

WHO CHOOSES? A SOCIOLOGICAL PORTRAIT OF FAMILIES ACTIVE IN SCHOOL
CHOICE IN URBAN AREAS IN THE U.S.

BY

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DISSERTATION

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ABSTRACT

School choice and charter school research acknowledges that choosers, families that are active in school choice, are different than non-choosers, but the nature of this difference is rarely examined directly. For years, commentators have expressed concern that chooser families will tend to have more educationally engaged parents than nonchooser families (Carnoy, 1993; Henig, 1995a). However, this hypothesis is rarely tested, in part due to data limitations in many school choice studies. Prior research has established the choosers tend to be more affluent than nonchoosers, but few attempts have been made to explain why this gap occurs (e.g. Cullen, Jacob, and Levitt, 2005; Martinez, Godwin, and Kemerer, 1996; Holme & Richards, 2009.)

A more sophisticated understanding of the difference between choosers and nonchoosers is not only important for basic knowledge on school choice but also would contribute to a growing body of research on the sorting effects of school choice. There are growing concerns that school choice can function as a sorting mechanism, exacerbating segregation along racial and socioeconomic lines (e.g. Koedel, Betts, Rice & Zau, 2009; Garcia, 2008). Although some studies indicate that racial segregation may be getting worse through school choice, negative impacts on socioeconomic segregation tend to be the most common finding in studies on this topic (Holme & Wells, 2008; Garcia, 2010). However, the crudeness of socioeconomic information in school enrollment data means that these studies could be overestimating or underestimating the changes in segregation that are occurring through school choice. If choosers and nonchoosers tend to differ in ways that are not easily observable in most school data, the impacts of school choice as a sorting mechanism may not be fully understood. The gap between choosers and nonchoosers is a foundational issue for school choice research, and the

question deserves to be approached with more detailed sociological analysis than has typically been conducted in school choice research thus far.

Sociologists may also be interested in the relationships between parenting practices, socioeconomic status, and school choice. One of the leading theories on how parents transmit their advantages to their children emphasizes a specific, highly active type of parental involvement (Lareau, 2003). Research has found that these parenting practices are associated with higher academic achievement (Cheadle, 2009). Establishing a link between this parenting strategy and active participation in school choice would help expand the literature on how middle and upper class families utilize their social and material resources to help separate themselves from lower social strata.

This study uses a recent nationally representative dataset of kindergartners and their parents to provide one of the most thorough sociological comparisons of choosers and nonchoosers to date. The 2010-11 Early Childhood Longitudinal Study (ECLS-K: 2011) has extensive surveys of parents, including questions about school choice, family structure, parenting behaviors, parent-child relationships, previous educational consumption decisions, and detailed socioeconomic data.

After restricting the dataset to families in urban areas, non-choosers and three types of choosers are identified:

- Residential public choosers- Families that moved to a certain location to attend a school.
- Private school choosers- Families who sent their child to a private school.

- Nonresidential public choosers- Families utilizing public school choice options, including those who actively selected charter schools, their “assigned” public school, magnet schools, or other traditional public schools
- Nonchoosers- Families that sent their children to the assigned public school without considering other options.

Three specific research questions will be examined in this study: 1) Does parental educational engagement or concerted cultivation predict choice and mediate the link between families’ socioeconomic status (SES) and their likelihood of participating in school choice? 2) Do parents’ socioeconomic statuses relative to their neighbors affect their likelihood of participating in school choice, as classic stratification theory would suggest? 3) Do the absolute SES, relative SES, and concerted cultivation effects on choice participation vary by race? Three sets of regression models will be estimated for each of these questions. The three types of active choosers will modeled against nonchoosers in logistic regressions. Regression models will also be run on a sample restricted to lower SES families in order to see if SES and concerted cultivation effects are stronger for this group.

Model development for this study is informed by three major sociological perspectives and preliminary modeling of chooser status in an earlier version of this dataset, ECLS-K: 1999 (Weitzel, 2010). First, family process or family socialization models suggest that poverty creates substantial burdens for parents, making it more difficult for parents to engage in kids’ educational matters (e.g. Cooper, Crosnoe, Suizzo, and Pituch, 2010; Bodovski & Youn, 2010; Crosnoe & Cooper, 2010). Many family process models aim to define and test mediators that help explain the link between family’s SES and social or educational outcomes. Similarly, this study aims to explain the association between higher SES and a greater likelihood of

participating in school choice. Family process models inform the overall mediational approach used in this study.

Second, a prominent theory on parental engagement in education helps inform the mediation model for research question #1. Lareau's (2003) concept of concerted cultivation, one of the leading theories on the transmission of socioeconomic status from parents to children, suggests that middle and upper class parents tend to take a very deliberate and hands-on approach to promoting children's development. Working class parents, on the other hand, are more likely to step back and permit the "accomplishment of natural growth" in their children. The tendency of middle and upper class parents toward deliberate, positive action regarding child development could also lead to active involvement in school choice.

Lastly, classic stratification theories suggest a competing notion of families' motivations for school choice (e.g. Weber, 1947; Grusky, 2008). Classic stratification theory suggests that patterns of consumption are one of the major ways that different social classes separate themselves. For families wishing to distinguish themselves from their neighbors, school choice may be one way to accomplish that goal. In research question 2, indicators of families' SES relative to their neighborhood are added to the models and interacted with SES to test this hypothesis.

The descriptive results indicate that the private choosers were the most advantaged group on measures including socioeconomic status, family size, two-parent households, the use of English in the home, the use of center-based preschools, extracurricular activities for children, and several other measures. Non-choosers were the least affluent or advantaged of the four groups, and urban residential choosers were only slightly better off than non-choosers on most

measures. Non-residential public choosers, which includes those attending magnet and charter schools, were more affluent than non-choosers and residential public choosers.

The regression models include SES and concerted cultivation composites, home language indicators, preschool usage variables, a thorough set of controls for demographics, family composition, and neighborhood poverty. These models fit much better when modeling private school choice than for residential and non-residential public choice, perhaps due to the high direct costs of private school attendance. Model fit for non-residential public chooser models was better than that for residential choosers, which had rather poor fit overall.

For private and non-residential public choosers, SES associations with choice were relatively strong, even after adding the full set of controls and concerted cultivation measures. The association between higher SES and the likelihood of participating in choice was even stronger when the sample was limited to families with SES below the national mean. Racial interaction effects indicated that SES effects were also stronger for black and Hispanic families, with especially strong effects for Hispanics.

Interestingly, SES effects for urban residential choosers were not very strong and the direction of some other effects were the opposite of those seen for private and non-residential choosers. For example center-based preschool attendance was fairly strongly positively associated with private and non-residential public choice, but it was negatively associated with residential public choice. The positive association between residential choice and speaking a non-English language at home was also unexpected. Black and Asian families were more likely to be residential public choosers, even after all controls were added to the models. The results suggest that residential choice in urban areas may have a notably different profile than suburban

residential choice. Residential school choice in urban areas may be serving as a vehicle for ethnocentric school moves, but this hypothesis will certainly need to be tested further.

While SES effects varied by chooser type, the positive association between concerted cultivation and choice was moderately large and basically the same size for all three chooser types. Concerted cultivation, which was measured with a composite consisting of students' participation in extracurricular activities and the number of books at home, did also mediate the relationship between SES and choice in a statistically significant way. As with the SES effects, concerted cultivation effects were stronger for lower SES families and for black and Hispanic families.

When parental involvement in education was instead captured with measures of low-cost home-based activities like reading, making art, and telling stories at home, the composite had basically no association with school choice. High cost, transportation-intensive activities in the concerted cultivation composite, on the other hand, were rather positively associated with school choice. These results could suggest that participation in school choice is more affected by families' economic means than by their attitudes or interest in educational engagement. This possibility would need to be investigated further in follow-up studies.

Classic stratification theory suggests that families will make school selections consistent with their perceived social class. For research question #2 in this study, it was predicted that families would be more likely to select private or non-residential public schools when they were in a higher socioeconomic position than their neighbors. Results indicate that having educational attainment above the median in their neighborhood was moderately positively associated private school choice. When race interactions were added to the models, relatively strong positive

associations between this measure and private choice were found for white and black families but not for other groups. For non-residential public choice, a positive association between this indicator and choice was also found for white families but not for other groups. This classic stratification hypothesis should be studied further with better measures of families' SES positions and racial identities in relation to their neighbors.

Implications of this study and additional recommendations for further research are discussed in the final chapter. Although ECLS data do not enable the direct observation of sorting effects through school choice, this exploratory study does suggest that student sorting may be occurring through school choice in ways that will be very difficult to observe through regular enrollment data. Adding better measures of family SES and parenting practices to traditional sorting studies will enable more rigorous examination of this possibility. This study also expands the literature around concerted cultivation by identifying another social outcome, school choice, with which the construct is associated. Sociologists who are particularly interested in the measurement and effects of concerted cultivation and parental engagement may wish to improve upon this exploratory study with structural equation analyses.

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CHAPTER 1: INTRODUCTION AND THEORY

The school choice movement is expanding rapidly and continues to receive a great deal of attention from parents, policymakers, and the media. Nationwide, over 5700 charter schools now serve nearly 2 million students (Center for Education Reform, 2014), and magnet schools and open-enrollment programs remain popular in many metropolitan areas across the country. Although the growth of publicly-funded school choice is a relatively recent phenomenon, American families have been selecting schools through their choice of residence for a long time. At least 24% of parents report moving to their current location for the schools, and many more may have had the option (Rooney, Hussar, & Planty, 2007).

Of course, such residential choice is much more financially feasible for middle and upper class families. The cost barriers to traditional forms of school choice are among the factors motivating policy efforts to expand school choice to more families. Some of the earliest proponents of publicly funded school choice emphasized its equity dimension because it extends to disadvantaged families an option that more affluent families already possess (Coons & Sugarman, 1978; Jencks, 1966). In this view, since many poor and minority families reside in the catchment zones of perennially poor performing schools, school enrollment needs to be separated from residence in order to provide these families with the opportunity to send their children to higher performing schools. Given the important role of education in the life chances of children, some advocates now even frame school choice as a civil right (e.g. Priebus, 2014).

The expansion of school choice in the last twenty years set families and students in motion in new ways. Policymakers did not initially know how expanded choice would affect enrollment patterns in their cities and metropolitan areas. Commentators offered both optimistic

and pessimistic visions of the future under school choice (Garcia, 2010). Choice supporters suggested that school choice could reduce segregation because it separates school assignment from heavily segregated residential patterns. Skeptics, on the other hand, were initially concerned that charter schools would be havens for white flight, thus exacerbating racial segregation that was already rather severe in many school systems.

As school choice became more prominent and empirical work emerged, neither of these visions proved to be very accurate, though the views of skeptics were somewhat closer to reality. Choice does appear to have a moderate negative effect on segregation, but this effect is not necessarily due primarily to white flight. Rather, choice often functions as a vehicle for many different groups to self-segregate (e.g. Weiher & Tedin, 2002; Garcia, 2008; Booker, Zimmer & Buddin, 2005). Interestingly, the effects of choice on socioeconomic segregation have typically been more substantial than effects on racial segregation. The role of school choice schemes in school segregation remains an important question for education policy going forward, particularly since many districts are eliminating or scaling back efforts to improve school enrollment diversity.

Due to the limitations of conventional school enrollment data, understanding socioeconomic sorting through school choice may be more difficult than examining racial sorting. While the enrollment data on student race are generally adequate, the sole socioeconomic indicator of free/reduced lunch is a rather crude measure of socioeconomic status. School choice and charter school research acknowledges that choosers, families that are active in school choice, are different than non-choosers, but the nature of this difference is rarely examined in any detail. In fact, non-choosers may be the least studied group in this area of educational research, in part because these families can be difficult to identify. Families who

attend their geographically assigned school may have chosen to move to that location for the school or they may have selected that school among a number of available options. A thorough comparison of choosers and non-choosers will thus also require a dataset that directly ask parents about their active school selection or lack thereof.

Many studies in school choice skip the fundamental question about the difference between choosers and non-choosers and either focus solely on examining school leavers or simply treat all families in a given markets as choosers, whether or not they have any evidence that they made a choice. When comparisons between choosers and non-choosers are made, they tend to be atheoretical and often are limited to basic demographic and socioeconomic information. A finer grained analysis would also require more thorough socioeconomic, demographic, attitudinal and behavioral data. Choosing schools requires basic knowledge of the education, market, and poor families may be particularly disadvantaged in terms of quality information, social networks, and cultural capital. (Neild, 2005; Schneider, Teske, Marshall, & Roch, 1998; Teske, Fitzpatrick, & Kaplan, 2006; Wells, 1993).

Beyond traditional socioeconomic status measures like income, job prestige and parental education, other aspects of parenting and the home environment have considerable effects on student achievement (Phillips, Brooks-Gunn, Duncan, Klebanov & Crane, 1998; Rothstein, 2004; Cooper, Crosnoe, Suizzo & Pituch, 2010; Yueng & Pfeiffer, 2009). Smaller families, richer home environments, and more structured learning opportunities inside and outside the home have significant and positive effects on student achievement (Burkham & Lee, 2002; Phillips, et. al. 1998). Utilizing school choice requires parents to be relatively engaged in their child's education and to commit whatever additional time and resources are necessary.

Given these costs, it is possible that most families exercising school choice also make education a high priority in their household. There is a positive relationship between parental involvement in school matters and educational enrichment at home (Cooper, Crosnoe, Suizzo & Pituch, 2010). Compared to non-choosers, active school choosers could be a more advantaged subset of the population, even if they did not differ substantially on factors like race and income. There is the distinct possibility that students with less engaged parents will be more likely to be left behind in regular public schools, while schools of choice will benefit from having a disproportionately high percentage of very academically engaged families. Even early in the school choice debate, some commentators expressed concern that school choice could lead to greater stratification between more and less involved parents (Carnoy, 1993; Henig, 1994).

Purpose of the study

The fundamental question of how choosers and non-choosers are different has not been neglected in school choice research, but data limitations have often prevented deep looks at the economic, geographic, and sociological characteristics of these groups. This study aims to address that gap in the literature by comparing choosers and non-choosers in a nationally representative dataset that contains detailed data on family structure, socioeconomic status, and parenting practices. This dataset, the 2010 Kindergarten class in the Early Childhood Longitudinal Study (ECLS-K: 2011), also contains parents' responses to direct questions about school choice, enabling the identification of non-choosers. These questions and the inclusion of private school students in the dataset allow for the identification of private school choosers, residential public school choosers, and nonresidential public school choosers. The rich data on family background and residential context in ECLS will be used to construct logistic regression models to determine what factors are associated with an increased likelihood of being a chooser.

School choice research, like a lot of research in education, tends to be undertheorized. Regarding the difference between choosers and nonchoosers, sociological theories on the interaction of family status, family process, and educational investment are rarely utilized to inform these comparisons. Since the difference between choosers and nonchoosers is a fairly fundamental issue in school choice, it is important to approach this question in a theoretically grounded way. Theories and models of market behavior from economics certainly may be useful, and sociological theories may help explain how different economic, social, and environmental factors influence a family's likelihood of participating in school choice. A quick overview of these theories will aid in the development of hypotheses and specific research questions.

Economic Perspectives on School Choice

Tiebout sorting and rational choice models

One of the oldest models of consumer choice of public services is the Tiebout (1956) model, also known as Tiebout sorting. Tiebout argued that families varied in their preferences for local services and in their capacity to pay taxes, leading families to select an area of residence that best met their needs. In this view, residential location is essentially a consumption decision akin to picking to an automobile or other major product. The array and quality of public services offered by a particular municipality are some of the key features influencing residential location decisions. Varying tax rates and property values are the equivalent of different prices in other types of consumer markets. In this model, residents with similar preferences for public services and with similar capacity to pay will tend to cluster together in particular municipalities. Tiebout suggested that the segregation resulting from this sorting was efficient and that it represented an equilibrium of sorts.

Like many economic models, the Tiebout (1956) model depends on a list of potentially problematic assumptions. The Tiebout model assumes that families will have solid, complete information on which to base their decisions. It also assumes that there are many communities to choose from, that each community is equally penetrable for all families, and that moving is a zero cost endeavor. Tiebout and most other economic models also treat consumers as atomistic, isolated individuals.

Tiebout choice is most consistent with residential school choice today, the selection of residential location based on school district boundaries or even the catchment areas of particular schools. This sort of choice has been ongoing for decades and was likely a major factor in the exodus of white and middle class families from cities out to the suburbs (e.g. Farley, Wurdock & Richards, 1980). Residential choice continues today of course, but there are also more forms of school choice available than in the period when Tiebout was writing, particularly when it comes to choice among publicly-funded schools, including magnet schools, charter schools, and other public schools in open enrollment plans. Although school choice may no longer require residential relocation, the same basic logic of Tiebout choice still applies to some extent. In classic rational choice models, parents pick schools based on solid information they have about the quality of the schools available to them. School choice is essentially a consumption decision, not substantially different than picking a particular brand of automobile or soda. The market for public schools operates under more substantial constraints than the soda market, of course, in part due to the fact that schools cannot compete on the basis of price like soda manufacturers. Individual school operators can only control and compete on the basis of quality. Between school districts, however, different property values and property tax rates can represent a form of price variance.

In rational choice models, there is no such thing as a non-chooser. Parents are assumed to weigh the pros and cons of various school options on a regular basis, essentially monitoring school quality and making rational decisions on the basis of that information. While this assumption seems bold in the context of school selection, it may seem more credible for other types of consumer-oriented studies. These economic models are often used on markets where all participants have to make a consumption decision because there is no assigned default. For public schools, however, there is in fact a default school assigned by residential location.

Rational choice models do not account for the possibility of non-choosers who simply accept the default option. Rather, these models assume that all families are choosers and that the schools where their children are enrolled were selected. Researchers applying rational choice models are primarily concerned with *which* schools parents select, not *if* they make an active selection at all.

Bounded Rationality and Satisficing

Tiebout choice and other rational choice models have many problematic assumptions regarding information quality and usage. Not surprisingly, more nuanced views of economic decisionmaking and school choice have emerged over time. One of the most substantial assumptions in classic rational choice models is the idea that individuals have complete, high quality information on which to make their optimal decisions. Simon (1957) challenged this idea and introduced the idea of “bounded rationality” to microeconomics. He argued that complete information was basically impossible, and that most of our decisions were thus based on more limited information. Decisions are costly events, and decision makers operate under substantial constraints, including the incompleteness of the information available, the decision maker’s ability to understand it, and the time frame in which a decision must be made. In these

circumstances, actors rarely have optimal conditions for decision making, and accordingly, they rarely make truly optimal decisions. Rather, actors often must “satisfice”, or make decisions that are “good enough”, given the relevant constraints.

Simon is also recognized as a sociologist to some extent, in part because he brought the social nature of information into the study of decision making in microeconomics. Much of the information actors have to work with comes from their social networks, and these social networks are often rather segregated. When applying Simon’s theory to school choice, it is important to recognize that satisficing is essentially a process of taking mental shortcuts. When it comes to public choice scenarios like picking a neighborhood or a school, the opinions and behaviors of other families in one’s social network offer an excellent form of mental shortcut. Roughly speaking, families can reason that “if families like us go to that school and live in that neighborhood, it *probably* is a good fit for us as well.” Simon still essentially treats everyone as a chooser, but the burdens of being a chooser are substantially diminished by the reliance on these mental shortcuts.

The critiques of major assumptions in classical microeconomics certainly did not stop with Simon. A great deal of work in the last 35 years has focused on how people make decisions under conditions of asymmetrical information, in relation to other actors, and in real-world scenarios (Greenwald & Stiglitz, 1986; Kahneman & Tversky, 1979; Shafir & Tversky, 1992). Behavioral economists and other empiricists have continued refining our understanding of how people use information to make decisions. Likewise, in the school choice arena, a growing body of mixed methods research, much of which will be discussed in the next chapter, has examined how parents and their children pick schools in a given educational market. These studies, however, focus solely on active choosers and usually begin after the choice process has begun.

Non-choosers still largely do not exist under most economic perspectives, and few consumer-oriented studies of school choice consider them as possibilities.

Human Capital Theory

Educational decisionmaking has also been presented as a utility maximizing calculation or an investment by parents and students. Becker's model (1964) of human capital investment is best suited for decisions concerning higher education because it incorporates direct costs of tuition as well as the job earnings that are lost when one attends college rather than working. These lost earnings are essentially the major opportunity costs of further schooling. Nonetheless, the type of thinking involved in these calculations may have some application to K-12 school choice. Private schools of course do have direct costs in the form of tuition. While most public schools of choice do not charge tuition, families can still incur real financial costs and opportunity costs through active participation in school choice. Selection of a non-neighborhood school could place additional transportation burdens on a family, and the transition to a new school itself can be risky, stressful, and time consuming. The act of searching for a school can involve substantial opportunity costs, particularly if one wants to consider several schools, speak with administrators or current attendees, and examine other information on school performance (Neild, 2005; Schneider, Teske, Marshall, & Roch, 1998; Teske, Fitzpatrick, & Kaplan, 2006; Wells, 1993).

Parents can also make other types of educational investments in their children, many of which precede their children's involvement in formal schooling. Such investments could include the acquisition of books and learning materials, expenditures on enrichment activities like piano lessons or museum visits, or the use of time to read or do art with their children. Selection and usage of childcare options can also be a costly endeavor that may involve tuition expenditures.

Educational investments outside of formal schooling could also be motivated by perceptions of limitations within a child's school. In other words, parents could make additional educational investments to compensate for deficiencies in the formal schooling environment.

As with decision making in higher education, the decision to participate in school choice may be influenced in part by one's perceptions about whether the costs will be worth it for the child. If one believes that all the schools available are essentially the same, there is little incentive to participate in school choice. Likewise, if a parent believes that his or her child is not the "scholarly type" or is not likely to do well in any school, he or she will probably be less inclined to undertake the costs involved with school choice. In this view, school choice is essentially an investment decision, and parents may want to see reasonable prospects for good returns on their investment. This view is tested to some extent in research question 3 in this study, in which parents' ratings of their children's abilities are included in the regression models.

Exit vs. Voice

Selecting among preexisting public service options is just one way in which parents can act on their preferences for particular services. Economic perspectives of public choice have been broadened by including the possibility of political action on the part of citizens/consumers. In Tiebout choice, families "vote with their feet", expressing their consumer interests by moving out of less desirable areas. This notion of expressing one's values through service selection was expanded upon by Hirschman in *Exit, Voice, and Loyalty* (1970), a work which challenges some of the simpler economic views of group loyalty by acknowledging the capacity of individuals for a political response. Hirschmann asserts that when members of an organization believe that the benefits of group membership seem to be declining, they must pick between two basic response options. These options include eliminating the relationship through exit or attempting to

improve the organization by voicing one's opinion. The exit option aligns nicely with economic views in the sense that actors primarily communicate their interests through the creation and destruction of relationships. Unlike the clean break of exit, the voice option is more confrontational, but it may also provide more useful information for the organization. The ease of exit and the opportunities for feedback within an organization can affect the extent which each option is used when an organization declines. As one might guess, loyalty to an organization reduces the likelihood of exit.

Problems of voluntary markets and initial market entry

This study focuses on school choice in the kindergarten year, which for many families will be the first consumption of K-12 schooling for the children in the family. This fact may problematize the application of many economic perspectives to school choice in early elementary school. When applying Hirschmann's (1970) and Tiebout's (1956) models to school choice, it is important to keep in mind that the starting point for these perspectives involve people who are already attached to an organization and are thus somewhat familiar with its values or effectiveness. In terms of schooling, a similar scenario would involve families who already have children enrolled in a given school. In other words, they are already receiving K-12 schooling and can decide how satisfied they are with these services. If they become dissatisfied they can leave for schools of choice or pursue their democratic options by somehow engaging the school board, PTA, or other entity connected to the school.

When it comes to the initial selection of a kindergarten by parents, Hirschmann (1970) and Tiebout (1956) lose some salience because many families will not have prior direct experience with the schools or districts in question. In this case, parents must act on indirect information if they decide to participate in school choice. The information utilized can include

hard information on school achievement or demographics and softer information gleaned from one's social network or through visits to the school. This information is not necessarily lower quality or less valuable than directly acquired experiential information, but it is different in the sense that it must be actively sought at some level. At a minimum, many parents will incur opportunity costs before enrollment in order to acquire information regarding school options. They are not receiving direct information on an ongoing basis through their family's consumption of elementary school services.

Even relatively robust school choice systems remain voluntary markets in the sense that families still have a default or assigned school in most cases. Being a non-chooser remains a very real possibility, and economic perspectives, despite their advances, do not offer much help in understanding how one becomes a chooser in the first place. Some level of dissatisfaction with current services or projected services certainly could be one motivating factor, but a wide range of other personal values and social factors could also come into play. Economic models largely assume that schooling experiences are a substantially valued private good for all families and that all families have at least some baseline awareness of the existence of a school market. Such assumptions may not be safe bets. A serious empirical look at school choice should at least entertain the possibility of non-choosers and attempt to understand the social, economic, and informational conditions which might influence their market engagement. Sociological theories can offer different perspectives on how various types of families make decisions regarding the schooling experiences of their children.

Sociological Perspectives on School Choice

Prominent theories of class stratification and family processes largely do not address school choice directly, but they suggest some mechanisms by which a choice system could contribute to student sorting along class lines. First, some groups of families are more likely to be more engaged in choice process than others due to a combination of parental preferences, social networks, intra-family relationships, and material circumstances. Second, among families participating in choice, social class can influence which particular schools or types of schools are selected. Both of these dynamics could produce a net effect of increased segregation within an area's public and private school system. Classic stratification theory, family socialization models, and concerted cultivation all offer explanations why some families might be more active in school choice than others.

Stratification

Theories of social stratification take many forms and have evolved considerably over the years, but at their core, most are focused on the different criteria by which populations can be divided into distinct groups and how inequalities are reinforced or perpetuated over time. Grusky (2008) notes that “The key components of stratification systems are (1) the institutional processes that define certain types of goods as valuable and desirable, (2) the rules of allocation that distribute these goods across various jobs or occupations...and (3) the mobility mechanisms that link individuals to jobs and thereby generate unequal control over valued resources” (p. 5). He continues, “The social roles in society are first matched to ‘reward packages’ of unequal value, and individual members of society are then allocated to the positions so defined and rewarded” (p. 5). Although economies and politics can change substantially, the rules and roles in these systems often change only very gradually. The social system has a remarkable ability to reproduce its divisions over time. Other factors that stratification scholars look at when

evaluating a system include the severity of inequality, the extent of social mobility, the ascriptive processes which can reinforce the social standing of particular groups, and the extent to which various types of resources tend to lump together consistently among the population.

