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Educating Inner-City Children in Suburban Schools: A Randomized Study of Majority-to-Minority Transfer and Achievement in Connecticut

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Introduction

In 1989, a group of Hartford area students and their parents initiated what would become a long and highly controversial legal battle over the structure of public education in Connecticut. The plaintiffs charged that residential segregation in the Hartford metropolitan area led to a denial of their right to equality of educational opportunity, and that the state was required to provide a remedy. At a time when support for school desegregation was in steep decline, *Sheff v. O'Neill* brought the issue to the fore in Connecticut, forcing the state to re-examine its educational policies. One consequence of the lawsuit was the expansion of a majority-to-minority transfer program, Project Concern, which had been quietly operating in the Hartford metropolitan area since the mid-1960s. This program, later to be called Open Choice, and its effects on the achievement of participants, is the primary focus of this study.

Sheff v. O'Neill made visible the inequality between Connecticut's affluent suburbs and its capital, which is one of the poorest cities in the country. The case highlighted the connection between high levels of racial and economic segregation in the Hartford metropolitan area and the considerable difference in educational achievement levels between the city and its suburbs. With students in the urban schools consistently performing at the worst levels in the state, Connecticut had long been trying to improve Hartford's schools, but segregation had not been significantly addressed.

The *Sheff* plaintiffs insisted that Connecticut was responsible for remedying the situation, as the state is required by its Constitution to provide equality of educational opportunity. The defendants, however, argued that since they did not cause the segregation, they were not responsible for its consequences. After several years of delays, the case was finally decided in 1995 in favor of the defendants, but the state's relief from responsibility did not endure. The following year, the plaintiffs won their appeal to the Connecticut Supreme Court, and the law equating school district boundaries with town lines was declared unconstitutional.

The potential repercussions of this decision were considerable, as an effective remedy might require that district lines be redrawn such that urban and suburban students would attend schools together. Although this outcome was the original goal of *Sheff* plaintiffs, the idea drew fervent opposition from the suburbs and was quickly squelched by Connecticut officials. Instead, district lines remained as they were and policy makers were commissioned to develop exclusively voluntary solutions to segregation and educational inequality.

These events led to the expansion and modification of Project Concern, a thirty year-old majority-to-minority transfer program that allowed a small number of students from the Hartford school district, where nonwhite students were in the racial majority within their schools, to attend suburban schools, where these students were in the minority. Though the program had inspired enthusiasm and praise when it was first instituted in 1966, it had since left the public focus, and participation had diminished before *Sheff v. O'Neill* once again shifted attention toward desegregation. In 1998, Project Concern was renamed Open Choice, funds were provided to increase levels of participation, and eligibility criteria became more inclusive.

With Open Choice occupying an important place in Connecticut's solution to Hartford's educational problems, it is important to examine the effects of majority-to-minority transfer on

the achievement of Hartford students. Such an analysis is also important given national policy debates that have recently focused on choice-based remedies for educational inequality.

Because the demand for Open Choice continually exceeds the space available in suburban schools for transfer students, a random lottery is conducted each year to select participants from a pool of volunteers. Students who are not chosen in the lottery form a natural control group to which to compare Open Choice students. Since allocation to treatment and control is random, the characteristics of students in the two groups should be statistically the same. Differences in achievement between the two groups should, therefore, be indicative of the effects of participation in the program.

In this study, I compare standardized achievement test scores of Choice and control students in order to estimate the effects of majority-to-minority transfer on the academic performance of Hartford students. I find that treatment students perform better than controls in reading and, to a lesser extent, in math. Writing scores, however, are lower for Choice students than for controls. Although there is a trend toward more positive effects as the number of years in treatment increases, this change is largely the result of the movement of students between treatment and control after the initial allocation of groups.

When the sample is divided into lower- and higher-income groups, new patterns of achievement emerge. Lower-income Choice students perform worse in all subject areas compared to lower-income controls. Achievement for higher income students, however, appears to be affected more positively by participation in Open Choice, as these treatment students perform better than controls in both reading and math, though not in writing. These findings suggest that while participation in the program academically benefits higher-income students, it has a more negative effect on the achievement of lower-income students. Despite the intentions

of policy makers, those students who are most disadvantaged do not appear to benefit from Open Choice.

The ensuing chapters provide more detailed information about both Open Choice and the results of my analysis. In Chapter 1, I develop a conceptual framework based on the relevant sociology of education literature and the studies that specifically examine desegregation and achievement. Based on the theories and findings of these two areas, I will present four predictions for the findings of my analysis. In Chapters 2 and 3, I place Open Choice in its specific historical and social context. Chapter 2 describes the various stages of Connecticut's historical struggle with educational inequality, with special attention to the development of majority-to-minority transfer and the place of *Sheff v. O'Neill* in this narrative. Chapter 3 moves into the present with a detailed look at the segregation and educational disparities in Connecticut and the operation of Open Choice. In Chapter 4, I describe the methods used in this analysis and present my results. Finally, in Chapter 5, I discuss these findings as they relate to the four hypotheses made in Chapter 2 and offer policy recommendations for Open Choice.

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Conceptual Framework

Implicit in the arguments of the *Sheff* plaintiffs is the assumption that the educational disparities between Hartford students and their suburban counterparts are not simply the result of individual ability and family background or the amount of money spent on each child. Educational outcomes, they argue, are also largely products of the social context in which learning takes place. These claims are based on an extensive sociological literature that has attempted to determine the factors that most affect educational outcomes. One of the major themes in this research has been the finding that context does matter; children are affected by their social atmosphere, which is largely influenced by the aggregate characteristics of their peers. These findings have important implications for this study, since Choice students are effectively entering a new social milieu, in which educational culture and expectations may be quite different. Before looking specifically at the treatment involved in this particular program, it is important to have a clear grasp of the literature that informs these issues.

Hypotheses

In this chapter, I will develop a conceptual framework for this study based on two main areas of research: the sociology of education literature on contextual factors that influence educational outcomes generally and analyses that specifically investigate the effects of

desegregation on participants' achievement. This review will ultimately inform a discussion of the following predictions for this study.

Hypothesis One: Choice students will generally perform better than controls because of the differences in contextual characteristics experienced by the two groups. Achievement will be influenced most by the aggregate traits of student bodies, with smaller effects resulting from teacher attributes and school resources.

Hypothesis Two: The effects of treatment on achievement will be small or negative in the first year of participation, but will become positive and larger in subsequent years. The negative aspects of majority-to-minority transfer will initially have a large impact, but will decline in influence over time, giving positive facets greater weight.

Hypothesis Three: The direction and size of differences in achievement between treatment and control groups will vary by subject area tested. Effects may be larger for language skills than for mathematics skills, because Choice students will have more exposure to Standard English in suburban schools than might otherwise be the case in Hartford.

Hypothesis Four: The effects of participation in Open Choice will vary inversely with economic background, so that poorer students, those more likely falling into Coleman's category of students most "sensitive" to school environment, will experience greater achievement gains than better off students.

I will begin by reviewing the sociology of education literature that examines the important determinants of achievement outcomes. This will be followed by an overview of school desegregation research, including a review of its theoretical underpinnings and general findings, as well as a look at the specific characteristics of desegregation that appear to be related

to achievement. I will then more particularly consider findings from the voluntary desegregation studies that are most relevant to Open Choice. Finally, I will use the preceding review to give a more thorough analysis of the four hypotheses that I have made for this study.

What Matters? Contextual Factors and Achievement

Sociologists of education have been especially interested in why some people have better educational outcomes than others. Extensive research has focused on determining which aspects of a person's experiences are most important in predicting educational achievement. As might be expected, family background characteristics are the best predictors of student achievement levels, but children's outcomes are not simply a product of their parents and homes. Social conditions outside of the home, particularly those in neighborhoods and schools, also affect achievement. In this section, I will explore these issues with a discussion of the influence of family and neighborhood as well as of important factors related to schools, namely characteristics of the student body, teachers, curriculum, and resources. These latter factors, especially peer influence, will demonstrate special importance for the outcomes of this study.

The Point of Origin: Family and Neighborhood

A student who transfers from one school to another experiences changes in many aspects of his life, but this move alone will not alter the characteristics of the child's family background or of the neighborhood in which he lives, both of which influence achievement. It is important then, to examine the importance of these factors if we are to understand the limitations of majority-to-minority transfer programs in affecting achievement. In this section, I will review

the evidence of the relationship between academic achievement and characteristics of family and neighborhood.

A person's attitudes and aspirations, as well as opportunities, are largely shaped by his family. The expectations of significant others, among them family members, are an important influence on the formation of one's aspirations and expectations for education (Kahl, 1953). Such attitudes affect actual behaviors, resulting in a relationship between significant others' influence and educational outcomes. Since a child's expectations for academic outcomes are correlated with the socioeconomic status of his parents (Sewell et al., 2001), family background, more so than any school-level factor, is an important determinant of educational achievement (Coleman et al., 1966).

That the socioeconomic status of the people with whom one interacts can affect educational expectations suggests that significant others not of one's family can also influence outcomes. Jencks and Mayer (1990) find that a neighborhood's socioeconomic status is positively correlated with educational attainment, even when controlling for family background. Both family and neighborhood effects, then, are important factors for achievement, largely through the influence of significant others. Since neither family nor neighborhood will change with school transfer, we can expect that majority-to-minority transfer is limited in its ability to change achievement outcomes. However, school-level factors, to which I will now turn, are also important to achievement.

School Effects: The Influence of the Academic Environment

Educational outcomes are not solely a product of family and neighborhood, but can also be significantly affected by school environment. If, as we have found, educational outcomes are

affected by the expectations of people with whom one interacts, we should expect that the students and teachers in a child's school can have a significant impact on his achievement. Findings from *The Coleman Report* (Coleman et al. 1966) demonstrate with an analysis of nationwide data that although family background is the most important factor in achievement, some school characteristics are also influential. The aggregate characteristics of the students in a child's school have a significant impact on his academic achievement. Teacher characteristics, such as experience and training, may also have an effect on levels of student achievement, though the relationship is weaker than with peer influence. Significant others associated with a child's school can influence academic outcomes in much the same way that parents and neighborhood peers do. A change in such contextual factors is likely to bring about some alteration in achievement.

Coleman's evidence also suggests that school resources and curriculum sometimes influence student achievement, though the impact is very small. Expenditure for school resources affects achievement only for blacks in the South, but for no other groups. Similarly, large class size is negatively associated with achievement (Krueger, 1999). Some amount of achievement, then, is related to school facilities and expenditure, but these influences are very small compared to family background and student body.

According to Coleman's evidence, student body, teacher, and resource effects influence achievement most in those students from the poorest family backgrounds. These results suggest that those students who receive the least support from their home environment may be those that are most affected by their school environment. Coleman et al. refer to these groups as the most "sensitive" to school environment (Coleman et al., 1966, p. 297). Students who fall into this category should be expected to respond most to changes in these factors.

We have seen from the evidence presented above that there are several factors that influence achievement. The influence of significant others, whether they be family members, neighbors, fellow students, or teachers, is an important determinant of achievement. If the characteristics of these people are substantially altered, as may occur when students transfer from one type of school to another, we might expect that achievement outcomes will be affected. Whether or not this is the case has been an important question for researchers of desegregation. It is to this literature that I now turn.

The Evidence on Desegregation

The controversial nature of school desegregation as a method of combating educational inequality has led researchers to investigate the relationship between desegregation and achievement. Many have argued that desegregation will positively affect achievement for those groups of students, namely poor and minority students, who perform poorly on average compared to better-off groups. Research that has attempted to investigate this claim, however, has been largely inconclusive, due in part to methodological weaknesses and the tendency to consider treatment as the same in all cases of desegregation. In this section, I will present the available evidence on desegregation and achievement. I will begin with a discussion of the harm and benefit hypothesis, one of the most important theoretical bases of this research. This will be followed by a discussion of the desegregation literature, which indicates that achievement effects are generally positive, but which suffers from methodological weaknesses that limit the conclusions that can be drawn. Finally, as instances of desegregation differ and cannot be assumed to result in the same treatment effects, I will discuss those characteristics of

desegregation programs that appear to influence the magnitude and likelihood of positive achievement effects.

The Harm and Benefit Hypothesis

As researchers have sought to determine the influence of desegregation on achievement, they have presented arguments on both sides of the issue. The harm and benefit hypothesis, which has been used extensively to inform courtroom debates over desegregation, including those of *Sheff v. O'Neill*, holds that attending segregated schools will harm the academic achievement of minority students, while desegregation will have the opposite, positive effect (Armor, 1995). This relationship holds regardless of whether the segregation is de facto or de jure, because interracial contact is in itself a causal factor for the academic improvement of minorities. Because of their social separation, it is argued, the self-esteem of such students is lower than would otherwise be the case, resulting in lower achievement levels. The hypothesis also predicts that the act of desegregating schools will have the opposite effect on students. Not only will it result in the improvement of achievement, but also of the self-concept and aspirations of minority students, race relations in general, and long-term educational and occupational outcomes for minority students. In short, the hypothesis states that segregation is harmful, while positive action to reverse this situation, that is desegregation, will be beneficial to minority students' achievement.

Although the assumption that interracial contact is inherently beneficial to minority students has been challenged, there is reason to believe that the central conjecture of the harm and benefit hypothesis, that segregation is harmful and integration beneficial to minority students, has some validity. Because of the relationship between race and socioeconomic status

(Hirschman and Snipp, 2001) segregated urban schools, like those in Hartford, tend to have a high concentration of nonwhite and poor students, as well as teachers with less training, less-challenging curriculums, and less resources. As we have seen, these are all important factors influencing educational achievement. This suggests that under these conditions of segregation, achievement levels will likely be lower for each student in the segregated nonwhite school than would be the case if that student were to attend a school with more a affluent student body. The hypothesis that racial segregation in schools will have harmful effects on the achievement levels of minority students is therefore quite plausible.

The second premise of harm and benefit, that desegregation will improve achievement, does not necessarily follow from the first. Even if segregation has negative consequences, desegregation may not necessarily combat this problem. Although one might argue that, all things being equal, placing a minority child in a desegregated school will result in greater achievement than if that child attended a segregated school, desegregation introduces other factors into the experiences of children involved that may negatively influence achievement levels. Long bus rides that are tiring and time consuming, racism and isolation experienced by minority students in predominantly white schools, and alienation and rejection by neighborhood peers are among the negative factors noted by majority-to-minority transfer students (Eaton, 2001). Desegregation may also fail to improve minority achievement if transferring students are academically far behind the students in the receiving schools. This may result in placement in low level or special education classes, and may also negatively impact students' self-esteem and attitudes toward school, possibly leading to lower achievement. Although desegregation changes some of the negative factors that are associated with segregation, it also introduces elements that may negate or diminish any positive effects. If the harm and benefit hypothesis is correct, we

should expect to find that students who participate in desegregation experience positive treatment effects. This proposition will be tested in the next section, where I will present a review of the evidence from desegregation and achievement research.

