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STRATIFIED NEIGHBORHOODS, STRATIFIED SCHOOLS: INTRADISTRICT TRANSFER AND RACIAL AND SOCIOECONOMIC STRATIFICATION

by

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A thesis submitted to the faculty of

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Master of Science

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GRADUATE COMMITTEE APPROVAL

of a thesis submitted by

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This thesis has been read by each member of the following graduate committee and by majority vote has been found to be satisfactory.

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BRIGHAM YOUNG UNIVERSITY

As chair of the candidate's graduate committee, I have read the thesis of Elisabeth S. Larsen in its final form and have found that (1) its format, citations, and bibliographical style are consistent and acceptable and fulfill university and department style requirements; (2) its illustrative materials including figures, tables, and charts are in place; and (3) the final manuscript is satisfactory to the graduate committee and is ready for submission to the university library.

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ABSTRACT

STRATIFIED NEIGHBORHOODS, STRATIFIED SCHOOLS: INTRA-DISTRICT TRANSFER AND RACIAL AND SOCIOECONOMIC STRATIFICATION

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Intra-district transfer policies allow students to attend any school within a district and thus may have unique consequences for stratification within a district. If parents make choices based on common academic interests, this policy can create racial and socioeconomic integration across the schools in a district. However, socially motivated choices may lead to the creation of increasingly stratified zones. This study examines one urban school district with an intra-district transfer policy to examine if the schools in the district become more racially and economically stratified under the choice policy and if the level of stratification at family's zoned schools is correlated with participation in choice. Results show that families zoned to schools mirroring the district's diverse

composition are more likely to participate in choice, suggesting that more factors than simple academically-based motivations guide choice behavior. Exploration of the levels of stratification in schools with and without the choice policy suggests that the overall trend is to maintain the level of stratification present in the residential areas. Although most changes under the choice policy are small in magnitude, the changes that do occur push the district towards increased stratification.

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CHAPTER 1: INTRODUCTION

In a stratified society, people are arranged hierarchically based on a variety of characteristics such as income, educational attainment, power, race, and religion. Evidence of stratification appears in social institutions such as education, where these hierarchical distinctions greatly impact the quality of schools. For example, students attending public schools in wealthier neighborhoods receive a vastly different type of education than students attending urban schools in disadvantaged neighborhoods only a few miles away (Wells et al. 2009). This hierarchical distinction between types of education can exist across state lines, regions, or even among schools within the same district.

Districts may be stratified on both racial and socioeconomic levels, and both types are important to consider. In a racially stratified district, students attend racially isolated schools with minimal interaction with students of other ethnic backgrounds. Such interactions promote students' comfort with students of other races and help break down stereotypes, thus preparing students to live in a multicultural society (Holme, Wells, & Revilla 2005). Socioeconomic stratification also has important consequences, as schools with high concentrations of poverty may have diminished financial resources. Often, levels of racial and socioeconomic stratification tend to be connected, but they reflect separate issues of group interaction and resource allocation.

Over the past two decades, new questions of racial and economic stratification in education have arisen due to the growing popularity of school choice options such as magnet schools, charter schools, and intra-district transfer across the United States. Intra-district transfer policies, which allow students to attend any school within district

boundaries, are one choice option that may influence stratification. As of 2008, this type of choice has been enacted in thirty-four states (Education Commission of the States 2008). Intra-district transfer was also introduced as federal education policy with the No Child Left Behind Act of 2001. This legislation, which was aimed to improve the quality of education by increasing school accountability, uses intra-district transfer as a mechanism for students to leave schools that fail to meet these new standards of accountability.

Despite the prevalence of intra-district transfer programs in the United States, few academic studies have focused specifically on the impact of intra-district transfer policies on school-level racial and socioeconomic stratification within a district. This makes such a study particularly pertinent because these programs may lead to different patterns of stratification than previously observed in other choice programs. Where charter and magnet schools offer themed alternatives that often disproportionately appeal to narrow racial and socioeconomic segments of the population (Cobb & Glass 1999, Wells et al. 1999), intra-district transfer offers choice to any school in a particular school district. This lack of specialized schools and programs broadens the appeal of choice from students with specific interests served by magnet or charter programs to the entire population of the district.

With this broad appeal and level of availability to all students, intra-district transfer policies have the potential to increase racial and socioeconomic integration within a district. Because districts traditionally base school attendance zones on geographic proximity, schools generally reflect the racial and socioeconomic patterns already present in the district. Intra-district policies allow parents to send their children

to schools in any neighborhood, which can increase their exposure to students from different backgrounds. If families from a wide variety of backgrounds base choice decisions on common indicators such as academic quality, then the same schools will attract students from across the district. Schools will then represent the diversity present in the district rather than neighborhood demographics, which tend to be more homogeneous.

However, intra-district transfer also has the potential to increase racial and socioeconomic stratification within a district. Recent research indicates that parents who participate in school choice tend to socially construct "school quality" to mean schools with fewer minority and socioeconomically disadvantaged students rather than basing their construction on academic quality (Holme 2002). In this case, parents from a variety of backgrounds do not equally choose the same schools based on academic indicators. They instead make decisions that either maintain existing residential racial and socioeconomic patterns or actually increase levels of separation. If parents use their choice options to either avoid high concentrations of minority and socioeconomically disadvantaged families or to only seek out families of similar background to their own, integration will not occur.

In studying the relationship between school choice and stratification, there are two related and important issues to consider. In the first possible relationship between choice and stratification, the existing level of racial or socioeconomic stratification at their zoned school may prompt families to seek either more diverse or more homogeneous options for their children. In this scenario, stratification (or the lack thereof) predicts changes in choice behavior. The other possible relationship between choice and stratification occurs

when the school choice decisions made by families change the level of stratification at schools within the district. Regardless of the factors influencing their decisions, these may nevertheless alter the level of stratification. In this scenario, choice behavior leads to changes in stratification.

Examining whether or not choice behavior leads to stratification fails to see whether or not these behaviors may be motivated by social concerns, while examining only the extent to which stratification levels predict choice behavior fails to assess whether or not choice lessens, maintains, or increases divisions in the district. Thus, I include both questions in my exploration of this subject.

Within the context of one city-wide urban district with an intra-district transfer plan, this study examines the following questions:

- To what extent are schools within this district racially and socioeconomically stratified?
- Are the levels of racial and socioeconomic stratification at a student's zoned school related to participation in intra-district transfer?
- How does the presence of intra-district transfer policies affect racial and socioeconomic stratification of schools within a district?

CHAPTER 2: REVIEW OF THE LITERATURE

Stratified Neighborhoods, Stratified Schools

A major barrier to overcoming racial and socioeconomic stratification in education comes from the highly segregated residential context in which most schools operate. Rivkin (1994) theorized that the continued neighborhood racial segregation of blacks and whites in America has been the primary cause of segregation in American education. Over the past several decades, inner cities have become increasingly concentrated with racial minorities and lower-SES groups while predominantly middle and upper class whites have fled to the suburbs (Jackson 1985). In addition to this city-suburb segregation, race and class segregation within both the cities and suburbs remains high as well. Segregation levels are particularly high for African-Americans, who have become "hypersegregated" due to a series of deliberate, conscious decisions by majority group members to deny them access to urban housing markets (Massey & Denton 1993). African-Americans have the highest levels of residential segregation, followed by Latinos and next by Asians and Pacific Islanders (Iceland, Weinberg, & Steinmetz 2002).

Patterns of residential separation exist with social class as well. As developers tend to build neighborhoods with one style of housing, people of similar socioeconomic levels settle near to each other. Adding to this pattern, the affluent have increasingly dominated the purchase of new housing over the 1980s and 1990s, creating a disparity between affluence in new housing and poverty in older housing (Dwyer 2007). When districts assign schools catchment areas based on their surrounding area, the background of the school also represents this racial and class stratification. Thus, districts tend to have minorities and lower-class students clustered at specific schools rather than spread

across the district. In order for parents to send their child to a diverse, integrated school, they must actively seek out such a school. Therefore, school choice operates in a highly stratified setting and must overcome great barriers to achieve integration and equitable outcomes.

Why Stratification in Education Matters

If school choice reforms cannot overcome high levels of stratification, it maintains a system of education that traps certain students in the lowest-performing schools. Typically, these students tend to be economically disadvantaged and/or members of racial and ethnic minorities. Racially and socioeconomically stratified schools tend to lack equal facilities and resources (Kozol 2005). Systems with such schools have been found unconstitutional and discriminatory in several states, such as Kentucky, Arkansas, Kansas, and Idaho (Haselton & Wells 2000). Students at these unequal schools persistently lag behind not only in educational achievement and attainment, but also in health-related outcomes such as receiving medical care and proper nutrition (Campaign for Educational Equity 2008).

Choice programs that overcome stratification provide an array of positive short and long-term benefits for their students. When students attend schools with a variety of racial and socioeconomic backgrounds, students' levels of comfort with other groups increases and prepares them to live and work in an integrated society (Holme, Wells, & Revilla, 2005; Killen & Stangor, 2001; McGlothlin & Killen, 2006; Pettigrew & Tropp, 2006; Schofield 1995; Wells & Crain 1994). Other studies of integrated education suggest that students, particularly minorities, at integrated schools were more likely to graduate, attend college, and find higher-paying jobs later in life (Braddock & Dawkins

1993; Wells & Crain 1994). These studies indicate that stratification in schools denies students a host of critical long-term benefits pertaining to their future success in educational and social settings.

School Choice and the Potential for Integration

More affluent parents have often exercised school choice by simply moving into neighborhoods with good schools while disadvantaged families tend to be trapped in low-achieving inner city schools (Holme 2002). The ability of choice programs to overcome this stratification has been debated by proponents of two key perspectives. According to the first perspective, the market model of choice posited by some economists, school choice policies give low-income families the ability to break existing patterns by providing parents equal access to whatever school best fits their student (Coons & Sugarman 1977, Hoxby 1998).

The market model of school choice is based on the assumption that regardless of racial or economic background, parents will choose schools based on the same criteria. These criteria focus primarily on academic reasons such as academic performance and environment instead of social factors like racial and economic composition (Hamilton & Guin 2006, Hoxby 2002, Schneider, Teske, & Marschall 2000, Tedin & Weiher 2004). If all families, regardless of SES level or race, choose to enroll in top-tier academic schools, then these schools will be composed of students from a variety of backgrounds. Interest in common academic quality indicators becomes a force for integration, breaking down heavy concentrations of disadvantaged and minority students at selected schools and diminishing stratification.

In contrast, a sociological examination of school choice behavior suggests that concerns with issues of socioeconomic status and social comfortability may play critical roles in guiding choices. Numerous studies demonstrate that predominantly white, upper- and middle-class families exercise their choice options to flee high-poverty, minority schools or districts while low-income families remain in their zoned schools (Ancess & Allen 2006, Holme 2002, Lauen 2000, Saporito & Lareau 1999, Saporito & Sohoni 2006, 2007, Wells et al. 1999). If consideration of a school's race and class composition guides choice decisions, choice may actually increase stratification as families choose schools with higher percentages of their own ethnic group and socioeconomic group.

Such socially-motivated choices are often based on a social construction of "school quality" that also includes the school's demographic composition, particularly for white, middle and upper class parents (Holme 2002). Lankford and Wyckoff (2005) find that white parents' preference to have their children educated in schools with lower concentrations of minority students is the dominant factor in urban school segregation. These socially defined choices also extend to higher-class minorities, who want to avoid sending their children to schools with high concentrations of poverty. When asked about a district integration plan, a middle-class African-American mother replied, "If I wanted to send my children to school with students from the projects or the trailer parks I would have moved next to one" (Mickelson & Southworth 2005). When parents define a quality education as one that does not include economically disadvantaged or minority students, integration is an unlikely outcome of school choice.

These social constructions of quality may also extend to the neighborhoods in which the schools are located. Parents are unlikely to consider sending their children to

school in what they have deemed a “bad” or “unsafe” neighborhood, regardless of the quality of the school or the fit of the program or instructional method with their child’s needs (Ancess & Allen 2006). Often, people base these assessments of neighborhood safety and quality on neighborhood racial composition and consider heavily minority areas to be less safe. Although this assessment may not be accurate or even conscious, people socially construct their opinions of neighborhoods based on a history of the racial stigmatization of urban areas that links minority status with poverty and disorder. Interestingly, these ties between race and neighborhood quality predict not only Caucasians’ assessments of neighborhoods, but those of minorities as well (Sampson and Raudenbush 2004). Perceptions of both schools and the neighborhoods in which they are located are informed by existing social constructions of quality and safety, which limits the open choice theorized by the market model.