While economists will often look at wage, income, and wealth inequality in terms of continuous variables, sociologists are more inclined to divide the population into categories or classes. Many factors can be used to define these classes, with the occupation and education levels of individuals being among the most commonly used factors. Grusky (2008) suggests that the structure of the working world makes these class categories appropriate for capturing the divisions in society. He notes, “The labor market, far from being a seamless and continuous distribution of incomes, is instead understood as a deeply lumpy entity, with such lumpiness mainly taking the form of institutionalized group (i.e. ‘classes’) that constitute prepackaged combinations of the valued goods”. (p. 7). From this perspective, the economic approach relying on continuous variables presents a view of the social structure that is far more fluid than the one that is observed in major institutions across society.

Culture, consumption, and social closure

If the social structure seems to reproduce itself over decades, a key question for researchers is how this reproduction occurs. In classic stratification theory, Weber (1947) notes that the consumption decisions of social strata serve as one of the principal ways of defining commonality in these groups. For Weber, social position was not a simple reflection of income or social influence but rather had multiple dimensions. Social class was more directly connected to income and occupation, and social status was tied more to lifestyle, residence, group membership, and other types of consumption. Families within a social stratum often have shared

values or behavioral tendencies. Since members of particular classes and status groups tend to associate primarily with their own kind, these patterns are reinforced and can reproduce themselves by affecting the economic opportunities of group members and their children.

Key consumption decisions both result from and to some extent constitute class-based divisions. These decisions are a key part of the social structure for a given population. In terms of school choice, selection of a particular school along class lines can help reproduce existing strata divisions in a number of ways. Homogenous schools and social circles can also create social closure through consistent exposure to similar value sets and modes of social exchange. Also, academic preparation geared toward particular types of jobs can channel the children of a particular class into a similar position in the job market of the next generation. In the decades since Weber, consumer research has drawn heavily on stratification theory, differentiating goods that may be more influenced by the various elements of class and status (e.g. Fisher, 1987).

In recent decades, many of the most influential stratification theories have emphasized the role of distinct cultures, attitudes, and preferences in creating and perpetuating the existing class structure. These theories are often categorized as social reproduction theories. These perspectives do not necessarily deny that social classes may have distinct combinations of occupational conditions and other economic resources, but rather they assert that those conditions and resources may not be the only important factors in the class system. Bourdieu (1977), for example, argues that a thorough understanding of stratification also requires examining the distribution on non-economic assets. Many professionals will have high levels of both economic and cultural assets, the values and habits that are conducive to success, but some groups like teachers, may have modest levels of economic assets combined with high levels of cultural assets. For Bourdieu, the structure of one's mental processes for viewing the world,

one's "habitus", is at least as important as one's structural economic conditions. The relative value ascribed to particular practices or assets depends in large part on the dominant habitus of one's social group. Bourdieu (1984) writes, "The relationship that is actually established between the pertinent characteristics of economic and social condition... and the distinctive features associated with the corresponding position in the universe of life-styles only become intelligible when the habitus is constructed as the generative formula which makes it possible to account both for the classifiable practices and products and for the judgments, themselves classified, which make these practices and works into a system of distinctive signs" (p 128-29). Essentially, Bourdieu presents habitus as the key link that makes a set of economic conditions and social preferences or values cohere into a distinct class.

If one accepts that schools serve both economic and cultural functions, it is easy to envision how habitus might influence the school choice behaviors of families. For starters, the habitus of some groups could instill or reinforce the opinion that formal schooling is simply not very important in the life chances of children. If one believes that "all schools are the same", there is little incentive to actively participate in school choice. Among social groups that place heavier emphasis on formal schooling, habitus could influence what types of schools or educational experiences are viewed as desirable. For example, a blue collar habitus might value schools that emphasize discipline, following instructions, and the development of basic skills, while upper classes might place greater weight on the opportunities given to kids for independent thought, creativity, and higher order thinking skills. These preferences shaped by habitus could play substantial roles in the school selections of families.

The non-economic assets of families may also affect their abilities to acquire and process information on available schools. The cultural capital of middle and upper class families can

make them more adept and comfortable at navigating school bureaucracies and communicating directly with school leaders, even challenging them when needed. They may also have greater awareness of the range of schooling options available and better understanding of statistical information on school performance. Lower classes, on the other hand, may be more deferential to authority and less able to make sense of school performance information. These differences in access to and processing of information do not necessarily mean that middle and upper classes will make “better” or “more rational” school decisions, but they do serve as another mechanism by which students may be sorted into particular schools along class lines.

Grusky (2008) notes that class culture can also reinforce mental shortcuts that make detailed examination of available information less necessary. He states that class culture can be seen as a set of “‘rules of thumb’ that encode optimizing behavioral responses to institutional conditions, rules that allow class members to forgo optimizing calculations themselves and rely instead on cultural prescriptions that provide reliable and economical shortcuts to the right decision” (p 10).

The impact of class-based preferences and habits of information processing is likely further amplified by segregation and social closure. The social worlds of families, much like their residential neighborhoods, tend to be rather segregated by class (McPherson, Smith-Lovin & Cook 2001). In the U.S., the black population is particularly segregated on a number of different dimensions (Massey and Denton, 1989). The net effect of segregation and social closure is that many families will have relatively little exposure to value sets and ways of thinking that are considerably different than their own. Families may simply prefer schools that serve similar families, or their preferences, social circles, and cognitive biases may steer families of the same class to a certain set of schools in a given educational market. In Weber’s (1947)

concept of social closure, social groups may also use institutional obstacles like job credentials to protect certain economic and cultural assets from outsiders.

Social networks in high poverty neighborhoods

Beyond Bourdieu, more recent developments in cultural theories of stratification and social reproduction may help explain why some families are not able to participate in school choice. Given the prominence of school choice in urban educational markets, examining Wilson's (1996) views on the unique circumstances facing particularly poor and heavily segregated urban residents may be useful. Wilson suggests that the social closure among the urban underclass is particularly strong, in part due to high unemployment, limited transportation options, and limited interaction with other classes. This isolation and lack of engagement with the mainstream economy discourages conventional engagement with major institutions. Wilson (1996) describes "a new type of poverty in our nation's metropolises: poor, segregated neighborhoods in which a majority of adults are either unemployed or have dropped out of the labor force altogether." (in Grusky, 2008, p. 340)

Wilson suggests that this poverty is substantively different than urban poverty in earlier decades because previously the poor were mostly working. He writes, "The consequences of high neighborhood joblessness are more than devastating than those of high neighborhood poverty.... [M]any of today's problems in the inner-city ... are fundamentally a consequence of the disappearance of work." (p. 341). In the Chicago neighborhoods that Wilson examined, the difference in employment rates in 1990's compared to earlier decades was particularly stark for males of working age.

According to Wilson (1996), families living in these environments have less contact with mainstream society and little feeling of control over their environment. There are few institutions to aid in social organization, and children are exposed to many influences that do not confer values or behaviors conducive to labor market success. Some parents who are concerned about the negative environment may isolate their children or try to find social institutions outside the area, but transportation issues can make this difficult. Wilson argues that understanding the challenges facing these residents requires one to “appreciate the range of choices, including choices representing cultural influences, that are available to inner-city residents who live under constraints that most people in the larger society do not experience” (p 345).

For middle and upper class observers, the idea of a non-chooser, someone who does not actively make decisions regarding school selection, may seem foreign or unlikely, particularly in educational markets where different forms of school choice have been available for years. Wilson’s depiction of the poor in urban areas, however, makes the existence of non-choosers more understandable. These residents operate in a rather closed social system that lacks strong institutions, good transportation, and connections to the mainstream economy. If few parents in a given social network are knowledgeable of choice options or engage in school shopping, parents in this network may be less likely to pick up the practice themselves. Moreover, limited transportation could make the opportunity costs of school selection rather substantial, not to mention the costs involved in actually sending your child to a school outside of the neighborhood. Wilson suggests that the challenges facing extremely poor urban parents are substantially greater than those of most working poor parents and that they are exposed to norms of behavior that inhibit or discourage participation in many of the forms of institutional engagement regularly practiced by more affluent families. Interestingly, as discussed in the next

chapter, enrollment studies indicate that schools of choice do not necessarily “cream” the best students from neighborhood schools, but rather “crop” off the most disadvantaged students (Lacireno-Paquet, Holyoke, Moser & Henig, 2002).

Family processes and concerted cultivation

Examining the parent-child relationship in more depth is important for developing a sociological portrait of school choice behavior. Two particularly influential perspectives on these relationships have emerged in the literature in the last 15 years. First, a constellation of family process models have demonstrated a link between the stresses of poverty and single parenthood and the likelihood of impaired relationships between parent and child (e.g. Elder, Eccles, Ardel & Lord, 1995; McLoyd, 1998). Second, Lareau’s (2003) close examination of parenting practices revealed important differences in how middle class and working class families manage their children’s time and communicate with them.

Family process models are not a single coherent theory, but rather a set of testable hypotheses about how socioeconomic and other living conditions can lead to poor behavioral and academic outcomes for lower class youth. These models often suggest a pathway from poverty and single parenthood to high stress and poor physical or mental health for the parent (e.g. McLoyd, 1998; Kurstjens & Wolke, 2001). In turn, these issues of parental stress and health are associated with a reduction in positive and nurturing behaviors toward the children in the household, eventually leading to behavioral and academic problems for the kids (e.g. Bodovski & Youn, 2010; Gutman & Eccles, 1999). Roughly speaking, these models aim to unpack the relationship between poverty and various youth outcomes, finding the factors that mediate the association between low SES and poor outcomes.

Family process models focus primarily on key interpersonal processes. For example, Conger, Ge & Lorenz (1994) demonstrated that economic stress increases parental depression, marital conflict, and family conflicts over money. Greater hostility within the family was associated with internalizing and externalizing problems among adolescents in the family. Mistry, Vandewater, Huston, and McCloyd (2003) found that economic pressure negatively affected mothers' psychological well being and the level of affection they showed toward their child. Family processes seem to be particularly important during key transitions, like the transition into elementary school (Gershoff, Aber, Raver & Lennon, 2007). The family process perspective has also been used to show how economic conditions can influence investments in children's learning environments, subsequently affecting academic performance (Yeung, Linver & Brooks-Gunn, 2002). Guo and Harris (2000) likewise found that educational stimulation in the home and parenting styles were affected by income and associated with academic outcomes.

Whether one views school choice as an investment decision, an act of compassion, or something in between, the family process models offer another set of reasons why some families may be less inclined or less able to actively participate in school choice. The act of choosing will involve at least some opportunity costs, and many poor, single parents may simply be overwhelmed or depressed by the stresses in their life. Poor academic or behavioral performance in the preschool or early schooling experiences of a child could lead parents to conclude that school choice would not be worth the effort. A high degree of conflict or lack of warmth between parent and child could diminish the likelihood that a parent would pursue school choice options. When these intrafamily issues are combined with the structural and social conditions facing the urban poor, particularly the underclass, it is possible that many families may face a perfect storm of impediments to active school choice.

The final theory discussed here, Lareau's (2003) concept of concerted cultivation, suggests that there may also be philosophical differences between middle and lower classes regarding the role of parents in promoting child development. In an ethnographic study, Lareau and her colleagues observed several middle/upper and working class families over an extended period of time. She concluded that more affluent families were more deliberate and active in promoting child development, an approach which she calls "concerted cultivation". Working class parents, on the other hand, viewed child development as something that occurs naturally and thus does not require targeted intervention on the part of parents.

Middle class parents spoke to their children more inquisitively and provided their children with more formal, organized activities. In addition, these parents were more assertive in relation to schools and authority figures and likewise taught their children to also be assertive in those contexts. In terms of communication, middle class parents tended to ask more questions and engage in reasoning and debate with their children, while working class parents were more inclined to give commands. The schedules of middle class kids were packed with music lessons, sports groups, and a variety of other organized activities, while working class kids had more unsupervised free time. Working class parents were deferential to teachers and a bit uncomfortable engaging with their children's school, unlike middle class parents who were very involved with the school and were comfortable making their case if they disagreed with decisions affecting their children.

Essentially, Lareau (2003) outlines an extensive, multi-faceted set of investments that middle and upper class parents make in their children. In some cases, as with music lessons, summer camps, and educational materials, these investments may be actual financial expenditures. Many of these investments, however, are more akin to opportunity costs.

Reasoning and debating with one's child is undoubtedly more time consuming than simply telling kids what to do, but it is an investment of time that many parents are willing to make. Active involvement in school and in shuttling kids to and from formal activities are other substantial time expenditures that some parents seem more inclined or are more able to make than others.

Active participation in school choice could be examined as an extension of the concerted cultivation described by Lareau (2003). Choice inevitably involves time expenditures and requires some willingness to engage with school bureaucracies. Choice also implies that a parent has some preferences when it comes to schooling experiences for a child, even if those preferences are not clearly articulated ahead of time. In a sense, parents practicing concerted cultivation have already been active in markets for child development services since they have been picking piano instructors and soccer leagues for years. Lareau, in fact, has conducted school choice research (2014) most recently examining the reasoning and preferences of suburban parents selecting homes and thus school systems. Many other qualitative studies have closely examined parental behaviors around school choice (e.g. Bell 2009a, 2009b; Holme, 2002). The connection between concerted cultivation and school choice has been discussed and explored qualitatively, but it never been formally tested quantitatively to the author's knowledge.

Theory Utilization in this Study

This study of choosers and nonchoosers will emphasize sociological perspectives on school choice for four major reasons. First, most economic perspectives do not acknowledge the possibility of nonchoosers who accept their default assigned school. Sociological theories,

on the other hand, suggest a number of ways that the interplay of socioeconomics, social networks, and culture could make it difficult or less likely for some parents to engage in school choice.

Secondly, in the author's view, the literature gap is larger for sociologically oriented studies of choice than for economically oriented studies. Charter schools and school choice are often seen as one of the key tests of market mechanisms in public services, and the topic has often been approached from that perspective by researchers. Quantitative studies of choice at the individual level have typically focused on choosers and the characteristics of the schools they pick or the information they value in the decision making process. Although survey studies of choosers and nonchoosers often collect more socioeconomic detail than studies based on enrollment data, few studies delve deeply into families' circumstances or parenting practices and attitudes. Sociological theories are rarely formally tested in the attempts to better understand the gaps between choosers and nonchoosers.

Third, some evidence indicates the choice processes tend to exclude the most disadvantaged families in a given market. In the language of Lacireno-Paquet (et. al., 2002), the net exclusionary effect of choice may be better described as "cropping" rather than "creaming". In other words, compared to the population as whole, choosers do not necessarily consist of a super affluent or privileged group of families, but they do tend to underrepresent the lowest portions of the socioeconomic distribution. Under this circumstance, it is especially important in the author's view to examine the needs of nonchoosers in greater detail, going beyond income-based measures of status to study other factors that may affect the educational prospects of children in non-chooser families.

Lastly, the ECLS-K: 2011 data set is better suited to family-focused, sociological studies of choice than it is for economically oriented studies. ECLS offers some advantages because it has extremely detailed family background information and is able to identify choosers who are stayers, meaning choosers who actively decide to remain at their assigned school. However, ECLS has substantially less geographic precision when it comes to comparing children's attended schools versus their assigned schools. Because ECLS does not provide a precise address for families, their assigned schools cannot be reliably determined. Attempts to use ECLS data for comparing assigned and attended schools have been forced to rely on crude approximations, such as assuming that the most geographically proximate public school to a census tract is the assigned school (Butler, Carr, Toma & Zimmer, 2010). In short, ECLS data are not suited for direct observation of sorting through school choice, but it is well suited for the type of family sociology analysis done in this study.

Overview of Research Questions and Dataset

The study outlined here provides one of the most thorough sociological comparisons of choosers and nonchoosers to date. Nonchoosers and three types of choosers in urban areas are identified in the Kindergarten year of the 2010-11 Early Childhood Longitudinal Study (ECLS-K: 2011). Questions in the detailed parent surveys enable the identification of (a) residential choosers, those who move to an area for a particular school, (b) private school choosers, (c) nonresidential public choosers, those who select and enroll in a school without moving, such as charter school families, and (d) nonchoosers, those who attend their assigned school and do not report considering other options. ECLS data provide a rich portrait of families' circumstances and parenting behaviors, including multiple indicators of socioeconomic status, family composition, parent and child well-being, relationship quality among parents and children,

childcare arrangements, neighborhood composition, and resources and behaviors related to educational and recreational activities outside of the school.

The overarching issue addressed in the study is “How are the families of choosers and nonchoosers different?” Three specific research questions will be examined in this study:

- 1) Does parental educational engagement mediate the link between families’ socioeconomic status (SES) and their likelihood of participating in school choice?
- 2) Does parents’ socioeconomic status relative to their neighbors affect their likelihood of participating in school choice, as classic stratification theory would suggest?
- 3) Do the SES, concerted cultivation, and classic stratification effects on the likelihood of choice participation vary by race and ethnicity?

In terms of theoretical underpinnings, research question 1 is mostly closely related to concerted cultivation and parental involvement. The existence of an SES gap between choosers and nonchoosers is well established, and school choice commentators have long speculated that choosers may also be more active in other aspect of their children’s educational development. This study provides a crucial examination of that issue. Preliminary analysis of choosers in the ECLS-K: 1999 dataset suggested that parental participation might mediate the positive relationship between higher SES and school choice, but the study was not adequately designed to formally test this mediation (Weitzel, 2010).

The hypothesis in research question 2 is derived from classic stratification theory, which suggests that families’ patterns of consumption are often aligned with their social class.

Extending this idea to school choice, the author anticipates that families’ SES relative to their

neighbors will be associated with participation in school choice above and beyond the association between their absolute SES and chooser status. More specifically, it is expected that being in the upper third of the educational distribution in a given census tract will have a positive association with private school choice and nonresidential public school choice after controlling for the main SES effect.

Family process models help inform the regression models in general, particularly questions 1 and 3. Many of the controls in the models capture aspects of family size, structure, language, and neighborhood context that can affect the stressors facing a family. Also, the mediational model used in question 1 has a similar structure to family process models in the sense that it tests the mediation of SES effects on a social outcome. Lastly, family process models, concerted cultivation studies, and prior studies of choice in ECLS have all found varying effects and dynamics by race, leading to the inclusion of research question 3 in this study.

Organization of this Paper

This paper is divided into three chapters. Following this introduction, the research literature relevant to this study will be reviewed and discussed in the second chapter. This review will include several different bodies of research literature, including (a) sorting studies in school choice, which are typically based on school enrollments (b) qualitative studies of school selection and student movements, which are generally focused solely on choosers, (c) survey studies in school choice and (d) quantitative studies of family process and concerted cultivation models, including several using an earlier Early Childhood Longitudinal Study data set. There have been relatively few studies that have similar goals as this paper, and most of those were severely constrained by very limited family background data. Accordingly, this review touches

on a variety of literature that may offer some lessons on explaining the differences between choosers and non-choosers.

The third chapter will outline the data set used in the study, define and describe the specific variables and composites used in the analysis, and present the methods used in the regression analyses in the study. Procedures for handling missing data, weights, and variance estimation are also discussed. This study will use the ECLS-K: 2011, a nationally representative study with a complex sample design. More specifically, a restricted-use version of the data that include census tract identifiers for each student will be used to include some measure of residential context in the models. Non-choosers, residential choosers, private school choosers, and non-residential public school choosers will be identified in the data set using a combination of parent self-reports and other behavioral indicators. Three sets of logistic regression models will be estimated for each of the research questions. The three types of active choosers will be modeled against nonchoosers in logistic regressions. Models will also be run with a sample limited to lower SES families to see if SES and concerted cultivation effects are larger for this group.

The fourth chapter presents the results from the descriptive and regression analyses. In the comparison of means and frequencies, private choosers not surprisingly emerged as the most advantaged group in virtually every respect. Non-residential public choosers were more affluent than other public school attenders. Residential public choosers were similar to nonchoosers, but were slightly more advantaged on most measures. In the regression models, model fit was relatively good for private choosers, moderate for non-residential public choosers, and poor for residential public choosers. Results suggest that residential choice in urban areas has a different profile of participants than residential choice in suburban areas. Higher SES was a good

predictor of both private choice and non-residential public choice but not of residential public choice. Concerted cultivation has positively associated with choice and had similar size effects for all three types of choice. Concerted cultivation also partially mediated the relationship between SES and choice at a statistically significant level. Stronger SES and concerted cultivation effects were found for low SES, black, and Hispanic families, with particularly strong effects for Hispanic families. Lastly, white and black families were more likely to engage in private or non-residential public choice when they were more educated than their neighbors.

The final chapter discusses the results of this study and offers recommendation for future research. The study provides evidence that sorting through school choice could be occurring in ways that will be very difficult to observe through conventional sorting studies. Traditional sorting studies could be enriched by including richer indicators of SES, family structure, and parenting practices. The study also expands the literature on concerted cultivation by identifying another social outcome to which it is meaningfully associated. Sociologists may wish to explore this relationship and the classic stratification results more thoroughly with SEM analyses.

CHAPTER 2: LITERATURE REVIEW

The question of how choosers and non-choosers differ is a basic question for school choice research, but it largely has not been approached from a family sociology perspective. Other emphases in the research community have likely contributed to this literature gap. New school choice programs, particularly charter school and voucher programs, have often been politically contentious from day one. Observers have been eager to determine the effectiveness of these programs. Moreover, for some coalitions that champion market-oriented approaches to the delivery of public services, school choice programs represent vital real-world tests of their theories. In short, the political stakes for choice programs have been exceptionally high, and many researchers, funders, and policymakers have been eager to determine if school choice “works”. Accordingly, a great deal of school choice literature has focused on studies on the achievement effects of schools of choice.

Data limitations have also made it difficult to examine the sociological differences between choosers and nonchoosers in any detail. Many studies of student movements through school choice either focus solely on choosers or rely primarily on enrollment data which is very limited in terms of indicators of family background. Even survey based studies often do not go much beyond basic socioeconomic status in their attempts to understand families’ background.

Although very few studies approach the difference between nonchoosers and different types of choosers as a question of family sociology, there is nonetheless a significant amount of research that offers some information on who chooses and the possible mechanisms or family characteristics that may be involved. In many of the relevant studies, a comparison of choosers and nonchoosers was not a primary emphasis of the study itself, but the data collected provide evidence related to that question.

Research outside of school choice can also be quite useful. School choice, like many outcomes in education and child development, has a significant and well-established association with socioeconomic status (SES). Research that explains why SES is associated with a particular educational outcome could provide clues as to why active participation in school choice has a similar relationship with SES. Quantitative family process studies, some of which have also been conducted in ECLS, are particularly useful in this regard. In terms of contributions to model building for this analysis, this literature (a) suggests mechanisms that may mediate the relationship between SES, (b) operationalizes key sociological theories like concerted cultivation, and (c) helps identify controls to include in the analysis.

Regarding the geographic focus of this literature review, this review includes research on both international and U.S. choice systems, though U.S. evidence is covered more thoroughly. With the sociological focus of this study, it is important to acknowledge the role of the social, cultural, and economic context in which choice systems reside. Factors like the quality of public education, levels of economic inequality, and the extent of racial and socioeconomic segregation all may affect who participates in school choice. Of course, local, regional, and national rules on school choice and the diversity of school types available will also substantially influence the prevalence of choice in a given market and the extent of differences between choosers and nonchoosers. Some countries, like the Netherlands for example, have a very long history of school choice, while others have expanded choice options more recently. Given all of the ways in which context may affect the sociology of school choice, it is anticipated that prior research on U.S. choice systems will be considerably more relevant for this study. Accordingly, the review of domestic research is more complete and is treated in more detail than the review of international evidence.

Organization of the Chapter

This chapter is organized into seven major sections. Following this introduction, a condensed summary of the review of school choice literature is provided before moving into more detailed results in the following sections. The third section provides background on the types of school choice in the U.S. and social context in which choice systems function. In the remainder of the chapter studies from the following four categories are reviewed and discussed.

- Studies of student movements through school choice. These studies are also referred to as “sorting studies” because they often examine the extent to which student sorting through school choice affects school segregation in a given market.
- Qualitative studies of school choice decision making. These studies usually focus solely on choosers, but they do offer rich descriptions of some of the family stressors, transportation challenges, contextual issues, and other opportunity costs that may be involved with being a chooser.
- Surveys of parents on school choice issues. These studies largely treat all parents as choosers, but they offer some indication of the sources of information available to parents, attitudes toward school choice, parents’ social networks, and the relative weight parents put on particular types of information.
- Sociological studies testing family process models and education investment decisions. These quantitative studies rarely look at school choice directly, but they do suggest ways in which social, geographic, and economic disadvantage can affect parental involvement in education and parents’ relationships with their children.

Condensed Summary of School Choice Literature

In terms of the context for school choice in the U.S., it is important to recognize that most choice systems operate in residentially segregated contexts already. Some choice advocates thought expanded school choice could reduce segregation by freeing enrollment from segregated neighborhoods (Finn, Manno, & Vanourek, 2001), while some critics thought choice would make segregation worse (Elmore, 1988, Garcia, 2010). The potential sorting effects of school choice became especially important after the U.S. Supreme Court declared it unconstitutional to consider race in school assignment (*Parents Involved v. Seattle*, 2007).

The most prevalent types of choice options in the U.S. include residential choice, open enrollment, magnet schools, public and private voucher plans, private schools, and charter schools. Some choice options, like residential choice, open enrollment, charter schools, and some magnet schools are technically open to all students who meet the geographic criteria. Private schools of course can have admissions standards and tuition costs, and many voucher programs have income-based eligibility criteria that limit the potential recipients to low income families.

Internationally, choice systems in England, the Netherlands, and Chile have received the most attention in choice research. The public choice system in England is most analogous to open enrollment plans in the U.S., while the Dutch system is essentially a long-running, high-market-share charter system that includes religious schools. Chile introduced a large voucher program in the 1980's and 1990's, though some public and private schools still have tuition costs not covered by the vouchers.