General Findings on Desegregation and Achievement

Much of the desegregation literature consists of individual studies that vary considerably by type and context of the policy as well as by research design and achievement measures, leading to a variety of conclusions regarding the treatment effects of desegregation. Several researchers have attempted to combine these studies in a coherent way, either by using meta-analysis or by categorizing and reviewing the available evidence. Although some have concluded that desegregation leads to improved academic achievement for minority students (Crain and Mahard, 1978; Weinberg, 1977; Stephen, 1978; 1986; Mahard and Crain, 1983), not all researchers agree (Armor, 1995; St. John, 1975). Even among those who argue that desegregation positively affects achievement, there is disagreement over the size of the effect. Much of the difficulty in addressing this question arises from the frequency of methodological weakness in desegregation studies (St. John, 1975; Bradley and Bradley, 1977). Further, the variety of results attained is related both to differences in research design among the various studies (Crain and Mahard, 1983), and lack of uniformity of desegregation policies. In the following discussion, I will review the conclusions of traditional reviews and meta-analyses concerning the treatment effects of "desegregation".

Several traditional reviews and meta-analyses have concluded that desegregation generally has a positive effect on the academic achievement of minority students. Weinberg (1977) reviews 48 desegregation studies, finding that 29 reported increases in minority

achievement due to desegregation, while 19 found no effect, and that in none of the studies was minority achievement negatively affected. Stephan (1978) similarly concludes that desegregation sometimes has a positive effect on black achievement, while rarely having a negative influence. This conclusion is further supported by Crain and Mahard (1978), who limit their review to those studies that meet their criteria for quality of research design. Mahard and Crain (1983) use meta-analysis to examine results from 93 studies, again paying particular attention to the research design of the studies involved, and conclude that for blacks in early grades, desegregation improved achievement by 0.3 standard deviations. Stephan (1986) finds a positive effect for reading achievement at a rate of 0.17 standard deviations, but finds no effect for math achievement. Other reviews taking into account both individual studies and meta-analyses find that desegregation often positively affects minority achievement, while sometimes having no influence and rarely having a harmful effect (Crain and Mahard, 1983; Weinberg, 1983). Although none of these researchers conclude that desegregation increases achievement in all cases, or that such an effect is very large, they generally find positive achievement effects on the whole with few instances of negative effects.

Some researchers have been more skeptical about the evidence on the achievement effects of desegregation. St. John (1975; 1981) concludes that findings from desegregation literature fail to support a conclusion that desegregation will significantly influence achievement. Based on several of his own studies and other reviews, Armor (1995) concludes that the relationship between desegregation and achievement is not significant. He also expresses reservations about the conclusions that can be drawn from the desegregation literature, because of the various methodological weaknesses of many studies. Other researchers also take this

stance (Stephan, 1978; St. John, 1975; 1981), with some arguing that design weaknesses make any sort of conclusion pointless (Bradley and Bradley, 1977).

Overall, it seems that desegregation leads to positive achievement effects more often than not and rarely harms achievement. However, the likelihood and magnitude of a positive treatment effect is difficult to determine given the lack of uniform results and the frequency of methodological weaknesses in many of the studies. Further, by drawing this conclusion, one implicitly assumes that desegregation is single type of treatment. However, policies and the circumstances in which they operate differ greatly, and we cannot expect that all desegregation programs will lead to the same achievement effects. While the evidence on desegregation as a whole is largely inconclusive, studies that examine voluntary programs like majority-to-minority transfer have found more consistently positive results. Before turning to an examination of this evidence, I will briefly describe some of the program-related factors that appear to influence achievement effects.

Qualities That Influence Treatment Effects

There are several patterns in the desegregation literature that indicate that certain programmatic characteristics influence the direction and magnitude of achievement effects. The variation of these factors is partially responsible for the lack of uniformity in desegregation achievement results. Several researchers have concluded that children who enter treatment at a younger age experience greater effects (St. John, 1975; Crain and Mahard, 1978; 1983; Weinberg 1977). This is especially true of those who enter treatment in the first year of their schooling. Interestingly, length of exposure to desegregation does not appear to be related to achievement (Crain and Mahard, 1978; 1983; St. John 1975).

The effects of desegregation on achievement also depend on the subject area tested, though researchers disagree over the nature of this variation. Some claim that we are more likely to observe achievement effects in math (St. John, 1975; Crain and Mahard, 1978), while others maintain the opposite (Stephan, 1986). Mahard and Crain (1983) conclude that in most cases desegregation affects math and language arts achievement about equally, but they find that in those cases in which treatment effects were greatest, the major advances were in the area of language arts rather than mathematics. They argue that minority students may enter desegregation with poor reading skills, and if the receiving schools are able to provide assistance for those students, reading scores will increase greatly, but if schools do not adequately handle this issue, minority students will continue to score poorly on achievement tests. Mahard and Crain further conclude that the more curriculums differ between sending and receiving schools, the more likely it is that language skills will be positively affected.

We have seen that age at entrance into desegregation appears to significantly influence achievement, though length of time in treatment has little effect. Subject area differences show mixed results, though there is reason to believe that desegregation can have larger effects on language achievement. There are unquestionably many other contextual factors that influence achievement effects, but I have attempted to describe those that recur throughout the literature. One of the most important ways in which desegregation programs differ is in whether participation is mandatory or voluntary. Despite the inconclusiveness of the desegregation literature, there is some evidence, to which I will now turn, that voluntary programs do produce positive treatment effects.

Voluntary Desegregation and Achievement

Whether desegregation programs should be voluntary or mandatory has been a controversial issue, especially given the public's resistance to forced busing, prompting researchers to conduct analyses comparing the two types of programs. While some have claimed that voluntary programs are more successful in improving achievement (Crain and Mahard, 1978, Stephan, 1986), others have argued the opposite (Armor, 1995). If voluntary participation produces larger effects, this may be the result of selection bias; those students who enter these programs may be precisely those that would benefit most from treatment, while others would not experience the same effects. Despite the lack of uniformity in the desegregation literature, there is some evidence from individual studies that voluntary programs like Open Choice do improve the achievement of participants. In this section, I will review this research, beginning with an examination of the evidence from majority-to-minority programs. This will be followed by a brief look at neighborhood transfer studies, in which participants experience similar situations.

Inner-City Students in Suburban Schools: Metropolitan M-to-M Transfer

Because large-scale, mandatory busing programs have received the most attention from researchers and the public, and because most desegregation programs have operated within a city's limits only, there has been little research on the treatment effects of metropolitan majority-to-minority transfer. Further, many studies are local evaluations that have gone unpublished and are not widely available. Many researchers also concentrate on qualitative aspects of student experiences, which tend not to measure achievement and rarely have a control group, while many quantitative studies suffer from methodological weaknesses. Despite these deficiencies, there have been some successful quantitative inquiries into the achievement effects of these

particular types of programs. Further, qualitative studies provide important insight into the experiences of inner-city children in suburban schools and how those experiences might affect achievement.

Quantitative studies tend to find positive achievement effects for metropolitan majority-to-minority transfer. All five randomized studies of voluntary metropolitan plans reviewed by Mahard and Crain (1983) observe positive achievement gains in all areas for treatment subjects compared to controls. Bradley and Bradley (1977) find that, though hampered by poor research methodology, most quantitative research on these programs find positive effects. In a randomized study, Zdep (1971) evaluates an experimental program much like Open Choice that bused a small number of poor, black, first and second graders from a large eastern city into schools in one of the city's suburbs, where residents were mostly white and middle class. Treatment subjects and matched controls, who remained in the city schools, were selected from a group of students whose parents had given permission for them to participate in the program. Students were given standardized tests at the beginning and end of the same school year, to serve as pre- and post-tests for achievement. Zdep found that first graders in the treatment group scored significantly higher in math, reading, and listening skills than controls, but that second grade treatment and control group means did not differ significantly in any subject, supporting the conclusion that younger students are more likely to be positively affected by treatment. Despite some methodological problems, the study suggests that voluntary desegregation of this sort can positively affect achievement, a conclusion generally supported by evidence from other quantitative studies of voluntary desegregation.

Qualitative studies are also useful, as they offer insight into the experiences of the students involved and some basis for predictions of the likelihood of positive achievement

effects. METCO, a majority-to-minority transfer program that operates in the Boston metropolitan area, has received a good deal of attention from researchers (Eaton, 2001; Orfield et al., 1997; Armor, 1972). Much like Open Choice, METCO allows children from the city, which is predominantly minority, to be bused to a school in one of several predominantly white, more affluent suburbs. In order to gain a more detailed view of the experiences of METCO students, Eaton (2001) interviews adults who were at one time participants in the program. These students' experiences inform our understanding of the aspects of this type of program that might affect achievement.

For METCO students, the change in characteristics of the student body and teachers was felt through higher standards for academic achievement and behavior in the suburbs. This suggests that significant others play an important part in shaping the academic atmosphere, which may result in increased educational aspirations or expectations. Further, many subjects felt tension between the academic orientation of their suburban schools and an inner-city culture that devalued education. While school peers may have positively influenced students, the efficacy of the program was challenged because neighborhood influence was retained. Subjects also stressed the language differences that they experienced between their two worlds, and most said that they had to learn how to speak like their suburban peers. This suggests that METCO students gained Standard English skills, which are those assessed in standardized tests. This finding supports Mahard and Crain's (1983) argument that desegregation has special potential to increase achievement scores in language. Eaton's findings increase understanding of the experiences of urban, minority students transferring into white, suburban schools, and highlight the specific factors involved in these programs that may affect achievement.

We have seen that most researchers findd that metropolitan majority-to-minority transfer programs appear to increase educational achievement, especially for students who enter at an early age. Eaton's work on the Boston METCO program has provided more detailed information about the issue, highlighting especially the change in significant others influence that can come about as a result of participation in such a program. The experiences described by Eaton's subjects are similar to those of students studied in another line of research, residential mobility studies. Because of these similarities, this second set of literature, which I evaluate in the next section, can also inform our understanding of majority-to-minority transfer.

A Similar Story: Neighborhood Transfer

In several metropolitan areas, programs have been instituted that allow families from public housing in inner-cities to move to more affluent neighborhoods. In many ways, the experiences of students in Open Choice and programs like it parallel those of children whose families participate in neighborhood mobility through programs like Moving to Opportunity (MTO) and the Gautreaux Program. Further, neighborhood mobility researchers use randomized-out control groups in their studies, as I do. Because of these similarities, research in this area is relevant here. In the following section I will review some examinations of the relationship between the achievement of children and the residential relocation of poor, urban families to the suburbs.

Findings from Chicago's Gautreaux Assisted Housing Program (Rubinowitz and Rosenbaum, 2000; Rosenbaum,1995) and Moving to Opportunity (MTO) in Baltimore (Ladd and Ludwig, 1997; Ludwig, Ladd, and Duncan, 2001) and Boston (Katz, Kling, and Liebman, 2001), provide interesting insight into the experiences of low-income minority students in

predominantly white, suburban schools, and the influence of such experiences on achievement. The move from the city to its suburbs entails not only a physical, but also and more importantly, a social change. The economic and racial characteristics of the neighborhood that the nearly all black Gautreaux and MTO families encounter in their new homes differ dramatically from those of the city neighborhood they leave behind. Most relevant to this study is the change in school districts that accompanies this move from the city to the suburb. Much like Open Choice students, children in these families experience a change in the aggregate characteristics of the student body that reflects the socioeconomic and racial differences between northern cities and suburbs. The effects of this change, and other differences between urban and suburban schools, on the academic outcomes of the children involved are particularly relevant to the current study, and will be reviewed below.

Rubinowitz and Rosenbaum (2000) examine the effects of participation in Gautreaux on achievement using an analysis school grades and the comments of subjects. Gautreaux families are able to move either to the suburbs or within the city of Chicago, forming two groups that serve respectively as treatment and control, between which educational experiences are compared. Researchers find was no statistically significant differences between the grades received by treatment and control subjects, but the level of academic competence represented by grades can vary across schools, demonstrating the methodological difficulty in using class grades rather than standardized tests to measure achievement. Given the higher mean standardized test scores in the suburbs and the comments of Gautreaux parents and children about the higher educational standards that they experienced in their new schools, it is reasonable to infer that the level of achievement represented by a grade in the suburb is higher than that of the same grade in the city. These results may, then, represent a positive treatment effect on achievement. Further,

children in families who move to the suburbs are less likely to drop out of high school and more likely to attend college than those who move within the city (Rosenbaum, 1995). On the whole, movement to the suburbs appears to lead to positive academic effects.

The Gautreaux studies reveal some other interesting patterns in the academic experiences of poor, minority children moving from urban to suburban schools. First, most treatment subjects experienced behavioral, academic, or social difficulties in their first year after changing schools. Although the affect of these experiences on achievement cannot be determined from this study, it seems likely that achievement in the first year does not improve substantially and may even decline, with achievement increases occurring only after a student has been in the program for a greater period of time. Gautreaux appears to result in improved achievement, although it may not be observed until after the first year of treatment.

Research on Moving to Opportunity reveals similar patterns. The program allowed for a randomized experimental design, as families who applied for MTO were randomly assigned to one of three groups: the experimental group, the Section 8 comparison group, and the control group. Experimental group members received housing vouchers that could be used only in low-poverty census tracts and were provided with counseling and assistance in their housing search. Section 8 comparison group members also received housing vouchers, but they could be used in any census tract, and no additional counseling services were provided. Control group members did not receive housing vouchers or counseling services. This strong research design, along with the use of standardized test scores, allows researchers to present some robust findings on the treatment effects of MTO.

Ludwig et al. (2001) find that for elementary children, assignment to the experimental group leads to an increase of about one quarter of a standard deviation in average achievement

scores in both math and reading. Section 8 comparison group children achieved at higher levels than controls in reading, but not math. For adolescents, only reading achievement was measured, but no significant difference in scores is found between the control group and either of the treatment groups. This finding is consistent with trends seen in the desegregation literature that age at time of desegregation is an important determinant of achievement effect. Adolescents in the experimental group experienced somewhat higher levels of grade retention than controls, and there is some evidence that they were also more likely to drop out of school and to experience disciplinary actions. These findings suggest that older students from the inner city come into their new schools already behind the native students academically, and may experience standards of behavior and achievement that are higher than those they are accustomed to, leading to more disciplinary sanctions for these students. Younger students have not already been socialized by the urban, high poverty schools, and will not be as far behind academically because of they have been in school for less time. Overall participation in MTO appears to increase achievement for younger children, but not for adolescents.

Results of both Gautreaux and Moving to Opportunity Studies indicate that students who relocate from poor neighborhoods and schools into more affluent ones will achieve at higher levels than controls. This effect may not be observed in the initial year of treatment, and will likely be smaller or nonexistent for older children. These findings can be attributed not only to the change in schools, but also to neighborhood factors. Nevertheless, there is reason to believe that some of these same effects might be observed in studies that involve school transfer only, since important factors in achievement are associated with schools. Evidence from both majority-to-minority transfer and neighborhood mobility programs suggests positive

achievement effects. Based on the review that has been presented in this chapter, I will now return to an explanation of the four hypotheses put forth initially.

Predictions for Open Choice

Now that we have a better understanding of the processes that effect achievement as well as the evidence from desegregation research, we can return to the predictions made in the beginning of the chapter.

Hypothesis One: Choice students will generally perform better than controls because of the differences in contextual characteristics experienced by the two groups. Achievement will be influenced most by the aggregate traits of student bodies, with smaller effects resulting from teacher attributes and school resources.

