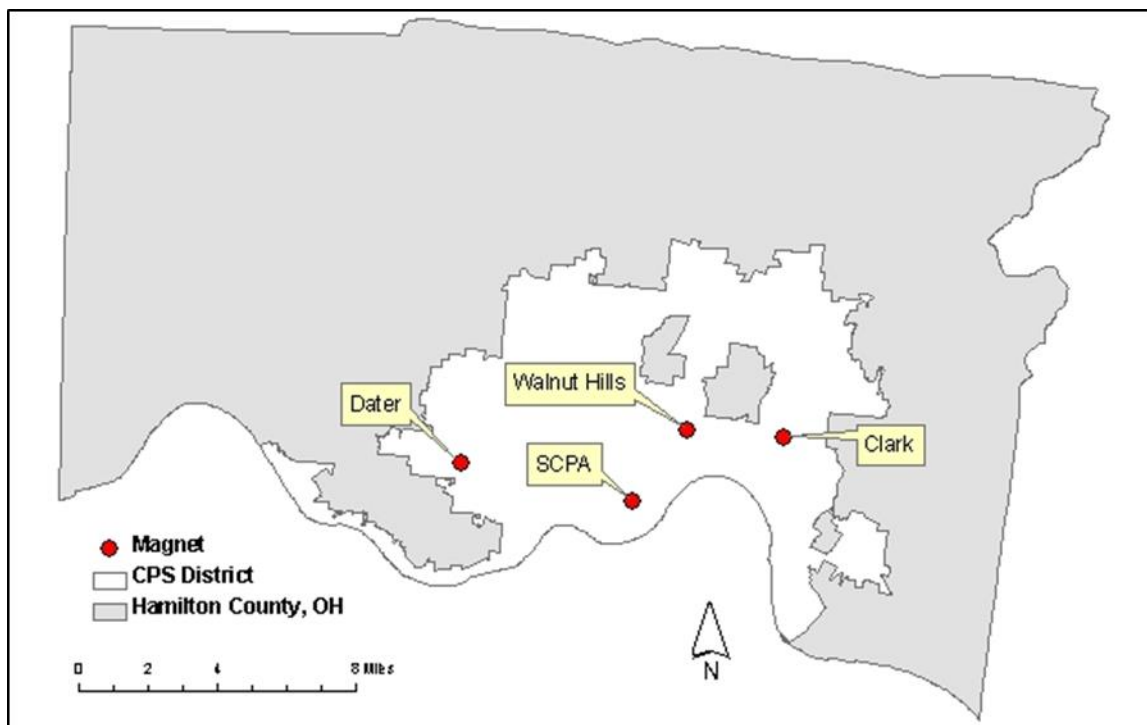*Figure 1.* CPS Non-Magnet School Locations, 1999-2007.
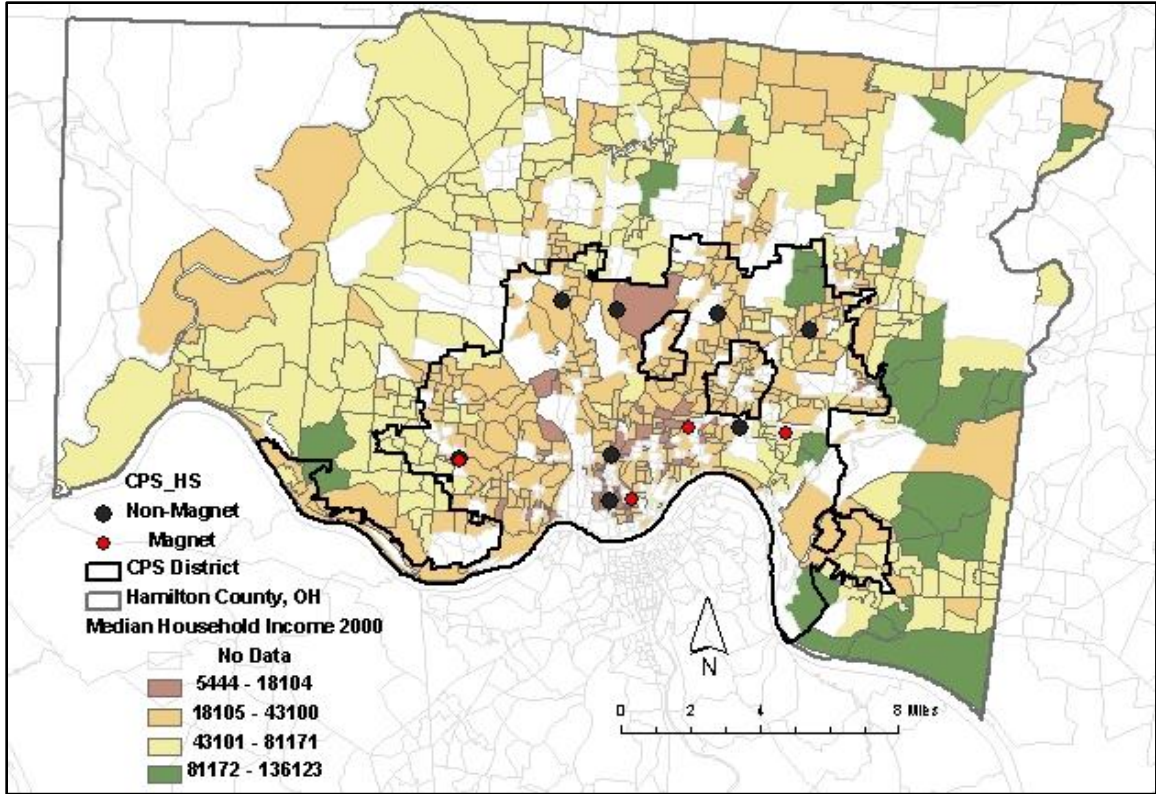

Figure 2. CPS Magnet School Locations, 1999-2006.

Figure 3. Median Household Income, Census 2000