Barriers to Equal Choice Participation

Not only do the socially motivated choices of white and advantaged parents hinder the possibility for integrated education, but in addition, the smaller proportion of low-SES families participating in choice limits this possibility as well. Several factors may explain these disproportionate choice patterns. First, when free transportation does not accompany the choices parents make for their children, district size and access to transportation pose a differential barrier to groups of varying socioeconomic status. In large, county-wide school districts, attending some schools could require an hour and a half commute or even longer. Thus, only students whose parents have the time and resources for this long commute can take advantage of the full spectrum of choices within the district (Bauch & Goldring 1995, Hastings, Kane, and Staiger 2005).

Moreover, limited access to information may pose greater barriers for some groups than others. If districts do not readily provide information about schools or choice programs, parents must rely on their own resources, leaving certain families at a disadvantage. For example, parents who do not speak English, parents who work during the school day, and parents who do not have internet access in their homes are all less likely to know about their school choice options or about the process of participating in school choice. These barriers tend to affect low-SES and minority families disproportionately more than middle-income, white families (Mickelson & Southworth 2005).

Furthermore, without access to official information, parents rely on social networks to choose the best school for their child (Neild 2005). Since these social networks are most likely to consist of people with similar demographic characteristics, the incidence of choice follows strong racial group or neighborhood patterns. Socioeconomic status also plays a major role in shaping information networks. The networks of lower-SES families are less likely to contain professionals that can help in a school-related crisis or highly informed and educated members. (Horvat, Weininger, & Lareau 2003, Schneider, Teske, Roch & Marschall 1997). Without these extra resources, lower-SES families lack a major avenue of information and advice that might guide them to higher-performing schools. Between the socially motivated decisions of upper-class families and the disproportionate barriers to choice for lower-class families, the potential for school choice to achieve integration is diminished.

School Choice and Stratification

Several studies have examined the relationship between various types of choice programs and stratification with varying results. In the first type of studies, researchers focus on broad trends in choice and stratification at the state and nationwide levels. These studies tend to suggest patterns of increased stratification due to choice options. At the national level, Caucasian students are most likely to enter private schools as an alternative to public schools with high concentrations of poor, minority schoolchildren (Fairlie & Resch 2002). This pattern of "white flight," where white families flee schools with high concentrations of minorities in favor of higher Caucasian populations, also appears in other forms of school choice such as magnet and charter schools (Lankford & Wyckoff 2001, Renzulli & Evans 2005). Saporito and Sohoni (2006, 2007) examine the largest 22 districts in the nation and compare the racial and socioeconomic composition of schools and their corresponding attendance areas. They find that public schools would be less racially and socioeconomically stratified if students did not attend private schools or public schools of choice.

Several state-level analyses suggest that when families send their children to choice schools or programs, these settings tend to be more stratified than traditional public schools (Booker, Zimmer, & Buddin 2005, Cobb & Glass 1999, Wells et. al 1999). In Arizona, nearly half of all charter schools showed evidence of substantial racial separation and typically housed a Caucasian population 20 percentage points higher than the nearby public school (Cobb & Glass 1999). In these studies, school choice increases stratification as students leave behind potentially integrated neighborhood schools for more stratified alternatives.

Other studies narrow their focus to the effect of stratification on the composition of individual schools and districts. Archbald (2004) compared districts with magnet-based choice policies to districts without choice and found that choice districts did not display any higher levels of economic stratification than those without choice. This suggests that choice policies alone will not greatly change the level of stratification within a district. However, in a study of New York City's small theme high schools, Ancess and Allen (2006) find that common interest in an academic theme does not override existing conceptions of "acceptable" schools and that the district's choice policy may actually serve to exacerbate stratification as families avoid schools in "undesirable" neighborhoods regardless of the quality of the theme.

While these studies provide a good understanding of choice and stratification in broad contexts, my study provides a more specific exploration of a particularly compelling form of school choice that is rapidly growing in popularity with the context of one specific school district. Intra-district transfer policies are particularly compelling as their appeal goes beyond narrow interest-based schools and students can choose from schools at all levels of academic achievement as well as demographic compositions. Thus, it provides some of the greatest potential for districts to overcome stratification if all students within the district base their choices on common indicators on school quality.

CHAPTER 3: CONTEXT OF THE STUDY

Most studies of the impact of school choice policies on stratification focus on districts which have previously been mandated by the courts to achieve racial integration. In these cases, researchers seek to determine whether choice policies undo or maintain the previous level of integration (Archbald 2004, Saporito & Sohoni 2006, 2007). As more schools are released from their court desegregation orders and are no longer required to maintain integration, the trend of assigning children to schools based on their neighborhood of residence has been increasing across districts in the United States (Orfield 2001). The increasing predominance of neighborhood schools calls for a new focus of study that examines the impact of choice policies on a district whose schools are already stratified along residential lines.

The stratified nature of the residential areas in the district where my study takes place provides a compelling background to study questions of stratification and equity. This small, urban district in the Intermountain West provides a diverse racial setting that mirrors the "minority majority" patterns common in the Western United States (Camarillo 2007). This district has 47 percent Caucasian elementary school students, 37 percent Hispanic, five percent Pacific Islander, five percent Asian, four percent Black, and two percent American Indian. Approximately two-thirds of students qualify for free and reduced lunch, indicating a high level of economic disadvantage within the district.[1]

[1] For reduced lunch, household income must be between 130 and 185 percent of federal poverty level, while student qualify for free meals when household income falls below 130 percent of the poverty level (National School Lunch Program 2008).

Although the population appears diverse, residential housing patterns in the district are segregated, with most economically disadvantaged and minority students living on one side of the district and the more affluent Caucasian students on the other side. The area between these zones reflects a higher overall level of socioeconomic and racial diversity, although the actual level of integration varies by neighborhood. Students are zoned to neighborhood schools, which reflect these existing patterns of housing segregation. Thus, schools in the district are segregated and furthermore, the district has never enacted policies specifically designed to foster integration. Often, studies of school choice and integration focus on districts that have been mandated to or chosen to enact desegregation policies. This district provides a setting in which this has never occurred, and thus the patterns achieved by choice do not reflect any current or historical court-mandated or policy-driven integration priorities. Therefore, this district provides a context of neighborhood school zoning that reflects a current nation-wide trend and can provide an illustration of the types of processes that can be expected under such a policy as an example for districts just beginning such a policy.

Despite the existing patterns of school segregation, this district provides a "best-case scenario" of a setting to test whether or not market models of choice are correct in assuming that choice policies can achieve integration. The demographic makeup of the students provides a situation in which no ethnic group makes up over half of the total population and many groups are present. If each school mirrored the makeup of the district, they would be integrated, unlike districts with a large majority group and a single small minority group. Additionally, this district provides choice to both advantaged and disadvantaged students on a relatively equal level. Of the 20 percent of the district's

students participating in intra-district transfer, 50 percent qualify for free or reduced lunch. Low-SES students are still under-represented; however, this sizable proportion of choosers suggests that families of all backgrounds do exercise choice.

Additionally, contextual factors in the district diminish traditional barriers to choice for low-income students. The small size of the district (approximately twelve square miles) lessens transportation barriers prevalent in larger districts. The district has had the choice program for many years and publicizes the program prominently across the district. Therefore, lack of access to information is less likely to limit low-SES families from choosing. When all families in the district are capable of exercising choice, this allows for broader movement of all racial and socioeconomic groups. Otherwise, low-income and minority families are more likely to stay in their zoned schools, which high-income, white families may be unlikely to choose. Integration efforts are not possible unless all families are equally likely to exercise choice, and this district is a setting where such a situation may be possible.

Finally, this district provides an ideal context in which to study choice because almost all students are able to attend their first choice school. Because few schools operate at capacity, lack of space does not disproportionately limit the number of students allowed to transfer to any given school. This allows me to accurately assess the nature of families' choice behavior and the demographic characteristics of the schools that they choose to attend instead of the demographic characteristics of only their second or third choice school. This lack of issues with capacity means that my study accurately depicts the ideal demographic composition of a school for families participating in choice as

opposed to other studies, which must deal with the complicating factors of school popularity and program size when schools reach capacity.

CHAPTER 4: DATA & MEASURES

Data

The data used in my analysis comes from the official student records of the school district. The data comprises four years of records for each student collected over four consecutive school years. For each year the student attend a school within the district, the data set contains information about the student's demographic background, attendance, participation in special education, English language proficiency, and academic achievement. In addition to noting student participation in choice programs, the district also identifies not only the school each student attends, but also the school each student is zoned to attend.

For the purposes of this study, I narrow my focus to elementary school choice. Because the district only has five middle schools and three high schools, students have fewer choice options as they progress through school. In contrast, elementary students choose from twenty-seven schools that reflect a variety of demographic backgrounds and academic achievement levels. I exclude two types of students from my analysis: students in self-contained special education programs and students in self-contained academic programs.[2] Due to the nature of these programs, these students attend one of the district's

[2] The district has four small self-contained academic programs. Two of these are full-day Extended Learning Programs that each contain about one hundred students. Students must qualify for these programs based on test scores; therefore, not all children may choose to attend them. The third program is a small collaborative lab classroom with approximately forty students and the fourth is a one-hundred student parent-cooperative program that became a charter school in the year following the study. All of these programs share a campus with an existing school, but do not share a schedule nor are they counted on the school's standardized testing results.

campuses, but never interact with the remainder of the student body and thus do not count towards any measures of school composition.

This study examines approximately 13,000 elementary students per year for four years, beginning with the 2003-2004 school year and ending with the 2006-2007 school year. I chose this time period for two reasons. First, these years did not involve any school openings or closings, which would influence families' choice decisions as students were zoned to new schools. Second, these years provide the most complete and accurate data on a number of measures such as choice participation and language proficiency and special education classifications. As English language proficiency may be a barrier to choice participation and students with severe disabilities make choices based on program availability, I restricted my time frame to those years with the most accurate classifications.

Measures

The measures in this study include student background indicators and school-level variables for the schools that students attend, the schools that students are zoned to attend, and the residential zones that correspond to each school.

Student background variables. In order to determine whether or not stratification predicts choice behavior, I created a measure indicating whether or not a student applied for a transfer and was then granted and accepted a slot in their choice school. This indicator is coded dichotomously, 1 for participating students and 0 for students who did not participate.

I measured several student background variables including socioeconomic status, English proficiency, disability status, family structure, and grade in schools.

Socioeconomic status measures whether or not a student participates in the free and reduced lunch program and is coded 1 if a student participates and 0 if they do not. English proficiency is also dichotomous and is coded 1 if the district classifies the student as an English language learner and 0 if not. Students with severe disabilities are already excluded from the data; however, the disability status variable measures students with mild disabilities such as dyslexia or ADD in a dichotomous variable coded 1 if the student has a documented disability and 0 if they do not.

Family structure is coded as a series of dummy variables assigning students to either a two-parent home, single-parent home, or other forms of guardianship such as living with grandparents or foster care. I use "two-parent home" as the reference group. Grade in school is also a series of dummy variables representing each grade in elementary school from kindergarten to sixth grade. I use "kindergarten" as the reference group because a slightly higher percentage of students begin exercising intra-district transfer in kindergarten, as kindergarten provides a natural transition time when all students are entering a new school for the first time.

I classified all of these measures as time-variant because they all had the possibility to change over the course of the study. Family income levels change over the years, which may influence whether or not a student can qualify for free and reduced lunch. After students have participated in English as a Second Language programs for several years, they are no longer classified as English Language Learners, so this variable must also be considered time-varying. Student disability level may change across years if students are diagnosed in the middle of the time frame, and family structure may change if parents divorce or remarry within the course of the study.

I also measure time-invariant student background variables of race and gender. Unlike the previous variables, race and gender remain constant across the four years of the study. Student race is measured with a series of dummy variables including Caucasian, Asian, African American, Native American, Hispanic, Pacific Islander, and Other. I use Caucasian as the reference group. Gender is a dichotomous variable with female students coded as a 1 and males coded as 0. Males are the reference group in the analysis.

School characteristics. Two types of school variables are used in my analyses: aggregated student data which provides information about the racial and socioeconomic composition of the school, and school-wide achievement information provided on the school report cards available from the state's website.