We have seen that the influence of significant others is important, with achievement being positively related to the aggregate socioeconomic status of school peers and teachers. Students who participate in Open Choice are moving from a school in which most students have parents who are poor and have few years of education to one in which students come from more affluent and educated families. This is likely to create a situation in which academic expectations are higher, as we have seen in majority-to-minority and neighborhood mobility studies, which likely helps to improve achievement. Treatment also exposes students to more highly trained teachers and better school resources. Based on these changes, it is likely that the move from Hartford to suburban schools will result in generally higher achievement for treatment compared to control subjects.

Hypothesis Two: The effects of treatment on achievement will be small or negative in the first year of participation, but will become positive and larger in subsequent years. The

negative aspects of majority-to-minority transfer will initially have a large impact, but will decline in influence over time, giving positive facets greater weight.

The changes that are associated with majority-to-minority transfer are not all positive. Students may experience alienation and behavioral problems in the initial years of treatment that will negatively affect achievement, as appears to be the case in Gautreaux. Achievement effects, then, might reflect an initial adjustment period in which they are neutral or negative, but as time goes on, this negative aspect will decline while the positive influences associated with treatment will start to bring about the positive treatment effects that are expected.

Hypothesis Three: The direction and size of differences in achievement between treatment and control groups will vary by subject area tested. Effects may be larger for language skills than for mathematics skills, because Choice students will have more exposure to Standard English in suburban schools than might otherwise be the case in Hartford.

Several researchers have compared treatment effects for mathematics and language skills and have found differences between the two, although they have not come to a consensus about which area is likely to be more affected by treatment, as studies have found various results. However, there is reason to believe that treatment effects for language skills can potentially be greater. Racial segregation has resulted in differences in speech patterns between urban and suburban areas, with Ebonics or Black English spoken in the cities and Standard English spoken in the suburbs. Since standardized tests are biased toward examining Standard English aptitude, exposure to the speech patterns of the suburbs may help Hartford students perform better on these tests. Treatment effects for language skills, as measured by these tests, may then be higher than those for mathematics, which is not affected in the same way by segregation.

Hypothesis Four: The effects of participation in Open Choice will vary inversely with economic background, so that poorer students, those more likely falling into Coleman et al.'s category of students most "sensitive" to school environment, will experience greater achievement gains than better off students.

The school effects identified by Coleman et al. and others have been found to have the greatest influence for those students with the poorest socioeconomic background. We should expect to find, then, that the positive treatment effects that are expected to result from changes in these factors will be greatest for these most "sensitive" students. Students who qualify based on parental income for free or reduced school lunches should demonstrate the greatest improvements in achievement.

The validity of each of these hypotheses will be tested using standardized test scores for a randomized set of students. I will present the findings of this analysis in Chapter 4, but first I will describe in Chapters 2 and 3 the context in which Open Choice operates. It is important that we understand the place of this program in the history of Connecticut's struggle with segregated schools and its importance in the national context. Also, the reader should to be aware of the specifics of the program's operation in order to appreciate the meaning of the "treatment" that is under examination here.

2

Historical Context:
Connecticut's Struggle With School Segregation

When the controversial *Sheff v. O'Neill* school segregation suit was first decided in the Connecticut State Supreme Court, the Hartford majority-to-minority transfer program, Project Concern, the predecessor to Open Choice, was about to begin its thirtieth year in operation. Segregation has long been an issue for public schools in Connecticut, where strong racial, ethnic, and economic divisions between cities and their surrounding suburbs are coupled with school district boundaries determined by town lines, thus wedding residential segregation with differences in the composition of student bodies. As Connecticut has experienced changes in the demographics of its population and in its political climate, the approach to racial and economic inequality in schooling has shifted, though always with the constraint that policies must preserve local control of schools.

The story of Connecticut's struggle with school segregation, which I will lay out in this chapter, informs our understanding of the context in which the Open Choice program operates. The first section of this history will examine the early causes of Connecticut's concern with equality in education, leading to the development of Project Concern in the mid-1960s. Connecticut's stance entered its second phase in the next two decades, as policies shifted away from interdistrict desegregation to school resource equity and racial balance within districts. As the number of minorities in Hartford grew and the city's whites migrated to the suburbs, it

became increasingly evident that these strategies were ineffective and desegregation would have to occur across district lines. This led to the third phase of this history, which began with the filing of the *Sheff v. O'Neill* lawsuit in 1989, sparking new interest in racial and economic isolation in the state's schools. One of the changes that accompanied this new political atmosphere was the reformation of Project Concern, which was modified, expanded, and renamed, becoming the program currently under examination.

The relationship between Open Choice and Project Concern dictates a special connection between the research conducted on the earlier program and the study conducted here. I will end the chapter with a review of the research examining the effects of Project Concern, which has been the subject of several examinations, some of which hold important positions within desegregation literature (Crain et al., 1984; Crain and Strauss, 1985). This research forms a base of knowledge about majority-to-minority transfer in Hartford, to which I hope this study will add.

Connecticut's Historical Struggle With School Segregation

High levels of segregation in Connecticut's public schools have received a great deal of attention in the last decade, as the landmark *Sheff v. O'Neill* case has made headlines in local and national newspapers. Decades before this suit was filed, however, reports detailing segregation in the schools pressed for remedies, and the state made some efforts to alleviate the problem. Unfortunately, those efforts had little effect, and urban-suburban segregation levels are higher today than they were then. Project Concern, the predecessor to Open Choice, began in these early years, and has operated throughout various changes in the state's political climate surrounding issues of educational equity. In this section, I will detail the history of

Connecticut's struggle with segregation, and the role that Project Concern has played in this story. This history is important to our understanding of the context in which Open Choice operates.

Setting the Stage: Hartford's Minority Influx and White Flight

Racial segregation was not always an issue for Connecticut, which until the early twentieth century had few blacks, making up about three percent of the total population, and a nonexistent Hispanic population (Stave, 1995). In the 1920s, however, the northern states began to experience population shifts that would lead to a large concentration of minorities in the urban areas of the region. As the number of minorities, who at the time were overwhelmingly black, rapidly increased in the city, concern about racial isolation in the schools began to mount, leading to the development of Project Concern in the mid-1960s.

In the early twentieth century, a combination of push and pull factors led blacks from the South to migrate in large numbers to the North, where they congregated in the cities (Wilson, 1980). Connecticut's black population nearly doubled to 30,000 (18%) between 1910 and 1930 (Stave, 1995), but much greater increases occurred during World War II as demand for black labor in the North rose, and Hartford, with its growing urban problems, became increasingly associated with poor blacks. In the following decades, black migration to Hartford continued, and between 1950 and 1960 the city experienced a 97 percent increase in its black population, compared to an 8.6 percent increase in the city's total population (Allen et al., 1968). By 1966, the total nonwhite population in Hartford had reached 56 percent (U.S. Department of Health, Education and Welfare, 1970), a phenomenal rise from pre-1940 levels. This increase in the number of minorities was partially influenced by the in-migration of Hispanics, particularly of

Puerto Rican descent, which began in the 1940s (Stave, 1995). However, by the sixties, the time in which school segregation in Hartford first began to receive state and scholarly attention, the Hispanic population was not yet a major factor in the city's population; in 1960, 94.3 percent of the state's minorities were black (Allen et al., 1968). This number would soon change dramatically, but for the time being, blacks were the most prominent minority in Hartford.

The rising proportion of minorities in Hartford's population was a result not only of their migration into the area, but also of the white exodus to the suburbs, which greatly lowered the number of whites in the city (Allen et al., 1968). As these whites joined the ranks of the growing suburban middle class, Hartford was surrounded by a ring of affluent, and very white, towns that displayed a sharp contrast to the city both racially and economically. The city became increasingly associated with poor blacks while the suburbs became bastions of white affluence. This led to de facto racial and economic segregation in the public schools (U.S. Department of Health, Education and Welfare, 1970); in 1968, Hartford had a black enrollment of 46 percent, compared to a statewide rate of 8 percent (Ross, 1967).

Connecticut's Initial Response: Project Concern

During the 1960s, in response to the effects wrought by the rapid demographic changes of the mid-twentieth century and an increasing awareness of racial inequality, Connecticut's school segregation was first given substantial attention. Initially, policy makers were concerned with segregation within the Hartford district, which still had enough of a white population to have some white and some black schools (Connecticut State Board of Education, 1998), but in 1965, Harvard researchers examined the state of Hartford's schools and concluded that the educational problems and racial isolation of the city could not be solved without a metropolitan

solution (Connecticut State Department of Education, 1989). The group suggested that a voluntary transfer program should be created that would allow six thousand Hartford students to transfer to other districts (Regional Planning Forum Area Nine, 1994), an idea that quickly received a negative response from the suburbs (U.S. Department of Health, Education and Welfare, 1970). The State Department of Education (SDE) did however institute such a program, known as Project Concern, which would eventually evolve into Open Choice.

Project Concern was originally set up as a two-year randomized, quasi-experiment that was meant to be an initial stage in the development of a regional desegregation plan (Connecticut Project Concern Task Force, 1996). The design of the program provided an opportunity to assess the effect of majority-to-minority transfer on academic achievement. The students were sent either to schools in predominantly white neighborhoods within Hartford or to suburban schools. In its first year, the program transferred 255 kindergarten through grade five students, of whom 224 were black, 24 were Puerto Rican, and 7 were white. Eighty-four percent of the students received support services in the form of a professional teacher, usually black, sent from one of Hartford's sending schools, and a Project Concern mother serving as a paraprofessional aide (U.S. Department of Health, Education and Welfare 1970). Each teacher-mother team served twenty-five students, representing a level of support that far exceeds the amount currently available in Open Choice. Student support was gradually abandoned after the original study of the Project Concern experiment (Mahan, 1968), which will be discussed in more detail later, found that student achievement was unaffected by such services.

Project Concern students were selected from the most racially isolated and disadvantaged of Hartford's schools, which were all in the predominantly black, north end of the city (Iwanicki and Gable, 1981). This remained the selection area for the program's students until it became

Open Choice in 1998. Students were excluded from selection for the program if they required any special educational services, including English as a second language. After the initial two-year experiment, the program's selection bias increased as, in many of the schools, selection for the program was made in accordance with teacher evaluations and the recommendations of principals, who chose students based on their perceptions of each student's ability to adjust to the suburban environment and to succeed in the program (Iwanicki and Gable, 1986). The program ignored, then, students with disciplinary problems, disabilities, low academic potential, and low levels of English proficiency, the last of which was particularly prevalent among the increasingly large Hispanic population. The success of Project Concern in the ensuing years was surely a partial consequence of the heavy selection bias that resulted, while the program's ability to aid disadvantaged students was hampered by its exclusion of those most likely to be in need.

Nevertheless, following early findings of positive achievement effects, Project Concern was seen as a great success and was widely supported, leading to the extension of the program beyond its original two years. Concern about segregation and support for measures to relieve the problem further developed within the State Department of Education (SDE), which issued a policy statement about school desegregation. The SDE was, the statement said, concerned with providing each child with a quality education, a goal that was made especially difficult by "the high concentration of minority group students in urban schools" and their "isolation and lack of exposure to the mainstream of America" (Quoted in Ross, 1967, p. 1). There seemed to be growing sentiment that segregation should be more substantially addressed, as officials called for a considerable increase in the numbers of students participating in Project Concern, and the State Department of Education met with civil rights groups to discuss possibilities for further addressing segregation (Ross, 1967).

Despite these efforts, policy makers did not succeed in developing a comprehensive solution. Connecticut's failure to fully desegregate its schools was a symptom of the state's tradition of local control. Without any government at the county level, Connecticut towns have long been accustomed to a large amount of sovereignty, especially in education (McDermott 1999). Town officials' aversion to acceding power to the state prevented even the discussion of any plan that included the mandatory reassignment of students. Indeed, the state has made attempts to assume responsibility for aspects of educational provision only when it has been absolutely necessary, usually due to court order. These barriers to interdistrict desegregation continued to define the issue throughout ensuing stages of this history.

As local control trumped other, more comprehensive plans, the state reverted to intradistrict desegregation, and in 1969, the Connecticut General Assembly passed the Racial Imbalance Law (Committee on Racial Equity, 1988). The statute required that the each of the schools within a district reflect a percent minority that was within twenty-five percent of the percent minority of the district as a whole. The Racial Imbalance Law said nothing of growing segregation between districts. Thus, if Hartford was ninety-five percent minority, while in Simsbury, a suburb, the proportion was five percent, the law would not be broken as long as all Hartford schools were more than seventy percent minority and all Simsbury schools were less than thirty percent minority. Although the statute was considered to be very progressive at the time, it never effectively led to desegregation. White flight quickly resulted in such a high percent minority in Hartford that racial balance within the district could not relieve segregation; the city was no longer itself divided, but was isolated from its neighboring districts. By the time the Racial Imbalance Law finally came into effect in 1980 (Greenberg, 1998), intradistrict segregation was no longer the problem.

Despite the failure to address racial and economic isolation in Hartford, the matter of segregation disappeared from documentation for two decades, appearing to have been laid to rest as far as lawmakers were concerned. Although Project Concern continued to operate, the focus on desegregation as a remedy to unequal educational achievement suddenly departed from public discussion, and the state began to focus on equality of school resources while virtually ignoring growing segregation. The issue would not be seriously addressed again until the late 1980s, when the *Sheff v. O'Neill* lawsuit would force the state to act.

Equal Resources, Equal Education?

In the 1970s, Connecticut lawmakers stopped concentrating on desegregation as a method of lowering the achievement gap between the cities and the suburbs. Suddenly, save a few reports dealing specifically with Project Concern, the subject of school segregation disappeared from government and other public documents. The lingering racial achievement gap was still a problem that had to be addressed, however, so the state turned its focus to equalizing educational resources across the state. The timing of this shift in emphasis from desegregation to equalization of resources may have been a reaction to increasing interdistrict segregation levels. As Hartford became more uniformly nonwhite, as was the case in the 1970s and 1980s, racial segregation could only be reduced through metropolitan measures of a much higher degree than the rather small Project Concern. Given Connecticut lawmakers commitment to local control, such an action could not be accomplished, and the state turned to equalizing school funding.

In 1975, Connecticut first introduced the Guaranteed Tax Base (GTB) Equalization Plan, which was designed to eliminate differences between districts in funding per child (State of Connecticut Board of Education and the Educational Equity Study Committee, 1981). Large

disparities existed in revenues available for each district, because funding for education was supplied by local taxes, and towns differed in the size of their tax bases relative to population. As might be expected, urban districts were spending much less on education than suburban districts. The GTB was designed to provide state funding that would equalize the level of spending across districts. Connecticut's sole reliance on equalization of school resources continued throughout the 1980s, until racial isolation was again brought to the fore through the courts.

The debate over equalization of resources produced an important judicial precedent. While the state was planning policies for equal funding, the matter was being contended in the Connecticut Supreme Court in the case of *Horton v. Meskill*. The court found that the reliance on local taxes was unconstitutional because of the state's failure to provide the equality of educational opportunity that the Connecticut Constitution required. The state, the court said, could not allow disparities in educational opportunities that resulted from differences in the wealth of the towns in which they lived. In short, the state was required not only to provide education, but also to do all in its power to make that education as equal as possible (Task Force on Educational Equity, 1978). The precedent that was set by this decision would prove very important to the plaintiffs' argument in *Sheff v. O'Neill*, which would once again bring segregation to the public's attention.