Summary of sorting study findings

Many studies examine levels of segregation in schools of choice or the net segregating effects of choice systems. One type of sorting research uses aggregate comparisons of enrollment composition in schools of choice versus state, national, or local data, but the longitudinal studies that follow individual student moves are more powerful and useful. As in most school choice research, choosers are typically only identified when they leave their assigned schools, meaning that chooser population is somewhat underrepresented in these studies. Three types of student movements have been defined (Bifulco, Ladd, and Ross, 2009a; Saporito, 2003; Archbald, 2004). In outgroup avoidance, whites and more affluent students leave or avoid schools with less affluent students. In neutral ethnocentrism, parents of all races seek out schools that have higher proportions of families like them. Lastly, in the liberation model, poor and minority students in bad schools will seek out higher performing schools.

Several magnet school studies have found that these schools serve more educated or more affluent parents (Yu & Taylor, 1997; Martinez, Godwin, and Kemerer, 1996; Saporito, 2003; Archbald, 1996). After controlling for student achievement, higher educated parents were still more likely to leave their assigned school (Cullen, Jacob, and Levitt, 2005). Martinez, Godwin, and Kemerer (1996) found that parents' education, student achievement, and parental involvement were predictive of being a middle school magnet chooser, and parent education had both direct and indirect effects on choice through parental involvement. Some studies indicate that magnets have minimal net effect on segregation (Saporito, 2003), while others have found that magnet programs reduce segregation (Blank, Levine, & Steel, 1996; Henig, 1995; Holme & Wells, 2008; Linn & Welner, 2007). Multiple studies have found support for the outgroup

avoidance model in which whites avoid schools with more minorities via school choice (Saporito & Sohoni, 2006; Lankford & Wyckoff; Cascio & Lewis, 2012).

Open-enrollment studies examine student moves either between districts or between schools in the same district. Users of open-enrollment have tended to be more affluent (Armor & Peiser, 1998; Holme & Richards, 2009) and the plans themselves may increase racial and socioeconomic stratification (Holme & Wells, 2008). In a comparison of an open-enrollment plan versus two magnet plans, Koedel, Betts & Rice (2009) found that the open-enrollment plan increased segregation while the magnet plans decreased it.

In voucher studies, the group of parents seeking vouchers have tended to be more educated and more involved, even when there were income-based eligibility restrictions (Chakrabarti, 2006; Witte, 2000; Campbell, West, & Peterson, 2005; Howell, 2004). After receiving a voucher offer, more educated parents are also more likely to accept them (Howell, Peterson, Wolf & Campbell, 2002; Metcalf, West, Legan, Paul & Boone, 2003). In private school studies not involving vouchers, modeling indicates the private schools may exacerbate segregation due to outgroup avoidance by whites and Hispanics, particularly when public schools are more diverse (Fairlie, 2006; Epple, Figlio & Romano, 2004; Lankford, Lee & Wyckoff, 1995). Buddin, Cordes & Kirby (1998) found that more educated parents, smaller families, and U.S. citizenship were associated with private school choice, after controlling for income and other background factors.

Aggregate comparisons of charter school enrollments at the state level have found that minorities are overrepresented in charters (Frankenberg & Lee, 2003; Rapp & Eckes, 2007), but this approach is not as useful as more local comparisons. With better comparison data, some

studies have found an overrepresentation of whites in charter schools (Cobb & Glass, 1999; Renzulli & Evans, 2005). Multiple studies have found that charter schools underrepresent LEP and special education students (Miron, Urschel, Mathis & Tornquist, 2010; Arsen & Ray, 2004; Lacireno-Paquet, Holyoke, Moser & Henig, 2002). Some charter studies have found support for the neutral ethnocentrism model in which all groups tend to self-segregate via school choice (Weiher & Tedin, 2002; Garcia, 2008; Booker, Zimmer & Buddin, 2005). Bifulco, Ladd & Ross (2009b) found some support for the liberation model among poor and low achieving black students, but white and more educated families engaged in outgroup avoidance and many black families self-segregated. Ni (2012) found that SES effects can differ by race, with charter choosers tending to be low income whites and more affluent blacks, perhaps because whites had already exited the urban districts studied. Charter schools may also indirectly shape their enrollments by locating their facilities in spots that avoid the neediest neighborhoods in a given market (Entremont & Gulosino, 2008; Gulosino & Lubienski, 2011; Lubienski, Gulosino & Weitzel, 2009; Henig & MacDonald, 2002).

Studies of choice in England and Scotland have found that higher SES is associated with participation in school choice (Stillman, 1990, cited in Ambler, 1994; Echols & Willms, 1995; Willms & Echols, 1992, 1993). Gorard and Fitz (2000) found that the prevalence of school choice was not associated with trends in school segregation, but other researchers have reached different conclusions (Allen, 2007; Taylor, 2009).

In Chile, multiple studies have found that more affluent and educated parents were more likely to use vouchers (Hsieh & Urquiola, 2003, 2006; Carnoy & McEwan, 1999). The voucher program also appeared to increase stratification along socioeconomic lines (Hsieh & Urquiola,

2003, 2006), and extra tuition costs are private schools largely explained the socioeconomic gap between public and private schools (Elacqua, 2009).

In the Netherlands, school segregation increased substantially in the 1990's (Karsten, 1994), and the ethnic composition of schools appeared to influence parent preferences, with both natives and immigrants avoiding predominately non-white schools (Karsten, Ledoux, Roelevel, Felix & Elshof, 2003). Research in Sweden, New Zealand, Australia, and France has also found evidence that school choice can increase school segregation (Lindblom, 2010; Gerdes, 2010; Ambler, 1994; Ladd & Fiske, 2001; Plank & Sykes, 2003).

Summary of school choice survey and interview study findings

Survey studies and qualitative studies often focus on the decisionmaking processes of choosers, though some surveys also include nonchoosers. Although parents indicate that academic quality is the most important school criteria to them (e.g. Goldring, 1997; Teske, Fitzpatrick & Kaplan, 2007; Schneider & Buckley, 2002), but schools' racial composition appears to substantially to influence school selection (e.g., Schneider & Buckley, 2002; Hastings & Weinstein, 2007) and less than half of parents actually pick higher achieving schools for their kids (Stein, Goldring & Cravens, 2010). Low income parents may value achievement scores slightly less in selection and have difficulty obtaining or interpreting such information (Hastings, Kane & Staiger, 2007). Personally acquired qualitative information, rather than hard statistics, is deemed to be especially valuable by parents (Goyette, Freely, & Farrie, 2007 as cited in DeJarnatt, 2008; Teske, Fitzpatrick & Kaplan, 2007). Race, geography, and socioeconomics also substantially impact the social networks consulted by parents, with white and more educated parents drawing on larger social networks and more market experts (Hastings, Kane, Staiger, 2005; Schneider, Teske & Marschall, 2000; Teske, Fitzpatrick & Kaplan, 2007).

In interview studies, Wells (1993, 1996) found that urban families who participated in desegregation plans had smaller families, higher levels of employment, less distrust of whites, and a stronger achievement orientation in their parenting. Holme (2002) found a heavy emphasis on personally acquired soft information in school selection, even among very affluent families. Andre-Bechley (2007) found that poor and Latino parents had difficulty navigating the complexities of an open-enrollment program. Bell (2009a, 2009b) found that segregated social networks played a big role in choice processes and that existing socioeconomic inequalities negatively affected choice for poor parents. Bell also found that rationales for self-segregation were common, and that larger family size and transportation issues complicated the choice process. Multiple studies have found that culture and parents' past schooling experiences affected their use of resources in choice and their beliefs as to whether or not schools could make a difference for their kids (Bulman 2004; Reay & Ball, 1998). Several English studies have likewise found that the values shaping choice are socially constructed (Ball, Bowe, & Gewirtz, 1994; Ball, 1993; Ball, Bowe, & Gewirtz, 1996). Diamond and Gomez (2004) found that middle class black families started their searches sooner than working class families and were less hampered by social or informational constraints.

Detailed School Choice Findings

In this section, school choice research related to choosers and nonchoosers is examined in greater depth, with more attention paid to methodological details. First, the U.S. context for school choice is briefly reviewed, including issues of residential segregation and the basic types of school choice available in typical urban markets. Results from enrollment and sorting studies are presented in the next section, followed by the results from survey and interview studies. The

last section of the school choice portion of this chapter discusses the results of the review in relation to the research questions for this study.

Segregation and the context of choice programs in the U.S.

School choice programs in the U.S. largely operate in areas that are already residentially and educationally segregated. Racial residential segregation in the U.S. has actually improved moderately since the 1960's, shifting from macro segregation at state and regional levels to smaller scale segregation in neighborhoods (Massey, Rothwell & Domina, 2009). African-Americans actually experienced declines in residential segregation between 1980 and 2000 (Iceland, Weinberg & Steinmetz, 2002). However, blacks nonetheless remain the most segregated racial group in the country. Moreover, residential segregation along socioeconomic lines has grown considerably worse in recent decades (Massey & Fischer 2003; Massey 2007), fueled in part by an explosion in wage and income inequality since 1973 (Mishel, Bivens, Gould & Shierholtz, 2012). For modern market societies that aim to be meritocratic, such segregation is a substantial problem because it limits opportunities for economic mobility and civic cohesion. Neighborhoods themselves can have direct effects on youth outcomes (Brooks-Gunn, Duncan & Aber, 1997), and these problems for poor students are compounded when residential location leads to assignment to segregated schools (Linn & Welner, 2007).

The most direct efforts to mitigate the effects of residential segregation in the U.S. have focused on reducing school segregation. A substantial number of school desegregation programs were implemented in U.S. metro areas in the 1970's, and these programs reached their peak in the late 80's and early 90's. Since then, however, many programs have had to be scaled back as a number of court decisions have limited the ability of states and localities to consider a student's

race in school assignment. The South and Northeast of the U.S. have witnessed particularly large increases in school segregation since 1972 (Clotfelter, Ladd & Vigdor, 2006).

This trend in legal rulings culminated in the Supreme Court decision in *Parents Involved v. Seattle* (2007), which declared it unconstitutional to consider race in school assignment. This development was a major blow to advocates of desegregation policies, but they could take some small solace in the opinion of Justice Kennedy, who sided with the majority but offered a slightly different rationale. Kennedy acknowledged that the state had a legitimate interest in limiting segregation, and he left the door open for the government to promote integration through indirect means like the design of school choice programs and the provision of magnet schools. From Kennedy's perspective, this approach balanced state interests without limiting personal liberties.

For many advocates of charter schools and expanded school choice, Kennedy's argument was nothing new. Indeed, many proponents of school choice had been arguing for years that school choice could reduce school segregation because it freed disadvantaged students from segregated schools that were assigned by residential location (Finn, Manno, & Vanourek, 2000). In some cases, choice advocates even felt that relatively laissez faire choice policies would be sufficient to reduce segregation because rational parents would act in their own interest and pick high achieving integrated schools. However, some critics felt that school choice would exacerbate existing levels of segregation (Garcia, 2010). While some proponents hoped that school choice would reduce segregation (Finn, Manno, & Vanourek, 2001) a substantial number of critics thought the opposite would occur (Elmore, 1988; Cobb & Glass, 1999; Horn & Miron, 2000). This important question of the segregating effects of school choice took on even greater weight in the wake of the *Parents Involved* decision.

Initially, critics were concerned that school choice would lead to white flight, as it did in the South following the *Brown* decision. Over time, this view has been refined to focus more on socioeconomic sorting, self-segregating moves by many different groups, and sorting on less observable characteristics like parental engagement. Recently, the Civil Rights Project declared that charter schools were a “civil rights failure” (Frankenberg, Siegel-Hawley & Wang, 2010, p.1). Conversely, school choice and charter school proponents have declared that choice itself is an emerging civil right, emphasizing the liberty of individual families.

In the 80’s and 90’s, many of the debates over the sorting potential of school choice were little more than conjecture based on theories derived from economics and sociology. Today, however, there is a substantial body of domestic and international evidence on the sorting effects of school choice. This research has grown substantially more sophisticated over the last 10 years, aided in part by the increasing availability of individual-level longitudinal data. Likewise, ideas about *why* sorting might occur have been refined as well to address factors on both the demand side (parents and students) and the supply side (schools). Also, researchers have developed a more nuanced view of the pros and cons of different types of school choice and the various regulations that can be used to shape student movements within a choice system.

Types of non-residential school choice

The vast majority of studies included in this review have taken place in the last 20 years, a similar timeline to the expansion of open-enrollment plans, voucher plans, and charter schools in the states. In interpreting the results of these studies, it is important to keep in mind the rules governing school choice systems. Although the specific rules for choice plans can vary widely, some general characterizations can be made.

Intra and Interdistrict Open Enrollment Plans: In these plans, funding follows the pupil, even if the sending district is funded at a low level, creating a disincentive for rich districts in some cases. In most cases, schools can only reject transfer for capacity or severe disciplinary reasons. Before recent court decisions, sometimes districts could reject transfers that ran counter to the goals of integration plans. Usually transportation is not provided by receiving districts, though some states make reimbursements to low income families. Oversight of these programs is usually very weak (Holme & Wells, 2008).

Magnet Schools: Magnet schools usually have some curricular specialization or theme, and they are expected to operate under racial balance guidelines. Usually they are intended to draw white or affluent students into the city. Some magnet schools can use academic admission standards in student selection. They are overwhelmingly located in large central cities, and they enrolled over 1 million students in the 90's.

Voucher Plans: Privately and publicly funded voucher programs provide private school tuition for low income students. These usually are not add-on vouchers, meaning that they are intended to cover the full tuition and fees for students. Sometimes transportation is provided, but most often it is not required. Many students who are awarded vouchers choose not to use them.

Charter schools: Charter schools are granted freedom from some school regulations but are held to similar accountability standards as public schools. If oversubscribed, charters usually select students by random lottery. They receive the per-student funds of students who enroll, and some states provide support for capital projects. Some states have provisions in their charter school laws requiring schools to meet guidelines for diversity, but these are often not very well enforced. The degree of oversight on charter schools can vary widely from district to district and

state to state. Some states are aggressive about shutting down poor performing charters, and others are not.

Private schools: Over 33,000 private schools in the U.S. serve nearly 5 million students. Private schools are largely free to set whatever admissions or enrollment standards they want, including tuition and other fees. Although many private schools receive some categorical streams of public funds, they are largely not held to the same accountability expectations as public schools. In addition to the voucher programs mentioned above, many states have educational tax credits that can help parents pay for private school tuition. There are at least 15 tuition tax credit programs in 12 states, and their specific terms vary widely. Unlike vouchers, tax credit programs require parents to initially pay tuition and fees themselves first, and then some portion of those costs are later recouped through tax credits. In some cases, the tax credits are for donations to organizations that provide vouchers, and in other cases the credits can apply to direct expenditures by parents. In states like Illinois, the tax credits apply to a variety of educational expenses beyond tuition, including books and lab fees at both public and private schools.

International choice systems

This review largely focuses on evidence from the U.S., but a section is devoted to international studies. Many foreign countries have systems for publicly funded school choice, including countries like the Netherlands which has had universal choice for many decades. The countries in which student sorting effects have been studied the most include England, Scotland, the Netherlands, and Chile. England has a relatively large body of school choice research dating back to the early 1990's, while other countries have attracted researchers in more recent years.

England: England's choice system has recently evolved to include more public funding of religious schools, but its choice system in recent decades is most analogous to open enrollment plans in the U.S. The private school sector in England reaches about 8 % of the student population overall and tends to focus on secondary schools. England nationalized their curriculum in the late 1980's and expanded the rights of parents to pick among state schools. School districts are required to disseminate information about schools to parents, and they cannot use residential proximity or enrollment caps to force families into low performing schools. Districts do not have to provide transportation, however. England also experimented with some mid-sized voucher programs in the 80's and 90's. Lower and working class students who could score in the top 15% of applicants for private schools could receive free tuition or substantially subsidized tuition.

The Netherlands: The Netherlands has had a long running system of school choice in which attendance at publicly-funded quasi-private schools is essentially the norm. When enough parents request a school with a particular religious background or curricular emphasis, the government is obligated to provide capital and cover personnel and operating expenses on a per pupil basis. About 90% of the private schools are religiously affiliated. Private schools can add minimal fees, but students cannot be excluded based on their ability to pay these fees. Per pupil funding is weighted according to students' socioeconomic need. At the secondary level, Dutch schooling separates into vocational, general, and university prep tracks.

Chilé: Chilé introduced a large scale voucher system in the 80's and 90's, dramatically increasing the proportion of Chiléan kids attending private schools. This voucher program is essentially universal, and it does not include any eligibility restrictions based on income or socioeconomic status. Public schools and some publicly subsidized private schools, particularly

secondary schools, have voluntary tuition costs beyond the value of the voucher. Other publicly subsidized private schools can charge monthly tuition that is capped at about \$120 per month. Chile also has the equivalent of charter schools, and they can institute voluntary tuition charges.

There are clearly many different types of school choice in the U.S. and internationally, and each type has its own administrative wrinkles which can have substantial effects on student participation and student sorting. In the U.S., it is not uncommon for at least three or four of the types of school choice described above to be present in a single educational market like a city or a metropolitan area. Given the range of choice options available, it is important to avoid treating all types of choosers as one and the same. In this study, choosers will be identified by both self-reports and behavioral indicators. The primary behavioral indicators will be student enrollment in a school of choice. Since the ECLS data identifies different types of schools of choice, including magnet, private, and charter schools, the results in the literature review will be broken out by school type when possible. It is conceivable that the differences between nonchoosers and different types of choosers may vary. In other words, private school choosers may have a different typical profile than magnet school or charter school choosers.

Student Sorting Studies

The studies reviewed in this section are primarily concerned with the effect that school choice has on racial and socioeconomic school segregation in U.S. cities and metropolitan areas. These studies often map the residential location of students, determine their school enrollment assignments, and then compare actual enrollment patterns against a hypothetical counterfactual in which all students attended their geographically assigned schools. In most cases, behavioral indicators, the act of leaving your assigned school, is the only way in which researchers are able to identify choosers. Children that do not leave their assigned schools are generally treated as

non-choosers. This approach will tend to underrepresent the number of choosers in a given market because families that consider multiple options and choose to remain at their assigned school are treated as non-choosers. In these studies, “movers” is essentially synonymous with “choosers”.

When reviewing these studies, two major sets of findings will be shared. First, the difference between movers and non-movers will be shared when these data are available. Second, the findings of the study regarding the effects of school choice on segregation will be presented. This project is not a sorting study by any means, but its findings may have implications for the study of student sorting through school choice. Preliminary results from a study of an earlier ECLS dataset indicate that there may be forms of socioeconomic sorting occurring through school choice that are not apparent in traditional enrollment data (Weitzel, 2011). While findings regarding the impact of school choice on overall segregation are not integral to the design of this study, they are relevant for a discussion of the potential implications of this study. Also, the associations between student background and student movements in these studies could aid in model design for this paper.

Types of student movements in school choice

Bifulco, Ladd, and Ross (2009a) draw from Saporito (2003) and Archbald (2004) to outline three types of student enrollment moves and why they might occur. These types of moves are differentiated by the type of actor (white, minority, high SES, low SES) and the predicted net effect on school segregation.

- **Outgroup avoidance:** Whites and more affluent students will utilize school choice to leave or avoid schools with substantial populations of poor or minority students. The net effect of outgroup avoidance will be increased segregation.
- **Neutral ethnocentrism:** Parents of all races will desire relatively homogenous schools where their children can be educated with kids of similar backgrounds. The net effect of neutral ethnocentrism will be increased segregation. This type of preference for homogeneity could also be extended to socioeconomic level or other types of values or parental preferences.
- **Liberation model:** Poor and minority students in segregated neighborhoods with struggling schools will choose higher performing, more integrated schools. The net effect of the liberation model will be decreased segregation.

Types of sorting studies

Within the body of sorting studies, Miron, Urschel, Mathis, and Tornquist (2010) identify four types of quantitative studies of school enrollments and student movements:

1. Studies that compare charter schools' aggregate data to state or national aggregate data;
2. Studies that compare aggregated charter school data to aggregated local district data;
3. Studies that are based on comparisons between individual schools and local districts;
4. Studies that track individual students and compare the demographic characteristics of each student's previous school with the chosen charter school (p.3)

The first approach, comparing charter aggregate data with state or national aggregated data, is somewhat crude and the results are usually of limited utility. Since charter schools tend to be located in urban areas, more meaningful comparisons must compare charter enrollments to their neighboring public schools or at least the public schools in the same district. The second approach, comparing charter school aggregate data to local district aggregate data, is marginally better, but as Miron and colleagues point out, these averages tend to mask the extremes of school-level segregation that can occur. There are different types of sorting that can simultaneously occur in a choice system, possibly leading to school segregation that won't be apparent in aggregate data. The majority of quantitative studies reviewed here fall in the third and fourth categories and thus have much greater ability to tease out the nuances of school segregation through school choice. Studies in the fourth category, those that track the movement of individual students and often include student residential location, are particularly powerful, and the results of two such studies are reviewed in extra detail in this paper (Ni, 2012; Bifulco, Ladd & Ross, 2009a). For the purposes of comparing choosers and non-choosers, individual-level studies are most useful.

Although these types of studies represent substantial steps forward in validity, there are still some major problems in making claims about how the availability of school choice affected school segregation. Simply put, there are no counterfactuals that are not problematic in some way. One approach to defining a counterfactual involves mapping students' residential locations relative to school catchment areas and estimating what school enrollments would be if all students attended their assigned traditional public schools. The obvious problem here is that families might not have remained in their current residential location if school choice were not available. They might have participated in Tiebout-style choice by moving or might have

decided to spend the money for private school. A second common approach to defining a counterfactual is to look at student enrollment decisions longitudinally and compare a student's prior public school with his or her new charter school. Again, a student might have been in a different TPS if the charter school were not available at the time. Also, as Ni (2012) notes, "one can only project the counterfactual for charter school students who appear at some point in a TPS, and this group might not be representative of all charter school students." A rarely used third approach could involve comparing enrollment trends before and after the introduction of choice. However, as the years go by, other major educational policy changes may be occurring, and cities and their residents are going through their own economic cycles and trends in residential mobility that may or may not be related to schooling options. While it is unlikely that studies on the sorting effects of school choice will ever reach rock-solid conclusions, longitudinal studies of individual student movements offer the most detailed and internally valid findings.

Measuring segregation

A brief note on the way segregation is usually measured in these studies is worthwhile. Although Massey and Denton (1989) have defined five dimensions of segregation (evenness, exposure, concentration, centralization, and clustering), the vast majority of school segregation studies only address one or two of these dimensions. Far and away, the most commonly used metric of segregation is the dissimilarity index or a modification of it used in Great Britain (Gorard, 2009). The dissimilarity index produces a statistic that states the percentage of students that would need to change schools in order to produce a perfectly even distribution of students across a district or educational market. For example, in a city with a dissimilarity index of .35,

about 35% of the students would need to change schools to achieve perfect integration. For a major U.S. city, 35% would actually be a below average number.

The second dimension of segregation commonly used in school research is the exposure dimension, which includes both exposure and isolation indices. The exposure dimension focuses on the likelihood of interactions between two groups, usually black or white. The exposure index represents the percentage of students of a certain group (e.g. black) in the school of the average student of another group (e.g. white). The isolation index measures the probability that a member of one group (e.g. low income) will meet someone of the same group within his or her school. Both the exposure and isolation indices are sensitive to the absolute number of group members available, so they should be used with caution.

Magnet school studies

Generally magnet school studies have found that these schools tend to serve parents with higher levels of education than public schools in the area (Yu & Taylor, 1997; Martinez, Godwin, and Kemerer, 1996). Yu and Taylor's (1997) study of magnet school programs in St. Louis, Cincinnati, and Nashville concluded that the magnet school programs do improve the educational opportunities of participants. However, they also noted that magnet programs do not necessarily improve the socioeconomic segregation of students overall and that more magnet parents had college degrees than non-magnet parents. Archbald (1996) examined magnet enrollment by school catchment area in Milwaukee and found that parental education and proximity were the strongest predictors of magnet enrollment. Saporito (2003) found some support for the liberation model in Philadelphia high schools, noting that students from struggling schools were more likely to choose magnets. However, these students tended to be more affluent than their original classmates, with free/reduced lunch parents applying at lower

rates than non-poor parents. He estimates that the net effect of the magnets on school segregation in the city is minimal, as measured by a dissimilarity index. Cullen, Jacob, and Levitt (2005) studied the students who opted out of their assigned high schools in Chicago. The lowest quartile of achievers was less likely to opt out of their schools, and when they did, they tended to pick low achieving schools. Higher educated parents were more likely to opt out, even after controlling for student achievement.

Martinez, Godwin, and Kemerer (1996) examined participation in a San Antonio choice program for multilingual middle schools in 1992. The authors surveyed 1,325 non-choosers, 336 choosers who were admitted, and 97 choosers who were not admitted due to space restrictions. Chooser parents were more than twice as likely as nonchoosers to have attended college, were less likely to be on federal assistance, had smaller families, and the child in question was substantially more likely to be female. In multivariate logistic regressions and path analyses, higher parental education, female child gender, higher achievement scores, higher educational expectation, and more parental involvement in home-based educational activities were all positively related to being a chooser. Parental education has both a direct and indirect effect on the likelihood of choice, also influencing predictors like home-based learning, test scores, and educational expectations. Religious values are not significant predictors of chooser/nonchooser status.

Archbald (2004) used a national data set to compare income-based stratification in districts with magnet school choice and those without choice. Districts with some degree of choice were further broken out by the prevalence of choice in the districts, distinguishing those with “some choice” from those with “much choice”. Information distribution and the provision of transportation were also factored in these distinctions. In descriptive data, districts with

magnets and more school choice were more segregated than non-choice districts. After controlling for confounding variables, however, the existence and prevalence of choice had no significant association with scores on a dissimilarity index. Larger districts and more economically stratified neighborhoods were associated with more school segregation. Greater private school enrollment percentages are associated with lower public segregation, perhaps because a greater percentage of affluent kids are removed from the public school system.

The study of individual magnet schools, however, may not provide a full picture. It is important to consider that magnets are often created as part of a systemic effort to improve integration. Blank, Levine, & Steel (1996) and Henig (1995b) both found that magnet schools and managed choice programs improved the racial balance in public schools. Holme and Wells (2008) conducted a review of the evidence on interdistrict desegregation plans and found that these plans improve racial balance in the suburbs, positively influenced racial attitudes, and improved the long term educational attainment of minority participants. A review conducted by the National Academies of Education prior to the *Parents Involved* decision reached similar conclusions (Linn & Welner, 2007). These positive findings for race conscious choice plans are in contrast to the findings on unregulated interdistrict open enrollment plans, which are covered in the next section.