When I use school data to assess how school attributes influence parent choices, I use one-year lags for all school-level data. When parents make school choices for their children, they must do so in advance; therefore, any school information available to them for use in making a decision about where to send their children to school would be one year old by the time the student actually attends a choice school. Test score information from the state report card, which is public information that states are required by law to report and is available at the state Department of Education website, was used to create an academic indicator variable. This measure indicates the percentage of students who reached the "proficient" level in their mathematics exam.[3]

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[3] I also created measures of the percentage of students reaching proficient in Language Arts and a dummy variable indicating whether or not the school met AYP (Average Yearly Progress under No Child Left Behind). As all of these measures are highly correlated with each other, I chose to use mathematics

In order to assess overall district patterns in the descriptive statistics and to create the measures of stratification, I first aggregated student-level data to create measures of school composition. School SES was created by calculating the percentage of students in each school that qualify for free and reduced lunch. School racial composition was created by calculating the percentage of non-Caucasian students in each school. These compositions were calculated both for the schools as well as for their corresponding zones.[4]

Measures of school stratification. To measure stratification levels, I used two different indices: the dissimilarity index (D) for socioeconomic stratification and the ethnic fragmentation index (EF) for racial stratification. The dissimilarity index shows the percentage of economically disadvantaged students that would need to be redistributed to have the percentage at the school match the percentage of the entire district. The index ranges from 0, which represents no redistribution of disadvantaged students, to 1, which represents redistribution of all disadvantaged students. The dissimilarity index gives one overall value for the entire district as well as a value for each school that indicates the proportion of low-SES students each school would need to provide. A school value of 0 indicates that the school's composition exactly matches that of the district, with increasingly high values representing increasing levels of stratification. This measure is commonly used in studies of stratification and is ideal for

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proficiency as research suggests that math achievement is most indicative of school quality while language arts is more indicative of home background (Lee & Bryk 1989).

[4] Here, "school" refers to the demographic makeup of the students that attend any given school after school choices have been made. The corresponding "zone" consists of the children that are assigned to attend each school based on their area of residence. This represents what the makeup of the school would be if there was no choice policy in the district.

studying stratification between two distinct groups (Archbald 2004, Reardon & Firebaugh 2002). In this case, my two distinct groups are economically disadvantaged students, who qualify for free or reduced lunch, and economically advantaged students, who do not.

The formula for the dissimilarity index is

$$(1) \quad D = \frac{\sum_{i=1}^{n}[t_i|p_i - P)|]}{[2(TP(1-P)]}$$

where t_i is the total population in school i and T is the total population in all schools. Similarly, p_i is the proportion of school i that belongs to a specific socioeconomic group and P is the proportion of that socioeconomic group in all schools within the district.

To study racial stratification, I use an ethnic fragmentation index. Traditionally, studies of school segregation use dissimilarity and exposure indexes because they examine historical contexts that generally focus on segregation between African-American and Caucasian students (Archbald 2004). However, because the school district in this study involves several racial and ethnic groups instead of simply a two-group pattern, traditional measures such as the dissimilarity and exposure indices do not accurately represent the levels of separation (Reardon, Yun, & Eitle 2000).

The most accurate measurement of segregation and stratification for this study is the ethnic fragmentation index which is used as a standard measure of diversity in empirical economics (Vigdor, 2002), in sociology and criminology (Bellair, 1997; Sampson & Groves, 1989; Warner & Rountree, 1997), as well as in the popular *U.S. News & World Report's* college rankings and calculations of campus ethnic diversity (Meyer & McIntosh, 1992). This index is often interpreted as the probability that two

individuals randomly selected from the sample for which the index was created will represent two different ethnic groups (Easterly & Levine, 1997).

The formula for ethnic fragmentation is

$$(2) \quad 1 - \sum_{i=1}^{n} s_i^2$$

This measure is calculated by subtracting the from one the sum of the square proportions of each ethnic group in the district and is interpreted as the probability that two individuals randomly selected from the sample will represent two different ethnic groups. This provides a value ranging from 0 to .8, so in order to create a more easily interpretable measure, I divide the values by .8 to create an index with values ranging from 0 (a completely homogeneous school) to 1 (a completely heterogeneous school). I calculate these values for not only the schools in the district, but also for their corresponding zones to determine what the level of stratification in the district would be without the intra-district transfer policy.

CHAPTER 5: ANALYSES

This study used three types of analyses: preliminary analysis of stratification measures, hierarchical cross-classified models, and descriptive statistics. I calculated indexes of stratification to answer my first research question, which explores the extent to which schools in the district are stratified. Additionally, these indexes provide a dependent variable for my regression analysis.

I use hierarchical cross-classified models to address my second research question, which asks if the levels of racial and socioeconomic stratification at student's zoned schools are related to participation in intra-district transfer. To explore my final research question and determine the impact of intra-district transfer on stratification, I use simple descriptive statistics to provide a general description of district conditions with and without choice as well as further analysis of the results from the calculation of indexes of stratification.

Analysis of Stratification Indexes

To determine the extent to which schools within the district are stratified, I use the two indexes of stratification discussed in my measures section. The Ethnic Fragmentation Index provides the level of heterogeneity at each school and in the overall district. By examining the value for the school district, I assess the heterogeneity of the population and determine the expected level of diversity for each school if all schools mirror the district composition. I then assess the level of stratification by comparing the individual values for each school to the district value and seeing how much they differ. If schools differ greatly from this overall district value, this indicates high levels of stratification.

The Differentiation Index provides the percentage of students that would need to be relocated in order for all schools to match the district average. I examine the value for the district and determine the extent of stratification within the district by comparing this value to previous effects in the literature, and then I rank the index values for each school. If each school has a similar index value, this indicates that all schools contribute equally to the level of stratification in the district, while a range of different values at schools indicates that certain schools contribute disproportionately to the overall level of stratification

Hierarchical Cross-Classified Models

To assess whether or not the level of stratification at students zoned schools is correlated with participation in choice, I use hierarchical cross-classified models (HCM) using all four years of district data. HCM is most appropriate in this situation because students are nested within school zones. Therefore, error terms are not independent, which violates a basic assumption of regression. I use a hierarchical cross-classified model instead of a traditional hierarchical linear model (HLM) because students can change school zones over the course of the study. In order to conduct HLM analysis, the student would need to belong to only one zone over the course of the study. Because of the high mobility rate of many students in the district, about 20% students change zones over the course of the study. This high level of mobility violates the basic assumptions of HLM and necessitates HCM analysis. (Raudenbush & Bryk 2002).

The outcome variable for my model is a dichotomous measure indicating whether or not students participate in intra-district transfer; therefore, I employ logistic regression

to estimate the effects of student and school level variables on choice participation. The level-1 portion of my HCM analysis was estimated using the following equation:

(3) $Yijk = \pi_{0jk} + \pi_{ijk}$ *TIME-VARYING STUDENT BACKGROUND*$_{ijk} + e_{ijk}$,

where Y_{ijk} represents whether or not at time point *i*, student *j*, who lived in school zone *k*, participated in open enrollment, and π_{0jk} is the mean likelihood of exercising open enrollment for student *j*, living in school zone *k*. *TIME-VARYING STUDENT BACKGROUND*$_{ijk}$ represents the regression coefficients relating to each of the students background variables that vary over time: student socioeconomic status, language proficiency, disability level, family structure, grade in school, and a growth trajectory (coded 0 through 3 for the four years of the study). Lastly, e_{ijk} is the random effect, or the deviation of *ijk*'s propensity to choose from the cell mean.

The level-2 model, or between-cell model, for the intercept—which includes all row and column predictors—is as follows:

(4) $\pi 0jk = \theta_0 + \gamma_{01}$ *TIME-INVARIANT STUDENT BACKGROUND*$_j + b_{00j}$ +

b_{01}*LAGGED ZONED SCHOOL CHARACTERISTICS*$_k + c_{00k}$

TIME-INVARIANT STUDENT BACKGROUND$_j$ refers to the coefficients associated with each of the student background measures in the analysis that do not vary over time: student race and student gender. Also, b_{00j} is the residual effect of student *j* after controlling for the student characteristics in the model.

LAGGED ZONED SCHOOL CHARACTERISTICS$_k$ refers to the coefficients associated with the three zoned school variables: the ethnic fragmentation index, the dissimilarity index, and percentage of students proficient in math. The lagged zoned school characteristics are considered column-level predictors within the HCM

framework, and c_{00k} is the residual effect of zoned school *k* after controlling for the zoned school characteristics that are accounted for in the model.

All level-1 coefficients are fixed and therefore not allowed to vary randomly, as is detailed in the equation below:

(5) $\pi_{pjk} = \theta_p$

In this equation, π_{pjk} represents the regression coefficients relating the *TIME-VARYING STUDENT BACKGROUND*$_{ijk}$ measures to Y_{ijk}, whether or not student *j* in time period *i* in zoned school *k* participated in open enrollment. Here, θ_p represents the model intercept, and it is also the expected value of π_{pjk} when all explanatory variables are set to zero.

Descriptive Statistics

In order to determine how intra-district transfer affects the level of stratification at schools in the district and in the district overall, I use simple descriptive statistics comparing the racial and socioeconomic composition of schools and their corresponding zones as well as descriptive statistics comparing school and zone values for the stratification indexes. These descriptive statistics provide a good indicator of the overall racial and economic patterns in the district and how these change under the choice policy.

First, I examine the percentages of non-Caucasian and low-SES students in each school and its corresponding zone and then calculate the differences between the percentages at each school and its zone. Because patterns in the district are remarkably consistent across years, I use the average difference for the four years. This provides an indicator of how racial and socioeconomic composition at individual schools changes under the intra-district transfer policy. I then group these average differences into

categories based on the size of the difference to examine the general level of change within the district.

Traditional explorations of district-level stratification examine the changes at the individual schools and then examine the effects of these schools on the overall district level. This type of examination best applies to previous situations wherein districts were ordered to achieve integration and school zones were not based on residential neighborhoods. In these cases, the court assessed the entire district on their level of integration, so district-level patterns provided the most meaningful level of analysis.

However, in a district based on neighborhood school zones, the district level may no longer be the only meaningful unit of analysis. While neighborhoods may not have been a meaningful level of analysis under a system that achieved integration through busing, they should certainly be considered in a system based on neighborhoods. Within each district, there exist several unique neighborhood contexts that may be differentially affected under the choice policy. Examining schools could be seen as an indicator of neighborhoods; however, political boundaries such as school attendance areas are poor indicators of neighborhood boundaries because neighborhood definition depends on the perception of residents (Weiher 1991). Residents socially construct these definitions of "neighborhood" based not only on geography, but also on demographic similarities within the areas (Sampson & Raudenbush 2004)

In the context of this district, the schools are located within three broad neighborhoods defined by location as well as by their similar demographic characteristics, which I label Group A, Group B, and Group C. Group A consists of the westernmost portion of the district, which also has high levels of disadvantaged and

minority populations. Group B consists of the geographic center as well as a more recent development in the northwest corner and has a more diverse demographic blend in terms of race and socioeconomic status. Group C consists of the easternmost portion of the district and is categorized by an overwhelming majority of Caucasians and the economically advantaged. Nine schools are located in Group A, ten schools are located in Group B, and eight schools are located in Group C. Grouping the schools into these broader neighborhoods allows for an exploration of the impacts of choice at a neighborhood level that is most fitting to a neighborhood-assignment policy.

I examine the average magnitude of change in each of these groups by calculating the average of the absolute values of the differences at the schools in each category. This allows me to assess the overall level of demographic change at these schools, whether negative or positive. I also examine the average positive change, which indicates the school becoming more diverse than its zone, and the average negative change, which indicates the degree to which schools become less diverse, for each category of school. I conduct this analysis at the group level to show how the effects of choice might vary in different areas of the district and thus provide a more complete analysis than one simply of the overall district.

These analyses provide an understanding of how school choice changes the composition of schools, but analysis of the findings from the dissimilarity and ethnic fragmentation indexes is necessary to determine if choice changes the level of stratification. In order to do this, I examine the values of these indexes at each school with and without the intra-district transfer policy and then compare the compositions. I

again conduct this analysis by larger neighborhood group to expand my analysis from the overall district level to the more specific neighborhood contexts.

In this case, inferential statistics are inappropriate because my analysis deals with the entire population of the school instead of a random sample. Instead, I use descriptive statistics and graphical analysis. Examining these patterns with graphs provides a solid and appropriate basis for further analysis (Saporito and Sohoni 2006, 2007). Graphically comparing percentages provides the best and most appropriate method for discovering the impact of intra-district transfer on racial and socioeconomic patterns by providing a visual representation of district patterns in a manner that is easily interpretable.

CHAPTER 6: RESULTS AND DISCUSSION

Extent of Stratification in the District

Given the residential patterns in the district as well as the district's lack of school integration efforts, it is not surprising that the district is diverse yet racially and socioeconomically stratified. I find that the majority of schools in this district are highly stratified, with particularly high levels of separation at the schools with the highest Caucasian and advantaged populations.

The overall ethnic fragmentation index value for this district is .7979, which suggests that the district is home to a diverse, heterogeneous, multi-group population. If racial stratification did not exist in this district, one would expect all schools in the district to have a similar index value. As Table 1 illustrates, this is not the case. Only eleven of the district's twenty-seven schools (41 percent) fall within a tenth of a point range (.6979-8979) of this average. This suggests a similar racial composition to the district and a high level of racial integration. However, the remaining 59 percent of schools fall outside of this range, with 30 percent of schools falling underneath the .5 level. Not only are these schools far different from the overall district composition, they could also be considered very homogeneous schools in a district that has the potential to foster high levels of heterogeneity.