Segregation Challenged: Sheff v. O'Neill

In 1989, a group of Hartford and suburban students, supported by the Connecticut Civil Liberties Union and the NAACP, brought a suit against officials of the state of Connecticut, demanding that racial, ethnic, and economic segregation be addressed (McDermott 1999). The

plaintiffs charged that they were guaranteed equality of educational opportunity by the state constitution, that city-suburban racial segregation in the Hartford metropolitan area had led to a denial of that right, and that the state was required to take actions that would reduce gaps in educational opportunity. This was the first attempt to challenge metropolitan segregation in state rather than federal court, a strategy that reacted to the decreasing success of such suits in the U.S. Supreme Court (Armor, 1995). The case was to create much public debate, spark new action from the state, and raise fears of mandatory segregation, but in the end little of substance would change.

While the state was battling the *Sheff* plaintiffs in court, the Department of Education began taking various actions toward interdistrict desegregation measures. In a 1988 report, written in anticipation of *Sheff*, the SDE criticized segregation, openly acknowledging that it was associated with racial gaps in achievement (Committee on Racial Equity, 1988). The report concluded that "achieving the goals of school desegregation and equal educational opportunity will require a major rethinking of Connecticut's public education system" (Committee on Racial Equity, 1988, p. 8). Such a rethinking might require the loosening local control, but the state continued to adhere to this principle.

During the seven years between the filing of *Sheff* and the court's decision, the state began once again to discuss racial segregation and take various remedial actions, all of which maintained local control and voluntary participation. In 1989, an interdistrict grant program was established that provided monies for student diversity projects (Sergi, 1996). Local regional planning processes began in 1993 when state law required that all towns participate in developing strategies for improving educational quality and diversity (Connecticut Project Concern Task Force, 1996). The Hartford region (Region 9) was one of only three regions, of

eleven total, voting to approve their plan (Connecticut State Department of Education, 1999b). Hartford's regional plan included recommendations that Project Concern participation be increased to six thousand students, that the program begin to again include suburban to urban transfer, and that the state provide better financing for the program, creating more incentive for receiving districts to participate (Regional Planning Forum Area Nine, 1994). One of the guiding principles for the region's forum was "maintaining voluntary choices in regional plans (Connecticut State Department of Education, 1999b, Executive Summary, p. 1). This sentiment was echoed in a public statement by the state's Commissioner of Education, Theodore Sergi, who praised the regional forums for developing voluntary approaches: "What has been presented are voluntary plans, voluntary approaches. All approaches maintain local control and increase parental choice" (Sergi, 1994, p. 2).

While pursuing these activities, Connecticut officials had been arguing in court during the ongoing *Sheff v. O'Neill* battle that while they could not dispute the facts of segregation and disparate achievement, the state was not responsible because it had not caused that segregation (McDermott 1999). The Superior Court ruling in 1995 accepted this argument and found for the defendants. Plaintiffs appealed the decision to the Connecticut Supreme Court, which quickly, in 1996, reversed the stance of the earlier ruling and found, based on the language of the state's Constitution and the precedent set by *Horton v. Meskill*, that the state was responsible for providing equal educational opportunity. Further, the court held that the school districting and attendance statutes were unconstitutional because they had caused racial isolation in the schools. The court did not mandate a specific remedy, but deferred the matter to the Connecticut General Assembly. Governor John Rowland responded by rejecting any plan that would involve

mandatory participation (Pilawsky, 1998), and creating the Educational Improvement Panel, to which he ordered to identify voluntary solutions (Rowland, 1997).

The *Sheff* plaintiffs had originally pressed for a change in the structure of school districting in Connecticut by creating a single-district consolidation of the Hartford metropolitan area, in which students would have more freedom to choose their school (*Sheff* Plaintiffs, 1996). The state's response would change things only incrementally, however, by concentrating on further improving resource equity, and by expanding interdistrict remedies through the creation of additional magnet schools and charter schools, the expansion of interdistrict cooperative programs, and the extension of Project Concern (Connecticut State Board of Education, 1998; 1999). The intent was that magnet schools and majority-to-minority transfer would compliment each other, with the former bringing students from the suburbs into Hartford, and the latter moving students from Hartford into the suburbs. In practice, however, this system does nothing for the students who remain in Hartford public schools, attending neither the magnets nor participating in Open Choice. Although the *Sheff* case had attracted much attention and speculation, it had not led to a major overhaul of the system that was already in place. However, it did bring some changes to Project Concern/Open Choice that are of interest here.

Project Concern at the Time of Sheff and the Transition to Open Choice

When the Connecticut Supreme Court announced its decision in the *Sheff* case, Project Concern was still in operation in Hartford, albeit with low participation levels. The program's enrollment had increased through the late 1970s, with a peak in 1978 of 1175 participants, but thereafter the numbers began to decline, reflecting decreased state funding and lack of available space in receiving districts (Connecticut Project Concern Task Force, 1996). By 1996, only 566

Hartford students were enrolled in suburban schools (Rowland, 1997), and in 1997, the final year before the legislation creating Open Choice would come into effect, only 469 students were participating (Connecticut State Department of Education, 2001b). The number of staff, especially the student support staff, involved in the program had been reduced as well (Connecticut Project Concern Task Force, 1996).

While the program was declining, levels of segregation between city and suburb were increasing. In 1966 when the program began, the Hartford school district was 56 percent minority, of which 94.3 percent were black. Three decades later, at the time of *Sheff*, the district was 95.2 percent total minority, 42 percent black and 50 percent Hispanic, much as it is today (Connecticut State Department of Education, 1997).

Project Concern was looked upon as a success that could be used as an example for further voluntary desegregation efforts (Connecticut Project Concern Task Force, 1996), prompting the General Assembly to introduce legislation that would change the program to Open Choice, an expanded version of the original majority-to-minority transfer, effective for the 1998-99 school year (Connecticut State Board of Education, 1999). Under Open Choice, transfer was available not only to Hartford area students, but also to students in the New Haven and Bridgeport metropolitan areas. Further, provisions were made for students to transfer from the suburbs into urban schools. State funding for the program was increased, with a $2000 state grant to the receiving district for each student, $1200 per pupil for transportation, and a bonus to districts who undertook school construction that would increase space for Choice students (Connecticut State Department of Education, 2001b). The number of students participating in Choice steadily increased thereafter, reaching the current level of 884 Hartford students in the program.

The new legislation also modified the way in which students were selected for the program. As Project Concern had evolved, the program increasingly relied on volunteers rather than randomly selected students, as the original design had done (Iwanicki and Gable, 1991). Selection from among these volunteers was based on the recommendations of principals and teachers, which likely led to a systematic bias in the characteristics of students. Further, students with special educational needs, including those who were limited English proficient, were excluded from the program. Open Choice does not prevent special needs students from transferring into suburban schools under the program. Because of these differences, program effects for Open Choice may differ from those found in the early studies of Project Concern, especially now that Hispanic students, who are more likely to need additional help with English, make up a greater percentage of Hartford's students. The ability of the suburbs to meet the needs of Project Concern's selective students may be greater than their capacity to educate the more inclusive group of students transferring through Open Choice.

In the end, the differences between Open Choice and Project Concern are important but largely incremental. Changes have increased the capacity of the program and expanded the availability of transfer to different groups of students, but the basic structure has remained virtually the same. Barriers created by the state's adherence to local control and its aversion to mandatory measures have prevented a more substantial increase in participation levels, or perhaps even the program's elimination for a more comprehensive desegregation plan. Recently, *Sheff* has been in the courts once again, as the plaintiffs were unsatisfied with the state's remedies for segregation. They have outlined a plan that will expand the number of magnet schools and greatly increase participation in Open Choice, with a goal of boosting enrollment to thirty percent of the Hartford school district (Frahm 2003). Such an expansion would have the

potential to fundamentally change the program, but at present the number of students in Open Choice is quite low, and will remain so in the 2003-04 school year. Before examining the current situation in more detail, I will review evidence from early studies of Project Concern.

Early Findings From Project Concern

Having explored the social and political context in which Project Concern developed and operated, as well as its transition to Open Choice, we now have a good background for evaluating the evidence from research focusing on the earlier program. Project Concern has been the subject of several studies, some of which have examined the program's effects on achievement. Findings from this body of research have been consistently positive, with indications that transferring out of Hartford and into the suburbs influences both short and long-term educational outcomes.

The original two-year evaluation of Project Concern took advantage of the program's randomized design to produce a quasi-experimental study examining treatment effects (Mahan, 1968). Entire classes of students were randomly selected from four mostly black elementary schools to enter one of three conditions: transfer to predominantly white schools within the city (urban transfer), transfer to largely white suburban schools (suburban transfer), or continuation in their original schools (control). Of the students who were selected for treatment, parental permission was given for 95 percent, resulting in nearly randomized selection to either control or treatment. Suburban treatment students were further divided into two groups: one that was provided with additional counseling and support services and one that received no such assistance.

Mahan found that suburban transfers who entered the program in grades kindergarten through three demonstrated greater growth in IQ and in verbal skills, measured by standardized achievement scores, compared to students in either the control group or the urban transfer treatment group. No effects were found for math. For students in grade four, treatment group subjects experienced lower achievement gains than controls, while in grade five, changes in mean scores were not significantly different between treatment and controls. Mahan also concluded that treatment subjects who were given additional support services did not have significantly different achievement than those who had not been provided with such services, although the sample size of the latter group was quite small, rendering questionable the ability to draw such a conclusion. Mahan's findings, much like those of similar studies, demonstrate that transfer to suburban schools can positively affect achievement, but only for those students who begin treatment at an early age. Further, while participation in the program appears to affect verbal skills, supporting Mahard and Crain's (1983) hypothesis, no math treatment effects were found.

Since this original study, several researchers have examined the effects of participation in Project Concern, but unfortunately much of this research suffers from methodological weakness. A 1975 study compared a treatment group with matched controls, selected based on their eligibility for the program, finding that second grade achievement was positively affected, with no gains for fourth graders, and losses for sixth graders (Evaluation Office, 1975), but the time between pre- and post-tests was only five months and the study did not take into account selection bias.

Iwanicki and Gable (1977; 1979; 1980; 1981; 1985; 1986; 1987; 1988; 1990; 1991) examined the program several times, finding mostly positive achievement effects. They too,

however, failed to take selection bias into account, a problem that grew worse over time as the criteria for Project Concern became more selective, and the original emphasis on randomized data was lost. Also, the program suffered from a high rate of attrition, which was not examined. Matched controls for the Iwanicki and Gable studies were sampled from Hartford students who met the criteria for Project Concern. All of their evaluations, which evaluated students who had been in the program for one to four years, found that treatment students performed better than controls in both language and math skills, especially in the early grades. It is not possible to conclude, however, whether these effects were real or were a product of selection bias.

Two important and methodologically stronger studies by Crain and his colleagues examined the long-term effects of participation in Project Concern. The researchers used outcome data for the original randomized group of students who entered the program in 1966, as well as cohorts entering in 1968 and 1970 (Crain et al., 1984; Crain and Strauss, 1985). In order to eliminate selection bias, researchers analyzed intent-to-treat effects by including in the treatment group all students who had been offered a place in the program, whether or not they had accepted that place. The 1968 and 1970 treatment groups displayed a slightly higher socioeconomic background than the controls, reflecting the increasingly voluntary nature of entrance into the program. However, even when examining only the 1966 cohort, which did not display this selection bias, the researchers found that treatment subjects demonstrated higher rates of high school completion and college attendance than controls. Further, treatment subjects were more likely to be employed in higher prestige occupations and those that were less commonly held by blacks, though they did not have higher average incomes than controls. Although these studies do not directly measure achievement, these findings may suggest that treatment groups achieved at higher levels than controls, given the differences in high school

graduation rates and college attendance. These findings also demonstrate positive effects on long-term outcomes.

The Project Concern studies, though some suffer from methodological problems, overwhelmingly support the hypothesis that participation in majority-to-minority transfer in Hartford will increase minority achievement scores and related educational outcomes. These findings suggest that Open Choice, given its strong resemblance to Project Concern, may also demonstrate positive effect on achievement.

Conclusion

In this chapter, I have presented contextual information that places the Open Choice program within the history and politics of the state of Connecticut, as well as detailed the evidence available from studies of Project Concern. I began by describing the program's origins and the educational politics that have shaped Choice and the desegregation policy as a whole in Connecticut. Changing population characteristics caused by Hartford's minority in-migration and white flight resulted in increasing racial segregation that precipitated the institution of Project Concern. For two decades afterward, the state turned its focus to equalizing educational resources and public discussion of desegregation halted. *Sheff v. O'Neill*, initiated in 1989, reversed this trend somewhat by bringing racial isolation again to the fore. With the state Supreme Court ruling that the condition of Hartford's schools violated the state's constitution, new desegregation activity was initiated, and Project Concern became Open Choice. The program was expanded and selection procedures were changed, but the basic structure remained much the same. Throughout this history, reluctance to challenge powerful local control over

education and reliance solely on voluntary measures have greatly influenced the course of Connecticut's desegregation policy and the overall context in which Open Choice operates.

After evaluating these historical trends, I reviewed evidence from the studies that examined Project Concern's effects on various educational outcomes. These studies have overwhelmingly demonstrated positive effects for various educational outcomes, including both achievement levels and long-term outcomes like high school completion and college attendance rates. Although some of these studies exhibit methodological weaknesses, the consistency of positive findings suggests that majority-to-minority transfer may improve the achievement of Hartford students. The Crain studies in particular are important both to the desegregation literature as a whole and to analysis of Hartford's program in particular. I have undertaken this study in the hopes of adding to this research.

3

Current Context:
Segregation in Connecticut and Open Choice

Now that Open Choice has been placed within its historical context, we can take a closer look at the present. In this chapter, I will discuss the disparities between Hartford and its neighboring suburbs, including the level of school segregation and the educational achievement gap. These differences are important to understanding the nature of the experiences of Open Choice participants. The second half of the chapter will be devoted to describing the details of the operation of Open Choice. Based on these two sets of information, the reader should be provided with a better sense of the meaning of "treatment" in this particular study.

Separate and Unequal: Segregation in Connecticut's Public Schools

Like many other northeastern metropolitan regions, levels of racial and economic segregation are high for Hartford and its surrounding suburbs. While blacks and Hispanics are clustered in the city, and in other Connecticut urban areas, suburban towns in the state contain few minorities. Hartford, which is one of the poorest cities in the country, is surrounded by towns that are much more affluent. Because town lines determine the boundaries of Connecticut school districts, these disparities are reflected in the student bodies of schools in the region. Educational achievement levels are also quite different when Hartford and its suburbs are compared, as average achievement in the former is consistently the lowest in the state. In this

chapter I will explore these disparities, which demonstrate the contrast between the environment experienced by children in Hartford and that which they will encounter in the suburbs if they participate in Open Choice.