Sohoni and Saporito (2009) conducted a large mapping study of the 22 largest districts in the U.S. to determine if enrollment in non-neighborhood schools, including magnets, charters, and private schools, affected levels of segregation in regular public schools. They found that public school segregation was worsened by the presence of these schools of choice. Overall segregation levels were higher in elementary schools than in high schools, but high schools have larger catchment areas. When school composition was compared to its catchment area, there

were no differences in segregation by school level. Saporito and Sohoni (2006) have also found that integrated neighborhoods seem to increase the likelihood of white flight. Comparing school composition to neighborhood composition, the differences were greatest in areas where there were similar proportions of white and minority students. They found that white children were more likely to exit integrated neighborhood schools and that white students are more evenly distributed residentially than their distribution in private, charter, and magnet schools. Lankford and Wyckoff (2000) also found that public schools were more attractive to whites when the proportion of minorities enrolled was low. Cascio and Lewis (2010) found that the influx of immigrant students tended to push white Californians out of urban districts.

Open enrollment studies

Although they have been around longer than charter schools and are present in every state, open enrollment plans have not been as thoroughly studied as charter schools. In Massachusetts, Fossey (1994) found that participating families enrolled their kids in districts with higher achievement and higher average socioeconomic status than the districts they left. However, when Armor and Peiser (1998) examined the participating families in more detail, they found that students utilizing transfer tended to be wealthier, higher achieving and more likely to be White compared to the students in the sending districts.

In the Denver metro area, Holme and Richards (2009) found that more affluent students were the most likely to participate in interdistrict choice, though the socioeconomic differences were relatively small as measured by free/reduced lunch status. Utilizers of interdistrict choice were more likely to be minority students than district averages would predict, a finding that differs somewhat from most research on the topic. Interestingly, some black students in the suburbs used choice to transfer into less affluent, poorer performing city schools, consistent with

the neutral ethnocentrism model. In a review of open enrollment studies, Holme and Wells (2008) found that open enrollment plans tended to enhance racial and socioeconomic stratification. More affluent and white students tend to use these plans, and the choosers tend to select districts that are more white and affluent than the districts they left.

Koedel, Betts, Rice, and Zau (2009) conducted one of the best studies of open enrollment plans. The city of San Diego has three different types of choice plans, two magnet plans designed to improve integration and a race neutral open enrollment plan. The authors used student-level panel data to examine how choice can have both integrating and segregating effects. Actual enrollment patterns were compared to a counterfactual in which all students attended their neighborhood schools. In general, all types of participating students tended to apply to schools with more white students and fewer ELL students. The race neutral open enrollment program has a net segregating effect because most of its participants are white. The integration-oriented plans worked, increasing school integration for participants by 11%, but these gains were essentially negated by the race neutral open enrollment plan. The open enrollment plan also increased segregation along ability lines, as measured by student test scores. More affluent students tended to avoid low income students in their school selections.

Voucher studies and regular private school selection

The majority of voucher research has focused on achievement, and the voucher research that is relevant for sorting most often focuses on who applies for vouchers and who actually uses them when they are awarded. Calculating counterfactuals on the net segregating or integrating effects of vouchers is not common in the research. Most voucher programs tend to have income eligibility criteria, so one might anticipate that the association between SES and participation would be diminished.

In Milwaukee, studies found that income was not associated with participation among the eligible populations, but there remained a positive association between higher parental education and voucher participation (Chakrabarti, 2006; Witte, 2000). This finding is notable because parental education is often seen as a particularly good indicator of social class. So, in this case, the eligibility criteria limited applicants to a lower income population, but the pool of applicants was still a more educated subset of that population. Not surprisingly, Milwaukee researchers also found a positive relationship between parental involvement and voucher participation. Research on voucher programs in other cities have likewise found that more educated parents are more likely to use vouchers when they receive them. (e.g. Howell et. al., 2002; Metcalf, West, Legan, Paul & Boone, 2003).

Studies of means-tested voucher programs in Cleveland, New York City, Dayton, and Washington, DC, also find that parents who have higher levels of education are more likely to use vouchers (Campbell, West, & Peterson, 2005; Howell, 2004; Howell et. al., 2002; Metcalf, West, Legan, Paul, & Boone, 2003). In short, even when the income of voucher eligible families is capped, other indicators of socioeconomic status like parent education still suggest that a more advantaged subset of the populations is actively choosing.

Unlike the forms of school choice discussed above, which may involve opportunity costs and transportation costs for parents, regular private school choice also often includes direct financial costs for tuition. Accordingly, one might expect that the association between family income and private school attendance to be relatively strong. Many studies have examined the characteristics of students who opt out of public schools for private schools. Epple, Figlio, and Romano (2004) use data from the National Educational Longitudinal Survey, the Schools and Staffing Survey, and a quasi-census of private schools to test a model of stratification through

private school selection. They predict that private schools will lower their prices for higher performing students, exacerbating socioeconomic segregation between public and private schools. Income and academic ability are strong predictors of private school attendance, and they become stronger predictors when public school expenditures are low.

Fairlie (2006) also uses NELS data to estimate the role of race and income in private school attendance. He finds that low income is a major factor in the underrepresentation of minority students in private schools, but that racial factors also exert substantial effects, with whites and Hispanics more likely to opt for private schools in response to substantial black populations in the public schools.

Lankford, Lee, and Wyckoff (1995) use data from the Current Population Survey and aggregate data from metropolitan areas to test a hypothesis that private school attendance is affected by the racial composition of the public schools. They find that racial composition, the crime rate, and family background all affect the prevalence of private school choice. When white students are in the majority in public schools, racial composition has little effect on school choice activity, but when white students are in the minority, more minority students increases private school usage among whites. Residing in a central city or a city with a higher juvenile crime rate is also associated with more private school attendance. Both income and parent education are positively associated with private school attendance. However, parent education only has an effect above the high school education level. In other words, only college education and up is associated with private school attendance.

Buddin, Cordes & Kirby (1998) use California private school enrollment data and Census information to estimate a model of private/public school choice. Since California has limited

variation in public school funding between districts, they expect that residential public school choice will be somewhat less of a factor in the state. The authors find that higher incomes increase the likelihood of private school choice, but the effect is not as large as anticipated. Being above the poverty has an additional positive association with private school choice beyond that of the associated income increase. Parents who attended college were also more likely to send their children to private school after controlling for other background factors. Older parents, Catholicism, and single parenthood were also associated with private school choice, though the effects for age were relatively small. Lack of U.S. citizenship was associated with a decreased likelihood of private school attendance, and as the authors anticipated, larger families were less likely to send children to private schools. Higher population density and greater variation in family incomes were positively associated with private school choice, and higher public school test scores decreased the likelihood of private school selection.

Collectively, these studies find both that family-level and community or school-level factors seem to have meaningful associations with the likelihood of private school selection. Not surprisingly, more educated parents and parents who have more financial resources per child are more likely to pick private schools. But this decision is also responsive to enrollment tendencies in local public schools. For the most part, white families are more inclined to avoid public schools when white students are in the minority, when the families live in central cities, or when there are other indications of poor academic performance in the public schools.

Charter school studies

Many of the concerns about charter schools in their first decade focused on their potential to be havens for white flight (Garcia, 2010). Accordingly, many of the earlier studies focused on the black enrollment rates in charter schools. Early studies of enrollment patterns in U.S.

charter schools made national or statewide comparisons, concluding that charter schools serve minority and poor students at higher rates than traditional public schools (e.g. Naylor, 2000). RPP international (2000) found that about 1/6th of charter schools overrepresented minority students compared to their district and about 1/6th underrepresented them. Frankenberg & Lee (2003) look at charter school enrollments in 16 states and found that black students tended to be overrepresented in charters. Rapp & Eckes (2007) examined 32 states and reached similar conclusions. These studies, while methodologically simplistic, eased initial concerns that charter school would be vehicles for white flight. As noted previously, however, higher quality studies rely less on aggregate comparisons. Miron and Nelson (2002) demonstrated that the use of better comparison groups tended to alter the findings of studies like these.

More sophisticated studies tend to find racial and socioeconomic sorting effects for charter schools. Cobb and Glass (1999) mapped charter schools in Arizona and the public schools that charter school students would be most likely to attend. They found some overrepresentation of white students compared to traditional public schools. Renzulli & Evans (2005) found that white flight to charter schools was greater in districts above a tipping of more than 30% black students. This coincides with other work finding that relative integration tends to spur segregating student moves (e.g. Sohoni & Saporito, 2006). The Northeast, which is already very heavily segregated, tended to have lower percentages of white students in charters, perhaps because whites had already fled integrated areas. Miron, Urschel, Mathis, and Tornquist (2010) examined enrollment composition in charter schools managed by large education management organizations. Over 70% of these charter schools tended to be in the extreme quintiles on segregation measures. These schools also substantially underrepresented ELL and special education students. Studies by Arsen and Ray (2004) and Lacireno-Paquet, Holyoke, Moser, and

Henig (2002) also indicate that charter schools, particularly profit-oriented charters may tend to exclude expensive-to-educate kids like special education students.

Weiher & Tedin (2002) studied over 1,000 charter school choosers in Texas, finding that all groups tended to pick schools where their own race was more prevalent than in the public schools they left. Garcia (2008) found similar trends in Arizona elementary schools, but the charter high schools selected by students tended to be the same or more integrated than the schools students left. Booker, Zimmer, and Buddin (2005) studied students who transferred from public schools to charter schools in California and Texas. Black students in both states were self segregating through their school selections. Interestingly, Texas charter school students tended to be underperforming compared to their previous public school peers, suggesting that Texas' tendency to authorize schools for at-risk kids could be working. Zimmer, et. al. (2009) found that transfers to charter tended to slightly reduce integration in Philadelphia and Texas and slightly increase integration in Chicago.

Looking at supply-side factors, a handful of studies have examined charter school enrollments and the locational decisions of charter schools relative to neighborhood demographics. Entremont and Gulosino (2008) examined charter schools in New Jersey, finding that the areas closest to charter schools consistently have lower proportions of black students than the district as a whole. In both large urban areas and smaller suburbs, charter schools tend to locate near, but not in, areas with high concentrations of black students. This ringing strategy has also been observed in Detroit (Gulosino & Lubienski, 2011), and a combination of locational and admissions-based exclusionary strategies are evident among some charter schools in New Orleans (Lubienski, Gulosino, & Weitzel, 2009). Henig and MacDonald (2002) found that

charter schools in Washington, D.C. tended to locate in areas that had high minority populations, but these areas tended to be much more middle class than many minority areas in the city.

Returning to demand-side research, a more in-depth examination of two particularly well-designed sorting studies is fruitful. Bifulco, Ladd, and Ross (2009b) used detailed panel data from Durham, North Carolina, to provide a detailed portrait of sorting at various stages of the choice process. The Durham district, like many Southern districts, includes the whole county, and contains a variety of traditional public schools, magnet schools, charter schools, and other specialized schools. They explored three research questions, the first of which concerned which groups decide to opt out of their traditional public schools. Black students were more likely to opt out, perhaps because they live in denser areas and are closer to a wide range of schools. Increased distance to their traditional public school (TPS) increased their likelihood of opting out. Blacks, however, were less likely to opt out of schools that had high concentrations of black students. There is some support for the liberation model among black parents with low education levels, meaning that these parents were likely to opt out of particularly low achieving schools. White students with college educated parents tended to engage in outgroup avoidance, leaving more socioeconomically integrated schools.

The second question concerned the types of schools picked by those who opt out. White students, high achievers, and students with more educated parents tended to pick schools with lower percentages of black students, more educated parents, and higher achievement (Bifulco, Ladd, and Ross 2009b). These results are consistent with outgroup avoidance along racial and socioeconomic lines. The avoidance of black students was stronger in elementary schools. The evidence on the school selections of disadvantaged groups reveals some support for both neutral ethnocentrism and the liberation model. Black choosers tended to self-segregate, supporting

neutral ethnocentrism. Poorly educated parents and low achievers, however, make integrating moves that improve their peer group, providing support for the liberation model. Parents that do not have a college degree were twice as likely to make integrating moves. Unfortunately, any positive effects on integration through the liberation model were more than offset by segregating moves.

The final question in the study compares current enrollments to a counterfactual in which all students attended their TPS. They conclude that school choice has marginally increased the proportion of black students in segregated schools but that increases in socioeconomic segregation were much greater. In another study with the same dataset, the authors examined the circumstances for non-choosers, those left behind in their TPS (Bifulco, Ladd & Ross, 2009a). Changes in peer composition for non-choosers on average are relatively small. However, non-choosers in TPSs near high achieving schools see a substantial brain drain in their school's peer group.

Ni (2012) takes a similar approach with 2 years of enrollment data in Michigan, but she adds another dimension in that she examines moves both to and from charter schools. Students who transferred from TPSs to charter schools were more likely to be black and less likely to be low-income or special education students. Ni includes interaction effects that indicate that the influence of SES background on the likelihood of transferring to a charter school is *opposite* for white students and minority students. Being poor decreases the likelihood of charter school selection for black students, but it increases the likelihood for white students. In short, urban students who transfer to charter schools in Michigan tend to be non-poor blacks and low-income whites. It is possible that higher income whites have already exited the district through other

forms of school selection. The odds of transfer for low income black students decrease when they are in schools that are highly segregated along racial and socioeconomic lines.

Looking at transfers from charter schools back to TPSs, Ni (2012) finds no associations along racial lines. However, she does find that low-income charter school students are more likely to transfer back to their TPS, perhaps an indication of transportation constraints or counseling out. Ni does find some very positive news on school achievement. Higher school effectiveness appears to influence both transfers to charter schools and transfers away from them. Ineffective TPSs and ineffective charter schools are both more likely to lose students. However, low-income black students were less likely to leave ineffective TSPs, undermining any effects supporting the liberation model. On the whole, Bifulco, Ladd, and Ross (2009a, 2009b) and Ni (2012) both find relatively strong support for outgroup avoidance moves and moderate to weak support for neutral ethnocentrism and the liberation model.

England and Scotland

Great Britain has substantially larger and longer running body of school choice research than most other foreign countries, including many studies related to sorting effects or potential mechanism thereof. In the 1980's open enrollment options were available but there was less freedom for parents at that point than would occur in the 1990's and beyond. There were indications that school moves via open enrollment plans were being taking place more often among more affluent populations. In a 1983-84 survey, Stillman found that the middle class used open enrollment more often than the working class. He also found some differences along class lines in information usage and the willingness to travel for school attendance. He states, "The longer they were in full-time education and the higher their job classification, the more

information they used and the more likely they were to choose a more distant school” (Stillman, 1990, p. 1011 cited in Ambler, 1994).

Adler and Raab (1988) examined enrollment patterns for 30 primary and secondary schools in Edinburgh and Dundee, two particularly segregated cities, in the early to mid 1980’s. Active choice was expanding considerably during this time period, and they observed the emergence of a new hierarchy among secondary schools as some schools benefited from popularity among active choosers. Consistent with other research, this study found that proximity to place of residence was the single best predictor of the schools selected by parents. To understand the role of average family background in school catchment areas, the authors extracted principal components related to parental educational attainment and employment/income. Active choosers tended to move towards schools with catchment areas that had higher average social class and educational attainment and away from schools near public housing areas. In surveys, parents largely cited their children’s preferences and the disciplinary situation in their assigned schools as the primary reasons for selecting a new school, rarely citing test scores or curricular issues.

A handful of studies by Willms and Echols expanded on Adler’s study and further examined school choice trends in Scotland (Echols & Willms, 1995; Willms & Echols, 1992, 1993). They compared a sample of parents who elected to stay with the assigned school, “stayers”, with an oversample of parents who chose new schools, “leavers”. Parents were asked about the sources of information they used in selecting schools, and leavers were asked about their reasons for opting out of their assigned school. Looking at secondary school selection in the 1980’s, the authors found that closer geographic proximity of school options was one of the strongest predictors for exiting one’s local school. They also found that choosers tended to have

higher educated parents and higher socioeconomic status overall. Using a standardized SES composite including household income and maternal and paternal job prestige and education, a similar composite to the one used in the Early Childhood Longitudinal Study, the authors found that choosers tend to have about 0.23 standard deviations higher SES. About 19% of the stayers were active choosers though, meaning that they considered other options before sticking with their assigned school. Interestingly, there were clear SES differences between each of the three groups: the choosers who left, the choosers who stayed, and the non-choosers. The SES gap between choosers who left and choosers who stayed was only .08 standard deviations, but the gap between choosers who stayed and non-choosers was larger at .21 standard deviations. Parents reported relying on official sources of information mostly, though information gleaned from social networks was also valuable. Higher SES parents were more likely to highly value information gained through visits to schools, attendance at school meetings, and discussions with teachers and school leaders. Comparing leavers who considered several school options with those that just looked at one alternative, the choosers with a wider search net were more likely to list the disciplinary climate, crime rates, and low expectations of assigned schools as the reasons for leaving. In summarizing the net findings of the research on Scottish school choice, the authors argue that “an educational marketplace that parallels the free-market model works only for a limited subgroup of the population that is already advantaged in the present educational system” (Echols and Willms, 1995, p. 143).

Studies of the Assisted Places means-tested voucher scheme, including Douse (1985) and Fitz, Edwards, and Whitty (1986), have reached conclusions similar to American voucher studies. Participants in the voucher program were of course below the SES threshold for eligibility, but they tended to be close to the cut points. Regarding these studies, Ambler (1994)

noted “The most common ingredient in the families of assisted-place students in the Edwards, Fitz, and Whitty study is the presence of a relatively well educated mother (often a single parent), who gives her child strong encouragement to succeed academically and who actively seeks out educational opportunities. The primary beneficiary of the APS seems to be the fallen middle class rather than the rising working class” (p. 466). Douse likewise notes that the “economic and social experience” of a high proportion of voucher uses could be characterized as essentially middle class. It is important to keep in mind, however, that there are rather demanding academic criteria for these vouchers, unlike most vouchers in the U.S. Such criteria may serve to exacerbate any differences in awareness or interest in voucher opportunities along class lines.

A number of UK studies have attempted to assess the net effects of expanded school choice on segregation and equity of opportunity for poor students. Burgess and Briggs (2010) use extensive administrative data from 2002-2004 to estimate the chances that poor and more affluent students will get into good schools. They conduct very detailed GIS analyses in an attempt to explain why poor students have less access to high performing schools. Segregated residential areas play a substantial role, but after controlling for residential location rather precisely (blocks of 20 housing units or fewer), they demonstrate that being poor still reduces the likelihood of attending a good school. They also examine if the prevalence or feasibility of more school choice, as measured by the minimum distance to reach three school options, has any effect on the lower likelihood of poor students attending good schools. They conclude that the prevalence of choice options has little or no effect on the average quality of schools attended by poor students.

Gorard and Fitz (2000) used enrollment data on the free lunch status and special education status of families in England and Wales to examine trends in school segregation since the late 1980's. They conclude that segregation overall has been decreasing but there is substantial variation between communities. They examine school choice data, namely the prevalence of parents requesting alternative to school placements, to determine if the variation in segregation trends can be partially explained by the prevalence of school choice activity. They find that the proportion of parents who are active in the appeals process does not have a meaningful relationship with trends in school segregation.

Croxford and Paterson (2006) conducted a similar study to Gorard and Fitz (2000) using cohort studies from England, Wales, and Scotland. Rather than relying solely on income and special education status, Croxford and Paterson used SES measures derived from parents' educational attainment and occupational status. Contrary to Gorard and Fitz, they do not find a downward trend in segregation since the expansion of school choice via new policy. Scotland tends to have lower segregation levels than England, and the authors suggest that Scotland's less selective and more equity oriented plans may explain these differences.

Other scholars, however, have suggested that prior analyses mask greater stratification at local levels in the UK (Gibson & Asthana, 2000). Allen (2007) compares current secondary enrollment in the UK to a counterfactual in which all students attend neighborhood schools, finding that school choice tends to exacerbate social and ability stratification. Similarly, Taylor (2009) examined school segregation in a city in Wales by comparing actual levels of school segregation against some counterfactual scenarios. He compared actual school attendance against a situation in which everybody attended their assigned school and another situation in which everybody attended their most proximate school. He finds that school choice has slightly

exacerbated the levels of socioeconomic segregation among community schools in this market. He suggests that segregated residential areas are still the most substantial factor in producing school segregation.

Chilé

Carnoy and McEwan (1999) examined the effects of the introduction of a large scale voucher system in Chil  in the 1980's and 90's. This voucher system has dramatically increased the proportion of Chil an families who send their kids to private schools, despite the fact that these schools appear to marginally less effective than public schools in producing achievement gains. The authors found that families with higher socioeconomic status were more likely to use vouchers and attend private schools. They note, "Our results therefore reject the hypothesis that less-educated parents respond to the offer of higher performing, higher social class schools to the same degree as do more educated parents, even when these schools are available in equal numbers and even when their cost is approximately the same" p. 13. The authors suggest that perceptions of social class position and not "belonging" in private schools could lead lower income parents to not utilize vouchers as frequently as more affluent families. Seemingly important factors like class size do not appear to influence the enrollment decisions of parents, who tend to focus more on school prestige or enrollment demographics. The authors conclude that the voucher system increases inequality in the school system, mainly through the peer effects of enrollment composition.

Hsieh and Urquiola (2003, 2006) focused on the nationwide voucher program in Chil  and showed that wealthier families with higher education are much more likely to use vouchers to attend private schools. They also used variation in the prevalence of school choice and voucher usage between communities to measure if competition appeared to improve educational

outcomes. Increased competition did not improve achievement or attainment outcomes in their data. They do, however, find evidence that the high performing, mostly middle class students in the traditional public schools are leaving at disproportionate rates, leading to an increasingly stratified school system. More specifically, in areas with a higher concentration and greater growth of private voucher schools, the net drop in the average SES of traditional public schools is larger, as measured by parents' educational attainment and income.

Elacqua (2009) examines Chilean school segregation in greater detail, looking for variation in segregation both between and within school sectors, including public, non-profit, and for-profit private schools. He finds that public schools do indeed serve more disadvantaged students and that they also tend to be more racially and socioeconomically diverse than private voucher schools. Nearly 35% of private voucher school students do not have poor classmates, compared to only 5% of public school students. Interestingly, Catholic schools serve fewer poor kids than for-profit private schools, and Protestant schools have the highest concentrations of poor children in the private sector. In regression analyses, the gap in the proportion of poor students attending public versus private schools shrinks considerably when the add-on tuition costs at some private schools are controlled for. In other words, the fact that private schools can charge tuition beyond the value of the voucher explains the majority of the socioeconomic gap between public and private schools. Elacqua also examines the impact of weighted funding for voucher students, a policy which creates an incentive to serve higher needs students in the private sector by adding 50% to the voucher value for particularly poor students. Preliminary evidence indicated that the introduction of this policy was beginning to reduce school segregation.

The Netherlands

Given the long history of school choice in the Netherlands, the body of research on Dutch school choice is still relatively small. Karsten (1994) examined 27 cities serving about one-quarter of Dutch primary school students. Karsten found that segregation was relatively high in the 1980's but that the number of hypersegregated schools exploded in the 1990's. Minority students were disproportionately concentrated in traditional public schools. Due to the sanctity of school choice in the country, it was difficult for local authorities to attempt to directly address these patterns. Many local authorities tended to view segregation primarily as an educational problem, while others saw it as a social issue. Policy interventions tended to consist of additional curricular or instructional supports for poor students and voluntary agreements with private schools concerning enrollment composition.

Karsten, Ledoux, Roelevel, Felix & Elshof (2003) surveyed and tracked all parents who made active school choices over 2 years in a relatively diverse area. They found that the ethnic composition of schools did indeed play a substantial role in the preferences of parents, and that native Dutch parents were more motivated to pick a school that offered a cultural "match" than foreign born residents. Both groups of parents tended to shy away from predominantly non-white schools. Some predominantly white schools were also utilizing practices like high fees and admissions rules that tended to discourage non-native families from seeking admission. Denessen, Driessena, and Slegers (2005) found that school quality was the strongest reported reason for school selection but that Muslim parents placed a strong preference on Islamic education, creating some risk of self-segregation by that population.

Ladd, Fiske, and Ruijs (2009) examined school segregation in Dutch cities, finding that it is often even higher than school segregation in the U.S. In Rotterdam and Amsterdam, 80% of

poor kids attend schools that are majority poor, and 60% of poor kids attend schools that are more than 70% poor. In the average large city in the U.S., about 43% of students would have to relocate to achieve racial balance. In the Netherlands, that figure is 60%. In more recent years, efforts have been made to make choice processes more equitable. The authors found many instances of local efforts to standardize application procedures and deadlines, provide better information to poor parents, and create incentives for integrated schools.

Other International Studies

Studies in Sweden, New Zealand, and Australia have also presented evidence that school choice can affect segregation levels (Ladd & Fiske, 2001; Plank & Sykes, 2003). Ambler (1994) explored enrollment decision among French families and concluded that school choice has the potential to exacerbate segregation along class lines. In France, heavy public subsidies make private schools attainable for virtually all families, but higher incomes groups are nonetheless substantially overrepresented. More educated parents, teacher in particular, were substantially more likely to participate in school choice and were more likely to higher achieving schools. Only 20% of manual workers who made a choice requested a high achieving school. Manual workers were more likely to cite proximity as a key factor. Middle class parents tended to flee poorly performing schools, but working class families remained.