The dissimilarity index reflects similar trends. The dissimilarity index calculates the overall percentage of economically disadvantaged students that would need to be reassigned for all schools to reflect the district average as well as the contributing amount from each school. In this district, 61.35 percent of the disadvantaged students would

need to be reassigned in order for all schools to be equal. To put this number in context, the average amount of disadvantaged students needing to be relocated in the 22 largest districts in the nation was only 39.1 percent (Saporito & Sohoni 2007). Clearly, the overall pattern within the district is one of high levels of unequal distribution. In addition, this 61.35 percent of students is not equally dispersed among schools (Table 2). The top third of school dissimilarity values make up 32.45 of the 61.35 necessary for relocation, which is over half of that total while the bottom third of schools make up only 5.88 of the 61.35, which is approximately ten percent of the total. The schools in this bottom third have a similar composition to the district average, while the disproportionate share of the total accounted for by the top third suggests that these schools are highly stratified.

Influence of Stratification on Choice Participation

Understanding that this school district operates in a stratified context, I explore the degree to which school demographic characteristics influence participation in intra-district transfer. HCM analysis assesses if this level of stratification influences choice participation. According to the assumptions of the market model, parents uniformly base their school choice decisions on factors of academic quality and school environment. If this is the case, the level of racial and socioeconomic stratification at the child's zoned school should not be a significant choice predictor. Although this model cannot directly assess why parents choose, we would expect to see the odds of transfer participation increase as students are zoned to diverse schools choices if families choose based on reasons of social comfortability, status concerns, or social constructions of school and neighborhood quality based on racial and economic composition.

Table 3 reports the results of the cross-classified analysis. This model shows that, of the time-variant and invariant student characteristics, race, student socioeconomic status and student language proficiency are all predictive of choice. Participation in the free and reduced lunch program was associated with a 51 percent decrease in the odds of participating in intra-district transfer ($p<.001$), while being an English language learner was associated with a 19 percent decrease in the odds of participating in intra-district transfer. These findings reflect the roles of socioeconomic disadvantage and language proficiency as barriers to choice.

Compared to Caucasian students, American Indian students are 40 percent less likely to choose ($p<.01$), Pacific Islander students are 22 percent less likely to choose ($p<.05$), African-American students are 21 percent less likely to choose ($p<.05$), and Hispanic students are also 21 percent less likely to choose ($p<.001$). Family structure, mild disability level, grade in school, and gender were not predictive of participation in intra-district transfer. These findings suggest that even in a "best-case scenario" in terms of diminished barriers to choice, stratification still exists in parents' ability to choose.

My study particularly seeks to examine the role of stratification in participation in intra-district transfer, so the characteristics of students' zoned schools are particularly compelling. Of these, both the ethnic fragmentation ($p<.01$) and dissimilarity indexes ($p<.05$) were significant predictors of participation in choice.[5] A one-unit increase in the

[5] The percentage of students meeting the proficient level in mathematics was not significant in this model, which is likely because it was moderately correlated with both the EF and D indexes. In this district, the top performing schools also have the highest concentrations of Caucasian and high-SES students, so any measure of achievement tends to be highly correlated with these factors. Each additional percentage of students reaching proficient level in mathematics is associated with a 7.5% increase in the odds of participating in choice, although this finding was not statistically significant. This reflects the fact that

ethnic fragmentation index is associated with a 485 percent increase in the odds of choice participation, while a one-unit increase in the dissimilarity index is associated with a 100 percent decrease in the odds of choice participation.

Although these findings generally indicate that being zoned to a school with a heterogeneous racial population or a socioeconomic population close to the district average (essentially, diverse, non-stratified schools) predicts participation in choice, the effect sizes are difficult to interpret. Thus, I calculate plausible values for each of the neighborhood-based school groupings to give a more practical idea of how these variables would affect choice.[6] The three residential groups in my study[7] have average ethnic fragmentation index values of .6779, .7327, and .3054, respectively. Assuming that students at a perfectly homogeneous school (EF=0) would have 14 percent odds of exercising choice (the district average), being zoned to a Group A school would be associated with a 46 percent likelihood of participation in choice, being zoned to a Group B school would be associated with a 51 percent likelihood of participation in choice and being zoned to Group C schools would be associated with a 24 percent likelihood of

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schools with high percentages of students reaching the proficient level also have higher levels of advantaged students. Thus, this finding does not reflect dissatisfaction with high-performing schools, but simply an indicator that advantaged students are more likely to participate in choice.

[6] Plausible values were calculated by raising the event rate ratio to the power of the average index value. For example, the index value for Group A is .6779. I raised the event rate ratio (5.8568) to the power of .6779. Then, I multiplied this number by .14, the average participation in open enrollment for students in the model. This then indicates the increase in likelihood to choose that is likely to be associated with this value of the ethnic fragmentation index.

[7] In review, Group A schools have the highest concentrations of minority and disadvantaged students and are located on the western side of the district. Group B schools have more diverse populations and are located in the geographic center of the district as well as a more diverse recent residential development. Group C schools largely consist of Caucasian, economically advantaged students and are located in the eastern part of the district

participation in choice (see Figure 1). Thus, being zoned to the most diverse schools is associated with the highest levels of choice participation.

The dissimilarity index was also predictive of participation in intra-district transfer. Assuming that students at a school exactly equal to the district average (D=0) would have 14 percent odds of exercising choice (the district average), being zoned to a Group B school would have the highest possibility of exercising choice, with a 12 percent likelihood of exercising choice. This decreases for being zoned to a Group A school, which would be associated with a nine percent likelihood of exercising choice, and decreases further for being zoned to a Group B school, which would be associated with an eight percent likelihood of exercising choice (see Figure 2). Again, although these models do not directly explain why parents choose schools, they do indicate that zoned school stratification predicts student choice. This indicates that parents may be making socially motivated school decisions, which does not fit with the assumptions made by the market model that academic quality (as measured by test scores) will motivate choices and drive integration.

This model indicates that economically advantaged Caucasian students zoned to the most diverse schools have the highest odds of participating in intra-district transfer; however, this model does not indicate the characteristics of the schools that they choose to attend as an alternative. Previous research of this district context (Phillips, Hausman, & Larsen 2008) indicates that intra-district transfer participants choose schools with lower minority and disadvantaged populations than their zoned schools, and that advantaged families choose schools with substantially larger differences from their zone than disadvantaged families. Coupled with the findings from my HCM analysis, this

suggests a pattern of socially motivated "white flight" from diverse schools into more stratified alternatives.

The Effects of Intra-District Transfer on Stratification

The HCM analysis suggested that social considerations may indeed be guiding choices parents make about their children's schools. Therefore, the extent to which choice changes the stratification within an already segregated district should be examined to determine if these patterns follow the hypothesis posited by the market model that choice will create integrated, diverse schools.

School-level changes in composition. I begin this analysis by looking at trends in the differences between zone and school composition at each of the district's elementary schools (see Table 4). These trends suggest that the majority of schools in the district do not have a greatly different percentage of either minority or disadvantaged students than their zone. Here, intra-district transfer seems to create schools that would be very similar to the existing neighborhood composition. In terms of change in minority population, 67 percent of schools differ from their corresponding zone by less than three percentage points. 19 percent of schools differ from their zone between three to five percentage points and 11 percent differ between five and eight percentage points. The remaining three percent represents one school that differs by 12.92 percentage points from its zone.

Compared to results from other studies, intra-district transfer does not seem to create any higher of a level of composition change than other forms of choice. In fact, the difference is much less than the 20 percent difference in white population between charter schools and nearby public schools found by Cobb and Glass (1999). Saporito and Sohoni's (2006) analysis of the 22 largest districts found an average change of 5 percent

in white students between the composition of neighborhood schools and their corresponding zones.[8] These studies claim these findings represent large changes. 86 percent of the schools in this district have a smaller change than five percent, which suggests the intra-district transfer policy tends to maintain existing neighborhood patterns more so than other forms of choice.

The changes in the population of disadvantaged students reflect a similar trend to what occurs with race (see Table 5). Fifty-nine percent of schools differ from their corresponding zone by less than three percentage points. Twenty-two percent of schools differ from their zone between three to five percentage points and eleven percent of schools differ between 5 and 10 percentage points. The remaining eight percent represents two schools, one which differs by 14.47 percentage points from its zone and one which differs by 12.12 points from its zone. Again, the majority of schools differ by a small amount, suggesting maintenance of existing neighborhood demographics. In context, the Saporito and Sohoni (2007) study of SES change in the 22 largest districts in the U.S. finds an average percentage point change of 15 points between schools and their corresponding zones. The magnitude of changes at the majority of schools in this study is particularly small in comparison.

However, these schools with larger magnitudes of change could represent meaningful differences when considered in the context of district integration plans such

[8] It is important to consider that both Saporito and Sohoni pieces (2006,2007) also consider students attending private schools. This study focuses solely on public school choice, although there are a low number of private schools at the elementary within its boundaries as well as in nearby districts, thus providing students with limited access to private education. As white, advantaged students tend to be more likely to attend private schools, we would expect higher differences between zone and school in studies with higher private school populations.

as the plan in Wake County, North Carolina. In this plan, the district attempts to achieve socioeconomic balance by making sure that all schools stay within ten percent of the overall district percentage of disadvantaged students (Kahlenberg 2003). In this district, school B1 experiences the largest differences between school and zone characteristics for both race and socioeconomic status. In both cases, the characteristics of the zone (72.38 percent disadvantaged and 51.83 percent minority students) fall within ten percent of the overall district average. However, as a result of the intra-district transfer policy, the disadvantaged and minority populations grow to a degree that makes this school fall outside of this ten percent variation. Most schools do not change to such a degree that would enable them to vary so greatly from the district average. However, this school, located in a diverse residential context, changes greatly enough to suggest that intra-district transfer is capable of producing inequitable levels of change.

Neighborhood-level magnitude of change. Grouping the schools by neighborhood factors helps explain broader trends in the changes between schools and zones. First, I examine the magnitude of change for socioeconomic composition for each of the three group indicators (see Figure 3). Schools at either extreme of racial and socioeconomic composition had the lowest magnitude of change, with an average magnitude of change of 2.32 percentage points for schools in Group A and an average magnitude of change of 2.29 percentage points for schools in Group C. In comparison, schools in Group B, the most diverse geographic area, had an average magnitude of change of 5.97 percentage points.

The magnitude of change for racial composition follows the same pattern of low change in the most stratified neighborhoods with the highest amount of change in the

most diverse area (see Figure 4). The average magnitude of racial change in Group A was 2.4 percentage points and the average magnitude of racial change in Group C was 1.75 percentage points, compared to the magnitude of 4.38 in Group B.

These results suggest the importance of looking at neighborhood contexts within a school district. Simply examining the average magnitude of the district assumes that schools in all areas of the district experience the same amount of impact under an intra-district choice policy. However, these results suggest that intra-district transfer has the largest magnitude of effect in the most diverse residential neighborhoods. The more stratified neighborhoods maintain their existing level of stratification with changes of small magnitude, while the more diverse schools have the potential to vary more greatly from their residential patterns.

Neighborhood-level direction of change. The previous comparisons show the magnitude of change, but analysis of the direction of change is also necessary to determine if schools increase or decrease their disadvantaged and minority populations. In order to do this, I examine the average negative and positive change for each group of schools for both socioeconomic status and race. Two distinct patterns effecting school composition emerge from this examination of socioeconomic change. (see Figure 5) First, both Group A and Group B schools overwhelmingly experience increases in disadvantaged students as a result of intra-district transfer. Ninety-two percent of Group A observations[9] increase their percentage of disadvantaged students, while eighty percent

[9] An observation counts each school each year. There are nine schools in Group A, ten schools in Group B, and eight schools in group C. Each school is observed for four years, with a total of thirty-six observations for Group A, forty for Group B, and thirty-two for Group C. For this analysis, I chose to use observations

of Group B observations experience an increase. These increases occur at a magnitude of 2.5 percentage points for Group A observations and 6.65 percentage points for Group B observations. In the few instances where observations experience a decrease, they do so at a much lower magnitude of change, with only -.6 percentage points for Group A and 2.34 percentage points for Group B. These graphs suggest that the schools that already have high populations of disadvantaged students are more likely to increase in these populations, particularly in diverse areas.