Inequalities Across Municipal Boundaries

The characteristics of the residents of the city of Hartford exemplify the stereotypical inner-city population, with a large concentration of minorities, high poverty rates, low levels of educational attainment, and various other associated characteristics, as demonstrated in Table 4.1. The city is overwhelmingly minority, with only 17.8 percent of residents being non-Hispanic white, compared to 82.1 percent for the surrounding suburbs (Census 2000). From these numbers, we can immediately see that the racial composition of Hartford is vastly different from that of the suburbs into which Open Choice students transfer. Also of note is the city's large Hispanic population, of which 78 percent are Puerto Rican, which conflicts with the traditional view of school segregation as a black and white problem.

Table 4.1: Population Characteristics of the City of Hartford Versus the Rest of Hartford County

	City of Hartford	Hartford County
Racial Composition		
% Black	40.6	8.0
% Hispanic	40.5	6.8
% White, Non-Hispanic	17.8	82.1
Educational Attainment*		
% High School Degree or Higher	60.8	85.3
% Bachelor's Degree or Higher	12.4	29.6
Economic Attributes		
% Unemployed	9.1	3.3
% Individuals in Poverty	30.6	5.7
% Children in Poverty	41.0	1.6
Per Capita Income	$13,428	$32,571

* Age ≥ 25
Source: U.S. Census Bureau, Census 2000

Hartford is also the poorest city in Connecticut, with 30.6 percent of its residents in poverty, and, among cities with a population of 100,000 or greater, has the country's second highest percentage of children in poverty, at 41.0 percent. In the state with the highest per capita

income in the nation and the fourth lowest percentage of child poverty, the poverty levels in Hartford represent an anomaly. Poverty rates in the county's suburbs are substantially lower, with only 1.6 percent of children being in poverty. Other measures of economic well being, such as per capita income and unemployment rates, demonstrate the same disparate pattern. The minority population in Hartford far exceeds that in the surrounding suburbs, compared to which Hartford's residents are worse off financially and have obtained less education. These patterns are reflected in the populations of the schools of the region, to which I will now turn.

Inequalities Across School District Boundaries

A 1909 statute declared that the boundaries for school districts in the state were to be determined by town lines, and that students would attend schools in their own district (Conn. Gen. Stat. §10-240). By keeping students within town boundaries, these stipulations have enabled patterns of residential segregation to become intimately related with school segregation. Racial and economic disparities between Hartford and its surrounding suburbs are manifested within the schools of the region. Racial groups are distributed very unevenly, with minorities making up 94.3 percent of the students in Hartford's school district in the 2000-2001 school year, while nineteen of the twenty-six other districts in the county have a minority population of less than 15 percent (Connecticut State Department of Education, 2001a). The two largest minority populations in Hartford, blacks and Hispanics, make up respectively 40.7 and 52.5 percent of the district's students. Interestingly, the areas outside of Hartford have a substantially higher number of blacks than Hispanics, suggesting that Hispanic school students are more racially isolated than black students.

Dissimilarity and isolation-interaction scores, calculated by the author using 1999-2000 school year data (Connecticut State Department of Education, 2000), better demonstrate the levels of segregation in Hartford County's public schools. These figures were calculated using school-level data, meaning that they represent segregation between schools rather than between districts. The index of dissimilarity represents the percentage of nonwhite students who would have to change schools, if no white students moved, in order for there to be the same percentage of nonwhite students in each school as there is in the entire county. It is a measure of balance of racial composition between the schools. The index ranges from 0 to 100, with 100 representing complete segregation and 0 indicating that racial groups are distributed evenly across schools.

The index of isolation-interaction measures the level of exposure that members of a racial group have to members of their own or another group. Isolation scores indicate the percentage of students of a certain race in the average school of a member of that race, representing the proportion of a student's interaction that occurs within his or her own racial group. Isolation scores range from 0 to 100, with a score of 100 representing total isolation within one's own racial group. Interaction scores represent the amount of contact that a student of a certain racial group has with members of another racial group. For example, the interaction index of white to black is the proportion of black students in the average white student's school. Interaction scores range from 0 to 100, with 0 representing no interaction between the two groups in a situation of complete segregation. Like Massey and Denton (1993), I will categorize dissimilarity and isolation index scores above 60 to be high.

In Hartford County public schools, the dissimilarity index score is 64.8, meaning that 64.8 percent of the nonwhite students would have to transfer if each school in the county were to have the same percentage of nonwhites. The distribution of whites and nonwhites in the

county's schools is therefore highly uneven. Isolation-interaction scores further indicate that the experiences of students of one race differ markedly from those of the others. Table 4.2 shows scores for whites, blacks, Hispanics, and nonwhites as a whole in relation to their own group and to each of the other groups. Racial isolation in the county is quite high, as indicated by the white and nonwhite isolation scores. Further, while blacks and Hispanics do not have high isolation scores in relation to their own racial/ethnic group, interaction scores for blacks to nonwhites and Hispanics to nonwhites indicate that the two groups are isolated within predominantly minority school populations. With a school population in Hartford that is 95.3 percent minority, one would expect isolation within these schools to be even greater than that for nonwhites in the county as a whole. Hartford students experience a vastly different racial composition in their schools than do students in the surrounding suburbs, a situation that is also reflected in the racial composition of school staff. While Hartford has the county's highest percentage of minority staff, at 34.5 percent, twenty-one of the twenty-six other districts have five percent or less minority staff, and in only two other districts does the proportion exceed ten percent. The racial atmosphere that Hartford students encounter in their schools differs substantially from that which they would experience were they to transfer to a school in the suburbs.

Table 4.2: Isolation-Interaction Scores for Schools in Hartford County, 1999-2000

	To White	To Black	To Hispanic	To Non-white
White	82.5	7.0	7.3	17.5
Black	30.8	42.0	24.7	69.2
Hispanic	27.9	21.3	48.4	72.1
Nonwhite	32.8	29.3	35.4	67.2

Source: Calculated from Strategic School Profiles, 1999-2000, (State Department of Education 2000)

The economic characteristics of students attending Hartford schools also contrast with those of their counterparts in the suburbs. In the Hartford school district, 68.8 percent of students are eligible for free or reduced price lunch, which serves as a measure of financial need

(Connecticut State Department of Education, 2002). For the rest of Hartford County, the percentage of students in this category is only 16.7. The city's students are not only worse off individually than suburban students, but they also experience a school population with a high percentage of students from poor economic backgrounds, while students in the suburbs encounter mostly affluent peers.

We have seen that the schools that Hartford students enter each day differ markedly from those that are experienced by the majority of other students in Hartford County. Racial and economic compositions, reflecting patterns of residential segregation, suggest that educational experiences on either side of the district line are likely to be quite different. As we will see in the next section, the concentrations of low-income and minority families in Hartford are also correlated with low levels of academic achievement.

The City/Suburban Gap in Educational Achievement

Hartford has consistently had the worst educational performance in the state (See Table 4.3, below). In my examination of the Open Choice program, I will focus on the Connecticut Mastery Test (CMT), which is administered to all Connecticut students in grades 4, 6 and 8. Using this measure, Hartford's achievement scores are far lower than those of any other town in Hartford County. In 2000, the city had the lowest performance in the county for grades 4 and 6, with the second lowest percentage in grade 8 (Connecticut State Department of Education, 2002). Hartford also had the county's lowest scores on the Connecticut Academic Performance Test (CAPT), which is administered to students in grade 10, the lowest mean scores for both the math and verbal sections of the SAT, and the second lowest percentage of students attending a four-year college after graduation. In short, the academic performance of Hartford students is far

below that of students in its neighboring towns. Hartford's students are significantly less likely to attend a four-year college, but almost twice as likely as the average Connecticut student to attend a two-year college. Although the percentage of Hartford students obtaining post-graduate education is similar to the state average, the educational program that they choose is more likely to be of a shorter duration. Overall, the average educational achievement and attainment of Hartford students is far below the standards of both the state as a whole and the rest of Hartford County. This disparity coincides with the racial and economic disparities discussed above, and further indicates that the students transferring from Hartford to its suburbs will experience substantial changes in social atmosphere. Before examining the effect of this move on achievement, I will give a brief description of how the Open Choice program actually operates.

Table 4.3: Achievement Scores and Educational Attainment for Hartford and Connecticut, 2000-2001

	City of Hartford	CT State
Connecticut Mastery Test, % Meeting State Goal in all 3 Subject Areas		
Grade 4	9.5	40.2
Grade 6	15.1	43.7
Grade 8	13.7	43.5
Connecticut Academic Performance Test (Grade 10), % Meeting State Goal in all 4 Subject Areas	2.2	22.6
SAT (Grades 11 and 12)		
% Graduates Tested	82.7	77.8
Math Mean	387	503
Verbal Mean	395	501
Post-Graduate Attainment		
% Cumulative Dropout Rate, Class of 2000	28.3	12.2
% Graduates Attending 4-Year College	42.3	59.5
% Graduates Attending 2-Year College	30.8	15.8

Source: Connecticut State Department of Education, Strategic School Profiles, 2000-2001

Connecticut's Majority-to-Minority Transfer: Open Choice Today

Each year hundreds of Hartford families apply for the chance to place their children on a multiple hour bus ride that will take them out of their city and to a school in which they will likely be in a small minority both racially and economically. Given the differences between

suburban schools and the local Hartford schools, the students encounter an educational environment that is vastly different from that which they would experience in their neighborhood's traditional school. In this section, I will examine the administrative processes behind this transfer of students, including the structure of the administration that runs the program, the students, and the transportation.

Administration

Open Choice allows students from the Hartford school district to transfer to surrounding suburban districts, and students from these suburban areas to transfer to Hartford. I will focus on the former group of students, as the number transferring into Hartford is quite small, with only 93 suburban students enrolled in the city's schools in the 2001-2002 school year. The program operates not only in the Hartford area, but also in the Bridgeport, New Haven, and New London metropolitan regions. I concentrate on the Hartford area because majority-to-minority transfer in the area dates back to 1966, more than three decades before the programs in the other areas began operation, and for the more practical reason that the council administering the Hartford program was much more willing to provide information and assistance. In each of the four Open Choice regions, the program is operated by the area's regional educational service center, which for Hartford is the Capitol Region Education Council (CREC). The regional centers were established by local boards of education to function as coordinators for regional educational activity. CREC is supported for the most part by local funds, with some state and federal assistance, and a small amount of private funding (Capitol Region Education Council, 2000).

CREC operates not only Open Choice but also several other interdistrict educational programs, services, and activities for the Hartford region. CREC administers a number of educational choice programs, which include magnet schools, interdistrict summer programs,

themed school year interdistrict diversity forums, activities and societies, and sister school projects between urban and suburban schools (Capitol Region Education Council, 2000). Majority-to-minority transfer, then, is only one of the state's strategies for the reduction of racial, ethnic, and economic isolation in the public schools. Hartford's Open Choice is administered by five employees at CREC, a state executive director at the State Department of Education, and district superintendents and principals, who coordinate each district's response to Choice.

The Students

The students participating in the program are overwhelmingly minority, as would be expected based the demographics of Hartford's student body, but there are far fewer Hispanics in Open Choice than would be reflective of the district's Hispanic population. Only 15.6 percent of those who transfer are coded as Hispanic in the Choice program's database. This may be a result of confusion over coding both ethnicity (Hispanic or Non-Hispanic) and race. Both the students' parents, especially those who were Hispanic, and CREC employees were confused by this distinction (Celia Lafleur, personal communication, January 23, 2003), which may have led to miscoding. A second possibility is that these numbers genuinely reflect a low rate of application by Hispanic students, which appeared to be the case in 2002, when only 21.7 percent of students who applied were coded as Hispanic. The reason for this is unclear. Some may have been discouraged from applying because of lack of proficiency in English, even though, had they applied, they would not have been excluded from acceptance for this reason. Another possibility is a lack of knowledge of the program, which originally only was available to children from the north end of Hartford. If this area is predominantly black, and people are more likely to apply if they know someone who is already in the program, the overrepresentation of black students, who make up 81.7 percent of the Choice students, and the under-representation of Hispanics could be

a residual effect of the original geographic limitation. A final possibility is that there is some sort of cultural difference between Hispanic and black families that leads to a higher rate of participation among the latter. Other racial groups that are involved in the program are whites (6.3%), Native Americans (2.2%), and Asians (0.7%).

As of the 2001-2002 school year, 844 Hartford students were enrolled in suburban schools. This represented only 3.8 percent of Hartford's 22,276 students, a number too small to significantly change the racial composition of either the urban or the suburban schools. Choice students enter a suburban school in which they are the tiny minority, as transfers from the city, as members of their racial group, and as the less affluent. Segregation has likely led to a difference between the culture and speech patterns of the city and the suburbs (Massey and Denton, 1993), which will result in Choice students being in the minority in these aspects as well. For these reasons, and because many are transferring from schools where achievement is lower, these students experience a vastly different academic situation than that to which they are accustomed.

Transportation

Part of the experience of being an Open Choice student is spending a lot of time on the school bus. The school districts to which Hartford students transfer are about thirty to forty minutes away from the city on average, but the commute includes time spent picking up and dropping off other students in the city, which can be a lengthy process (Nessa Oram, personal communication, February 4, 2003). Many students spend an hour to an hour and a half on the bus just in the city, as students are picked up or dropped off on every other street, resulting in a total bus ride that can be as long as two and a half hours. Students are picked up each morning as early as 5:45. The excessive amount of time spent on the bus can be further increased if a bus

has to drop of and pick up students at multiple schools in the receiving districts, a problem due to lack of sufficient funds for separate buses for each school. One might think that such long bus rides would lead many students to drop out of the program, but, according to the program director, this is rarely a reason given by students who leave the program. Students are much more likely to leave due to a residential relocation out of the Hartford school district or to behavioral problems, which are the most commonly given reasons for attrition.

Transportation becomes a special issue for students who would like to participate in extracurricular activities. CREC is sometimes able to provide transportation for the students who want to participate in sports and other after school activities, but late busing on a regular basis appears to be rare. In a 1999 survey of Open Choice parents, seventy percent said that their children needed but lacked transportation for extracurricular activities, especially sports (Connecticut State Department of Education, 1999a). Program director Nessa Oram estimated that less than ten percent of Hartford's Open Choice students participate in sports, but that those students who do so appear to be the most accepted and integrated into their school environment, and usually have friends from their school's suburban town (personal communication, February 4, 2003). This observation was consistent with findings from studies of similar programs, in which students who participated in sports adjusted better to their school environment and were more likely to become good friends with some of their suburban classmates (Eaton, 2001; Rubinowitz and Rosenbaum, 2000). Long bus rides and limitations placed on extra-curricular activity, as well as the changes in social atmosphere encountered by Choice students in their new schools, have the potential to negatively impact student performance, especially when students have first entered the program.

Conclusion

By transferring students from the inner-city to the suburbs, Open Choice is moving students across a vast racial and economic divide. We have seen that the differences between Hartford and its suburbs are great, with Hartford having a predominantly minority population, high poverty rates, and residents with low levels of education. The suburbs, in contrast, contain largely white, affluent, and well-educated populations. Levels of achievement are also enormously divergent on either side of the urban-suburban divide, with Hartford students consistently exhibiting the lowest achievement scores in the state. Students entering the Open Choice program transfer across this divide, experiencing substantial changes in the social atmosphere of their schools. In the next chapter, I will examine the effect of this experience on achievement levels of these students.