Lindblom (2010) examined the effects of expanding school choice and introducing independent schools in Sweden. The study finds that new school options may have marginally increased school segregation, but larger trends in residential segregation play a much stronger role. Gerdes (2010) looked at the immigrant populations in Danish community during the 1990's and early 2000's. He finds that as the proportion of immigrant children in an area increase, so does the tendency of native Danes to send their kids to independent schools. This tendency is

stronger in small to mid-sized cities, where there is less residential segregation. Rangvid (2010) looks at schools in Copenhagen, finding that there is a tipping point beyond which natives are substantially more inclined to leave traditional public schools. When the proportion of immigrant attendees hits 35%, more natives will leave for independent schools. In Germany, Noreisch (2007) finds there is a very high correlation between kids requesting transfers out of their catchment areas and the proportion of non-native speakers in a given area. Riedel, Schneider, Schuchart and Weishaupt (2010) also found that disadvantaged students in Germany have a smaller likelihood of opting out of their assigned school. Schneider, Schuchart, Weishaupt, and Reidel (2012) find that non-Muslims were substantially more likely to opt out of their assigned school, and this percentage increases along with growth in the Turkish population. Distance is a larger factor in school decisions for Muslim families. In France, Poupeau, Francois, and Couratier (2007) found different tiers of choice activity among middle and upper class families. The families that tend to pick private schools have both economic and cultural capital, while those that actively pick alternative public schools have cultural capital but not the same level of economic capital.

Surveys and Qualitative Studies

Survey studies generally focus on the information processing of parents, including what types of characteristics they are looking for in schools, what types of information they seek out, and how they feel about the quality of information from different sources. Surveys consistently find that academic quality is by far the highest stated priority for parents when selecting schools (Armor & Peiser, 1998; Witte, 2000; Goldring, 1997; Teske, Fitzpatrick & Kaplan, 2007; Schneider & Buckley, 2002). Charter parents also pursue more sources of information and place greater importance on academic concerns (Teske, Fitzpatrick, & Kaplan, 2007), particularly

when exiting charter schools (Hanushek, Kain, Rivkin & Branch, 2005). Hanushek and colleagues (2005) also find that school quality issues were more important to higher income families in charter schools. Charter school parents were also somewhat more likely to speak to administrators, emphasize written materials, attend school fairs, and believe that their children have important or unique personal characteristics that should influence school selection (Teske, Fitzpatrick & Kaplan, 2007). However, the actual decision-making process for parents may rely heavily on other factors, including those that they may not wish to state openly. Stein, Goldring & Cravens (2010) found that Indianapolis parents expressed a preference for high achieving schools but only 30% actually selected a higher achieving school for their child.

Numerous studies, including both survey and enrollment studies, have found that race appears to influence parents' selection of schools or their development of short lists of realistic options (Saporito & Lareau, 1999; Henig, 1990; Henig, 1995; Schneider & Buckley, 2002; Hastings & Weinstein, 2008). Although parents rarely acknowledge that race is an important factor, their revealed preferences in seeking information on websites suggests otherwise (Schneider & Buckley, 2002). In fact, more educated parents were actually more likely to look at demographics, and there was no evidence that school performance shaped the narrowing of parents' searches. A school's racial composition seems to be a factor that parents deem to be reflective of school quality. For white parents, schools with high minority populations are regarded as academically inferior, even when achievement data does not support such conclusions (Goyette, Freely, & Farrie, 2007; as cited in DeJarnatt, 2008).

Biases in favor of information that is readily available or personally acquired play considerable roles in parents' school selection processes. Word-of-mouth and "common knowledge" is consistently cited as one of the common and trusted sources of information for

choosers (Goyette, Freely, & Farrie, 2007 as cited in DeJarnatt, 2008; Teske, Fitzpatrick & Kaplan, 2007). Although written materials are often consulted, parents tend to place greater value on the “soft information” they get from peers and from direct contact with teachers and school leaders (Teske, Fitzpatrick & Kaplan, 2007). Although all racial groups depend heavily on this soft information, white parents often trust information from their personal networks more, while minority parents often place greater trust in school officials.

Parents rely heavily on their social networks to identify short lists of schools and make choices. Since social networks tend to be segregated and more affluent families often have greater social capital, these information biases can limit the overlap in schools that are realistically considered among different types of parents. Choice sets, which are usually limited to two or three schools, tend to be heavily influenced by geographic, racial, and socioeconomic factors (Goyette, Freely, & Farrie, 2007; Hastings, Kane, Staiger, 2005; Schneider, Teske & Marschall, 2000). White parents and more educated parents tend to consult wider social networks and are less likely to choose primarily on the basis of location. Higher SES choosers are also more likely to find and consult “market mavens” who possess detailed knowledge of local options (Teske, Fitzpatrick & Kaplan, 2007).

Based on website usage, parents do examine school achievement data, but not at the rates that would be predicted by survey results on parental priorities (Schneider & Buckley, 2002). Also, low-income parents tend to place less weight on academic issues in school selection (Hastings, Kane & Staiger, 2007), and there are some indications that parents have difficulty obtaining or interpreting achievement data. Hastings and Weinstein (2008) conducted an experiment in the Charlotte educational market in which lower income families were provided with direct, simplified achievement information. Charlotte parents, who can select three school

preferences for their kids, normally had to search district websites in order to obtain achievement information, and school comparisons had to be done manually. The district later sent test information directly to parents with students at NCLB-sanctioned schools, and researchers also sent simplified achievement data to parents with children in randomly selected schools. Both of these forms of information increased the proportion of parents who selected higher-scoring schools for their kids. Proximity to high scoring schools nonetheless remained an important predictor of selecting alternative schools. It seems that reducing the search costs for obtaining achievement data can help facilitate “better” parent decision-making, but mere knowledge of school achievement alone will not trump geographic constraints and other preferences.

Interview studies

Although large scale studies have demonstrated the general importance of race and class in school choice and provided evidence of further stratification, participation in school choice is still a very individualized, complex process. In the last 20 years, a number of domestic researchers have conducted extensive interviews with parents to learn more about how they select schools for their children.

Wells (1993; 1996) conducted some of the earliest qualitative work in school choice, drawing on Bourdieu (1977) in her interpretation of data. Wells interviewed 37 secondary students and 34 parents in St. Louis who were eligible to participate in the county’s urban-suburban desegregation plan. She identified stayers (stayed in city schools), leavers, and returners (left for suburbs but returned to city schools) in middle class, working class, and poor neighborhoods. Variation among the chooser groups was greater than the variation among the neighborhood types, with leavers having smaller families and higher levels of parental employment. Interviews indicate that more parental involvement in school selection, greater

emphasis on high school achievement, and less distrust of whites were positively associated with leaving for suburban schools. Many stayers and returners did not have any illusions about the quality of city schools, but were more comfortable there, had larger social networks, and felt they could “be themselves”.

Holme (2002) examined the school selection rationales of 42 middle and upper class mothers who relocated their homes to send their children to “better” schools. Her study heavily reinforces the importance of social capital and the soft information acquired through personal contacts. Information from high status members of social groups was particularly valued. Despite their high socioeconomic status, these parents knew relatively little about the schools they rejected or selected. Andre-Bechely (2007) examined the school choice experiences of 20 parents in Los Angeles using an institutional ethnographic approach. Eleven district staff members were also interviewed. Andre-Bechely found that the open-enrollment system in California is extremely complex, with several different departments and programs involved in granting different types of permission for school transfers. Poor Latino parents often had difficulty navigating this maze and faced greater transportation barriers to participation in school choice. Parents also noted that school selection would have major social consequences for their kids, and some did not want to separate their children from local social circles.

Bell (2009a) provides one of the most thorough and nuanced qualitative analyses of the school selection process. She interviewed 48 parents before, during, and after the selection of new middle and high schools for their children. Her purposive sample included parents whose children attended either successful or failing schools previously. Bell identifies six types of reasons for school selection: holistic (child well-being), academic, social (friends are going there), logistical (location, cost), administrative (application deadlines, school organization), and

other. Most parents cited holistic and academic reasons for their selection, although logistical issues were common as well. Bell also demonstrates how race factors into the construction of choice sets. Social networks again played a large role in how parents found their information, and the realistic choice sets of parents were often composed entirely of very segregated schools. Bell notes that prior inequalities in many ways carried over into the choice process itself. She states, “The resources most used by parents to construct choice sets—social networks, customary enrollment patterns, and understanding of student achievement—were inextricably linked to the current distribution of educational opportunities. This distribution is uneven and disadvantages poor children and children of color” (p. 205).

In another paper from the same set of interviews, Bell (2009b) focuses on the intersection of geography and issues of race and class. Explaining a preference for somewhat homogenous schools, some parents expressed concern that they don’t want their kids to be the only black student in predominately white schools. Social capital sometimes enabled parents to overcome geographic challenges, but having multiple children often complicated transportation issues for parents, suggesting one mechanism through which larger families might reduce the likelihood of school choice. Looking at other geographic issues for parents, associations between school and neighborhood safety were also common. Parents also looked at the exterior of the school and the people coming and going to make conclusions about social networks students might have. Delaney (2002) notes that race substantially influences the meaning ascribed to particular places and experiences. Location, in this sense, is very socially constructed.

Bulman (2004) interviewed the parents of 88 suburban ninth grade students in public, secular private, Catholic, and other Christian high schools in the San Francisco Bay area, noting the importance of culture in school choice processes. He states that although socioeconomic

factors were strongly correlated with choice participation, the “decision to activate resources and the direction in which those resources will be activated are mediated by culture. In particular...the school-choice decision is influenced by the past educational experiences of the parents” (p. 492). These cultural factors sometimes led parents not to participate in school choice in part due to loyalty to particular areas or past experiences that all schools are pretty much the same. In other words, if parents didn’t see schools as potential difference makers, they had no inclination to make active choices.

Diamond and Gomez (2004) compared the school choice experiences of 18 middle class and working class black parents. The authors noted that parents’ engagement of school choice was mediated not only by their social class but also by past educational experiences, geography, and the quality of schools to which they were exposed. Middle class parents tended to take supportive or deferential roles in relation to school professionals, while working class parents were more “reform-oriented”, in part because they acknowledged the limitations of the neighborhood schools they selected. Working class parents were hampered by having fewer social and informational resources on which to draw in their school choice process. Middle class parents began their searches long before their children would enroll in school, and many reported agonizing over the decisions.

International Qualitative Studies

The majority of international qualitative work on school choice again comes from the UK. Bourdieu is particularly popular among European scholars, and many school choice researchers turn to his concepts of habitus and cultural capital in their discussions. Ball, Bowe, and Gewirtz (1995) find that choosers must draw upon a large set of resources, including available time, social status, and geographic location. A number of studies by Ball, Gewirtz and

colleagues have also explored how choice and the values that guide it are socially and culturally constructed (Ball, Bowe, & Gewirtz, 1994; Ball, 1993; Ball, Bowe, & Gewirtz, 1996;). In a study of 16 families, the authors identify “cosmopolitans”, those who shop around, and “locals”, those who select local schools, noting that middle class families tend to be cosmopolitan while working class families tend to be locally oriented (Ball, et. al., 1995). The authors argue that families vary in both their inclination and their capacity to pursue school choice, producing three types of choosers: privileged, frustrated, and disengaged consumers. Like Bulman (2004), Reay and Ball (1998) note that many working class parents have experienced school failure themselves and do not assume that schooling can make a difference in life outcomes. Poor parents also have strong fears that their children may not fit in at higher performing, predominantly middle class schools.

In a series of in-depth interviews with 32 sets of parents, half from a poor area and half from a middle class area, Carroll and Walford (1997) found substantial variety in choice engagement. Similar to the findings of Bulman (2004), some parents felt that most schools were the same and that there was little to gain from school choice, while others saw choice as an integral piece of securing good schooling. Almost all of the respondents in the latter group were located in the middle class area. Nonetheless, parents in both neighborhoods expressed relatively good knowledge of their ability to make choices and some of the enrollment constraints in the choice process.

James, Beedell, Reay, Jamieson & Williams (2006) interviewed parents and children in 130 white middle-class households in English cities that “counterintuitively” selected ordinary state secondary schools that were performing at or below average on student achievement. This sample is substantially biased because it consists mostly of public sector employees. These

families value education highly, but they also have a relatively strong communitarian perspective. The authors note, “[The parents’] orientation to secondary school choice is centered on community, locality, and a sense of solidarity, and might be summed by the phrase ‘this where we live, the local school is good enough, if it needs to be better we can help improve it—and if everyone did the same, all schools would be good’” (p. 5). However, parents nonetheless looked for a critical mass of families making the same decision in order to be assured that they were not taking too great a risk on school quality. In other words, social networks of like-minded parents played a substantial role in these decisions, despite claims of a more ideological basis. For some of these parents, many of whom were current or former education professionals, ethnic diversity in a school was seen as an asset, but socioeconomic diversity was not.

Reinoso (2008) interviewed 24 middle class parents making school choices in Spain, using a grounded theory methodology linked to Bourdieu’s (1977) notions of social class. In these interviews, most parents cited somewhat holistic factors related to a child’s overall happiness. However, “happiness” in this context had a very long-term, future-oriented meaning tied to fulfilling one’s potential. Again, social networks and the perceived prestige of particular schools, based largely on enrollment characteristics, were prominent factors in parents’ decisions. Many parents exhibited a high degree of social closure, a type indirect control of individual action through groupthink.

Discussion of School Choice Studies

The weight of the evidence indicates that school choice, particularly choice that is only loosely regulated, is indeed exacerbating segregation along racial and socioeconomic lines. Socioeconomic sorting through school choice appears to be more severe than racial sorting.

There is some evidence that poor and minority students in segregated, struggling schools will use school choice to pick higher performing, more integrated schools, much as choice advocates hoped. However, the net effect of these integrating moves is completely washed out by the segregating moves of white and more affluent families that avoid diverse schools and the moves of minorities into more racially homogenous schools. Compared to laissez faire school choice, programs that are specifically designed to promote integration do appear to have a positive effect, but these programs of course face new legal challenges.

Studies on the supply side influences on sorting, though not as numerous as demand side studies, indicate that some schools of choice may be acting in ways that shape their enrollments or exclude certain types of students. Most schools of choice, including charter schools, do not have formal academic admissions standards, but they can shape their enrollment by locating in certain places relative to desirable or undesirable populations, marketing themselves in particularly ways, or by informally discouraging difficult-to-educate students from initially enrolling or re-enrolling in their school. Organizational types among charter schools, including for-profit status or involvement with large educational management organizations, could be associated with exclusionary behaviors, but more research is needed in this area.

In mixed method studies of information usage, parents claim that school effectiveness is their primary selection criteria but their actual search and choice patterns suggest that race is a major factor in decision making. The qualitative studies provide the richest, most nuanced portraits of choice, indicating how relative social status, neighborhood allegiances, perceptions of safety, child social networks, and competing family priorities can influence parents' decisions. Both the mixed method and qualitative studies indicate that parental social networks, soft knowledge, and geographic proximity are major factors in school selection processes. Some

parents did not have good educational experiences themselves, and they abstain from school choice because they don't believe schools can make much of a difference for their children.

The ideas outlined above give some sense of why research on the sorting effects of school choice can be particularly problematic and complicated. Beyond the supply side and demand side ideas presented above, there may also be local market complexities that go beyond the scope of most research projects. Ball, Bowe & Gewirtz (1994, p. 127) note, "Education markets are essentially localized, and despite some common factors, local markets are distinguished from each other by their histories, local government, spatial organization, transport infrastructure and by the socio-economic structures of the local communities that they serve" (as cited in Reinoso, 2008). As school choice research becomes increasingly refined, additional hypotheses along the lines suggested by Ball will likely emerge.

Family Process and Concerted Cultivation Studies

The school choice studies discussed above are certainly valuable for informing an analysis of the sociological characteristics of chooser families, but they nonetheless leave substantial gaps. Large scale studies of sorting effects help demonstrate that more advantaged families tend to be more mobile through school choice and that the net effects of their movements can exacerbate segregation along socioeconomic lines. However, these studies tend to have rather limited information on family background, often relying on little more than an income designation or the average socioeconomic status in a given neighborhood. Also, these studies largely do not attempt to identify choosers and nonchoosers per se, instead treating all movers or leavers as choosers and all stayers as nonchoosers. The qualitative studies of school choice have a similar problem in that they usually focus solely on choosers. These studies provide considerable detail on the choice procedures of families and some of the issues that

complicate their participation in school choice, but they often are approached in a relatively atheoretical manner and do not provide any sense of the prevalence of particular family issues.

Although this study focuses on families' involvement in school choice, research outside of the school choice literature may be valuable in this case. Many studies in the school choice literature accept choice as a given and then attempt to examine various types of choices in considerable detail. This study, on the other hand, wants to examine the conditions that lead parents or allow parents to become a chooser in the first place. In other words, if becoming a chooser and then considering various school options and picking a school is a multistep process, most school choice studies focus on later steps while this one focuses on the conditions enabling the first step. A deeper look into family dynamics beyond measures of socioeconomic status will be valuable for this type of study.

This section of the review does not attempt to fully summarize the wide body of literature on family processes and dynamics. Rather, this section provides an overview of major findings on some key aspects of families' lives and then a more detailed look at a handful of studies that connect family socioeconomic circumstances, attitudinal and behavioral indicators of relationships between parents and children, and measures of educational involvement or investment. In particular, studies using earlier versions of the Early Childhood Longitudinal Study are given special attention. Few datasets offer the range of variables provided by ECLS, so earlier studies using ECLS may be particularly valuable for informing methodological approaches for use in this study. The overview of major findings is divided into sections for status indicators, family structure, and parent well-being and intrafamily relationships. Many of the family process models that are reviewed in greater detail include these factors as potential

mediators between SES, parental involvement in education, and children's academic and behavioral outcomes.

Family status

The operationalization of SES usually includes some combination of the educational attainment of mothers or both parents, the family's annual income, and sometimes the mothers' or both parents' job prestige is included as well. The positive relationship between higher SES and positive academic outcomes in elementary school is of course well established (e.g. Yeung and Pfeiffer, 2009; Lee & Burkham, 2002; Duncan & Magnuson, 2005; Bradley & Corwyn, 2002), but this relationship can be broken down further. For example, increases in SES tend to have more substantial positive effects on child outcomes for lower SES families (Brooks-Gunn & Duncan, 1997; Dearing, McCartney, & Taylor 2001; Votruba-Drzal, 2003). In other words, higher SES may be somewhat less important once a certain threshold is reached.

Roughly speaking, income represents families' financial capital, while educational attainment and job prestige represent a combination of human, cultural, and social capital. In a study of NLSY data, Parcel and Dufur (2001) concluded that all forms of capital had positive associations with outcomes, but human capital effects tended to be the strongest and social capital effects tended to be small. Other studies have likewise found that parents' human capital seems to be especially important, perhaps because education substantially affects income, parenting practices, and a variety of expectations and attitudes related to children's behavior and achievement (Cheadle & Amato, 2012; Magnuson, 2007). In addition to Parcel and Dufur, positive achievement effects for parents' social capital have been found in other studies as well (Crosnoe, 2004; Israel, Beaulieu & Hartless, 2001). Findings related to employment and job prestige tend to be more mixed. Cheadle & Amato (2012) found little effect of job prestige after

controlling for other aspects of SES. Werthheimer, Moore & Burkhauser (2008), studying the effects of the 1996 Welfare reform, found positive effects for maternal employment, but low prestige work with nonstandard hours may actually have negative behavioral effects on children (Joshi & Bogen, 2007).

Family structure and composition

The issues of family structure and composition that tend to receive the most attention in this type of research include the number of children in a household, the number or marital status of parents in the household, and the age of the parents, particularly the mother. These issues may indirectly affect child outcomes by affecting the resources available for each child or the nature and quality of interactions within the family (Crosnoe & Cavanaugh, 2010). The negative relationship between number of child and child outcomes is fairly intuitive; the same set of resources diffused over more children leads to less desirable results for children (Sun & Li, 2009; Downey, 1995). The positive relationship between maternal age and child outcomes is similarly intuitive (Hoffman, Foster & Fursternberg, 1993; Mirowsky, 2005). Mothers who have their first child in their late 20's and early-to-mid 30's tend to have higher educational attainment, better stability, and more resources available than younger mothers (Powell, Steelman & Carini, 2006).

The relationship between child outcomes and the number and types of parents (biological, step, other) is more complicated and the research findings are less consistent. For example, negative effects found for divorce (e.g. Sun & Li, 2009), could be largely due to the transitions in family structure it creates (Fomby & Cherlin, 2007) or the intrafamily discord involved (Booth & Amato, 2001). Berger, Carlson, Bzostek & Osborne (2008) identified differences in parenting between biological and stepfathers, but these differences were largely

explained by differences in family background. Results can differ by race as well (Fomby & Cherlin, 2007). Typically modest negative findings have been found for single-parent status (Arnold, Zeljo, Doctoroff & Ortiz, 2008; Amato & Keith, 1991; Sigle-Rushton & McLanahan, 2004), but this finding has not been consistent, and stable single parent households may be better than transitions in family structure (Acock & Demo, 1994).

Parent depression and intrafamily relationships

The stress model suggests that poverty contributes to mental health issues and strained relationships within families, and these issues in turn contribute to parenting practices that are not ideal for children's academic development. Many studies have found that SES is negatively related to the prevalence of mental health issues for parents and child (e.g. McLeod & Nonnemaker, 2000; Parke, Coltrane, Duffy, Buriel, Dennis, Powers, French & Widaman, 2004). Maternal depression is associated with poorer academic and behavioral outcomes for kids and may partially mediate the relationship between poverty and these outcomes (Johnson and Flake, 2007; Vandewater & Lansford, 2005; Kurstjens & Wolke, 2001). Less warm and more conflict-oriented parent-child relationships are also associated with negative academic and behavioral outcomes (Feinberg, Kan, & Hetherington, 2007; Hipwell, Keenan, Kasza, Loeber, Stouthamer-Loeber & Bean, 2008). Compared to authoritarian or permissive parenting styles, authoritative styles that mix high demands and high responsiveness with reasoning are associated with positive child outcomes (Kordi & Baharudin, 2010; Steinberg, Dornbusch & Brown, 1992; Amato & Fowler, 2002).

Detailed Reviews of Family Studies in ECLS

Cheadle (2009) uses ECLS to study the role of parent's educational involvement and investment in the knowledge development of children. Cheadle develops a composite for concerted cultivation that draws on survey responses in three areas: parents' participation in school-related activities like PTAs, child's participation in organized educational activities like music or dance lessons, and the provision of educational resources like books in the home. The author argues that this approach aligns with Lareau's (2003) parsing of concerted cultivation into parents' language use, their emphasis on organized activities for children, and their involvement with institutions.

Cheadle treats concerted cultivation as a second order composite that is produced from the other three composites. Descriptive data indicate that concerted cultivation is heavily utilized by white and upper class families, with black and Hispanic families having composite values about 0.9 standard deviations (SD) below the average white family. The lowest SES quartile of families score about 0.9 SD below the average SES family. Even after controlling for SES, the racial differences on concerted cultivation remain large. He examines how concerted cultivation, SES, and other background factors are associated both with baseline achievement levels and with student growth over time. Since this study focuses on early elementary students at the start of formal schooling and baseline achievement is largely affected by preschool experiences, one might expect that concerted cultivation has a substantial association with baseline achievement. Indeed, concerted cultivation had a stronger association with baseline achievement than it did on achievement growth. Predictably, concerted cultivation had a stronger association with achievement growth over the summer than it did during the regular school year. When

concerted cultivation is added to models containing SES, over 32% of the achievement gap between families 2 SD apart on SES is mediated by concerted cultivation.

Cooper, Crosnoe, Suizzo, and Pituch (2010) also examined the achievement of kindergarten students in ECLS as related to parents' background and educational involvement. They aimed to test the family process models that suggest that poverty tends to limit the practice of positive parenting behaviors. More specifically, they state that "we expect that family poverty will reduce [parental] involvement behaviors because of the time constraints, life stresses, and subtle or overt discrimination and discouragement that limit poor parents' involvement." (p 862). To measure parental involvement, the authors used measures including the number of books and cds available to kids and whether or not there was a computer present for child usage in the home. Other composites measured the involvement of kids in eight types of organized activities outside the home and how often kids participated in different learning activities at home. School-based involvement was captured with a composite including attendance at PTAs and other school events. Two-level models, students and schools, of student achievement and parental involvement were estimated.

The children of poor parents were involved in fewer organized activities than kids of more affluent parents and were exposed to fewer educational materials in the home. Poor parents also had less school-based involvement, though home based learning activity in poor and non-poor households was roughly equal. When parental involvement composites were added to models of math achievement, these composites explained about 25% of the achievement gap between poor and non-poor families. Parental involvement reduced the negative association of poverty with math achievement more strongly for white families than it did for Hispanic and black families.

Crosnoe and Cooper (2010) continued work in this vein, examining how educational context and school based factors can reduced the negative effects of poverty and family socialization on achievement. They consider multiple dimensions of student risk, including single parentage, low parental education, low income, receipt of welfare, and teen parentage. For this study, they utilized these multiple dimensions of disadvantage to identify students in “persistently dire straits”. Twenty items related to family relationships and conflict were utilized to construct a parental warmth measure. Parent depression, parental stress, and children’s internalizing and externalizing problems were also captured with scales included in ECLS. Consistent with other papers by the author, parental involvement behaviors included the organized activities in which children were involved, cultural activities, the educational materials around the house, home learning activities, use of physical discipline, rules and activities in the home, and school based parental involvement. A multilevel model was used to produce robust standard errors, though all predictors were individual-level.

Families with several markers of disadvantage tended to be minority, and the different elements of disadvantage all had negative relationships with achievement, with parental education having the strongest relationship. Parenting stress, child externalizing problems, and child internalizing problems all had significant associations with achievement outcomes, as did involvement in organized activities, school-based parental involvement, and the presence of educational materials.

Bodovski and Youn (2010) examined the role of family’s emotional climate on the school behavior and academic achievement of elementary school students in ECLS. They define families’ emotional climate in the child’s kindergarten year along three different dimensions, including parents’ depression, parents’ feelings of warmth toward their children, and the use of

physical punishment with children. Factor analysis was used to select questions in each of the first two categories that had the highest loadings. The dependent variables in the study include three behavioral outcomes related to externalizing behaviors, internalizing behaviors, and learning behaviors among 5th grade students. Academic outcomes included math and reading scores. An SEM was estimated in which parental depression predicted warmth toward children and the use of physical discipline. In models predicting emotional climate, higher SES was associated with less parental depression, more warmth and lower likelihood of physical discipline. Single parents and black parents were more like to be depressed, but also experienced more warmth toward children. Regarding academic and behavioral outcomes, parental depression was negatively associated with positive learning behavior and math and reading achievement. The authors tested their models to see if these associations were substantially different across racial groups, and they found that unique models for different groups were not necessary.