In contrast, Group C observations are more likely to experience a decrease in their percentages of disadvantaged students than the other two groups. Although 56 percent of Group C schools do increase their disadvantaged populations as a result of intra-district transfer, the 44 percent of these schools that decrease their disadvantaged populations do so at a much higher level of change. These observations experience an average change of –3.44 percentage points, compared to the 1.39 percentage point average gain. For these schools that already have the lowest concentrations of disadvantaged students, intra-district transfer further decreases this population.

The findings for race follow a nearly identical pattern (see Figure 6). 78 percent of Group A observations and 73 percent of Group B observations experience an increase in minority population as a result of intra-district transfer and these increases occur at a much higher magnitude than any decreases that occur in minority populations. 59 percent of Group C observations experience a decrease in minority population as a result

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rather than averages due to the possibility that a school might have negative change in some years and positive change in others, and an average does not reflect this.

of intra-district transfer, again at a much higher magnitude than any observations that report an increase in minority population.

These comparisons suggest two critical findings. First, they suggest that although the changes in school composition may be of a small magnitude, they occur in a way that increases stratification as schools located in areas with the highest concentrations of disadvantaged and minority populations experience an increase in the populations. Second, these findings show the critical need of considering neighborhood contexts. While schools in Group A and Group B exhibit similar patterns of a majority of schools experiencing positive changes, this pattern is the opposite in Group C. Examining only the average positive and negative change at the district level fails to recognize that these patterns vary by neighborhood.

Changes in stratification level. These analyses extend the discussion of racial composition to include comparisons of stratification level between the schools and their zones. As discussed earlier, the overall ethnic fragmentation index for the district was .7979 and the overall pattern was one of racial stratification.[10] When comparing the index values for the schools with the values for their corresponding zones, we see that patterns for the district do not change greatly. Figure 7 compares the EF values for both schools and zones in the district, and both groups follow a similar trajectory. The pattern of school stratification is very similar with or without choice. Examining the difference between the school and zone values for each school reveals a similar trend (Table 6). Two schools have a difference from their zone of magnitude .1 or higher, but the changes

[10] Because district racial and socioeconomic patterns remained very similar over the course of the study, I combined the measures and report averages across the four years for all index values.

for the other twenty-five schools are markedly lower, with ten schools having a change of magnitude .02 or lower. With a magnitude of .02 or lower, these schools experience such small change that they can be considered practically identical to their residential zones, whereas the comparative amount of change in the schools with magnitude of .1 or higher suggests a serious change in stratification level within the district context.

Examining the EF values by neighborhood group again shows similar findings (Figure 8). A comparison of the average EF value for each group of school to the average EF value from the corresponding zone shows that the average stratification values for each group of schools are very similar to those of their zones. Group A zones have an average EF value of .6997 compared to the school value of .6779, which suggests that the schools are more stratified than the zones to a small degree. Group C schools reflect this same pattern, with an average EF value for zones of .3221 and an average EF value for schools of .3054. In contrast, the EF value for schools in Group B is actually higher than that of the zones, with respective values of .7327 and .6416. Schools in this group become more integrated under the intra-district transfer policy and the level of change from their zone is higher than in the other two groups, again suggesting the need for neighborhood-level analysis.

Typically, studies of school racial stratification have relied on D because they deal with separation between only two racial groups. However, in this district and in others with multiple ethnic minority groups, this index does not give an accurate representation of stratification. Thus, it is difficult to directly compare EF index findings with racial stratification findings from other studies. Instead, it is best to consider the interpretation of the index, which gives the odds of randomly selecting two individuals

from two different ethnic groups. Group A has a difference of .0218 between school and zone EF values, while Group C has a difference of .0167 between these values. This is a minimal decrease in the odds of picking two individuals from different ethnic groups. In contrast, Group B has a difference of .0911 between school and zone EF values. This represents an almost 10 percentage point increase in the likelihood of picking two individuals from different ethnic groups in the schools than in the zones, and should be seen as an indicator of substantial change in stratification level.

Analysis of the dissimilarity index findings corroborates the trend of small levels of change in the degree of increased stratification. Earlier, I explained that 61.35% of the district's disadvantaged students would need to be relocated in order for every school to represent the overall district composition. In contrast, only 55.44% of the district's disadvantaged students would need to be relocated if all students attended their zoned school. This suggests that the patterns created by intra-district transfer create a higher level of income stratification. The difference between these values is 5.91 percentage points, which is higher than the average of 4.5 percentage points for the 22 largest districts found by Saporito and Sohoni (2007). However, this value falls within the middle range of their findings and is much smaller in magnitude than several of the districts, as four districts have an increase of over 10 percentage points. Although intra-district transfer does increase the level of economic stratification in this district, it does not appear to do so at a higher level than is produced by other forms of choice.

Examining the difference between the amounts of students that would need to be relocated from each individual school shows that most schools do not change greatly from their zone (Table 7). Two schools have a difference of magnitude .01 or higher

from their zone, which represents a high level of change, but sixteen schools have a difference of magnitude of .003 or lower from their zone, which again suggests a relatively identical level of stratification to existing residential levels.

Finally, I turn to the results from grouping the schools by neighborhood (Figure 9), which show a somewhat different trend. Group B schools have a value of .0094 compared to the zone value of .0095, which is practically identical. Group A schools have a value of .0255 compared to the zone value of .024. The difference is small, but it suggests that schools in this group are more economically stratified than their corresponding zones. Group C schools have a value of .0362 compared to a zone value of .0298. These are the most stratified schools and they also have the highest difference from their zone.

There are two possibilities for what may cause this pattern. First, it may be that only advantaged students in Group C choose other, even more advantaged Group C schools. However, what is more likely is the cumulative effect of advantaged students choosing schools from the next consecutive level. Previous analysis of this district (Phillips, Hausman, & Larsen 2008) suggests that students zoned to Group A schools would pick schools with lower disadvantaged populations, but in the range of Group B schools. These students from Group A would help cover for the advantaged students leaving Group B, who would in turn leave for Group C schools. As advantaged students from both Groups B and C would be most likely to choose Group C schools with high populations of advantaged students, this would explain why the difference between schools and zones is particularly high for Group C. Overall, this represents a pattern of

choice where families from each group choose schools with increasingly lower percentages of disadvantaged students, leaving the majority of the impact in Group C.

CHAPTER 7: CONCLUSIONS

I draw three major conclusions from my research. First, students zoned to highly diverse schools that mirror the district's diverse population have a higher likelihood of participating in the intra-district transfer program. If being zoned to a diverse school is correlated with choice, then this counteracts the market model assumption that social considerations do not guide choice behavior. It suggests that families may be making seeking more stratified schools in order to have a greater proportion of students be similar to their own child or that perhaps the high racial and socioeconomic diversity of these schools does not fit in with the family's social construction of a high-quality school.

Second, I conclude that the intra-district transfer policy does not have a large overall effect on the composition and stratification level of schools within the district. Although the schools in the district do indeed display a high level of stratification, these levels tend to be reproductions of the stratification already inherent in the school zones. The market model suggests that as all parents use the same information about school quality to choose the best schools, this can create integration, while socially guided decisions have the possibility of creating more extreme stratification. However, this district upholds existing residential stratification levels without greatly exacerbating these levels, with the exception of some schools in particularly diverse areas.

Lastly, I conclude that although change occurs on a small level, the changes that do occur tend to push the district to a pattern of deeper stratification. The schools with the highest minority and disadvantaged populations tend to increase their proportions of these students, while schools with the lowest populations of these students decrease their

proportions at an even greater rate. Thus, the schools with the highest existing levels of stratification become increasingly more stratified. This seems to follow in line with the idea that these decisions are socially motivated, at least to some level.

Limitations

This study is unable to determine whether or not choice behavior leads to changes in stratification or if stratification causes participation in choice programs because I study an existing social context where both of these relationships do in fact exist and occur at the same time. Randomized field trials would allow for a better exploration of causality, but they would not necessarily demonstrate natural social behavior. While my study cannot determine causality, it does explore natural processes dealing with stratification within a specific context.

The inability to determine actual reasons why families participate in choice is also a limitation of this study. Such a study would require qualitative interview data to discover family's motivations. The results of the HCM analysis suggest that decisions to participate in intra-district transfer are related to the racial and economic makeup of zoned schools, but this cannot be directly assumed to cause choice participation.

Finally, this study does not address the characteristics of the individual schools that change greatly from their zones in comparison to the other schools in the district. This requires further examination. For example, there may be the possibility of a tipping point of a certain population that motivates parents to exercise choice. There also may be the possibility that the schools that change the most are those in nearest proximity to a school with very different demographic characteristics.

Contributions of the Study

The first major contribution of this study comes from its examination of the relationship between stratification and intra-district transfer, a common yet understudied form of school choice. Studies of other forms of school choice, such as charter and magnet programs, suggest that school choice programs tend to greatly increase stratification in schools and districts (Ancess & Allen 2006, Cobb & Glass 1999, Saporito & Sohoni 2006, 2007, Wells et. al 1999). Studies also suggest that school choice provides a means of "white flight," as families leave zoned schools with high percentages of minority and disadvantaged students (Lankford & Wyckoff 2001, Renzulli & Evans 2005).

This study suggests that these patterns seen in other forms of school choice are repeated under an intra-district transfer policy, although to a slightly smaller magnitude. Analysis of the school and district compositions suggested an increase in stratification as a result of the intra-district transfer policy. However, these magnitudes of change were smaller than magnitudes of change reported in studies of districts with different types of choice programs (Saporito & Sohoni 2006, 2007). Additionally, the results of the HCM analysis coupled with previous district research uphold the finding of "white flight" within the intra-district transfer context, showing that white families tend to choose a way from diverse schools.

While these findings suggest that intra-district transfer provides a better choice policy in terms of not increasing stratification, it is important to consider that intra-district transfer also provides some of the greatest potential to achieve integration. School choice under an intra-district transfer policy is open to all students in the district as opposed to the limited number of students that can fit at charter and magnet schools. Also,

participation in intra-district transfer is not limited to students who find the theme of these specialty schools appealing, but is open to any school in the district. In addition, the district context studied here provided a "best-case scenario" in terms of limiting barriers to choice participation for minority and disadvantaged students. If all of these factors promoting integration were present and yet the finding is one of stratification to a somewhat smaller degree, this may suggest that school choice policies in general do not foster integration.

Finally, this district shows the importance of considering social geography in current studies of school choice. In this district, schools in the most diverse neighborhoods experienced the most change as a result of intra-district transfer and schools with higher populations of minority and disadvantaged students experienced different trends in composition change than schools with high populations of white and advantaged students. This finding suggests that some of the overall district trends found in existing literature such as the Saporito and Sohoni (2006,2007) and Archbald (2004) research may not accurately represent the impacts of choice in all areas of the district. All districts operate in unique social and geographic contexts, and studies that fail to consider this context may fail to recognize differences in choice patterns between advantaged and disadvantaged or between integrated and segregated neighborhoods.

Policy Recommendations

The findings of this study have major implications for the employment of intra-district transfer policies for districts previously mandated to integrate. The school district in this study has always based student assignment on residential neighborhood and thus provides an example of the types of patterns that such a system produces. As many of

these previously court-mandated districts are moving to this type of zoning policy, the patterns seen in my study provide an example of how school choice may affect other districts as they attempt to use choice to foster integration.

Although districts may hope that intra-district transfer policies will allow them to uphold their previous level of integration, this may not be the case. The school district in this study provides a best-case scenario for achieving integration in terms of an existing diverse population and many decreased barriers to choice for disadvantaged students, yet socioeconomic status and minority make-up still greatly limited choice participation. Under a court mandate, students were required to attend integrated school locations regardless of their economic status. In an intra-district transfer program, disadvantaged students are less likely to participate, which limits the possibilities of creating such a level of integration.

Additionally, none of my findings suggested that intra-district transfer moved schools towards integration. However, on the positive side, the intra-district transfer policy also did not significantly worsen the existing residential stratification patterns for most schools. If districts intend to use choice to create integration, this will not be a likely outcome. They should expect instead that the stratification in their schools will likely represent that of the neighborhood school zones.

If intra-district transfer policies do not create integration or equitable outcomes, school districts actively pursuing these goals must seek other avenues. "Controlled choice" plans that allow families to exercise choice but attempt to maintain a level of balance within the schools may be a reasonable alternative to intra-district transfer (Henig 1994, 1996). Although districts cannot use racial guidelines, they may consider balancing

amounts of students at schools based on socioeconomic status or area of residence. As my results suggest that neighborhood schools tend to resemble their stratified neighborhoods even with the presence of a choice policy, districts with such neighborhood patterns may need to redraw their school zones to create a lower level of stratification.

School choice and open enrollment policies—while they may provide parents with more options for their children's education—cannot be counted on to overcome stratification. It will not overcome the differentiated levels of facilities or resources particularly harmful to disadvantaged and minority students (Kozol 2005) or provide students with the integrated educational settings that encourage intergroup comfortability or provide minority students with the situations that encourage university attendance (Braddock & Dawkins 1993, Wells & Crain 1994). Instead, they will likely maintain the levels of stratification found in the neighborhoods that further disadvantage minority and low-SES students.