4

Results:
Open Choice and Achievement

What happens to the academic performance of inner-city children when they are bused to suburban schools? Thus far, I have presented important conceptual and contextual background knowledge necessary to interpret findings from Open Choice. Having done this, I can now turn to the results obtained from my analysis of randomized test score data from Hartford's program. In this chapter, we will see the patterns of achievement that result from participation in Open Choice, while in the following chapter, I will interpret these findings and discuss their implications for this program and for majority-to-minority transfer programs in general.

I will begin with a discussion of the data followed by an explanation of the methods used. I will then present my major findings, focusing on those that address the hypotheses put forth in Chapter 2. I will present findings for both the group as a whole, and then separately for lower-income and higher-income groups.

We will see that for the group as a whole, math achievement effects are initially negative, but as the number of years in the program increases, this gap is reduced. Positive effects are exhibited throughout treatment for reading, but effects for writing are uniformly negative. Part of the improvements that are observed in math and reading as time spent in treatment increases result from the movement of students between treatment and control groups.

The final section of this chapter will present differences in treatment effects by economic status. In all subjects, students from lower economic backgrounds exhibit lower achievement scores than low economic status controls. Students of a higher economic background, however, experience positive effects in math and reading, but negative effects in writing. In general, students from lower-income families are negatively affected by participation in Open Choice, while students from higher economic backgrounds experience improvements in academic achievement.

Data and Methods

The questions addressed in this analysis have depended largely on the data, which has been analyzed for the first time. In this section, I will discuss the randomization process that has allowed me to use a strong research design, with a randomized-out control group, to estimate treatment effects. I will then briefly describe the test score data, beginning with an explanation of the Connecticut Mastery Test scores, which are the achievement measures used in this study. This will be followed by a description of the specific group of students for whom I have achievement scores. Finally, I will compare pretests and other indicators for students in order to see whether or not the initial allocation of students to treatment and control groups appears to have been random.

The Lottery and Randomization

Students enter Open Choice by submitting an application in the lottery that takes place each year in April. Admittance to the program is limited by space-availability in the receiving districts, so students must be chosen by random lottery. According to the program's director,

Nessa Oram (personal communication, February 4, 2003), there are effectively two lotteries, one for siblings of students already in the program, who receive preference, and a general lottery for all families. The siblings are placed first, in the same district as the student already in Choice if possible, and are guaranteed a space as long as one is available for their school grade. CREC works with superintendents of receiving schools to find space for these students where needed, so siblings are almost always placed. The remaining space is filled by the general lottery, in which applicants are entered and chosen by family unit. Each family has an equal chance of being chosen, regardless of the child's academic record or special needs, to which the application process is blind. According to CREC, 64 of the 884 students in the program are currently receiving special services (Celia Lafleur, personal communication, February 19, 2003).

Because CREC uses this lottery process, students are randomly allocated to either the treatment group or the control group. The treatment group consists of students who have applied for and received a space in the program, while the control group is composed of students who have applied for, but have not been placed in the program. Because the control group is randomized-out, the two groups should exhibit similar characteristics, including level of motivation before the treatment. By comparing these two groups, I can effectively control for some of the selection bias that would plague simple comparisons of Open Choice students with Hartford students. Because subjects in both groups volunteered to enter the program, they are matched in levels of motivation, which must be higher than for Hartford students in general. Post-test differences in the achievement scores of the treatment versus control group should therefore be indicative of treatment effects rather than bias in the allocation of subjects. Later in this section, I will evaluate the genuineness of the randomization process by examining whether

or not the two groups exhibit similar racial and economic characteristics. Pretest differences will be presented in the results section of this chapter.

The Connecticut Mastery Test

The Connecticut Mastery Test (CMT), which is a standardized, statewide measure of achievement in Connecticut, is administered to students in grades 4, 6, and 8 in mathematics, reading, and writing (Connecticut State Board of Education, 2002). The tests are given in September of each year, and are thus designed to assess a student's achievement based on expectations of the aptitude that students should exhibit at the completion of the previous grade. For example, the grade 4 CMT measures the ability of students to perform skills that should be learned as part of the grade 3 curriculum.

Although the reading and writing portions of the test each contain two sections, only one was scored before 2000, so I will analyze data only from those sections for which scores exist throughout the time period of my sample. I use the Degrees of Reading Power (DRP), in which students respond to multiple-choice questions about a series of nonfiction reading passages, as a measure of reading aptitude. To evaluate writing skills, I use the Direct Assessment of Writing, in which students are given forty-five minutes to respond to a reading prompt, and their writing is judged for level of coherence as a first draft. For mathematics, in which the CMT only includes one measure, students respond to multiple choice and open-ended questions.

CMT score data are linked with data indicating a student's eligibility for free or reduced-price lunches under the National School Lunch Program (NSLP), information that I will use as a measure of economic status. Qualification for NLSP assistance is means-tested – students from families with incomes under 130 percent of the poverty level are eligible for free lunches, while

students from families with incomes between 130 and 185 percent of the poverty level may receive reduced price meals (U.S. Department of Agriculture, 2003). Given these qualifications, lunch eligibility serves as a good indicator of economic status.

1999 Applicant Data

The dataset analyzed in this study includes 140 students who applied to enter treatment beginning in the 1999-2000 school year in grades 5 through 8. The original sample also included 133 other students who would enter grades 1 through 4 in 1999, but there are no available pretests for this group since testing does not begin until grade 4. I am, therefore, unable to determine for these students whether observed differences in mean post-test scores are the result of treatment or of differences that existed prior to 1999. For that reason, I concentrate on the older group, for whom pretests are available.

Of the 140 students entering grades 5 through 8 in 1999, 42 were originally allocated to treatment, while 98 were assigned to the control group. Some movement between treatment and control occurred in the subsequent years. While some subjects left treatment, others who were originally allocated to the control group reapplied for treatment and were accepted to the program in later years. The effects of this movement on observed treatment effects will be discussed in more detail later.

There are four cohorts in the sample, consisting of those who entered the 1999-2000 school year in grades 5, 6, 7, and 8, which will be referred to as cohorts 5, 6, 7, and 8. Because CMT tests are taken in grades 4, 6, and 8, each of the tests was administered to the groups in a

Table 5.1: CMT Scores for Cohorts 5-8 by Year and Grade

		Pretests				Treatment Begins	Post-Tests			
Cohort	N	1995	1996	1997	1998		1999	2000	2001	2002
5	36				Grade 4 CMT			Grade 6 CMT		Grade 8 CMT
6	32			Grade 4 CMT			Grade 6 CMT		Grade 8 CMT	
7	45		Grade 4 CMT		Grade 6 CMT			Grade 8 CMT		
8	37	Grade 4 CMT		Grade 6 CMT			Grade 8 CMT			

different year. Table 5.1 shows the grade level and year for each of the CMT scores for cohorts 5 through 8. At least one pretest score is available for each of the groups, as well as post-test scores from one to four years after treatment began. Despite the fact that the tests are taken in September of each year, such that tests taken in 1999 were administered only one month after treatment began, I include them as post-tests. Although these tests measure aptitude that is supposed to have been gained in the previous school year, the scores are likely to have been affected by the school transfer, and therefore exhibit initial treatment effects.

Although I attempted to obtain CMT data for every student who applied for Open Choice in 1999, some data were unattainable. Information for all 1999 school year applicants was sent from the Capitol Region Education Council (CREC), which operates Open Choice, to the State Department of Education (SDE) so that it could be merged with CMT score data. Unfortunately, some scores could not be located because of missing or incorrectly entered birth dates or other inaccurate information in the database provided by CREC, preventing SDE employees from identifying the student (Norma Sinclair, personal communication, March 31, 2003). The errors in the CREC database appear to have occurred randomly, rather than systematically, during data entry, so the remaining sample should be random.

Standardization of Scores

In order to compare CMT scores across grade levels, they first had to be standardized since score ranges differ by year and grade level for each subject. In order to determine the standardized scores, I subtracted the Hartford district mean for each set of tests from the sample scores, and then divided by an estimated value for the standard deviation. Because the SDE could no provide the standard deviations for each set of scores from the Hartford district, I used the sample data to estimate these values. Using the standard deviations of the control group's scores, I regressed the scores for each grade and subject by year. For example, I regressed the standard deviations for reading in grade 4 by year, creating a line from which I took the estimated standard deviation for each year. The same was done for each set of scores by subject and grade. For the mathematics the score ranges were adjusted from 1999 to 2000, so estimates for 1995 to 1999 are based on a separate regression from those from 2000 to 2002.[1]

The standardized values for the scores, then, are estimates of the distance, in estimated standard deviations, of each score from the Hartford district mean. The Hartford means were used because all of the students reside there, so these scores represent the typical achievement level of the schools in which the students originated. These standardized scores give an indication of the achievement of the sample subjects compared to the average student in Hartford, with negative or positive values representing, respectively, achievement that is below or above the Hartford average.

Although it is difficult to determine whether or not the calculation of estimates for standard deviations was accurate, the method should result in reasonable estimates. Further, since scores for the control and treatment groups were standardized in the same way, a

[1] The sample standard deviations were similar across years for each subject, suggesting that the use of sample data resulted in reasonable estimations. Because the amount of variation was small, this standardization did not greatly change the values of standard deviations.

comparison of the two groups will exhibit the correct sign of the difference in mean scores between the two groups, regardless of their standardization. In other words, if the treatment effect is positive, a positive difference in the means of treatment versus control groups should be observed whether or not the size of the difference is accurate.

Results

I will begin with a brief look at the allocation of racial and economic groups to the treatment and control in order to observe whether or not there are any systematic differences between the two groups in these characteristics. I will then present the main findings of estimated treatment effects, with a look at the findings specific to each subject area and the effects of movement out of initial group on observed treatment effects. In the final section, I will examine the ways in which results differ by the economic background of the students.

Was Allocation Truly Random?

Before presenting the results of my analysis, I will first compare initial treatment and control groups in various indicators unrelated to treatment in order to investigate the assumption that allocation to treatment and control was truly random. Table 5.2 presents racial and economic characteristics of control and treatment. Race was determined by the student's self-identification on their most recent CMT test answer sheet. When asked for race, students are able to mark American Indian, Asian American, Black, White, Hispanic, or Other. Hispanic, then, is considered a separate race rather than an ethnicity. The few students who indicate more than one race are grouped into a 'multiple mark' category in the database. Economic

background is indicated by whether the student receives free or reduced price school lunches or pays full price, categories that are determined by family income.

Based on the values in Table 5.1, the differences are small between control and treatment groups in the percentage of students of each of these racial and economic groups. Although Hispanics are allocated to the treatment group at a higher rate than to control, the numbers are small for Hispanics in both groups, indicating that differences in percentage Hispanic may reflect random error rather than a systematic bias in selection. Allocation of subjects from the other racial categories and economic backgrounds does not appear to be affected by a systematic selection bias. These findings support the hypothesis that assignment was truly random. Pretest scores, which serve as another indication of possible selection bias, will be presented later.

Table 5.2: Racial and Economic Characteristics of Subjects Originally Allocated to Treatment and Control in 1999 (for cohorts 5-8)

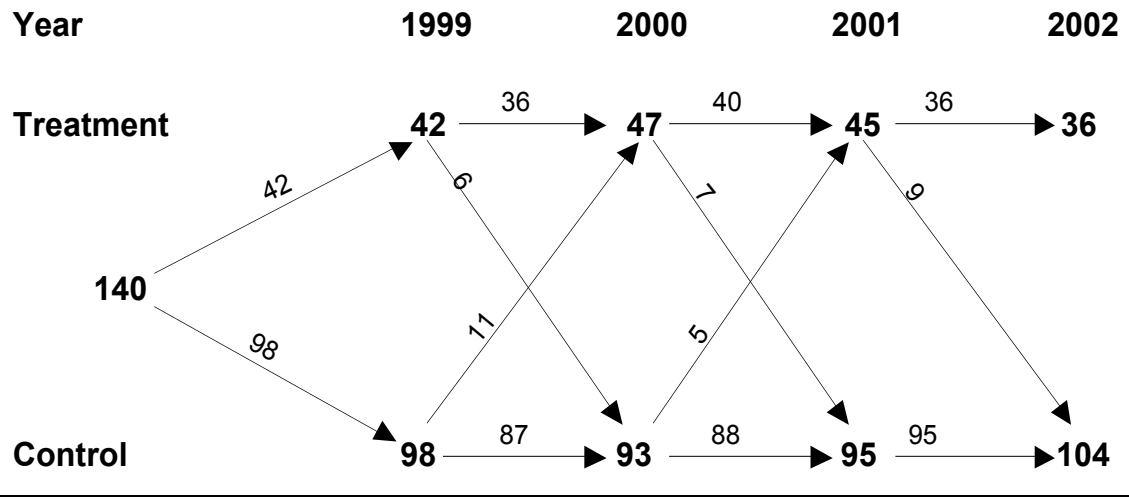
	Control (N = 98)	Treatment (N = 42)	β (T – C)	Standard Error	P-Value
Racial Composition					
% Black	65.31 (N = 64)	61.90 (N = 26)	-3.40	8.90	.703
% Hispanic	22.45 (N = 22)	30.95 (N = 13)	8.50	8.01	.290
% White	3.06 (N = 3)	0 (N = 0)	-3.06	2.68	.255
% All Others	9.18 (N = 9)	7.14 (N = 3)	-2.04	5.20	.695
Economic Background (by lunch status)					
% Free Lunch	36.73 (N = 36)	40.48 (N = 17)	3.74	9.00	.678
% Reduced-Price Lunch	16.33 (N = 16)	14.29 (N = 6)	-2.04	6.76	.763
% Full-Price Lunch	46.94 (N = 46)	45.24 (N = 19)	-1.70	9.26	.855

Achievement and Open Choice: General Trends

In this section, I will present the major findings of this analysis, the trends in differences between treatment and controls in mean standardized scores on the CMT. The results are presented in Tables 5.3, 5.4, and 5.5, which display findings for mathematics, reading, and

writing, respectively. For post-tests, estimated effects, indicated by β_O and β_I, are reported for the observed treatment and control groups, as distributed in 1999 and in 2001, and the initial treatment and control groups, as originally allocated by the 1999 lottery. Treatment effects for the former are shown on the left side of the tables, while those for the latter appear on the right. Because some movement in both directions between treatment and control occurred in the sample after 1999, the observed distribution differs somewhat from the initial. Students moved from treatment to control by dropping out of the program, and moved from control to treatment by reapplying for and being accepted into Open Choice in subsequent years' lotteries. Figure 5.1 shows the movement between treatment and control of students in cohorts 5 through 8. The reader should note that the values of β_O and β_I are only estimates of treatment effects. The true effect is likely to be between β_O and β_I.

Figure 5.1: Movement between Treatment and Control by Subjects in Cohorts 5- 8



For the most part, we will find that this movement between treatment and control results in a net positive effect on differences in mean scores between observed treatment and control groups. As I present results for each of the subject areas tested, I will discuss in more detail the influence on observed effects of movement between treatment and control groups.