Cheadle and Amato (2011) tested Lareau's (2003) claims about concerted cultivation using latent variable techniques in ECLS –K. They examine if the data on extracurricular activities, interaction with the school, and educational materials, indicators of concerted cultivation in Lareau's work, fit with a latent variable for the construct. In their model, these three components are first order factors and concerted cultivation is a second order factor. They break social class into educational, income, and occupational elements as well to explore the relationship between SES and concerted cultivation in more detail. While Lareau's study was restricted to white and black families, the use of ECLS data allow the authors to extend the analysis to Hispanic and Asian families. They wanted to determine if racial difference in parenting practices would still be present after more thoroughly accounting for social class. The

authors utilized the richness of ECLS data to include additional aspects of family life that have been found to have relationships with parenting practices. These additional factors included family structure, maternal employment, home language, family size, mother's age, educational aspirations for children, and preschool attendance.

Cheadle and Amato (2011) found that the concerted cultivation construct explained a large portion of the variance in their first order constructs for extracurricular activities and parent involvement at the school, providing support for their model. Also, there was a very high correlation between kindergarten and 3rd grade results for the same children, suggesting that these parenting strategies were stable over time. SES and race were strongly associated with concerted cultivation, though these associations lessened somewhat as additional family controls were added. Speaking a non-English language at home was negatively associated with concerted cultivation. Male children, larger families, single parent families, step parents, younger mothers, and parents with lower educational expectations were associated with less concerted cultivation. Although all three components of SES were associated with concerted cultivation, parents' educational attainment was the strongest predictor. In their view, this finding supports Lareau's assertion that parenting practices are more about class or culture than financial resources.

Bodovski & Farkas (2008). examined the relationship between family background, parenting practices, and first grade achievement in ECLS-K-1: 1999. They aimed to determine if concerted cultivation explained the higher achievement of high SES children. Due to concerns that these associations and the measurement models for concerted cultivation may differ substantially by race, they limited their study to white students. They posit a model in which SES influences educational expectations, SES and expectations influence concerted cultivation, and then all three affect student achievement. Their construct for concerted cultivation included

home-based learning activities, extracurricular organized activities, parental involvement at school, and the number of books in the home. Results indicated that SES was a strong predictor of both educational expectations and concerted cultivation. Educational expectations explain just a small portion of the association between SES and concerted cultivation. In models of reading scores, the effect of SES on achievement is partially mediated by educational expectations and concerted cultivation, but it remains the strongest predictor. The addition of parental expectations and concerted cultivation to the models improves the R-squared statistic only slightly, providing some support for that idea that the three concepts operate in a pathway.

Potter and Roska (2013) use ECLS-K: 1999 data to examine how the cumulative effect of parenting practices over time may contribute to the growth of achievement gaps between different types of students during elementary school. They essentially treat the effects of parenting practices from a dosage perspective rather than using a single point in time. They assert that this approach is more consistent with the views on the role of parenting in social reproduction models like concerted cultivation. They include parenting and SES measures from the Kindergarten, 1st grade, 3rd grade, 5th grade, and 8th grade waves of ECLS data collection in an effort to better explain the growth in achievement inequality from Kindergarten to eight grade. They developed parenting measures that were cross-sectional for each wave and ones that were cumulative over time and compared their associations with achievement.

Similar to previous studies, Potter and Roska's (2013) parental involvement composite include extra-curricular activities, parents' educational expectations, the number of books in the house, and parents' school involvement. They differed from other studies in their inclusion of a parent social capital measure and in the utilization of maternal educational attainment as their primary measure of SES. This latter decision was motivated in part by Cheadle and Amato's

(2011) results indicating that parents' education was most closely associated with their parenting practices. Other controls included race, gender, home language, urbanicity, U.S. region, income, residential and school mobility, and grade retention. Data were analyzed with hierarchical growth curve modeling. Maternal education was a strong predictor of both initial parenting practices and the cumulative total, even after controlling for income. No other predictor had as consistent of an association across all of the parenting practice measures. The children of more educated mother started with higher achievement and improved their achievement at greater rates over the course of the study. Comparing the cross sectional versus cumulative measures of parenting, the cross sectional measures explain some aspects of the initial achievement gap but do not explain the growing achievement gaps over time. The cumulative parent involvement measures, on the other hand, explained both the initial gaps and growth in gaps over time relatively well. The cumulative measures explained more than half of the growth in achievement gaps over time. In the authors', these findings help support the claims of Lareau (2003) and social reproduction theorists that social classes pass their advantages on to their children by consistently offering richer developmental contexts and building on these advantages over time.

Hoover-Dempsey and Sandler (1995, 1997) outlined a 5-level model of parental involvement in education that starts with parent attitudes and goes through types of parental involvement, eventually influencing student outcomes. Much of their model focuses on specific types of parental support and involvement with schools that are currently attended by children in the family. The upper levels of the model concern such interactions and are less relevant for a study of what factors influence the likelihood of become a chooser. The lower levels of the model, however, relate to parent attitudes and circumstances that may influence baseline

likelihoods of involvement and thus may be more pertinent for a study of choosers and non-choosers. The first level of the model includes three elements: parents' role construction regarding their part in the educational development of their children, parents' sense of self efficacy for involvement, and general opportunities and demands for involvement. The relative motivations for involvement emerging from the first level are then moderated by a number of factors at the second level, including the other demands on parental time from work and family, the scope of parental knowledge, and the specific invitations for involvement that come from a child's school or from the child himself or herself.

Walker, Wilkins, Dallaire, Sandler & Hoover-Dempsey (2005) tested and ultimately revised the Hoover-Dempsey model in the course of scale development. Most notably, role construction and parental self-efficacy were merged to form one construction on motivational beliefs. They also rearranged the position of the parents' perception of available time and energy in the model, moving it to the first level and more explicitly acknowledging that life context moderates the effects of the other constructs in the first level. The survey results motivating these changes are also worth noting. On survey responses related to role construction, parents tended to cluster into passive and active groups that saw schools or parent-school combinations, respectively, as primarily responsible for education. The authors found that parents' past experiences with schools seemed to be uncorrelated with role construction. Parents' perceptions of their life context was a good predictor of home-based involvement activities for the population of parents who said they had lower levels of time and ability. The inclusion of the three level one constructs (motivational beliefs, invitations for participation, and life context factors) in regressions explained 33% of the variance in home-based involvement and 19% of the variance in school-based involvement. Parent's motivational beliefs, the category containing

role construction, was the strongest predictors of school-based involvement, even more so than invitations for involvement from the school.

Many elements in the first two parts of this model could translate easily over to parental involvement in school choice. First, parents must believe that their role requires involvement, and then they must believe that have been somewhat effective in that role. In a review of research related to the model, Hoover-Dempsey, Walker, Sandler, Whetsel, Green, Wilkins, and Closson (2005) suggest that this role construction is very socially constructed and can be heavily influenced by context, a conclusion consistent with Bourdieu or many stratification theories. Likewise, self-efficacy is also socially constructed because predictions of ones' future success are derived from past success, observation of others' success, encouragement from others, and emotional involvement. The second level includes parents' life circumstances that may influence involvement. Hoover-Dempsey, et. al. (2005) acknowledge that some studies find involvement differences across SES groups but they stress that SES rarely explains *why* parents get involved. They suggests that a closer look at the specific availability factors influenced by SES, including long work schedules or inflexible hours, lower parental education levels that affect parents' level of knowledge, less access to professional or social supports, or greater prevalence of physical and mental health issues that can limit involvement. In this model, there are multiple ways in which SES can affect parental involvement. Since one's social networks and neighborhoods are at least somewhat related to SES, the social constructions of parents' roles and their sense of efficacy can be indirectly influenced by SES. Also, the resource levels and personal and work stresses associated with low SES can also serve to make substantial involvement less feasible for poor parents.

Anderson and Minke (2007) surveyed parents on their perceptions of their roles and responsibilities in relation to the school in an attempt to unpack how parents make decisions regarding educational involvement. Elements in their survey include role construction items in which parents rated their agreement with statements about the responsibilities of parents on educational matters. They also measured parents' sense of self efficacy and the invitations or instructions from teachers regarding parental involvement. They fit a path model in which they expect family SES and invitations from teachers to mediate the relationship between role construction, efficacy, and the outcomes. The outcomes included involvement at school events, ongoing involvement at school, and involvement at home. In the final model, only invitations from teachers and sense of efficacy had direct lines to the outcomes, and sense of efficacy only had a direct line to involvement at home. The relationships among resources and the outcomes and other elements in the path analysis were not very strong. Role construction scores associated with accepting more responsibility in education were positively associated with parental involvement but there were no direct lines to the outcomes. These results were tested to estimate the potential impact of unobserved confounding variables, perhaps related self selection processes of parents. The results for the family socialization factors were found to be robust for possible unobserved selection factors.

Discussion of Family Process and Concerted Cultivation Studies

These papers provide a much more detailed look at the role of poverty and parental attitudes in parental educational involvement than was offered in the school choice literature. Many of the studies use student achievement as the final outcome in path analyses, generating fairly predictable findings that increased parental involvement, whether home-based or school-based, tends to be associated with higher student achievement. While some of these

relationships with student achievement are interesting, they are not necessarily useful for the designing a study on chooser status. However, the earlier steps in these path analyses, the links between SES, parental attitudes, mental health, warmth toward children, and parental involvement, may be quite valuable for the design of this study. These studies suggest several concepts beyond traditional SES that should be considered for inclusion in the models for this study:

- Broader measures of family disadvantage: Looking beyond the traditional SES measures of income, education, and job prestige will help produce a richer picture of family need. Single parentage, maternal age at first birth, receipt of welfare, and the number of children are all measures that have been used in the studies above or earlier work on the effects of parental involvement.
- Parent stress and parent mental health: Poverty and other challenging family circumstances puts strain on parents and may affect their access to mental health care. High stress or poor mental health may influence parents' relationship with their children or their connections with outside institutions. Parents' self reports of their level of stress, the frequency or severity of feelings of depression, or other related measures are useful indicators to include in the models for this study.
- Parental warmth: There is variation in the extent to which parents have feelings of warmth toward their children. Less intense or less frequent feelings of warmth could make parents less inclined to undertake the real costs or opportunity costs associated with various forms of parental involvement.
- Parents' role construction: Some parents see educational outcomes as primarily the responsibility of schools, while others see them primarily as the responsibility of parents,

and many parents find some balance between these extremes. These attitudes, which could be influenced by parents' social networks, could have substantial effects on parental involvement decisions. One might predict that parents who believe they have less responsibility for educational outcomes will be less likely to actively participate in school choice.

- Multiple measures of involvement: Some of these studies differentiate school-based parental involvement (volunteering, PTA), out-of-school organized activities (music lessons, sports teams), and home-based resources and learning opportunities (number of books, computers, reading time). This approach to measuring parental involvement could be useful in this study for two major reasons. First, this breakdown aligns well with Lareau's identification of language use, organized activities, and institutional engagement as the primary hallmarks of concerted cultivation. Second, since school-based parental involvement likely occurs after the selection of a kindergarten, it probably should not be included in models predicting kindergarten choice. Breaking parental involvement into three or more components will allow for the inclusion of only those indicators that likely precede or co-occur with school choice.

Few of these concepts identified above are regularly included in the school choice literature reviewed in the first half of this chapter. The studies of parental involvement, on the other hand, don't necessarily pay much attention to school types, geographic context, or the information available to parents. Both bodies of work offer valuable guidance for the design of this study. In Chapter 3, the concepts identified in this review will be compared with the variables available in ECLS-K: 2011 in order to make more specific decisions concerning model design.

CHAPTER 3: RESEARCH METHODS

This chapter outlines the research questions, data source, variables, and methods used in this study. Three specific research questions are examined in this study: 1) Does parental educational engagement mediate the link between families' socioeconomic status (SES) and their likelihood of participating in school choice? 2) Does parents' socioeconomic status relative to their neighbors affect their likelihood of participating in school choice, as classic stratification theory would suggest? 3) Do the absolute SES, relative SES, and concerted cultivation effects on choice participation vary by race?

Data Source

The data used in this study come from the 2010-11 Kindergarten Cohort of the second Early Childhood Longitudinal Study (ECLS-K: 2011). ECLS-K: 2011, which was designed by the National Center for Education Statistics, provides a nationally representative sample of 5-year-olds in public and private schools in the U.S. Data were initially collected on children and their parents in the fall 2010 and spring 2011 of the child's kindergarten year. Data were collected directly from children, teachers, parents, preschool care providers, and school administrators. The restricted use dataset used in this study also contains census tract identifiers for families' primary residences. The multiple data sources in ECLS-K: 2011 provide a thorough wrap-around portrait of a child's circumstances inside and outside of school, making ECLS well suited for studies related to the sociology of education.

Sampling design

A multistage sampling process was used to identify counties, schools, and students for ECLS-K: 2011 (Tourangeau, Nord, Lê, Sorongon, Hagedorn, Daly, & Najarian, 2012). The first

stage started with a list of 3,141 U.S. counties. The 10 largest counties in the country were considered self-representing and were deliberately selected for inclusion in the study. Census data, including the number of 5-year-olds in the area, inclusion in a metropolitan statistical area or not, U.S. geographic region, county size, per capita income, and racial and ethnic composition were used to define 40 strata for the remaining portion of the first stage sample. Two primary sampling units (PSUs) were selected in each of the 40 strata, bringing the final total of PSUs to 90. As discussed in a following section, the inclusion of two PSUs in each strata enables the use of paired jackknife methods for variance estimation.

In the next stage of the sample, public and private schools were selected within the selected counties. The sampling frame for schools in ECLS-K:2011, which is based on the NAEP sampling frame, the 2006-07 Common Core, and the 2007-08 Private School Survey, was restricted to schools within the PSUs that had kindergarten programs or served 5-year-olds in an ungraded format. An individual school's probability of selection was proportional to its size, following adjustments for the oversampling of Asians, Native Hawaiians, and other Pacific Islanders that increased the weight of those students by 2.5 times. Particularly small schools were clustered together to increase the likelihood of their selection. Among public schools within each PSU, three school size strata of high, medium, and low were defined. Strata were also defined for the community type in which schools resided, including city/suburb, town/rural, or mixed, with the vast majority of schools falling in either city/suburb or town/rural. In the selection of private schools, strata for religious, non-religious, or mixed were defined, with the vast majority of schools falling in the first two categories. 1,352 schools, consisting of 1,052 public schools and 300 private schools were sampled. Some adjustments and school substitutions were later made due to higher than expected non-participation rates. 31% of

sampled schools were in cities, 38% of schools were in suburbs, and the remaining schools were in towns or rural areas.

In the final stage of sampling, kindergartners within the selected schools were sampled. Two strata were defined within each school. Asians, Native Hawaiians, and other Pacific Islanders, the populations identified for oversampling, formed one strata that was sampled at 2.5 times the rate of the other strata consisting of all other students. Generally, 23 children from each school were selected, except when a school did not have that many kindergartners. In that case, all kindergartners were typically selected. The unweighted total of children participating in the first year was 18,174, with 15,953 public school students and 2,221 private school students. 33% of participating students lived in cities, 37% lived in suburbs, and the remainder live in towns and rural areas. 38% of private school students attended Catholic schools, 41% attended other religious private schools, and the remainder attended non-religious private schools. 47% of participating students were non-Hispanic whites, 25% were Hispanic, 13% were non-Hispanic blacks, and 9% were non-Hispanic Asians.

Public school type and sampling

For this analysis, it is extremely important to note that public school types like magnet schools, charter schools, and other special schools were not considered in the sampling design. Accordingly ECLS-K:2011 should not be considered a nationally representative sample of charter school or magnet school students. However, this issue does not necessarily mean that the dataset is necessarily misrepresentative of choosers and nonchoosers in general or of choosers attending charter schools and magnet schools. When family characteristics are broken down by school type in this analysis, those data are purely provided to describe the sample. Claims that these data represent charter schools or magnet schools in general are not made in the study.

Data collection periods

ECLS: 2011 will follow 2010-11 kindergartners through fifth grade in the 2015-16 school year. At the time of this study, however, only the kindergarten year of data collection were available from NCES. For the full sample, data will be collected twice in the kindergarten year and then once a year in 1st, 2nd, 3rd, 4th, and 5th grade. In the kindergarten year, data were collected in the Fall of 2010, shortly after most children started kindergarten and again in spring 2011. Major data sources in ECLS-K: 2011 include direct assessments of children, surveys of teachers and special education providers, surveys of school administrators, surveys of non-parental childcare providers, and surveys of parents or guardians.

Parent surveys

The analysis conducted here relies almost entirely on data in the parent surveys. In the child's kindergarten year, parents were interviewed in both the fall of 2010 and the spring of 2011. The interviews covered a wide range of topics, including parental involvement at the school, childcare arrangements, household composition, marital status, rules in the home, disciplinary practices, child and parent well-being, perceptions of neighborhood safety, primary home language, parents' education level, parents' employment, family income, and other topics.

Parent interviews of approximately 45 minutes were conducted by trained staff using a computer-assisted interview (CAI) program developed in Blaise. CAI programs guides staff through the interview and helps prompt interviewers to ask follow-up questions if answers are unclear or do not fit with information provided previously. Interviews could be conducted completely in English or Spanish or could be translated from English to other languages during administration.

The participant in the parent interview was typically the “parent or guardian in the household who identified himself or herself as the person who knew the most about the child’s care, education, and health.” (Tourangeau, Nord, Lê, Sorongon, Hagedorn, Daly, & Najarian, 2012, p. 2-8). Researchers attempted to interview the same person during the fall and spring rounds of data collection.

The content of the fall and spring surveys overlapped substantially in terms of topics but generally did not repeat the same questions. For example, issues of child health and well being were covered in both interviews, but different specific questions were asked in each administration. Major issues like household composition were asked during both administrations in case that information had changed. If portions of the fall interview were not completed, questions that were missing data were added to the spring interview.

School administrator survey

In this analysis, information on public school type and private school type was drawn from the school administrator survey. These questions asked public school administrators if their school was a regular public school, magnet school, charter school or other type of school. The school administrator survey was administered in hard copy form during the Spring 2011 round of data collection. The surveys were completed by the school principal or her designee. The major public school types in the response options were “regular public school”, “magnet school”, “charter school”, “public school choice (including those with open enrollment)”, “early childhood center”, or “special education school”. Major private school types in the responses options were “Private school affiliated with NAIS (no religious affiliation)”, “Other Private school (religious affiliation)”, “Other Private School (no NAIS or religious affiliation)”, or “Catholic school”, which was broken out further by “Diocesan”, “Parish”, or “Private Order”.

Census tract data

Families' participation in school choice could be influenced by the composition of their neighborhood, the families' race or socioeconomic position relative to their neighbors, the choice behaviors of their neighbors, or a number of other contextual factors. The restricted use ECLS-K: 2011 dataset includes the census tract number for the primary residence of each child in the study. These numbers can be used to retrieve aggregate data on the composition of the neighborhood in which a family resides. A census tract is the second smallest geographic unit for which detailed socioeconomic data on an area are available. A census block group, which typically has a population of 600 to 3,000 individuals, is the smallest unit for which detailed sample data are available. The level of precision provided by a block group would be preferable for this analysis, but those numbers are not provided by NCES in ECLS. A census tract, on the other hand, consists of 1,200 to 8,000 residents. Although larger than block groups, tracts are also intended to capture relatively distinct residential areas. The census consults local citizens and uses major physical and civil separators to define coherent neighborhoods or groups of neighborhoods.

For this study, full census tract numbers for families residing in urban areas were extracted from the ECLS dataset and decomposed into smaller numbers identifying state, county, and tract. Using the Data Ferret program from the U.S. Census Bureau, a number of racial, socioeconomic, and other demographic indicators were identified in the 2010 American Community Survey (ACS) 5-year estimates. 2010 figures were used because ECLS-K: 2011 begins in fall 2010 and most families would have made school choices in that year. A query for these ACS variables was then developed in Data Ferret, and geographic identifiers from ECLS

were used to develop additional SQL code for that query. The query was run in Data Ferret, producing an ASCII file and a SAS program to extract data from the ASCII file. The program was run in SAS 9.4, and the resulting SAS dataset was merged at the child-level using the full census tract numbers as the key variable.

There are 5,382 unweighted urban participants in the ECLS-K: 2011 data. Residential census tract numbers were missing for less than 2% of the cases. For all of those cases, tract numbers for the attended school were available, and the school tract numbers were used as the best available proxy for those missing data.

Missing Data

As with most survey-based studies, missing data is an issue for any analysis of ECLS data. Although cases with missing data could be excluded from an analysis, this approach discards completed information for those individuals and reduces the size of the sample in the analysis. Likewise, simple imputation approaches like substituting mean values are also not desirable because they reduce the variation in the sample. SAS offers a number of approaches for dealing with missing data. In this analysis, a multiple imputation method, PROC MI and PROC MIANALYZE, will be used. Multiple imputation creates multiple complete data sets, typically five or more. Those data sets are then analyzed in a typical fashion for the analysis at hand. Then the results from those analyses are essentially averaged to produce a final result.

PROC MI offers a number of options for imputing missing data, and determination of the appropriate method depends on the patterns in which data are missing. In a monotone missing variable pattern, individuals lacking data on a certain variable are also lacking data on all subsequent variables. In terms of survey data collection, this pattern could occur if an individual

did not finish a started survey or did not complete the entire instrument. Arbitrary missing data patterns are different from monotone patterns in the sense that missing data points are more randomly scattered across the dataset. The specific imputation methods used also differ for continuous or categorical variables. Missing values are imputed based on covariates in the data set for which values are available. In other words, correlations between variables can be established based on the complete portion of the dataset, and these correlations and the completed responses for incomplete cases can be used to predict values for the data points that are missing values. Regression methods and matching methods are available in SAS to implement such imputation approaches. For categorical variables, logistic regression methods are typically used, though SAS also offers a discriminant function method.

When data are missing in an arbitrary pattern, different procedures are used. In these circumstances, imputation is often done in multiple stages. The first stage of imputation brings the dataset from an arbitrary pattern to a monotone pattern, and then imputation methods for monotone missing patterns are then used to complete the data set. For the first stage of imputation on an arbitrary missing data pattern, multivariate methods are typically used.

For this study, not all cases with missing data were included in the analyzed sample. The outcome of chooser status, which is determined on the basis of two parent survey questions in the Fall 2010 survey, was not be imputed. Accordingly, cases that are lacking data for the entire Fall 2010 survey or for those two questions in particular were not included in the analysis. The vast majority of cases that are excluded due to these criteria did not complete the fall survey at all and thus are lacking a considerable amount of family background information. Of the 18,174 unweighted households in the sample, 13,378 answered p1choose, a question concerning residential school choice, and only 21 either refused the question or said that they did not know.

However, 4,775 households, 26.3% of the sample, did not complete the fall parent survey at all. On P1School, a question concerning if the school attended was assigned or selected, 17 respondents either refused or did not know. For some of the non-respondents, chooser status can be determined from the school type the child attends. For example, parents of children attending a private school have to be choosers. Respondents who refused the P1School question or replied that they did not know were coded as choosers if their child attended a school that was 100% choosers, namely private schools or charter schools.

In the data cleaning phase of this study, the full set of variables to be included in the study were analyzed for missing data. The vast majority of missing data were in a monotone pattern consistent with respondents skipping portions of the spring or fall interview or the entirety of the spring interview. Regression methods in PROC MI were used to impute continuous variables, and logistic regression methods in PROC MI were used to impute categorical and ordinal variables. For data missing in an arbitrary pattern, multivariate methods in PROC MI were first used to bring the data into a monotone missing pattern. Once a monotone pattern was achieved, the regression and logistic regression methods were used to impute the remaining missing values.

Imputation in SES composite

One of the key composite variables in this study sometimes includes values that were imputed by the study designers and implementers. The SES composite variable, which is addressed in more detail in a following section, can consist of up to five standardized variables: maternal education level, maternal job prestige, paternal education level, paternal job prestige, and household income. When a child lived in a household with only one parent, the education and job prestige of the non-present parent was considered not applicable and was not included in

the composite variable. When a child lived in a two parent household and data for one or both parents was missing, values for those parents were imputed using a hot deck method. In this method, variables that are significantly correlated with SES components are first used to group together similar sets of parents. The variables used to define these groups included household type, parents' age, census region, community type (urban, suburban, etc.), school type, and parents' race/ethnicity (Tourangeau, Nord, Lê, Sorongon, Hagedorn, Daly, & Najarian, 2012 , p 5-78). Within these groups, a parent with complete data was then randomly selected to donate her value to a parent with incomplete data. Parents' education level and job prestige variables were missing data in 2-3% of cases. The detailed income range for parents was missing at a higher rate of 15%, in part due to the manner that question was approached. First, all parents were asked to identify their broad income range. Then, only households that had incomes below 200 percent of the poverty line were asked to identify a specific income. For households that only provided a broad income range, the midpoint of that income range was used to determine the reported income value for that household.

Response rates for parent and administrator surveys

Parents were permitted to stop the interviews at any time or not respond to any questions they chose. Also, some parents did not participate in at least one of the interviews at all, meaning that data are missing for the whole instrument. When a parent participated in the interview but did not provide an answer for a specific question, the response on that variable is coded -9 for not ascertained. 221 of the fall parent interviews and 664 of the spring interviews were stopped early at the parent's choosing. When parents did not participate in the interview at all, all responses on the instrument are coded system missing. In these cases, many of the key

details regarding families' material circumstances and parenting practices will be lacking, as most of that data comes from the parent interviews.

When parents provided responses that would be considered "other" or that did not immediately fit in the multiple choice options provided, the specific response was recorded and later reviewed by researchers. In the course of this review process, some "other" answers were recoded into one of the multiple choice options.

The unit response rate, which is the number of completed interviews over the number of sampled units, is available for each instrument in the study. For the parent interviews conducted in Fall 2010 and Spring 2011, an interview was considered completed if the parent answered all of the questions in the section concerning family composition and structure. For the fall 2010 round of data collection, of the 18,170 children whose parents were eligible for the parent survey, 13,399 surveys were at least partially completed. The weighted response rate was 74.2%, including a 73.8% rate in public schools and a 77.4% rate in private schools. Response rates were somewhat lower in cities at 71.4%, compared to rates of 74.1% and 77.9% in suburbs and rural areas, respectively. Response rates were also lower in schools with high minority enrollment. In schools with 86% to 100% minority enrollment, the response rate was 67.7%, while in schools with 0 to 45% minority enrollment, the rates were 76.6% to 78.8%.