REFERENCES

Ancess, Jacqueline and David Allen. 2006. “Implementing Small Theme High Schools in New York City: Great Intentions and Great Tensions.” *Harvard Educational Review* 76(3): 401-416.

Archbald, Douglas A. 2004. “School Choice, Magnet Schools, and the Liberation Model: An Empirical Study.” *Sociology of Education* 77(4): 283-310.

Bauch, Patricia A. and Ellen B. Goldring. 1995. “Parent Involvement and School Responsiveness: Facilitating the Home School Connection in Schools of Choice.” *Educational Evaluation and Policy Analysis* 17(1): 1-21.

Bellair, Paul E. 1997. “Social Interaction and Community Crime: Examining the Importance of Neighbor Networks.” *Criminology* 35(4): 677-704.

Booker, Kevin, Ron Zimmer, and Richard Buddin. 2005. “The Effect of Charter Schools on School Peer Composition.” RAND Working Paper WR-306-EDU.

Bowles, Samuel and Herbert Gintis. 1976. *Schooling in Capitalist America: Educational Reform and the Contradictions of Economic Life*. London: Routledge.

Bourdieu, Pierre. 1990. *Reproduction in Education, Society and Culture.*Thousand Oaks, CA: Sage Publishing Group.

Braddock, Jomills Henry and Marvin P. Dawkins. 1993. “Ability Grouping, Aspirations, and Attainments: Evidence from the National Educational Longitudinal Study of 1988.” *Journal of Negro Education* 62(3):324-36.

Camarillo, Albert M. 2007. “Cities of Color: The New Racial Frontier in California’s Minority-Majority Cities.” *Pacific Historical Review* 76(1):1-28.

Campaign for Educational Equity. 2008. “The Equity Gap.” Retrieved from http://www.tcequity.org/detail.asp?Id=The+Equity+Gap&Info=Facts+and+Figures 5 December 2008.

Cobb, Casey D. and Gene V. Glass. 1999. “Ethnic Segregation in Arizona Charter Schools.” *Education Policy Analysis Archives* 7(1).

Coons, John and Stephen Sugarman. 1977. *Education by Choice*. Berkeley: University of California Press.

Driscoll, Mary Erin. 2000. “The Sense of Place and the Neighborhood School: Implications for Building Social capital and for Community Development” in Robert L. Crowson, ed. *Community Development and School Reform*. Bingley, United Kingdom: Emerald Publishing Group.

Dwyer, Rachel E. 2007. “Expanding Homes and Increasing Inequalities: U.S. Housing Development and the Residential Segregation of the Affluent.” *Social Problems* 54(1):23-46.

Easterly, William and Ross Levine. 1997. “Africa’s Growth Tragedy: Policies and Ethnic Divisions.” *The Quarterly Journal of Economics* 112(4): 1203-1250.

Education Commission of the States. 2008. “Intra-district transfer: 50 State Report.” Retrieved from http://mb2.ecs.org/reports/Report.aspx?id=268 12 January 2009.

Fairlie, Robert W. and Alexandra M. Resch. 2002. “Is There ‘White Flight’ Into Private Schools? Evidence from the National Educational Longitudinal Survey.” *The Review of Economics and Statistics* 84(1): 21-33.

Fairlie, Robert W. and Alexandra M. Resch. 2002. “Is There ‘White Flight’ Into Private Schools? Evidence from the National Educational Longitudinal Survey.” *The Review of Economics and Statistics* 84(1): 21-33.

Hamilton, Laura S. and Kacey Guin. 2006. “Understanding How Families Choose Schools” in Julian R. Betts and Tom Loveless (eds.) *Getting Choice Right.* Washington, D.C.: The Brookings Institute.

Haselton, W. Blake and William Wells. 2000. “A Comparison of Equity Outcomes in Kentucky: Council for Better Education v . Wilkinson Plantiff & Non-Plaintiff School Districts.” Paper presented at the Kentucky Institute for Education Research Conference, Louisville, Kentucky.

Hastings, Justine S., Thomas J. Kane and Douglas O. Staiger. 2005. *Parental Preferences and School Competition: Evidence from a Public School Choice Program*. Cambridge, MA: National Bureau of Economic Research.

Henig, Jeffrey R. 1996. “The Local Dynamics of Choice: Ethnic Preferences and Institutional Responses.” Pp 95-117. *Who Chooses? Who Loses? Culture, Institutions, and the Unequal Effects of School Choice*, edited by Bruce Fuller and Richard F. Elmore with Gary Orfield. New York: Teachers College Press.

Henig, Jeffrey R. 1994. *Rethinking School Choice: Limits of the Market Metaphor*. Princeton, NY: Princeton University Press.

Holme, Jennifer Jellison. 2002. “Buying Homes, Buying Schools: School Choice and the Social Construction of School Quality.” *Harvard Educational Review* 72(2):177-205.

Holme, Jennifer Jellison, Amy Stuart Wells, and Anita Tijerina Revilla. 2005. “Learning Through Experience: What Graduates Gained by Attending Desegregated High Schools.” *Equity & Excellence in Education* 38: 14-24.

Horvat, Erin McNamara, Elliot B. Weininger, and Annette Lareau. 2003. “From Social Ties to Social Capital: Class Differences in the Relations Between Schools and Parent Networks.” *American Educational Research Journal* 40(2): 319-351.

Hoxby, Caroline. 1998. “What Do America’s Traditional Forms of School Choice Teach Us about School Choice Reforms?” *Economic Policy Review* 4(1).

Iceland, John, Daniel H. Weinberg, and Erika Steinmetz. 2002. “Racial and Ethnic Residential Segregation in the United States: 1980-2000.” Paper presented at the annual meetings of the Population Association of America, Atlanta, GA.

Jackson, Kenneth T. 1985. *Crabgrass Frontier: The Suburbanization of the United States.* New York: Oxford University Press.

Kahlenberg, Richard D. 2003. *All Together Now: Creating Middle-Class Schools Through Public School Choice*. Washington, D.C.: Brookings Institution Press.

Killen, Melanie and Charles Stangor. 2001. “Children’s Social Reasoning about Inclusion and Exclusion in Gender and Race Peer Group Contexts.” *Child Development* 72(1): 174-186.

Kozol, Jonathan. 2005. *The Shame of the Nation: The Restoration of Apartheid Schooling in America*. New York: Crown Books.

Lankford, Hamilton and James Wyckoff. 2001. “Who Would Be Left Behind by Enhanced Private School Choice?” *Journal of Urban Economics* 50: 288-312.

Lee, Valerie E. and Anthony S. Bryk. 1989. “A Multilevel Model of the Social Distribution of High School Achievement.” *Sociology of Education* 62(3): 172-192.

Massey, Douglas S. and Nancy A. Denton. 1993. *American Apartheid: Segregation and the Making of the Underclass*. Cambridge, MA: Harvard University Press.

McGlothlin, Heidi and Melanie Killen. 2006. “Intergroup Attitudes of European American Children Attending Ethnically Homogeneous Schools.” *Child Development* 77(5) 1375-1386.

Meyer, Philip and Shawn McIntosh. 1992. “ The USA Today Index of Ethnic Diversity.” *International Journal of Public Opinion Research* 4(1):1-22.

Mickelson, Roslyn Arlin and Stephanie Southworth. 2005. “When Opting Out is Not a Choice: Implications for NCLB’s Transfer Option from Charlotte, North Carolina.” *Equity and Excellence in Education* 38(3) 249-263.

National School Lunch Program. 2008. “National School Lunch Program Fact Sheet.” Retrieved from http://www.fns.usda.gov/cnd /lunch/AboutLunch/NSLPFactsheet.pdf 12 January 2009.

Neild, Ruth. 2005. “Parent Management of School Choice in a Large Urban District.” *Urban Education* 40 (3): 270-297.

Orfield, Gary. 2001. *Schools More Separate: Consequences of a Decade of Resegregation*. Cambridge, MA: Civil Rights Project, Harvard University.

Pettigrew, Thomas F. and Linda R. Tropp. 2005. “A Meta-Analytic Test of Intergroup Contact Theory.” *Journal of Personality and Social Psychology* 90(5): 751-783.

Pettigrew, Thomas F. and Linda R. Tropp. 2005. “A Meta-Analytic Test of Intergroup Contact Theory.” *Journal of Personality and Social Psychology* 90(5): 751-783.

Phillips, Kristie J.R., Charles Hausman, and Elisabeth S. Larsen. 2008. “Students Who Choose and the Schools They Leave: A Case Study of Open Enrollment.” Paper presented at the annual meetings of the American Sociological Association, Boston, MA.

Raudenbush, Stephen W. and Anthony S. Bryk. 2002. *Hierarchical Linear Models: Application and Data Analysis Methods*. Thousand Oaks, CA: Sage Publications, Inc.

Reardon, Sean F. and Glenn Firebaugh. 2002. “Measures of Multigroup Segregation.” *Sociological Methodology* 32: 33-67.

Reardon, Sean F., John T. Yun, and Tamela McNulty Eitle. 2000. “The Changing Structure of School Segregation: Measurement and Evidence of Multiracial Metropolitan-Area School Segregation, 1989-1995.” *Demography* 37(3): 351-364.

Renzulli, Linda A. and Lorraine Evans. 2005. “School Choice, Charter Schools and White Flight.” *Social Problems* 52(3) 398-418.

Rivkin, Stephen G. 1994. “Residential Segregation and School Integration.” *Sociology of Education* 67(4): 279-292.

Sampson, Robert J. and W. Byron Groves. 1989. “Community Structure and Crime: Testing Social-Disorganization Theory.” *American Journal of Sociology* 94(4):774-802.

Sampson, Robert J. and Stephen W. Raudenbush. 2004. “Seeing Disorder: Neighborhood Stigma and the Social Construction of ‘Broken Windows.’” *Social Psychology Quarterly* 67 (4): 319-342.

Saporito, Salvatore and Annette Lareau. 1999. “School Selection as a Process: The Multiple Dimensions of Race in Framing Educational Choice.” *Social Problems* 46(3): 418-439.

Saporito, Salvatore and Deenesh Sohoni. 2006. “Coloring Outside the Lines: Racial Segregation in Public Schools and Their Attendance Boundaries.” *Sociology of Education* 79(2): 81-105.

Saporito, Salvatore and Deenesh Sohoni. 2007. “Mapping Educational Inequality: Concentrations of Poverty among Poor and Minority Students in Public Schools.” *Social Forces* 85(3):1227-1253.

Schofield, Janet .1995. “Improving Intergroup Relations Among Students” in James A. Banks and Cherry A. McGhee Banks, eds. *The Handbook of Research on Multicultural Education*. New York: Simon & Schuster/Macmillan.

Schneider, Mark, Paul Teske, Christine Roch, and Melissa Marschall. 1997. “Networks to Nowhere: Segregation and Stratification in Networks of Information about Schools.” *American Journal of Political Science* 41(4): 1201-1223.

Schneider, Mark, Paul Teske, and Melissa Marschall. 2000. *Choosing Schools: Consumer Choice and the Quality of American Schools.* Princeton, NJ: Princeton University Press.

Tedin, Kent and Gregory R Weiher. 2004. “Racial/Ethnic Diversity and Academic Quality as Components of School Choice.” *Journal of Politics* 66(4):1109-1133.

Vigdor, Jacob L .2002. “Interpreting Ethnic Fragmentation Effects.” *Economics Letters* 75(2): 271-276.

Warner, Barbara D. and Pamela Wilcox Rountree. 1997. “Local Social Ties in a Community and Crime Model: Questioning the Systemic Nature of Informal Social Control.” *Social Problems* 44(4): 520-536.

Weiher, Gregory R. 1991. *The Fractured Metropolis: Political Fragmentation and Metropolitan Segregation*. Albany, NY: State University of New York Press

Wells, Amy Stuart, Terrenda Corisa White, Allison Roda, Richard Lofton, Jacquelyn Nely Duran, and Bianca Jontae Baldridge. 2009. “ Suburban School Segregation and Inequality on Long Island.” Paper presented at the annual meetings of the American Educational Research Association, San Diego, CA.

Wells, Amy Stuart, Alejandra Lopez, Janelle Scott, and Jennifer Jellison Holme. 1999. “Charter Schools as Postmodern Paradox: Rethinking Social Stratification in an Age of Deregulated School Choice.” *Harvard Educational Review* 69(2):172-204.

Wells, Amy Stuart and Robert L. Crain. 1994. “Perpetuation Theory and the Long-Term Effects of School Desegregation.” *Review of Educational Research* 64(4):531-555.