For mathematics (see Table 5.3), an examination of the differences in achievement for the observed treatment and control groups reveals a pattern in which estimated effects are negative in the first two years of treatment, but in the third and fourth years of participation in Open Choice, treatment subjects begin to perform better than controls. When we take attrition into account, however, we find that in the third and fourth years of treatment, there is essentially no mathematics achievement difference between initial treatment and control groups. The early negative effect is overcome, but by the fourth year of Open Choice, treatment and control students, as they were originally allocated, are performing at the same level as each other.

Table 5.3: Post-Test Differences in Mean Scores for Math in Early Versus Later Years of Treatment, all Cohorts Combined

	Observed Treatment and Controls*					Initial Treatment and Controls				
	N_T	N_C	β_O	Standard Error	P-Value	N_T	N_C	β_I	Standard Error	P-Value
Pretests 1997/1998 (Cohorts 5-8)						37	71	-.09030	.22658	.691
Post-Tests Years 1 & 2 (Cohorts 5-8)	36	81	**-.24562**	.20641	.237	36	81	**-.24562**	.20641	.237
Post-Tests Years 3 & 4 (Cohorts 5-6)	21	40	**.48732**	.26772	.074	20	41	**-.01042**	.27846	.970

*Observed treatment and controls for Post-Tests 1999/2000 are based on grouping in 1999, and for Post-Tests 2001/2002 are based on grouping in 2001.

Estimated effects for reading are more generally positive (see Table 5.4). Observed effects are positive for both the early and later years of treatment, but they become greater and more significant as treatment continues. When the initial treatment and control groups are examined, estimated effects are still positive, but there is no longer an increase from the early to the later years. The improvement in observed effects for reading as length of time in treatment increases can be attributed, then, to the movement of students into and out of Choice, rather than a real improvement. Even without attrition, however, effects for reading are positive, if small.

Table 5.4: Post-Test Differences in Mean Scores for Reading in Early Versus Later Years of Treatment, all Cohorts Combined

	Observed Treatment and Controls*					Initial Treatment and Controls				
	N_T	N_C	β_O	Standard Error	P-Value	N_T	N_C	β_I	Standard Error	P-Value
Pretests 1997/1998 (Cohorts 5-8)						37	71	.02203	.20948	.916
Post-Tests Years 1 & 2 (Cohorts 5-8)	36	81	**.13587**	.21124	.521	36	81	**.13587**	.21124	.521
Post-Tests Years 3 & 4 (Cohorts 5-6)	21	40	**.47987**	.24426	.054	20	41	**.15867**	.25434	.535

*Observed treatment and controls for Post-Tests 1999/2000 are based on grouping in 1999, and for Post-Tests 2001/2002 are based on grouping in 2001.

Estimated effects for writing, which follow a different pattern from those of the other two subject areas, are uniformly negative, despite the fact that treatment students performed slightly better in pretests than controls (see Table 5.5). Observed treatment effects become more negative and significant as the number of years in Open Choice increases. Movement between treatment and control groups has had little influence on writing achievement effects, such that

whether or not attrition is taken into account, treatment effects are negative, and become increasingly so as treatment continues.

Table 5.5: Post-Test Differences in Mean Scores for Writing in Early Versus Later Years of Treatment, all Cohorts Combined

	Observed Treatment and Controls*					Initial Treatment and Controls				
	N_T	N_C	β_O	Standard Error	P-Value	N_T	N_C	β_I	Standard Error	P-Value
Pretests 1997/1998 (Cohorts 5-8)						37	71	.13838	.21552	.522
Post-Tests Years 1 & 2 (Cohorts 5-8)	36	81	**-.21082**	.20776	.312	36	81	**-.21082**	.20776	.312
Post-Tests Years 3 & 4 (Cohorts 5-6)	21	40	**-.33487**	.23693	.163	20	41	**-.30116**	.24065	.216

*Observed treatment and controls for Post-Tests 1999/2000 are based on grouping in 1999, and for Post-Tests 2001/2002 are based on grouping in 2001.

We have seen that for math, observed effects are negative in the first two years of treatment, but become more positive in the third and fourth year. Observed reading effects are initially positive, and become increasingly more positive in the later years of treatment. Findings for these two subjects differ substantially from those of writing, for which observed effects are uniformly negative, and indeed become more negative after the first year of treatment.

Since these patterns reflect scores for those actually in the treatment and control groups at the time of each particular test, they are partially affected by movement between treatment and control. Estimated effects for initial treatment and control groups in reading and math are less positive than observed effects, demonstrating that movement between treatment and control groups after 1999 had a positive net effect on observed treatment effects. The improvements that

occur in math and reading reflect the movement of poorly scoring students out of treatment, better scoring students into treatment, or a combination of both.

The true treatment effect is unknown, and is likely to be between β_O and β_I. Initial groups reflect a conservative estimate of the effect, because as attrition occurs, the estimate includes the achievement of students in years that they are actually not in treatment, meaning that the difference in means does not reflect only the effects of treatment. Observed treatment effects are also estimates, as they incorporate students into groups to which they were not initially allocated, thereby putting into the control group students who may have been affected somewhat by treatment. Both β_O and β_I are therefore only estimates of effects.

Economic Background and Treatment

I have so far presented the findings of achievement effects for the Choice group as a whole, but different patterns are revealed when we look at the effects that are experienced by lower-income students versus higher-income students. I use eligibility for free or reduced price lunches (see "The Connecticut Mastery Test") as the indicator for economic status. Students who receive lunch assistance of either kind are included in the lower-income group, while all other students are included in the higher-income group. The reader should remember that these higher-income students come from families with incomes that are high relative to other Hartford families, and that their income would likely still be lower than the average income of families in the suburbs to which Choice students transfer.

When the lower-income and higher-income groups are separated, and effects are estimated for each of the groups independently, new patterns emerge. Higher-income students experience mostly positive effects while lower-income students exhibit negative effects.

In math, higher-income students experience greatly different effects than lower-income students. We see that for higher-income students, differences in the achievement of treatment and control students in the first two years of treatment are close to zero (see Table 5.6). In the later years, however, treatment effects become more positive and significant. While attrition has the expected effect of increasing observed effects, a positive effect is found even when comparing the initial treatment and control groups.

Table 5.6: Post-Test Differences in Mean Scores for Math in Early Versus Later Years of Treatment, all Cohorts Combined, for Higher-income Students

	Observed Treatment and Controls*					Initial Treatment and Controls				
	N_T	N_C	β_O	Standard Error	P-Value	N_T	N_C	β_I	Standard Error	P-Value
Pretests 1997/1998 (Cohorts 5-8)						18	32	-.05963	.34790	.865
Post-Tests Years 1 & 2 (Cohorts 5-8)	18	41	**.03613**	.30653	.907	18	41	**.03613**	.30653	.907
Post-Tests Years 3 & 4 (Cohorts 5-6)	9	18	**.81709**	.36506	.034	7	20	**.67856**	.40829	.109

*Observed treatment and controls for Post-Tests 1999/2000 are based on grouping in 1999, and for Post-Tests 2001/2002 are based on grouping in 2001.

Math effects for lower-income students present a vastly different picture (see Table 5.7). For these students, participation in Open Choice decreases math achievement relative to controls. Although observed effects in the latter two years of treatment are positive, when attrition is taken into account, treatment subjects perform worse than controls throughout the four years of the study. While higher-income treatment students experience improvements in math achievement relative to higher-income controls, lower-income treatment subjects exhibit lower math achievement than their counterparts remaining in Hartford schools.

Table 5.7: Post-Test Differences in Mean Scores for Math in Early Versus Later Years of Treatment, all Cohorts Combined, for Lower-income Students

	Observed Treatment and Controls*					Initial Treatment and Controls				
	N_T	N_C	β_O	Standard Error	P-Value	N_T	N_C	β_I	Standard Error	P-Value
Pretests 1997/1998 (Cohorts 5-8)						19	39	-.12421	.30186	.682
Post-Tests Years 1 & 2 (Cohorts 5-8)	18	40	**-.52866**	.27609	.061	18	40	**-.52866**	.27609	.061
Post-Tests Years 3 & 4 (Cohorts 5-6)	12	22	**.23780**	.38491	.541	13	21	**-.42566**	.37325	.263

*Observed treatment and controls for Post-Tests 1999/2000 are based on grouping in 1999, and for Post-Tests 2001/2002 are based on grouping in 2001.

Estimated effects for reading follow a similar pattern for higher-income students, who improve their achievement with participation in the program, but for lower-income students, treatment appears to have little effect on their achievement. Higher-income students experience

Table 5.8: Differences in Mean Scores for Reading in Early Versus Later Years of Treatment, all Cohorts Combined, for Higher-income Students

	Observed Treatment and Controls*					Initial Treatment and Controls				
	N_T	N_C	β_O	Standard Error	P-Value	N_T	N_C	β_I	Standard Error	P-Value
Pretests 1997/1998 (Cohorts 5-8)						18	32	.16420	.30027	.587
Post-Tests Years 1 & 2 (Cohorts 5-8)	18	41	**.43083**	.30690	.166	18	41	**.43083**	.30690	.166
Post-Tests Years 3 & 4 (Cohorts 5-6)	9	18	**.58884**	.34024	.096	7	20	**.60593**	.36786	.112

*Observed treatment and controls for Post-Tests 1999/2000 are based on grouping in 1999, and for Post-Tests 2001/2002 are based on grouping in 2001.

a positive effect in reading even in the initial years of treatment, an effect that continues into the third and fourth years of participation in the program (see Table 5.8). In contrast, estimated effects for lower-income students, especially when the initial treatment and control groups are examined, are slightly negative throughout treatment (see Table 5.9). Because pretest scores for lower-income students reveal a similar degree of difference in the performance of treatment versus control subjects as is evident in post-tests, treatment appears to have little influence on the reading scores of lower-income students.

Table 5.9: Differences in Mean Scores for Reading in Early Versus Later Years of Treatment, all Cohorts Combined, for Lower-income Students

	Observed Treatment and Controls*					Initial Treatment and Controls				
	N_T	N_C	β_O	Standard Error	P-Value	N_T	N_C	β_I	Standard Error	P-Value
Pretests 1997/1998 (Cohorts 5-8)						19	39	-.12230	.29266	.678
Post-Tests Years 1 & 2 (Cohorts 5-8)	18	40	**-.16169**	.29017	.580	18	40	**-.16169**	.29017	.580
Post-Tests Years 3 & 4 (Cohorts 5-6)	12	22	**.39531**	.35311	.271	13	21	**-.12991**	.35323	.715

*Observed treatment and controls for Post-Tests 1999/2000 are based on grouping in 1999, and for Post-Tests 2001/2002 are based on grouping in 2001.

Estimated effects for writing, as we saw when examining the sample as a whole, are universally negative, although higher-income students experience smaller negative effects than lower-income students (see Tables 5.10 and 5.11). For higher-income students, the first two years of treatment produce writing effects nearly equal to zero, but more significant negative effects begin to appear in subsequent years. Lower-income students experience larger negative

effects, and unlike for higher-income students, this pattern appears even in the initial years of treatment.

Table 5.10: Differences in Mean Scores for Writing in Early Versus Later Years of Treatment, all Cohorts Combined, for Higher-income Students

	Observed Treatment and Controls*					Initial Treatment and Controls				
	N_T	N_C	β_O	Standard Error	P-Value	N_T	N_C	β_I	Standard Error	P-Value
Pretests 1997/1998 (Cohorts 5-8)						18	32	.19381	.32798	.557
Post-Tests Years 1 & 2 (Cohorts 5-8)	18	41	**-.01054**	.28470	.971	18	41	**-.01054**	.28470	.971
Post-Tests Years 3 & 4 (Cohorts 5-6)	9	18	**-.10979**	.30171	.719	7	20	**-.19369**	.32309	.554

*Observed treatment and controls for Post-Tests 1999/2000 are based on grouping in 1999, and for Post-Tests 2001/2002 are based on grouping in 2001.

Table 5.11: Differences in Mean Scores for Writing in Early Versus Later Years of Treatment, all Cohorts Combined, for Lower-income Students

	Observed Treatment and Controls*					Initial Treatment and Controls				
	N_T	N_C	β_O	Standard Error	P-Value	N_T	N_C	β_I	Standard Error	P-Value
Pretests 1997/1998 (Cohorts 5-8)						19	39	.08003	.28910	.783
Post-Tests Years 1 & 2 (Cohorts 5-8)	18	40	**-.41271**	.30557	.182	18	40	**-.41271**	.30557	.182
Post-Tests Years 3 & 4 (Cohorts 5-6)	12	22	**-.50062**	.35173	.164	13	21	**-.32799**	.35192	.358

*Observed treatment and controls for Post-Tests 1999/2000 are based on grouping in 1999, and for Post-Tests 2001/2002 are based on grouping in 2001.

We have seen that for lower-income students, estimated effects are negative in both early and later years of treatment and in every subject area tested, although negative effects for reading may result from a pre-treatment negative bias. For higher-income students, effects are quite different. For math, differences between the performance of treatment and control subjects do not appear until after the first two years, but in these later years, they are substantially positive. Reading effects for this group are positive throughout treatment, even in the early years. Finally, writing effects are initially small, but become increasingly negative in the latter two years of treatment for higher-income students. It appears that the influence of participation in Open Choice on the achievement of students depends largely on whether that student is from a family with a higher or lower income.

Conclusion

Estimated effects for students entering Open Choice in grades five though eight exhibit one set of patterns when the sample as a whole is examined, but new patterns are revealed when higher and lower-income students are separated.

We have seen that, for the sample as a whole, effects differ by subject. Math effects follow a pattern that is initially negative but positive in later years, while reading effects are positive throughout treatment. For writing, on the other hand, effects are universally negative. For math and reading, the movement of students between treatment and control results in a net gain for achievement to the treatment group compared to the control group. When we initial treatment and control groups, we find that the trend toward more positive effects in math and reading largely disappears.

The findings of estimated effects are quite different when, instead of looking at the entire sample, higher-income and lower-income students are examined separately. Higher-income students experience neutral math effects in the first two years, but as time in the program continues treatment students perform substantially better than controls. Math effects for lower-income students, on the other hand, are negative throughout treatment. For reading, while higher-income students experience positive effects in both early and later years of treatment, lower-income students again exhibit negative effects. For both groups of students, treatment subjects perform worse on writing tests than controls, but the difference for lower-income students is much greater. While higher-income students experience positive treatment effects in some areas, the performance of lower-income students in all subject areas appears to be negatively affected by participation in Open Choice.

5

Conclusion:
Discussion and Implications

Connecticut has been struggling for nearly four decades with the problems caused by educational segregation and failing urban schools. Throughout this time period, the state has kept in operation a majority-to-minority transfer program that has allowed a limited number of Hartford students to transfer to better performing, suburban schools. Students and their parents enter the program with the expectation that they are opening the door to opportunity through a better education. If these parents are right, and students are benefiting academically from their participation in Open Choice, we might expect to see that their performance improves relative to the performance of similarly motivated counterparts who remain in Hartford schools. This study attempted to determine whether or not such an improvement is observed in one measure of academic achievement, standardized test scores.