For the school administrator survey (SRS) conducted in Spring 2011, a survey was considered completed if at least one item on the survey was answered. The weighted response rate overall was 67.7%. The response rate was 70.9% in public schools and 60% in private schools. Response rates also differed by school size. Schools with fewer than 51 students in

kindergarten responded at a 63.4% rate, while schools with 51 students or more had rates of 70.8% to 74.8%.

For parent survey items in ECLS, there are generally six types of missing data responses: not applicable, data suppressed, refused, don't know, not ascertained, or system missing. Not applicable simply indicates any appropriate skipping of a question due to responses to earlier questions. Data suppression sometimes occurs to protect respondent confidentiality, though this occurs less often in the restricted use data set than the public use data. The "refused", "don't know", and "not ascertained" options are all non-responses. For the parent surveys, the interviewers had instructions to repeat questions if needed, potentially reducing the rate of non-responses. System missing values, which appear as blanks in the original data, indicate that an entire instrument is missing.

Outcome Variables

The outcome for this analysis can be defined as self-identified chooser status. The chooser status of participating families is determined by two questions in the Fall 2010 parent interview and the type of school attended by the child. This self-identification approach differs from many prior studies of choosers and nonchoosers, and it offers some advantages over those approaches. In previous research, choosers are typically identified and defined as those families that do not attend their geographically assigned public school. In other words, choosers must be leavers of their traditional public school. That approach is useful in the sense that it defines choosers based on concrete action rather than a survey response, but it has a major shortcoming in that it fails to identify a key group of choosers. When choosers are defined as leavers, families that actively considered multiple schools and ultimately selected their traditional public school

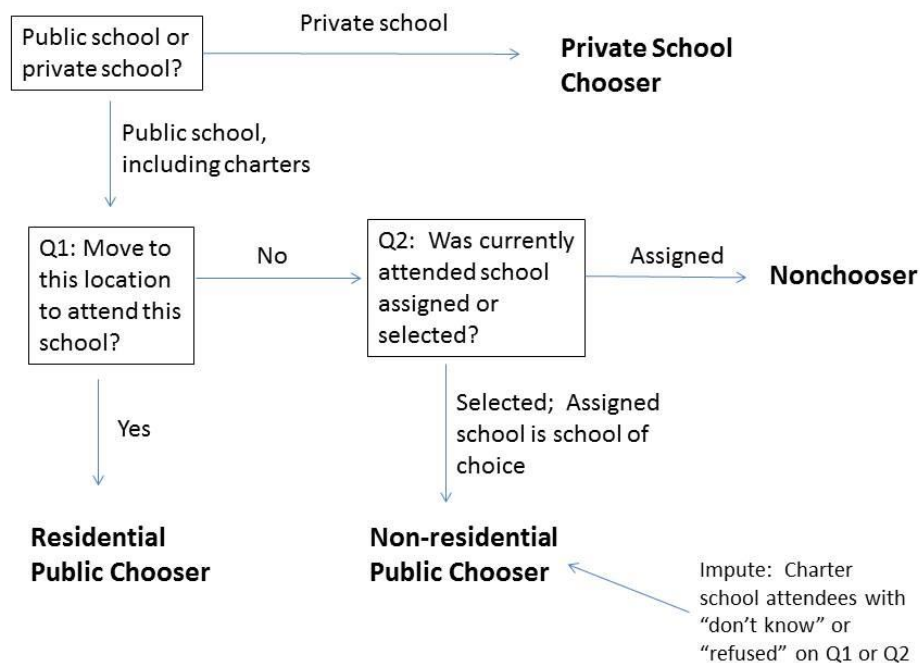
would be incorrectly identified as nonchoosers. A survey-based approach to defining chooser status, on the other hand, enables the identification of these stayers as choosers.

In ECLS-K: 2011, a survey-based approach is also the only available option for identifying choosers. The geographically assigned school for each child is not provided in the dataset, nor is a specific residential address. Although the census tract for each family's primary residence is provided, this information does not necessarily enable the identification of the assigned school. School catchment areas can and often do cut across census tract lines. Also, to the author's knowledge, a nationwide dataset with Fall 2010 school catchment areas is not available, meaning that each city included in the analysis would have to be examined individually and then crossreferenced with census tract lines. Such an undertaking was not feasible within the scope of this project.

The two Fall 2010 parent survey questions used in determining chooser status, p1choose and p1school, concern residential school choice and whether or not the attended school was assigned or selected, respectively. P1schoose asks, "Did you choose where to live so that [your child] could attend his/her current school?". Coding options for the response were "yes", "no", "refused", and "don't know". P1school, which immediately follows p1school in the interview protocol asks, "Is [your child] attending [his or her] regularly assigned school or a school that you chose?" The primary response options were "Assigned", "Chosen", "Home schooled", or "Assigned school is school of choice", which is the response option that captures choosers who are stayers at their assigned public school. "Refused" and "Don't know" were also coding options.

Figure 1 outlines the decision tree through which individuals were assigned a chooser status. First, private school attenders are defined as Private School Choosers. Public school attenders, including charter and magnet school attenders, continue to the rest of the decision tree. Public school attenders who reported that they moved to their current residential location in order to attend their current school are defined as Residential Public Choosers. Those who did not report moving their current location for the school are referred to the next question in the decision tree, which asks if the current school was assigned or selected. Parents that reported the school was assigned were defined as Nonchoosers. Parents that reported the school was selected or that the assigned school was a school of choice (choosers who are stayers) were defined as Nonresidential Public Choosers.

Lastly, a small number of respondents who replied “don’t know” or “refused” to either question could be assigned a chooser status based on school type or completed responses to the other question. For example, a charter school attendee who did not answer the assigned/selected question was defined as a Nonresidential Public Chooser based on school type. A parent who did not answer the residential selection question but responded that the school was “selected” was defined as a Nonresidential Public Chooser.

Figure 1: Decision Tree for Determining Chooser Status Outcome

Location type and restricting the dataset

The prevalence and diversity of school choice options may differ in cities versus suburban or rural areas. Moreover, the accessibility of choice systems and the differences between choosers and nonchoosers may also vary by location type. Other contextual factors like property values and transportation that can affect school choice participation may differ substantially by location type as well. For a number of reasons, it is important to consider how the sociology of school choice may vary considerably in urban versus suburban or rural areas.

In ECLS-K: 2011, location type was determined by the researchers as part of the sampling process and provided in the `x1locale` variable. This variable provides the location type of the school rather than the location of the family's residence, which is not ideal for this study. Since this study is primarily focused on family-level characteristics and parenting decisions, the

location type of the family's residence would be preferable. School location type was used as the best available proxy. The `x11locale` variable classifies school location into one of twelve types. Six of these types consist of cities and suburbs, which are broken out further into large, mid-size, or small cities or suburbs. The remaining six types consist of towns and rural areas, which are broken out further into fringe, distant, or remote based on their proximity to a metro area. For the purposes of this study, these twelve types were collapsed into the four major location types of cities, suburbs, towns, and rural areas.

For this study, families included in the analysis were restricted to those attending schools in urban areas. Descriptive analyses that crosstab chooser status by family characteristics by urbanicity indicate that the gaps among different types of choosers vary substantially by residential context, in some cases disappearing entirely in the suburbs. In this circumstance, the different residential contexts will need to be modeled separately. Qualitative work on school choice has also identified different dynamics among parents engaged in school choice in suburban versus urban contexts (e.g. Lareau & Goyette, 2014; Holme, 2003). In addition, although interest in suburban school choice policy is growing, urban contexts remain the most active area for school choice policy discussions. The decision to focus on urban families in this study simplified model interpretation and produced more policy-relevant results.

Independent Variables

Figures 2 and 3 outline the independent variables and composite variables included in the models for this study. The selection of independent variables to include in the models was done in a theory-based manner. ECLS-K: 2011 offers an enormous number of family background variables, so it is important to have a solid rationale for the inclusion of variables in models. Four major types of sources provide useful information for selecting variables and outlining the

rationale for their inclusion. First, some variables were included based on the results of prior research in school choice. Although many quantitative enrollment studies in school choice have had limited family background variables, qualitative and survey studies have identified a number of potential factors associated with choice that are captured at some level in the rich ECLS-K:2011 data.

Family and neighborhood sociology studies are a second valuable source of information for identifying independent variables for modeling. For example, the age of a child's mother or the age of the mother when she had her first child is a variable often included in sociological analyses because particularly young mothers may be more likely to face resource constraints and other challenges that older mothers are somewhat less likely to encounter. Some independent variables were identified on the basis of both school choice and sociological literature. The socioeconomic status composite, which is discussed in some detail below, of course has well documented relationships with participation in school choice and a wide range of academic and behavioral child outcomes. The number of children in a family is another example of a variable identified in school choice literature as well as sociological and economic research. Qualitative research in school choice reveals that having more than one child can affect the school choice process for parents. Likewise, sociological and economic perspectives acknowledge that additional children can place additional burdens on parents' time and reduce the relative resources available for each child.

The third major source of information used in selecting independent variables was the author's preliminary modeling of chooser status in ECLS-K: 1999 (Weitzel, 2011). That study modeled residential chooser and nonresidential chooser status against nonchoosers in logistic regressions using general estimating equations to account for school-level clustering. The results

of that study were useful for both including and excluding some variables from this analysis. For example, variables like family church attendance, the extent of parental input into school decisionmaking, or the existence of a gifted program at the school did not have meaningful relationships with chooser status or substantially improve model fit, so they were excluded from this analysis. The child's previous attendance at a center-based preschool, as opposed to friend or relative childcare, was included in the earlier study in part because it indicated that parents had previously made an active choice in an educational market. Preschools could also provide a social network which parents might draw upon in school choice. In models of nonresidential chooser status, attendance at a center-based preschool did indeed have a significant positive association with being a chooser, so that variable was included in the current study. Speaking a language at home other than English is another example of a variable in the preliminary analysis with a significant association, in this case a negative association, with being a chooser.

The earlier analysis also revealed some interesting interactions that affected model building for this study. Most notably, the interaction of race and SES indicates that higher SES is an even stronger predictor of chooser status for black and Hispanic families than it is for white and Asian families. Racial interactions were thus included in the study for the major composite variables.

Concerted cultivation was positioned as a mediating composite in the regressions for this study in part due to the results of the preliminary models in ECLS-K: 1999. The addition of a concerted cultivation composite to models of residential chooser status substantially reduced the association between higher SES and choice and improved model fit. Also the interaction of concerted cultivation and SES was also significantly and positively associated with choice for both residential and nonresidential models. There was preliminary evidence that concerted

cultivation or some other measure of deliberate parental investment in child development may mediate the relationship between SES and active participation in school choice.

Lastly, one of the ways in which neighborhood context was coded in this analysis is derived from classic stratification theory. As noted in the first chapter, these theories suggest that the consumption of goods is one of the key ways in which social classes distinguish themselves from one another. The specific school or type of school attended by the children of a family could be used as a social symbol of that family's preferred or perceived social class. It is thus possible that a family's relative SES compared to their neighbors could be associated with participation in school choice. More specifically, families in the upper portion of a neighborhood's socioeconomic distribution may be more likely to participate in private or non-residential school choice. For this study, families with parental educational attainment above the median for their census tract were denoted with dummy variables.

SES composite

NCES's socioeconomic status (SES) composite is a five-part composite that captures three aspects of parents' socioeconomic status. The SES composite consists of paternal (or male guardian) education level, maternal education level, paternal occupation or job prestige, maternal occupation or job prestige, and household income. When the child lived in a household with only one parent, only that parents' education and job prestige were included. Parental education and job prestige were collected in fall 2010, and household income was collected in spring 2011. Parents lacking a response in fall 2010 were asked the education and job prestige questions in the spring as well. These measures are pulled together into a continuous standardized composite where a value of zero is the mean national SES and value of 1.0 is one standard deviation above that mean.

Job prestige captures the level of independence and the complexity of work associated with particular occupations. To produce a prestige score for a particular occupation, each job is coded to fit into a category within a preexisting list of job types and prestige scores. For ECLS, parents' occupations were coded to identify the prestige score using the 1989 General Social Survey, a periodic study designed to understand basic structures in American society. Parental occupation was covered in the fall kindergarten survey for most parents. For parents that did not receive the fall survey because their school had not entered the study, the question was included in the spring kindergarten survey.

Household income captures the annual income of the parents from all wage and non-wage sources. Families were not asked to provide an exact income figure but rather a range. The midpoints of these ranges were used as the income figures for each family.

The education variables used in the SES composite are actually composite themselves. Respondents were initially asked to identify their education level from no high school diploma up through a variety of college and professional degrees. Respondents who had not completed a high school diploma were asked an additional question regarding the highest grade level they completed. Results from those two questions were combined to produce a final variable with parents' highest level of educational attainment among 23 categories.

Concerted cultivation and parental involvement

One of the critical questions in this study is the extent to which active participation in school choice is consistent with a broader pattern of educational investment on the part of parents. To what extent do indicators of deliberate parental involvement explain or mediate the relationship between SES and participation in school choice? Capturing parents' attitudes and

Figure 2: Independent and mediating variables

| Variable | Instrument(s) or Source | Coding |
|---|---|---|
| Female | ECLS composite* | 0- Male; 1- Female |
| Asian | ECLS composite | 0- Non-Hispanic white; 1- Asian |
| Black | ECLS composite | 0- Non-Hispanic white; 1- Non-Hispanic Black |
| Hispanic | ECLS composite | 0- Non-Hispanic white; 1- Hispanic/ Latino |
| Other race | ECLS composite | 0- Non-Hispanic white; 1- Hawaiian/ Pacific Islander/ American Indian/ Alaskan/ Two or more races/ Not ascertained |
| Single-parent household | ECLS composite | 0- Household contains two biological /adoptive parents or one biological /adoptive parent and one step parent or other guardians; 1- One biological/adoptive parent |
| Teen mother at first birth | Fall 2010 Parent survey | 0- Mother aged ≥ 20 when had first child; 1- Mother aged < 20 when had first child |
| Non-English home language | Fall 2010 Parent survey | 0- Only English used at home; 1- Language other than English sometimes used at home |
| Number of children in household | ECLS composite | Count of individuals in household aged < 18 |
| Attended Head Start preschool | Fall 2010 Parent survey | 0- Never participated in Head Start preschool care; 1- Preschool care included Head Start |
| Attended other center-based preschool | Fall 2010 Parent survey | 0- Never participated in other center-based preschool care; 2- Preschool care included center-based care other than Head Start |
| Neighborhood Disadvantage Index | 2010 5-year tract-level American Community Survey | Scored according to Sampson & Raudenbush (1999) and converted into a regionally adjusted Z-score Additive composite: How safe to play in neighborhood? 0- Very safe; 1- Somewhat or not safe; How much are drugs a problem? How much is burglary a problem? 0- No problem 1- Somewhat or Big Problem |
| Perception neighborhood safety | Spring 2010 parent survey | Z-score- Number of parents from school contacted regularly in-person, by phone, email or social media. |
| School social capital | Spring 2010 parent survey | |
| High educational attainment for neighborhood | American Community Survey/ ECLS fall 2010 parent survey | 0- Parents' highest educational attainment is at or below the median for their census tract; 1- Parents' highest educational attainment is above median for census tract |
| SES composite | ECLS composite | See Figure 3 for details |
| Parental involvement/ Concerted cultivation composite | Spring and fall parent surveys | See Figure 3 for details |

*The implementers of ECLS code some variables by cross checking multiple sources or drawing from a series of questions. For example, child's race is crosschecked in both school records and parent surveys. A series of questions on household composition are used to define variables on the number of children or types of parents in a household.

Figure 3: Details on Composite Variables

| Composite | Instrument (s)/ Source | Variables included | Coding |
|--|----------------------------|---|---|
| SES composite | ECLS composite | 5 variables: Maternal educational attainment; Paternal educational attainment; Maternal job prestige; Paternal job prestige; Household annual income | Z-scores computed for each of 5 components; Final variable is average of those z scores. |
| Parent depression composite | Fall 2010 Parent survey | 3 variables: How often in the past week has the respondent (a) felt depressed, (b) been unable to shake the blues, and (c) felt sad? | 0= never, 1= some of the time, 2= moderate amount of the time or most of the time. Sum results from 3 questions for final composite. |
| "High Cost" Concerted cultivation composite | Spring 2011 parent surveys | 1. Organized activities outside home: Child participation in dance lessons, academic activities like tutoring or math lab, organized athletics, other clubs or recreational programs like scouts, music lessons, drama classes, art classes, craft classes, other performing arts, religious activities, and volunteer work or community service. | 0= no; 1= yes; Results summed and converted to z-score. |
| | Fall 2010 Parent survey | 2. Home educational resources: Number of children's books, including library books in the home. | Total number of books converted to z-score. |
| "Low cost" Parental Involvement composite | Fall 2010 Parent survey | 1. Home-based learning: Frequency with which parents or other family members do the following with the child: tell stories, sing songs, do arts and crafts, involve kids in chores, play games or puzzles, do nature or science activities, build something or play with construction toys, do sports or exercise with child, and practice reading, writing or working with numbers. | Responses on a four-point scale (1 – Not at all; 2- Once or twice a week; 3- three to six times per week; 4- Every day) will be summed and converted to a z-score |
| | Fall 2010 Parent survey | 2. Parents' attitudes on kindergarten readiness: In a parent's view, how important is it that a child can count to 20, knows most of the letters of the alphabet, and communicates needs, wants, and thoughts in her primary language at the start of kindergarten. | Likert scale: 5 = Essential; 4= Very Important; 3= Somewhat important; 2= not very important; 1= Not important; Results summed across three questions and converted to a z-score. |

behaviors regarding their children's development and education is one of the great strengths of the ECLS dataset. Several earlier studies have used ECLS to measure parental involvement in different ways and assess its role in producing children's academic and behavioral outcomes. There are thus several options to consider when developing a parental involvement or concerted cultivation composite for this study.

Three studies have operationalized Lareau's (2003) concerted cultivation using ECLS: 1999. Cheadle's (2009) and Cheadle and Amato's (2011) approach positions concerted cultivation as a second order latent construct composed of three first order constructs: (1) Parent participation at school, which consists of 6 variables regarding the number of times respondents attended parent-teacher conference, attended PTO/PTA, attended a school event, attended an open house or back to school night, volunteered at school, and participated in school fundraisers, (2) Childs' participation in organized activities, which consists of 6 variables about a child's involvement in music lessons, organized athletics, art classes, performing arts activities, dance lessons, or other clubs and recreational activities, and (3) educational resources, which consists of a single variable on the number of books the child has. Cheadle acknowledges that the educational resources construct is not entirely representative of Lareau's (2003) theory. In particular, one of the emphases of Lareau's theory was the nature and complexity of verbal exchanges between parents and children. Unfortunately, neither version of ECLS offers variables which capture that concept, so Cheadle used educational resources as a rough proxy.

Bodovski and Farkas (2008) also examined the role of concerted cultivation in elementary school achievement. In their model, SES influences the parents' educational expectations for their children, and both SES and these expectations influence concerted cultivation. Their concerted cultivation factor consisted of 29 items, 28 of which are in three

subscales. The first subscale measures parental perceptions of their responsibilities in the authors' view, although many of the questions ask how often activities are actually done instead. Cheadle's concerted cultivation factor did not include variables along these lines. This subscale includes the frequency with which parent did the following activities: play games with child, do sports with child, practice numbers and letter, listen to the child when busy, foster the child's opinion, help with homework, tell stories, sing songs, and do art. Responses on a 4-point frequency scale were summed and converted into a z-score. The remaining subscales in Bodovski and Farkas's factor align well with Cheadle's model. The second subscale concerns the organized activities in which children participate, including music lessons, arts and crafts, dance, other clubs, performing arts, athletic activities, and trips to museums, zoos, library, concerts or other live shows. These dichotomous variables were summed and converted into a z-score. Similar to Cheadle, the authors also included a subscale for parents' engagement with the school, consisting of dichotomous variables for participation in PTA, open houses, parent-teacher conferences, other school events, school volunteering, and school fundraising. Again, these items were summed and converted into a z-score. Lastly, the number of books a child has was converted into a z-score as well. For the final concerted cultivation measure, the four z-scores were summed and converted into a final z-score.

While Cheadle, Cheadle and Amato, and Bodovski and Farkas were explicitly aiming to capture concerted cultivation in their models, other useful studies in ECLS have included measures of parental participation without necessarily aiming to capture or test concerted cultivation theory specifically. Cooper, Crosnoe, Suizzo, and Pituch (2010) tested the hypothesis that some of SES's association with achievement occurs because poverty makes it difficult to implement some positive parenting behaviors. Rather than developing a single

concerted cultivation or parental participation composite, the authors put four narrower composites, the equivalent of subscales in the previous studies, directly into their models. These composites captured the presence of cognitively stimulating materials in the home (books, music albums, and computers), the child's involvement in eight organized activities (art, sports, music, dance, etc.), the frequency of nine home-learning activities (art, building blocks, games, nature, etc.), and seven measures of school-based parental involvement (PTA, Parent-teacher conferences, open houses, etc.). The composites in this study were simple sums or averages. For cognitively stimulating materials, quartiles of number of books and cds were represented 1-4, and the presence of a computer was dichotomous. The child's involvement in eight organized activities was captured dichotomously and summed, as was school-based parental involvement. The home-based learning composite was the mean of how often parents engaged in the nine activities, with 1= not at all, 2= once or twice a week, 3=three to six times a week, and 4= everyday.

Generally speaking, authors who have studied the role of parental participation or concerted cultivation in early elementary outcomes in ECLS have captured these concepts in a similar manner. There are minor variations in the variables included, their coding, and the transformation or standardization used to calculate composites, but most studies take very similar approaches. The most common concepts or subscales used capture children's participation in organized activities outside the home, parents' and children's participation in learning activities in the home, the books and other educational resources available in the home, and parents' participation in school-based activities. Although these concepts do not entirely capture Lareau's theory, some authors have used these composites to represent concerted cultivation.

In this study, two versions of concerted cultivation or parental involvement composites were tested. The first composite consists of measures that are relatively high cost, meaning that they likely require a combination of direct expenditures, opportunity costs, and transportation. This “high cost” concerted cultivation composite consists of the number of children’s books in the home and the frequencies with which the child participates in various organized enrichment activities outside the home like dance lesson, music lessons, and organized sports (Cronbach’s $\alpha = .72$). The organized activities composite sums dichotomous answers (0 – no; 1 – yes) regarding a child’s participation in dance lessons, academic activities like tutoring or math lab, organized athletics, other clubs or recreational programs like scouts, music lessons, drama classes, art classes, craft classes, other performing arts, religious activities, and volunteer work or community service. The number of children’s books in the house were treated identically to Bodovski and Farkas (2008). The total number of children’s books, including library books, were converted to a z-score. As in Bodovski and Farkas, counts of books greater than 200 were recoded to 200 to reduce skewness in the distribution. With the combination of the extracurricular activities and books variables, this “high cost” parental involvement composite aligns relatively well with Lareau’s concerted cultivation theory.

The second composite includes parental engagement measures that primarily involve opportunity costs, including the frequency of home-based learning activities like reading, doing art, or telling stories (Cronbach’s $\alpha = .79$). A measure of parents’ attitudes on the importance of kindergarten readiness is also included as a proxy of parents’ role construction in educational matters (Cronbach’s $\alpha = .74$). For home-based learning, the composite captures the frequency with which parents or other family members do the following with the child: tell stories, sing songs, do arts and crafts, involve kids in chores, play games or puzzles, do nature or

science activities, build something or play with construction toys, do sports or exercise with child, and practice reading, writing or working with numbers. Responses on a four-point scale (1 – Not at all; 2- Once or twice a week; 3- three to six times per week; 4- Every day) will be summed and converted to a z-score.

In the questions used for the parental attitude measure, parents were asked to rate the importance of academic abilities for kindergarten readiness on a 5-point likert scale ranging from 5 = Not important to 1= Essential. For this study, responses on three questions will be reverse-coded (5 = Essential; 1= Not important), summed and converted into a z-score. These questions cover parents' attitudes on the importance that a child can count to 20, knows most of the letters of the alphabet, and communicates needs, wants, and thoughts in her primary language. These variables are included in the parental involvement composite because the author speculates that parents who view these skills as essential for kindergarten will also be more inclined to take deliberate steps to foster such growth. On the other hand, parents who see these skills as less essential prior to kindergarten may be more inclined to practice parenting strategies consistent with what Lareau describes as the "accomplishment of natural growth". In addition to these variables' usefulness as proxies for concerted cultivation attitudes, they may also fit well with another prominent theory on parental involvement. Hoover-Dempsey's parental involvement model, which was reviewed in the previous chapter, posits a multi-stage process by which parents make decisions regarding direct involvement in education. In Hoover-Dempsey's model, the critical first step in this process concerns parents' role construction. Basically, if parents perceive that it is their role to be directly active in their children's educational development, they are much more likely to take additional steps in that direction.

The “low cost” parental involvement composite is thus the combination of home-based learning activities and parental attitudes on kindergarten readiness. This “low cost” involvement composite does not necessarily align well with Lareau’s concerted cultivation theory but it does certainly represent a form of parental involvement in education. The “high cost” parental involvement composite, on the other hand, does align very clearly with Lareau’s theory.

Different types of parental involvement and concerted cultivation were broken into two composites to see if participation in school choice seems to be more heavily associated with means and mobility (the “high cost” composite) than with parental attitudes and other involvement (the “opportunity cost” composite). This approach is one way of testing the importance of opportunity of access in participation in school choice. Some lower income parents likely prioritize education at home but are not able to shuttle their children to many organized activities. If the results reveal that these parents are no more likely to participate in school choice, that finding would provide some evidence that opportunity of access is a substantial limitation in urban school choice systems.

Modeling of Chooser Outcomes

This section outlines the major decisions concerning regression modeling of chooser outcomes in this study. The major issues addressed include (a) multinomial or dichotomous outcomes, (b) measuring and testing indirect effects on categorical outcomes (c) SEM versus other mediational models, (d) blocks of independent variables and the sequence in which they were added to the models, (e) examination of racial differences in the results of modeling, and (f) potential next steps based on the initial rounds of modeling.

Multinomial or dichotomous outcomes

There are four categorical outcomes of interest in this study: non-choosers, private school choosers, residential public school choosers, and nonresidential public school choosers. Non-choosers will serve as the reference category in these analyses, as the other three categories are all types of active choosers. With more than two categorical outcomes involved, the primary options for modeling these outcomes are to either (a) include all outcomes in single multinomial models or (b) to restrict the outcomes included in each analysis to the reference category and one of the chooser types.