Table 1. Average Ethnic Fragmentation Values for all Schools in District, 2003-2007

Schools	**EF Index Values**
A6	0.8412
B1	0.8348
A8	0.8306
B8	0.8300
B3	0.8281
B10	0.8266
DISTRICT	***0.7979***
B9	0.7519
B6	0.7447
A4	0.7373
B5	0.7002
A5	0.6996
A2	0.6872
A7	0.6820
B4	0.6340
B7	0.6254
A1	0.6170
B2	0.5508
C8	0.5253
A9	0.5201
A3	0.4859
C1	0.4629
C4	0.3671
C6	0.2807
C3	0.2262
C7	0.2021
C5	0.1921
C2	0.1868

Note: Ethnic Fragmentation values range from 0 to 1, with 0 representing a perfectly homogeneous population.

Table 2. Average Dissimilarity Index Values for all Schools in District, 2003-2007

Schools	DI Values
C7	0.0542
C2	0.0395
C1	0.0384
C3	0.0375
C6	0.0338
C5	0.0332
A6	0.0309
A2	0.0306
C4	0.0264
C8	0.0264
A4	0.0262
A3	0.0261
A1	0.0248
B5	0.0241
A5	0.0238
A7	0.0232
A8	0.0228
A9	0.0215
B3	0.0134
B1	0.0126
B2	0.0111
B6	0.0107
B10	0.0074
B8	0.0057
B9	0.0040
B4	0.0033
B7	0.0017
DISTRICT DISSIMILARITY=	0.6135

Note: The district dissimilarity ranges from 0 to 1, with a 1 meaning all disadvantaged students in the district would need to be relocated. The individual school values show the proportion of this total belonging to each school.

Table 3. Cross-Classified Model Examining Stratification and Intra-District Transfer

Variable List	Coefficient	Odds Ratio	Std. Error	
Intercept	-2.292	0.101	*(.79)*	**
Growth over Time	0.031	1.031	*(.07)*	
Time Variant Student Background				
Student Participates in Free Lunch Program	-0.713	0.49	*(.05)*	***
Student is an English Language Learner	-0.214	0.807	*(.05)*	***
Student has Mild Disabilities	-0.005	0.995	*(.06)*	
Student Guardianship (ref = Two Parents)				
One Parent	0.019	1.019	*(.04)*	
Other Guardianship	-0.015	0.985	*(.14)*	
Student Grade (ref = Kindergarten)				
First	0.021	1.022	*(.06)*	
Second	-0.004	0.996	*(.08)*	
Third	0.058	1.06	*(.08)*	
Fourth	0.023	1.023	*(.01)*	
Fifth	0.117	1.124	*(.08)*	
Sixth	0.094	1.099	*(.08)*	
Time Invariant Student Background				
Student Race (ref = white)				
Asian	-0.065	0.937	*(.10)*	
Black	-0.23	0.794	*(.10)*	*
American Indian	-0.516	0.597	*(.16)*	**
Latino	-0.231	0.793	*(.06)*	***
Pacific Islander	-0.247	0.781	*(.10)*	*
Other Race	-0.403	0.669	*(.49)*	
Student Gender (ref = Male)				
Female	-0.013	0.987	*(.04)*	
Zoned-School Characteristics				
Ethnic Fragmentation Level	1.768	559%	*(.54)*	**
Economic Dissimilarity Level	-16.723	0.001	*(7.52)*	*
Percentage Passing Math	0.073	1.075	*(.70)*	
Variance Components				
Row Level Variance Components:				
Intercept	2.477		*(1.57)*	***
Chi-square			26300.87	
df			22357	
Column Level Variance Components:				
Intercept	0.607		*(.78)*	***
Chi-square			937.76	
df			97	

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

N = 49,718 Observations of 22,368 Students & 108 Observations of 27 Schools (over 4 years).

Table 4. Difference between School and Zone Composition for Minority Population

Schools	*School*	*Zone*	*Difference*
A1	82.83	80.75	2.08
A2	84.43	84.73	-0.30
A3	89.73	83.48	6.25
A4	80.73	77.15	3.58
A5	83.50	81.20	2.30
A6	86.80	84.88	1.92
A7	82.30	81.88	0.42
A8	78.08	78.73	-0.65
A9	80.13	77.48	2.65
B1	64.75	51.83	12.92
B2	27.65	20.80	6.85
B3	74.03	74.20	-0.17
B4	32.65	29.30	3.35
B5	78.48	72.68	5.80
B6	61.53	62.65	-1.12
B7	33.30	31.98	1.32
B8	70.03	70.18	-0.15
B9	46.18	41.80	4.38
B10	62.55	59.00	3.55
C1	22.10	24.43	-2.33
C2	7.90	7.70	0.20
C3	9.70	11.43	-1.73
C4	16.38	17.33	-0.95
C5	8.05	6.90	1.15
C6	12.30	14.70	-2.40
C7	8.58	7.50	1.08
C8	25.03	29.03	-4.00

Note: A negative value indicates that the school has a smaller minority population than its corresponding zone

Table 5. Difference between School and Zone Composition for Socioeconomic Status

Schools	*School*	*Zone*	*Difference*
A1	92.88	90.43	2.45
A2	96.80	95.38	1.42
A3	95.88	91.53	4.35
A4	94.38	91.65	2.73
A5	92.43	89.23	3.20
A6	94.58	92.6	1.98
A7	93.85	93.15	0.70
A8	89.75	89.3	0.45
A9	89.23	86.93	2.30
B1	86.85	72.38	14.47
B2	45.55	33.43	12.12
B3	78.90	78.13	0.77
B4	58.15	53	5.15
B5	92.45	88.73	3.72
B6	79.80	79	0.80
B7	64.33	58.25	6.08
B8	71.68	72.7	-1.02
B9	72.33	67.55	4.78
B10	74.18	73.9	0.28
C1	21.58	25.58	-4.00
C2	8.30	8.65	-0.35
C3	20.63	18.8	1.83
C4	20.68	17.33	3.35
C5	26.73	27.98	-1.25
C6	16.55	15.9	0.65
C7	11.30	10.83	0.47
C8	35.35	40.8	-5.45

Note: A negative value indicates that the school has a smaller minority or disadvantaged population than its corresponding zone.

Table 6. Differences for Ethnic Fragmentation Index Values for all Schools and their Corresponding Zones

Schools	*EF Difference*
A1	-0.0390
A2	0.0202
A3	-0.1407
A4	0.0067
A5	-0.0150
A6	-0.0175
A7	-0.0143
A8	0.0199
A9	-0.0584
B1	0.0414
B2	0.1048
B3	-0.0129
B4	0.0480
B5	-0.0435
B6	0.0209
B7	0.0153
B8	0.0072
B9	0.0473
B10	0.0403
C1	-0.0281
C2	0.0047
C3	-0.0387
C4	-0.0157
C5	0.0270
C6	-0.0464
C7	0.0242
C8	-0.0602

Note: A negative value indicates that the school is less diverse than its corresponding zone.

Table 7. Differences for Dissimilarity Index Values between all Schools and their Corresponding Zones

Schools	*D Difference*
A1	0.0013
A2	-0.0007
A3	0.0038
A4	0.0014
A5	0.0006
A6	0.0012
A7	-0.0002
A8	-0.0013
A9	0.0025
B1	0.0069
B2	-0.0049
B3	-0.0004
B4	-0.0019
B5	0.0035
B6	-0.0004
B7	-0.0028
B8	-0.0022
B9	0.0026
B10	-0.0012
C1	0.0148
C2	0.0046
C3	0.0068
C4	-0.0039
C5	0.0097
C6	0.0019
C7	0.0053
C8	0.012

Note: A positive value indicates that the school is less diverse than its corresponding zone.

Figure 1. Plausible Values of Predicted Choice Probability for Average EF Values of Groups A, B, and C

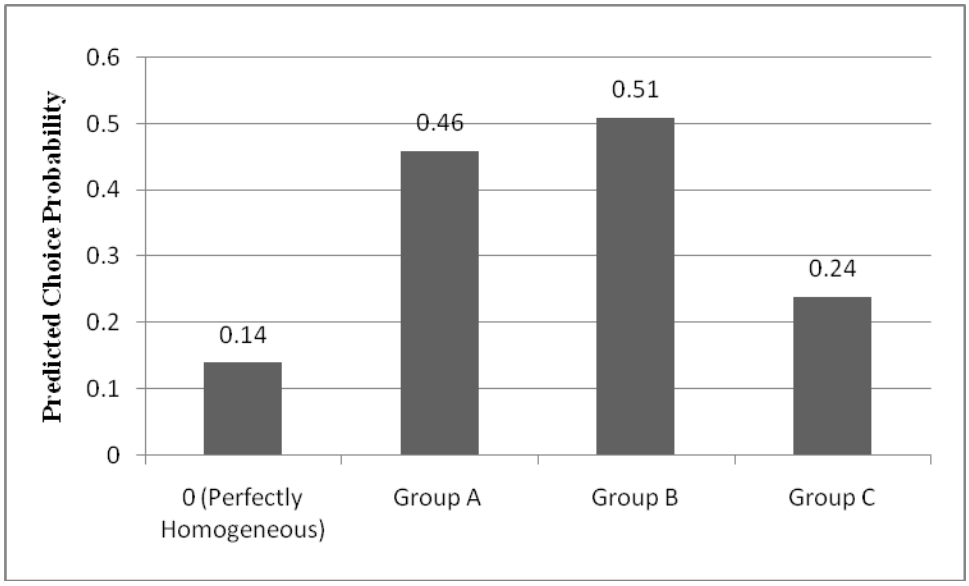


Figure 2. Plausible Values of Predicted Choice Probability for Average D Values of Groups A, B, and C