In this chapter, I will discuss the results presented in Chapter 5, and their meaning for the efficacy of Open Choice and implications for future policy decisions. The chapter will be organized into sections that address and discuss the results as they relate to each of the hypotheses of Chapter 2. This will be followed by a discussion of policy implications and suggestions for future research.

Hypothesis One: Positive Effects

I predicted, based on evidence from similar studies and our knowledge of the factors affecting achievement, that effects would generally be positive, largely due to differences in contextual characteristics experienced by treatment versus control students. Since achievement is influenced by significant others, the characteristics of the students and teachers with which subjects interact should be important determinants of achievement. Moving from a school in which students have low socioeconomic backgrounds to one in which students, on average, have parents who are both affluent and well-educated, it is then predicted, will change environmental factors enough to generate improved achievement. Findings from several studies similar to this one have supported this prediction.

Evidence from Open Choice supports this hypothesis for higher-income students, but findings for lower-income students are the opposite of what one would expect were this hypothesis uniformly supported. Except in writing scores, higher-income students experience improvements in achievement relative to their counterparts who remain in the Hartford school system. These results are evident even when attrition is taken into account. These students apparently benefit from the move into suburban schools, supporting the hypothesis that a change in social environment can increase achievement. For higher-income students, aspects of their transfer that are expected to have a positive effect on achievement appear to outweigh any negative facets of participation that might influence achievement in the opposite direction.

For lower-income students, however, the expected improvement in achievement scores does not materialize; not only do these students not improve relative to lower-income controls, but they actually achieve at lower levels than controls who remain in Hartford schools. We would expect that interaction with peers whose socioeconomic backgrounds are higher, in an

atmosphere in which educational expectations are greater, would have a positive effect on the academic performance of inner-city children. However, although this new atmosphere does appear to benefit students whose economic status is higher, lower-income students perform worse in this environment.

These findings suggest that if the differences in economic status between sending and receiving schools are too large, achievement levels of transfer students will actually decline. If the differences between the transferring students and the peers they encounter in the suburban schools are too great, the latter group may have difficulty integrating into the school environment. If Choice students view themselves as outsiders, they may not feel governed by the academic norms of their new school environment, and may indeed rebel against them. Further, the experience may be a blow to their self-esteem and to their expectations of their own academic abilities, which will affect their performance. For the higher-income Choice students, however, fitting into the new environment may be easier. Although their economic status is likely to still be lower than that of the average student in the suburban schools, the difference between the two groups is not as great as between lower-income Hartford students and suburban students.

These findings suggest that there may be a point at which the difference between majority-to-minority transfer students and their peers in suburban schools is too great for them to be positively affected by their new environment. The hypothesis that achievement will be positively affected by participation in Open Choice is supported only by evidence from the results of higher-income students, but not those of lower-income students. When determining whether or not participation in the program improves achievement, we must first ask, then, for

which type of student? It appears that it is precisely those students whose opportunities are already the most limited that the program is not helping.

Hypothesis Two: Early Versus Later Years of Treatment

I predicted that effects would be small or negative in the first year of treatment, but would become positive and larger in subsequent years, as students adjust to the program. Students, it was hypothesized, would experience alienation and behavioral problems in the initial years of treatment that would negatively affect achievement, as appears to be the case in Gautreaux (Rubinowitz and Rosenbaum, 2000; Rosenbaum,1995). Achievement effects, then, would reflect an initial adjustment period in which they are neutral or negative, but as time goes on, negative aspects of treatment would decline in significance while the positive influences associated with treatment would start to bring about the positive effects that were expected.

Since lower-income and higher-income students experience such different effects, I will discuss the evidence pertaining to this hypothesis separately for the two groups. For higher-income students, the findings suggest that there is a difference in effects between the earlier and later years of participation in Open Choice, although the particular pattern differs by subject area. Math and writing effects are initially close to zero, but the former become substantially positive in the third and fourth years of treatment, while the latter become considerably more negative. Reading effects are positive even initially, but their value does increase over time.

Although these results indicate that achievement effects vary by time spent in the program, I would argue that they do not support the hypothesis that an initial adjustment period negatively affects achievement before being eventually overcome. The results indicate, instead, that for these students there is a lag in the effect of treatment, whether it is negative or positive.

Except for reading effects, which are immediately positive, effects do not develop until after the first two years of participation in Open Choice. If this lag were caused by an initial negative reaction to the transfer, we would expect writing scores to immediately drop, but this is not the case. It appears that, except for reading, there is an initial delay in the effects of treatment for higher-income students.

For lower-income students, there is not a lag in the effects of treatment. Rather, students experience negative effects immediately in all subjects. It is possible that behavioral and other adjustment problems affect this group of students immediately, in a way that does not occur for higher-income students, and then continue to have negative affects as time in Open Choice continues. The expected shift toward positive effects in later years does not occur for these students, the possible reasons for which have been discussed in the previous section.

The prediction that students would be initially negatively affected by participation in Open Choice, followed by improvement in later years, has not been supported by the evidence for either higher or lower-income students, though for different reasons. Higher-income students appear to experience a lag in achievement effects, rather than an initial setback followed by improvement, while lower-income students are immediately negatively affected, without any improvement later in the program.

Hypothesis Three: Greater Effects for Language Skills

It was predicted that achievement effects would vary by subject area, and that language skills had the most potential to be affected by treatment. Several researchers have compared effects for math and language arts, but results have varied across studies. There is some evidence though, that language arts skills can be affected more by transfer from urban to

suburban areas because of language differences between the two areas that have developed as a result of segregation. Standard English, which is the language of standardized achievement tests, is more likely to be spoken in the suburbs, and therefore, it is hypothesized, transfer students' achievement in language will improve from exposure to suburban schools, in way that math scores are not affected.

Findings from Open Choice that pertain to this hypothesis are mixed. For higher-income students, and the sample as a whole, reading effects are the most consistently positive of the three subject areas, but writing scores are the only subject area in which negative effects are found. While students improved in the area of reading to a greater degree than in mathematics, as was expected, writing results showed the complete opposite trend. This may mean that students are, as hypothesized, learning testable language skills from their new environments, such that they are better at understanding what they read, but that they are not able to translate that knowledge into their own communication.

For lower-income students, although treatment does not improve performance in either reading or writing, negative effects are smaller for the former than for the latter subject area. This difference is compatible with the idea that students are gaining language knowledge that they are better able to understand from others than to communicate themselves. The negative influence of transfer on the scores of lower-income students has its least effect in reading. This suggests that perhaps students are learning something in this area, even if in the end such positive gains are overwhelmed by the negative factors of their experience.

I hypothesized that students would experience greater gains in language arts skills than in mathematics, a prediction supported by findings in reading and math, but not in writing. Students appear to be gaining in the understanding of Standard English, but not in its

communication. It is not clear why treatment students should experience lower writing scores than controls, but this could possibly result from a loss of confidence in their own communication skills. Reading scores are, however, as hypothesized, the area in which higher-income students experience the greatest gains, and lower-income students experience the smallest losses.

Hypothesis Four: The Most "Sensitive" Students Will Experience the Greatest Gains

I predicted that the poorer students in the sample would experience the largest effects from treatment because school effects have been found to have the most influence on such subjects. These students, whom Coleman et al. refer to as the most "sensitive" to school environment, presumably have a stronger reaction to school-level factors because they are likely to be those students that receive the least amount of support from home. When environmental factors, including school peers and resources, are changed, it is these students that are expected to experience the greatest effects.

The evidence from Open Choice has overwhelmingly contradicted this prediction, as students from poorer economic backgrounds experience uniformly negative effects, while higher-income students improve relative to their Hartford counterparts in two of three subjects. It is not, however, as though poorer students were not "sensitive" to changes in their school environment; rather, they were affected in the opposite direction of that which was predicted. These students did not prove to be the most sensitive to changes in school environment, however, as higher-income students were also affected, but in a more positive way.

These findings suggest that while poorer students may be sensitive to factors in their school environment, they are not necessarily affected positively when their environment is

changed to what would be considered better conditions. Possibly, if they had begun their schooling in the affluent, suburban atmosphere, their achievement would have been improved by that experience, but transferring into this setting once they have been acclimated to another does not appear to be beneficial. As I have said earlier, these findings suggest that if socioeconomic differences between the transferring students and the receiving environments are too vast, the expected positive influence of the new significant others will not come to fruition. The environmental change that accompanies majority-to-minority transfer may cause lower-income students to feel inferior to or not fit in with students in the suburban schools, which may detrimentally affect students' self esteem or cause them to rebel against the educational norms of the students in receiving schools.

Evidence from this study strongly contradicts the hypothesis that the poorest students will be most positively affected by participation in Open Choice, or majority-to-minority transfer in general. We have seen that it is precisely these students whose achievement is negatively affected by treatment, while students from higher-income families experience positive achievement effects. Lower-income students, who are likely to be in need of the most educational assistance, are apparently not receiving it from the suburban schools into which they are transferring.

Policy Implications

This study is important not only to our academic understanding of the factors affecting student achievement, but also as a policy issue since, ultimately, we would like to develop policies that provide less-fortunate children with better educational opportunities. The results of this inquiry into Open Choice have provided valuable information about the efficacy of this

program in achieving this end. Based on these findings, three major policy recommendations for Open Choice, and majority-to-minority transfer programs elsewhere, present themselves: students, especially those from lower-income families, should be provided with more counseling and other forms of support, the number of students in the program should be increased, and suburban schools should concentrate more on improving the writing skills of transfer students.

Recommendation One: Additional Support Services

That the higher-income students in this sample have experienced improvements in academic achievement indicates that the transfer of urban students to suburban schools has the potential to produce a positive result. What is of special concern is that those students who are in need of the most assistance do not experience these increases in achievement; lower-income students actually exhibit lower achievement levels with participation in Open Choice. These students likely encounter negative experiences that prevent them from achieving at higher levels in the suburban environment. This situation can perhaps be improved if the Open Choice program is adapted to more fully address the needs of these students, particularly with support services that may combat the harmful factors in the experience of lower-income students.

Open Choice lacks student support services that have benefited students in other majority-to-minority transfer cases. Unlike METCO students (Eaton, 2001), Choice students are not provided with counselors in the receiving districts whose specific function is to assist the inner-city students in acclimating to their new schools (Nessa Oram, personal communication, February 4, 2003). Limited transportation for sports and other after-school activities may also prevent social integration into the receiving school, as findings from other studies suggest that participation in such activities increases the number of friendships students have in the receiving schools and facilitates their adjustment to their new school environment (Eaton, 2001;

Rubinowitz and Rosenbaum, 2000). The social integration of Choice students into their new schools can be eased by increasing counseling services and transportation. These support services are likely to be particularly helpful to lower-income students, who may be the least able to feel that they fit into their new school environment. Further, by providing such services, the schools might be able to better provide the assistance that these particular students are more likely to lack from their home environments. It is, therefore, recommended that the state provide Open Choice with additional funds for counseling, transportation, and other support services that are specifically designed to help lower-income students to socially integrate into the suburban school environment.

Recommendation Two: Increase Participation in the Program

Part of the reason that some students do poorly when participating in Open Choice may be that they are in such a small minority in suburban schools that they have difficulty fitting into this environment. The majority of students transferring from Hartford to the suburbs are non-white and of a lower socioeconomic status than are the majority of students they encounter in the predominantly white, suburban schools. The experience of being an outsider likely prevents Choice students from socially integrating into their new schools. An increase in the number of students participating in the program might alleviate this problem to a certain extent by reducing the isolation of these students.

Perhaps the reason that higher-income Hartford students are able to benefit academically from transferring to suburban schools, when lower-income students are not, is that these former students differ less from the students in receiving schools than do their lower-income counterparts. An increase in the number of students transferring from Hartford could put the

percentage of minority and lower-income students at a threshold level that facilitates the social integration of such students. It is important that the level of participants not become too great, however, as this would substantially change the aggregate characteristics of the students in these schools. Participation should be at a level that ensures that the suburban students' academic expectations and norms still dominate, but at which urban students, particularly those who come from families with low incomes, are able to become socially integrated.

Recommendation Three: Increased Focus on Achievement in Writing

Writing was the one area in which both lower-income and higher-income groups experienced negative effects in Open Choice. Something about the experience of transferring from urban to suburban schools has had a detrimental effect on these students' development of writing skills. Perhaps students are finding that their writing does not meet the standards of their new schools, and this is having a negative effect on their self-esteem as writers. In any case, given the uniform negative writing effects experienced by Open Choice students, suburban schools ought to pay specific attention to the instruction of these students in writing. Extra help with writing, tutoring, or programs through Open Choice might benefit the writing achievement of transfer students. Since effects in writing have been found to be particularly negative, program officials and suburban schools should concentrate specifically on improving the development of these students' writing skills.

Achievement Scores as a Measure of Success and Suggestions for Future Research

The first thing that people usually want to know from me about Open Choice is whether or not it works. My usual response is, "That depends on what you mean by 'works.'" I have

been examining the achievement effects of participation in the program, but I have not looked at various other aspects of effects that are also important. If the purpose of the program is simply to improve achievement, then these results suggest that Open Choice "works" for higher-income Hartford students, but not for those coming from lower-income families.

Achievement, however, is not the only measure of success, and should not be considered as such. High-school graduation, college attendance, and eventual occupations and incomes are, arguably, more important outcomes than achievement levels on standardized tests, although these latter are predictors of the former. If achievement effects are slightly negative, but students are more likely to attend college, is the program a success or a failure? These questions suggest two implications: we should not declare a program to be unsuccessful on the basis of one set of findings, and we should conduct further research on this program and others like it in order to determine the effects of majority-to-minority transfer on other outcomes.

Future research on Open Choice and other similar programs should investigate several aspects that I have been unable to examine with this particular dataset. Although Crain's studies of Open Choice have examined long-term effects, more recent studies of these outcomes are needed. Further, a qualitative look at the experiences of students in the program would inform our understanding of the processes that are contributing to the effects that we observe in quantitative studies. We should also examine the effects of changing various aspects of the program's operation, including the level of participation and the addition of support services, on effects. While this study has generated some interesting findings, it has also raised several important questions.

Conclusion

Connecticut is the most affluent state per capita in the United States, but it also contains one of the country's poorest and most racially isolated cities. The state has struggled for decades with disparities between the cities and the suburbs in educational achievement and other outcomes. One of the policies designed to bridge this gap is the state's majority-to-minority transfer program, Open Choice. In this study, I have attempted to examine the effect of this program on the academic achievement of its participants. I have found that while higher-income Hartford students perform better than their counterparts remaining in the urban school system, lower-income students experience losses in achievement, relative to urban controls. Further, writing skills are affected negatively for both sets of students, while higher-income students do experience positive effects in math and reading. These findings suggest several policy implications and the need for further research in the area.

Sheff plaintiffs and the state of Connecticut have recently reached a settlement that will, among other things, increase the number of students participating in Open Choice to a third of the Hartford school district. Such a massive increase in the number of Choice students raises new questions for the future of Connecticut's problems with educational inequality. How will the increase in the number of students transferring to suburban schools affect the program's effects on achievement? How will suburban students be affected? And what will happen to those students who remain in Hartford schools? These questions can only be answered with future research.

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