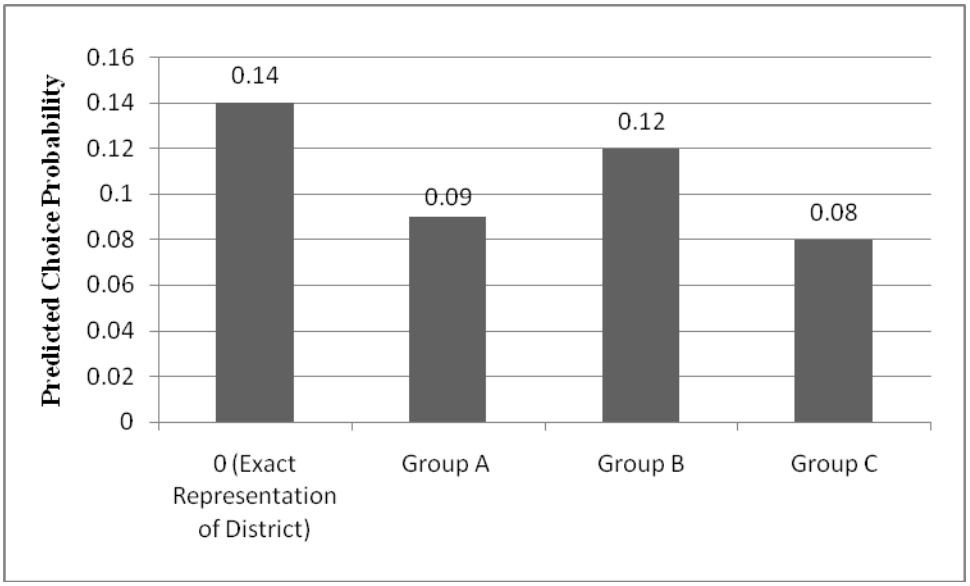


Figure 3. Magnitude of Change in Socioeconomic Status from School to Zone

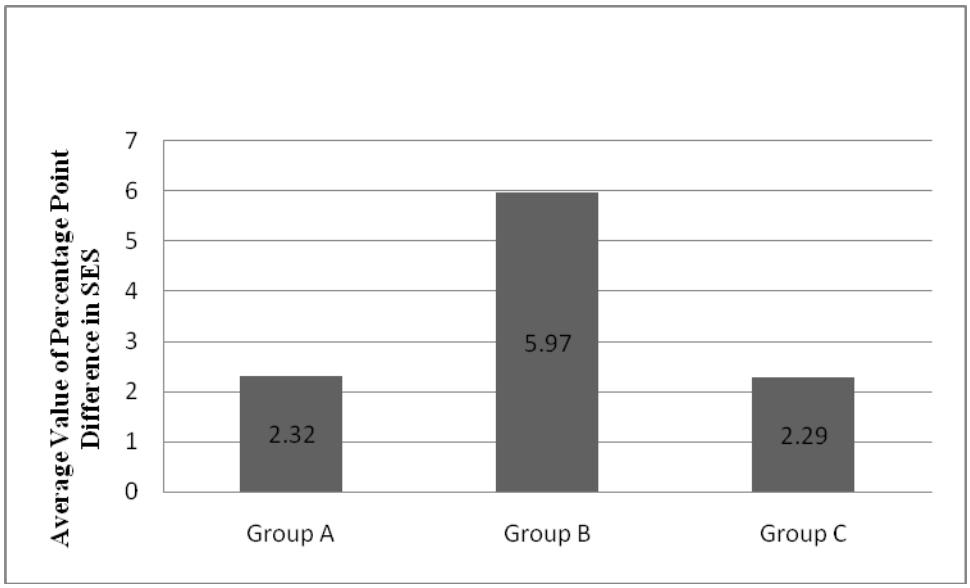


Figure 4. Magnitude of Change in Racial Composition from School to Zone

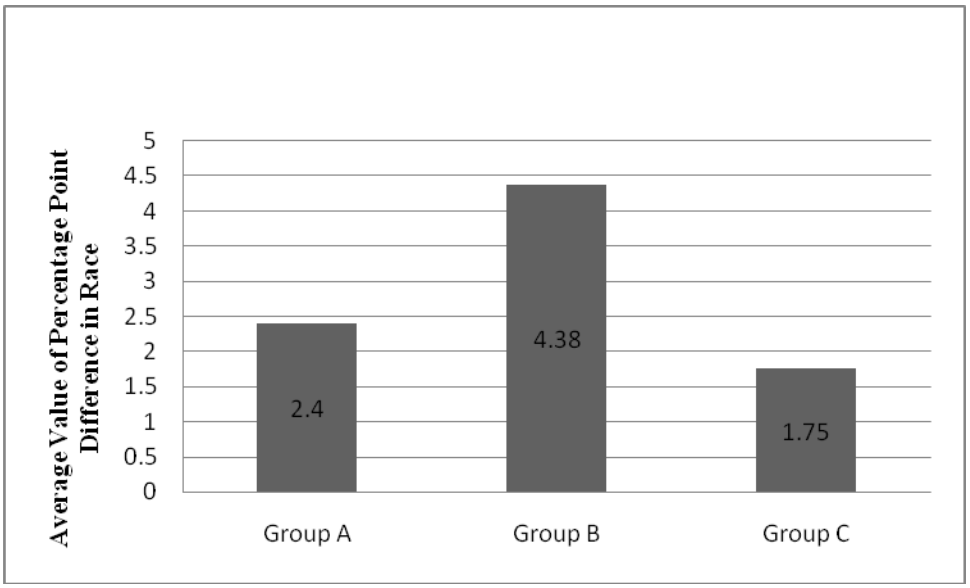
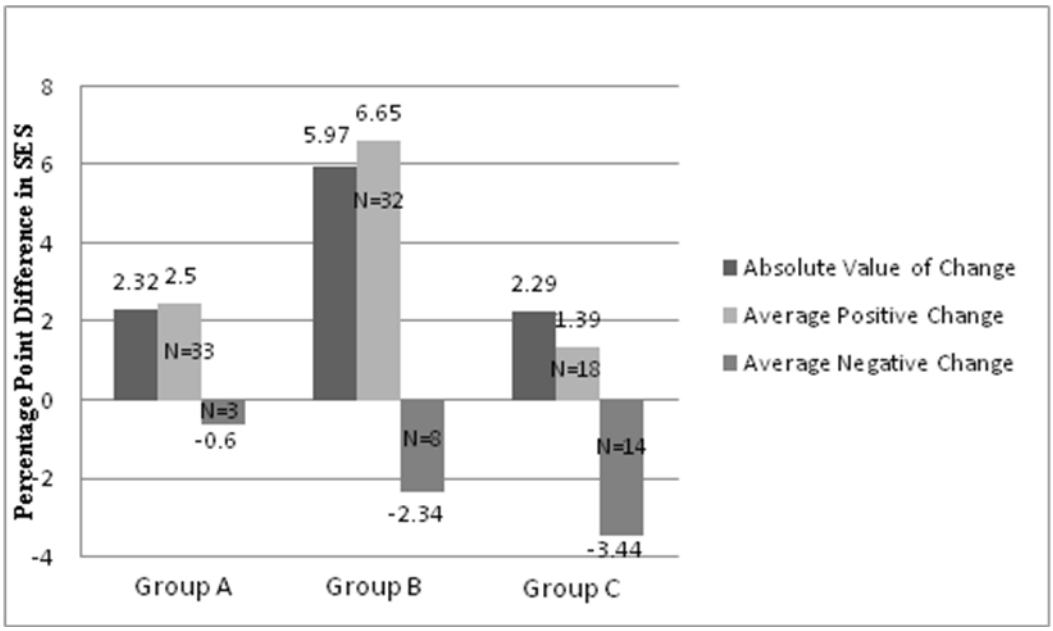
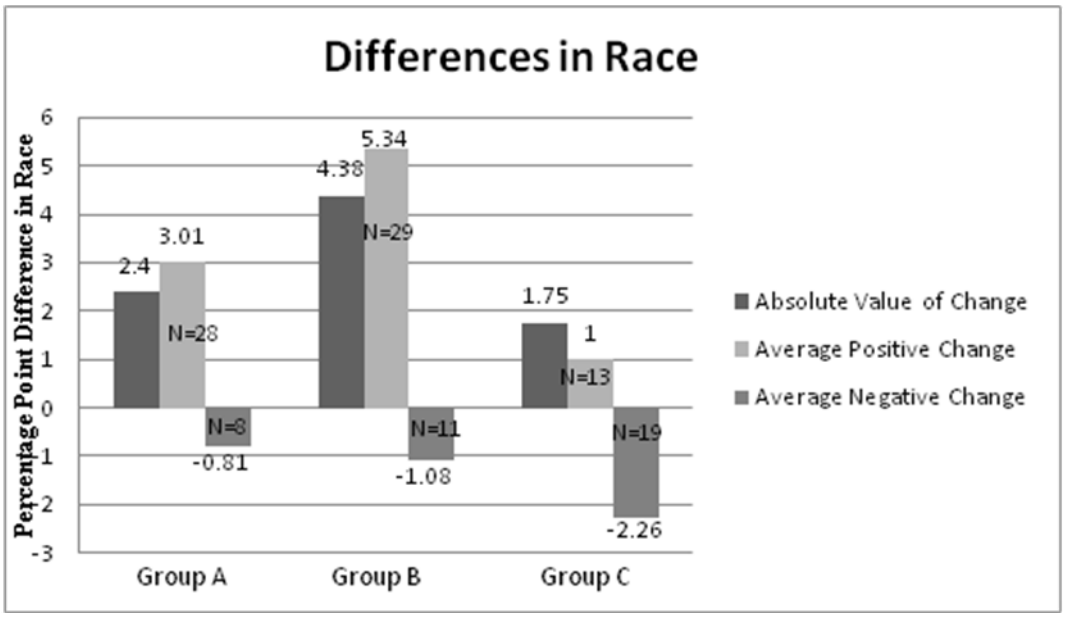


Figure 5. Magnitude of Change in Socioeconomic Status From School To Zone, Reflecting Direction of Change



Note: One observation equals one school during one year.

Figure 6.Magnitude of Change in Racial Composition From School to Zone, Reflecting Direction of Change



Note: One observation equals one school during one year.

Figure 7. Comparison of EF Value Distribution for Schools and Zones

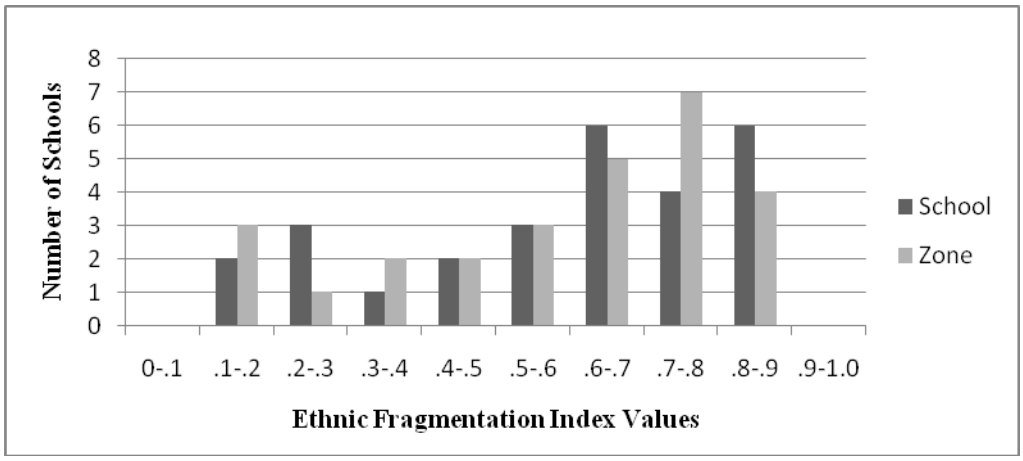
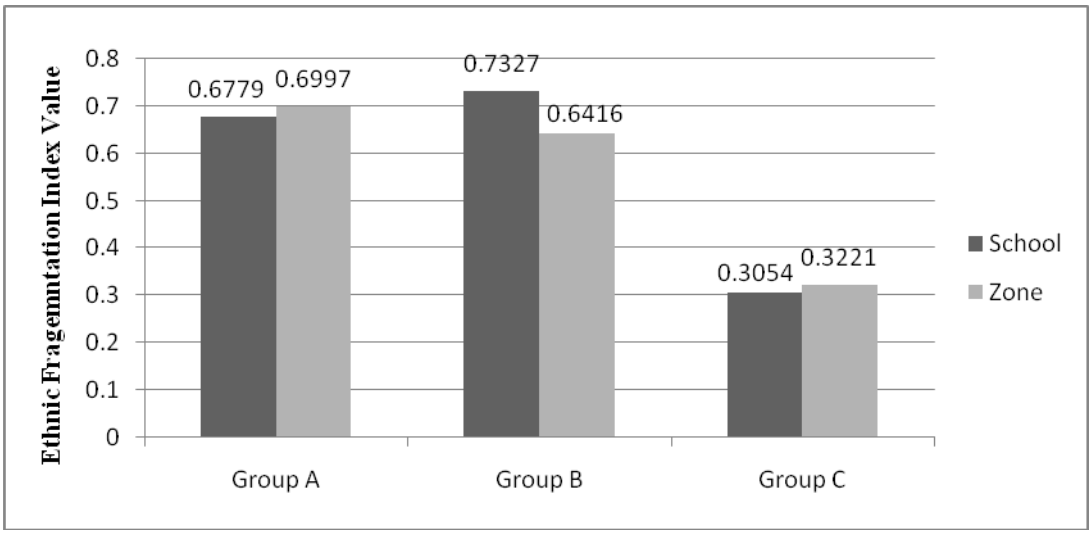
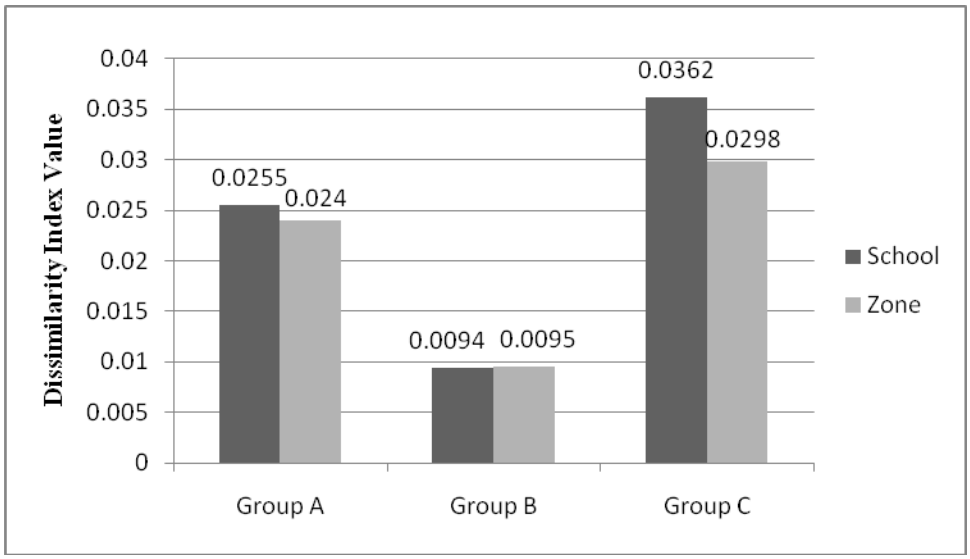


Figure 8. Differences in Average Ethnic Fragmentation Values by Group



Note: The lower the fragmentation level, the more stratified the schools in this group are.

Figure 9. Differences in Average Dissimilarity Values by Group



Note: The higher the dissimilarity value, the more stratified the schools in this group are.