The first option would lead to a single, multinomial model. The second option, on the other hand, would require at least three separate logistic regression models, including nonchooser vs. private chooser, nonchooser vs. residential public chooser, and nonchooser vs. nonresidential public chooser. Compared to other regression approaches for categorical outcomes, such as ordinal models, both of these approaches are relatively unconstrained. The main disadvantage of the multinomial approach is the difficulty interpreting and communicating results. A multinomial model with three outcomes and a reference category would essentially triple the number of coefficients in the results because a different coefficient for each outcome is calculated for each independent variable in the model. It is not uncommon for models of multiple nominal outcomes to be simplified to logistic regressions in publications in order to make interpretation easier for readers. In this study, the logistic regression approach was used to help clarify interpretation of models. Three sets of logistic regressions with mediation tests were estimated in the initial phase. Details on these models are outlined in a later section.

SEM versus other mediational modeling

Preliminary modeling of chooser status in ECLS 1999 (Weitzel, 2011) indicated that SES was the strongest predictor of chooser status. However, the addition of a parental involvement composite appeared to mediate the relationship between higher SES and the likelihood of being a chooser, though this mediation was not formally tested in the models. School choice commentators have also predicted that choosers may be also be more involved parents in other aspects of education or child development. This study aims to explain the well-established relationship between higher SES and a higher likelihood of participation in school choice. The primary hypothesis examined is whether or not measures of parental involvement explain a substantial portion of the link between SES and chooser status. Accordingly, approaches for testing indirect effects or mediation were considered for this study.

The family process models reviewed in previous sections offer useful examples because these studies also position parental engagement or other home environment factors as a mediator between SES and an outcome. Some of these studies utilize multivariate and SEM approaches (Cheadle, 2009 ; Bodovski & Youn, 2010) while others utilize other methods for testing mediation or indirect effects (Cooper, Crosnoe, Suizzo & Pituch, 2010; Crosnoe & Cooper, 2010; Bodovski & Farkas, 2008). SEM offers some advantages for these family process models. Most notably, SEM enables the utilization of both measurement models and structural models in a single analysis. In other words, SEM allows researchers to define and measure a latent construct like parental involvement and test the role of that factor in a multistep path to an outcome like student achievement.

However, the advantages of SEM for family process models are not necessarily relevant for modeling decisions for this study. The goals of this study with respect to the mediating factor

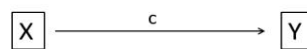
are somewhat different from the goals of the family process models. Essentially, the family process models were examining widely studied outcomes like student achievement or behavior by defining or testing relatively new mediating factors as a link between family background and the outcome. In these circumstances, the measurement model for the new mediating factors is of particular importance. This study, in contrast, is doing something different. This study is testing a new type of observed outcome with relatively established or tested mediators. Accordingly, for this study, the measurement models for the mediators are not a major focus. Other approaches to testing mediation and indirect effects on the outcome were sufficient.

In this study, Sobel tests that have been modified for logistic regression (MacKinnon & Dwyer, 1993) will be used to test mediation models in this study. A brief discussion of issues in measuring mediation for dichotomous outcomes is useful before outlining the details of the approach used in this study.

Mediation in logistic regression

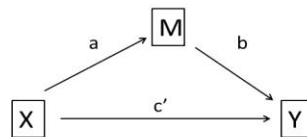
The mediation of X's effect on Y by mediator M is typically measured through three equations:

1: $Y = cX + E1$



2: $M = aX + E2$

3: $Y = bM + c'X + E3$



Equation 1 is the direct effect of X on Y ignoring M. Equation 2 is the effect of X on M, and equation 3 is the effect of both X and M on Y. When the variables involved are of the same

scale, the results from these three equations can be used to calculate the proportion of X's effect on Y that is mediated by the indirect path. The amount of mediation is $c - c' = ab$.

However, in logistic regressions, including those implemented in this study, M and Y are not on the same scale. In this study, M is a z-score parental involvement composite, and Y is a dichotomous outcome. In this case, equation 2 would be a weighted least squares regression predicting a continuous outcome and equations 1 and 3 would be logistic regressions. The three equations can be rewritten with prime markings to designate when outcomes (M and Y) are on different scales.

$$1: Y' = cX + E1$$

$$2: M' = aX + E2$$

$$3: Y'' = bM + c'X + E3$$

To address the scale problem, the coefficients can be standardized by multiplying the coefficients by the standard deviation of the predictor variable (X or M) over the standard deviation of the outcome (M or Y). In simple samples, the standard deviation of X and M can be pulled from descriptive statistics. Drawing from Mackinnon and Dwyer (1993), Kenny (2013) provides equations for calculating the variance (s^2) of Y' , M' , and Y'' .

$$s^2_{Y'} = c^2 s^2_X + \pi^2 / 3$$

$$s^2_{M'} = a^2 s^2_X + \pi^2 / 3$$

$$s^2_{Y''} = c'^2 s^2_X + b^2 s^2_M + 2bc'C_{X,M} + \pi^2 / 3$$

$\pi^2/3$ in this case is the normalized residual in logistic regression. After the coefficients are standardized the amount of mediation can be calculated as before: $c - c' = ab$. Sobel (1982) provides a test to determine if the amount of mediation is statistically significant.

$$c - c' / \sigma_{c-c'} = ab / \sigma_{ab}$$

$\sigma_{c-c'}$ is the standard error of the mediation effect. This calculation provides a z score that can be used to produce a p value.

Notably, Preacher and Hayes (2004, 2008) argue that bootstrap approaches for estimating confidence intervals for mediation tests are superior to Sobel tests. The p value produced by Sobel tests and other related tests assume that ab or $c' - c$ follow a normal distribution. This assumption can be problematic, and the authors suggest bootstrapping the distribution of ab . This approach allows for hypothesis testing without making any assumptions about the distribution of the variables. The bootstrapping process draws a large number of samples from the available data, sampling with replacement, and provides a point estimate and standard error for ab based on those samples. Preacher and Hayes have developed a SAS macro that performs this bootstrapping approach and can handle models with multiple mediators. Unfortunately, to the author's knowledge a macro for this bootstrapping approach with logistic regression models is not available. Also, the concern about Sobel tests outlined by Preacher and Hayes are most relevant for analyses with smaller sample sizes. For larger sample size studies like studies in ECLS, Sobel tests are adequate.

Weights in ECLS

Child-level, teacher-level, and school-level weights are all available in the ECLS data set. Since probabilities were used in the sampling procedure and nonresponse and attrition rates

varied somewhat by population, the weights are used to adjust for these issues and provide a nationally representative sample. The weights vary somewhat based on how many waves of data collection are used in the analysis. The weights for a study solely using the fall kindergarten survey will differ from the weights for a study using both fall and spring kindergarten surveys and studying student growth across that time frame. Different weights are also used depending on the primary instruments data are drawn from for analysis. For example, child-level studies primarily using data from parent surveys have different weights than child-level studies using direct assessments of children.

In this study, a modified or normalized version of the BYPW0 weight was used, which is appropriate for studies using both fall and spring parent survey data. When ECLS weights are used without modification, the counts provided represent the entire age-appropriate population of students in the U.S. In other words, the weights sum to the nationwide population. For example, if a particular demographic was sampled at a rate of 1 in 150, a weight of 150 is used by ECLS to represent the full population. For many studies, however, final counts that are closer to the number of children and parents actually sampled are more appropriate. Using a normalization technique outlined in an ECLS training manual provided at the in-person ECLS trainings in Washington, D.C., the BYPW0 weight was adjusted to more closely represent the number of children and parents assessed while still accounting for varying non-response rates.

Descriptives and simple comparisons of means

Descriptive statistics including means, variances, and frequencies were run for all of the variables listed in tables 2 and 3. These results were crosstabbed by the four chooser status variables as well as collapsed versions of those categories (choosers versus nonchoosers; nonchoosers versus public choosers versus private choosers). Comparisons of means and

frequencies across groups was tested for statistical significance. The Rao-Scott chi-square test, which accounts for the variance estimation necessary in complex samples, was used to test the statistical significance of differences in frequencies. Since there are more than two categories of means, ANOVA tests under PROC SURVEYREG in SAS 9.4 were run to test differences in means.

All comparisons of means and regressions were done with PROC SURVEY commands in SAS 9.4. This group of procedures in SAS is optimized for analysis of results from complex sampling designs. For this study, the use of PROC SURVEY commands is particularly important because they enable variance estimation through the use of ECLS replicate weights provided by NCES. More details on variance estimation are provided in a section below.

Potential racial differences in family processes

Multiple family process researchers have expressed concerns that the results of this type of study may differ substantially by race. For example, Cooper, Crosnoe, Suizzo & Pituch (2010) ran their models separately by race and then with racial interaction effects to address this issue. Bodovoski and Youn (2010) ran multiple group SEMs by race in order to test for racial differences, and Bodovski and Farkas (2008) limited their analysis to white children over concerns that the measurement of concerted cultivation could differ by race. Preliminary modeling of chooser status in ECLS-K: 1999 also found statistically and practically significant interaction effects between race and other predictors. Most notably, the association between SES and participation in school choice was stronger for black and Hispanic families than it was for white families (Weitzel, 2011). Other types of interactions may have been present but were not sufficiently investigated. In short, there is a strong possibility that the associations between family background and participation in school choice examined in this study would differ

somewhat by race. This possibility was investigated by adding racial interactions to promising models in research question #3.

Replicate weights and variance estimation

Most statistical software packages assume that data are drawn from a simple random sample (SRS) in which all individuals have a truly equal chance of being selected into a study sample. Studies like ECLS, however, do not consist of an SRS. The standard errors produced by most statistical software packages will thus be underestimates of the true variation in the sample unless steps are taken to account for the complex sampling procedures used in the study. Variance estimation procedures are a common way to address this issue, and most advanced software packages offer some options for this estimation.

According to the ECLS-K: 2011 Data manual, Jackknife and Taylor Series methods are the most commonly used approaches for variance estimation in ECLS, with the paired jackknife replication method being the primary recommended approach (Tourangeau, Nord, Lê, Sorongon, Hagedorn, Daly, & Najarian, 2012). The jackknife method essentially draws smaller samples of the full sample and calculates an estimate for the survey result of interest. The results from these smaller samples are compared to the estimate produced from the full sample in order to estimate variance and produce the correct standard errors.

For each of the main weights in the ECLS data set, 80 replicate weights are also provided for use in jackknife procedures. The 80 replicate weights correspond to the strata used in the first-stage of sampling in ECLS, which is the stage at which counties were selected. 40 of the replicate weights correspond to the 40 strata of smaller counties that were not self-representing. Those strata typically consist of two sampling units, and the replicate weight doubles the weight

of one of those units and reduces the weight on the other unit to zero. The other 40 replicate weights represent the 10 large counties deemed to be self-representing in the first stage of sampling. Schools within those counties were sorted into 40 strata by a more complex procedure outlined in the ECLS data manual.

Multilevel modeling is another way to get robust standard errors for use in the analysis of complex samples. For this study, however, multilevel modeling was not suitable. Many of the schools included in this analysis are completely schools of choice, meaning that 100% of the sampled population from that school are choosers. Other schools, including most traditional public schools, will include a mix of choosers and nonchoosers. The schools that are 100% choosers create a problem for multilevel modeling. Random intercept models will not fit since many schools will have an intercept equal to 1. Since multilevel modeling was not a viable option, variance estimation with jackknife procedures through the PROC SURVEY commands in SAS were the best way to adjust standard errors for this analysis.

Logistic regression models

The logistic regression models for the three research questions were similar to each other with a few crucial differences. Research question 1 tested a parental involvement or educational investment perspective on school choice, while research question 2 tests a classic stratification perspective. Models for research question 2 were similar to the models for research question 1, except that an additional indicator of parents' education attainment relative to their neighbors was added. The models for research question 3 were similar to those for research question 1 and 2, except that interaction effects between race dummies and SES, concerted cultivation, and classic stratification were added to the models in blocks. For each research question, three separate sets of regressions were conducted: private choosers vs. nonchoosers, non-residential

public choosers vs. nonchoosers, and residential public choosers vs. nonchoosers. Lastly, the regression models for questions 1 and 2 were also run on a restricted sample that was limited to families with SES below the median to see if the SES, concerted cultivation, and classic stratification effects were stronger for this group, as previous research would predict.

Figures 4, 5, and 6 present the models for research questions 1, 2, and 3, respectively. The independent variables have been categorized into blocks based on the family characteristics that they describe. These blocks, which were added to the models in stepwise fashion, include variable groups for race and gender, household characteristics like single parentage and number of children, center-based preschool attendance and parent social capital, and neighborhood characteristics.

Each set of regressions in Figures 4, 5, and 6 were run three times, once for each chooser outcome. The logistic regressions will thus model the odds of being (a) a private school chooser versus a nonchooser, (b) a residential public chooser versus a nonchoosers, and (c) a nonresidential public choosers versus nonchoosers.

Regression models for research question 1

Research Question 1: Does parental educational engagement mediate the link between families' socioeconomic status (SES) and their likelihood of participating in school choice? Figure 4 outlines the regression models that were run for this portion of the study. The three groups of models correspond to the three equations needed for testing mediation, as outlined in the previous section titled Mediation in Logistic Regression. The first set of models regress the mediator, the parent participation composite, on the SES composite and additional controls. The parent participation composite is a continuous z-score, so these models are weighted least

squares (WLS) regressions. The independent variables are added in blocks. The first model includes only the SES composite, and the second model adds the gender and race variables to the model. The third WLS model adds more detailed variables on household composition, including the total # of children in the home and dummy variables for single-parent household, teen mother at first birth, and non-English primary home language. The fourth model adds two dummy variables for participation in Headstart or other center-based preschool. The final WLS model adds two indicators for neighborhood context, the neighborhood disadvantage index and the parent's perception of neighborhood safety. The primary measure of fit used to assess the WLS regression will be r^2 .

The models labeled 1-6 are logistic regressions modeling the odds of being one of three types of choosers. Consistent with the procedure for testing mediation effects, models 1-5 do not include the parent participation mediator. Models 1-5 use the same blocks of variables as the WLS models and add them to the model in the same order. The WLS models and models 1-5 are identical in terms of independent variables but have different outcomes and are different types of regressions. Model 6 is the same as model 5, except the mediator of parental participation is included in each model.

The Akaike information criteria (AIC) will be the primary measure of relative model fit used for the logistic regressions. This index provides relative measures of fit only; it does not provide information on absolute fit. Notably, this measure of fit penalizes for additional independent variables. Comparing these fit indices across models is a good way to gauge the utility of additional blocks of independent variables versus the loss of a more parsimonious model. A rescaled pseudo r^2 will be included as an absolute measure of model fit, though it is important to

Figure 5: Regressions testing association of SES relative to neighborhood with chooser status

| Model # | 5 | 6 | 7 | 8 |
|---------------------------------|---|---|---|---|
| Regression type | Logistic Regression | | | |
| Outcome | Chooser Status: Private chooser vs. nonchooser; Residential public vs. nonchooser; Non-residential public vs. nonchooser | | | |
| | Variables in model | | | |
| Composites | SES composite | SES composite Concerted Cultivation | SES composite High education relative to tract | SES composite High education relative to tract Concerted Cultivation |
| Race & Gender Block | Female Asian Black Hispanic Other race | Female Asian Black Hispanic Other race | Female Asian Black Hispanic Other race | Female Asian Black Hispanic Other race |
| Household characteristics block | Two-parent household Teen mother at first birth Non-English home language # children household | Two-parent household Teen mother at first birth Non-English home language # children household | Two-parent household Teen mother at first birth Non-English home language # children household | Two-parent household Teen mother at first birth Non-English home language # children household |
| Preschool | Head Start preschool Other center-based preschool | Head Start preschool Other center-based preschool | Head Start preschool Other center-based preschool | Head Start preschool Other center-based preschool |
| Neighborhood context | Neighborhood Disadvantage Index Z-score Perception neighborhood safety | Neighborhood Disadvantage Index Z-score Perception neighborhood safety | Neighborhood Disadvantage Index Z-score Perception neighborhood safety | Neighborhood Disadvantage Index Z-score Perception neighborhood safety |
| Model Fit | r ² AIC | r ² AIC | r ² AIC | r ² AIC |

Figure 6: Regressions testing race Interactions with SES, concerted cultivation, and classic stratification Indicators

| Model # | 8 | 9 | 10 | 11 | 12 |
|---------------------------------|--|---|---|---|---|
| Regression type | Logistic Regression | | | | |
| Outcome | Chooser Status: Private chooser vs. nonchooser; Residential public vs. nonchooser; Non-residential public vs. nonchooser | | | | |
| | Variables in model | | | | |
| Composites | SES composite High education relative to tract Concerted Cultivation | SES composite High education relative to tract Concerted Cultivation | SES composite High education relative to tract Concerted Cultivation | SES composite High education relative to tract Concerted Cultivation | SES composite High education relative to tract Concerted Cultivation |
| Race & Gender Block | Female Asian Black Hispanic Other race | Female Asian Black Hispanic Other race | Female Asian Black Hispanic Other race | Female Asian Black Hispanic Other race | Female Asian Black Hispanic Other race |
| Household characteristics block | Two-parent household Teen mother at first birth Non-English home language # children household | Two-parent household Teen mother at first birth Non-English home language # children household | Two-parent household Teen mother at first birth Non-English home language # children household | Two-parent household Teen mother at first birth Non-English home language # children household | Two-parent household Teen mother at first birth Non-English home language # children household |
| Preschool | Head Start preschool Other center-based preschool | Head Start preschool Other center-based preschool | Head Start preschool Other center-based preschool | Head Start preschool Other center-based preschool | Head Start preschool Other center-based preschool |
| Neighborhood context | Neighborhood Disadvantage Index Z-score Perception neighborhood safety | Neighborhood Disadvantage Index Z-score Perception neighborhood safety | Neighborhood Disadvantage Index Z-score Perception neighborhood safety | Neighborhood Disadvantage Index Z-score Perception neighborhood safety | Neighborhood Disadvantage Index Z-score Perception neighborhood safety |
| | | SES Comp* Black SES Comp* Asian SES Comp* Two Races/Other SES Comp* Hispanic | | SES Comp* Black SES Comp* Asian SES Comp* Two Races/Other SES Comp* Hispanic | SES Comp* Black SES Comp* Asian SES Comp* Two Races/Other SES Comp* Hispanic |
| | | | Concert Cultiv Comp* Black Concert Cultiv Comp* Asian Concert Cultiv Comp* Two Races/Other Concert Cultiv Comp* Hispanic | Concert Cultiv Comp* Black Concert Cultiv Comp* Asian Concert Cultiv Comp* Two Races/Other Concert Cultiv Comp* Hispanic | |
| | | | | | High Educ Relative to Tract* Black High Educ Relative to Tract* Asian High Educ Relative to Tract* Two Races/Other High Educ Relative to Tract* Hispanic |
| Model Fit | r ² AIC | r ² AIC | r ² AIC | r ² AIC | r ² AIC |

note that this measure does not truly capture the amount of variance explained by model as it does in ordinary least squares regressions.

After these models were estimated, Sobel tests were run according to the procedure outlined previously. These tests will determine if the mediation of SES's association with choice by parental participation is statistically significant. It is anticipated that these tests will find significant mediation.

Regression models for research question 2

Research Question 2: Does parents' socioeconomic status relative to their neighbors affect their likelihood of participating in school choice? The second research question examines a hypothesis derived from classic stratification theory. In this theory, families' patterns of consumption are one of the hallmarks of their social class. Extending this perspective to school choice, one might anticipate that families at the upper end of the economic distribution in a neighborhood would be more inclined to seek schooling options different than their less affluent neighbors. In this view, school choice is positioned as a status marker or positional good, rather than a step in a larger pattern of educational investment. Since restricted use ECLS:K: 2011 data includes the census tract number of the respondent's residence and American Community Survey data includes basic SES indicators at the tract level, this hypothesis can be tested in this study.

This hypothesis can be articulated in more detail in relation to the different types of chooser outcomes used in this study. A census tract typically consists of 1,200 to 8,000 total residents and follows existing governmental borders whenever possible. In the vast majority of cases, residents of the same census tract will be assigned to the same traditional public school district and often will be assigned to the same public school. If the more affluent families in a

neighborhood are looking to distinguish themselves from their less affluent neighbors through school choice, presumably they would attempt to send their children to something other than the local public school. In this study, residential public choosers are typically attending a traditional public school, while private school choosers and nonresidential public choosers are not. So, if the hypothesis derived from classic stratification theory is correct, being more affluent than one's neighbors should have a stronger association with private school and nonresidential public choice, after controlling for the main household SES effect.

It is important to keep in mind that higher SES is positively associated with being a chooser, regardless of a family's economic position in their neighborhood. A single variable indicating affluence relative to the neighborhood will likely have a positive association with choice, but that could simply be due the family's higher SES rather than their relative position. So, it will be important in this study to distinguish the main SES effect from the potential boost in the likelihood of choice coming from a family's relative socioeconomic position in their neighborhood.

Also, the main SES composite used in this study is a continuous z-score, while the limitations of census data do not allow for the calculation of a continuous measure of relative economic position. For this study, relative economic position is captured with a dummy variable related to educational attainment. This dummy variable indicates if the parents in a family have educational attainment levels above the median in the neighborhood. In a neighborhood where the median education level is a high school diploma, a family whose parents have bachelor's degrees will be flagged by this variable.

As indicated in Figure 5, the models for research question 2 are basically identical to those in research question 1, apart from the inclusion of the new relative SES indicator. Models 5-6 are the final two models from research question 1. Model 7 adds the relative-to-neighborhood SES indicator, and Model 8 includes both this indicator and the concerted cultivation composite.

For the logistic regression models of chooser status the variable indicating high relative SES was expected to be positively associated with private school choice and nonresidential public choice above and beyond the main SES effect. The main effect for high relative SES on the outcome of residential public choice is expected to be small or perhaps even negative. The inclusion of the relative SES measures was expected to moderately improve the AIC for the models of private choice and nonresidential public choice.

Regression models for research question 3

Research question 3: Do the absolute SES, relative SES, and concerted cultivation effects on choice participation vary by race? Prior studies of choosers in ECLS by the author found stronger SES effects for some racial groups, and other research has suggested that concerted cultivation effects on achievement outcomes may differ by race. Accordingly, racial interaction effects for the major predictors and mediators of interest in this study were added to the models for this research question. As outlined in Figure 6, the starting point is model 8 from research question 2. SES and race interactions were added in model 9, and concerted cultivation and race interaction were added in model 10. Model 11 included the racial interactions for both SES and concerted cultivation. In Model 12, racial interactions for the indicator of high educational attainment relative to census tract were included, along with racial interactions for the main SES effect.

Model selection and model fit

As noted earlier, model selection in this study was primarily based on sociological theory, school choice research, and the author's previous study of these outcomes in ECLS-K 1999. Nonetheless, related predictors were added in stepwise blocks in order to assess their contribution to both relative and absolute measures of model fit. For model building in this study, the Akaike Information Criteria or AIC value was used as a relative measure of model fit. AIC is particularly useful for these purposes because it is biased in favor of parsimony. The AIC is calculated as below, where p is the number of parameters in the model.

$$AIC = -2 \log L + 2p$$

Unlike absolute measures of model fit, AIC penalizes for the addition of more predictors, meaning that a new predictor that makes only small contributions to overall model fit can actually lead to an increase in AIC, where smaller values indicate better fit. When determining if an additional predictor should be retained in the model, researchers typically look for a reduction of AIC of two points or more after the new predictor is added.

The absolute measure provided with these results is a rescaled pseudo r^2 . The Cox and Snell (1989) pseudo r^2 is calculated where $L(\mathbf{0})$ is the likelihood of the intercept only model,

$$R^2 = 1 - \left\{ \frac{L(\mathbf{0})}{L(\hat{\boldsymbol{\theta}})} \right\}^{\frac{2}{n}}$$

and $L(\hat{\boldsymbol{\theta}})$ is the likelihood of the specific model, and n is the sample size. Because this approach can have a maximum value of less than 1 in some circumstances, Nagelkerke (1991) proposed rescaling the value. This rescaled pseudo r^2 is the absolute measure of fit used in this

study.
$$\tilde{R}^2 = \frac{R^2}{R_{\max}^2}$$

CHAPTER 4: RESULTS

The results in this chapter are divided into four sections corresponding to the following research questions. 1) Does parental educational engagement or concerted cultivation predict choice and mediate the link between families' socioeconomic status (SES) and their likelihood of participating in school choice? 2) Does a family's socioeconomic status relative to their neighbors affect their likelihood of participating in school choice, as classic stratification theory would suggest? 3) Do the absolute SES, relative SES, and concerted cultivation effects on choice participation vary by race?

Section 1 of this chapter provides descriptive analyses and simple comparisons of means and frequencies among the different types of choosers. On most measures, private school choosers are the most advantaged or affluent group, and non-residential public choosers are the second most advantaged group behind private choosers. Residential choosers in urban areas are still more advantaged than nonchoosers, but they are more demographically and socioeconomically similar to nonchoosers than they are to private school and non-residential choosers.

Section 2 presents logistic regression results in which the three chooser types are separately modeled against nonchoosers. For each chooser-nonchooser pairing, three sets of regressions are conducted to test the extent to which concerted cultivation mediates the relationship between SES and active participation in school choice. Overall model fit is the best for private chooser/ nonchooser models, and SES is a stronger predictor of chooser status for these models than for non-residential and residential public chooser models. The second best

model fit is for non-residential public choosers models, and the models of residential choosers have the worst model fit. Outcomes for urban residential choosers suggest a different demographic and preschool profile for this group compared to other types of choosers and compared to residential choosers in suburban areas.

The addition of a concerted cultivation composite substantially improves both absolute (r^2) and relative (AIC) measures of model fit for all three chooser/nonchooser pairs. Concerted cultivation (CC) mediates 9 - 24% of SES's effect on the odds of being a chooser, with the extent of mediation being the largest for residential choosers and smallest for private school choosers. Interestingly, CC's association with chooser status and its mediation of SES's effect is very sensitive to the variables included in the composite. A CC composite was calculated from ECLS that includes costly activities like dance lessons, music lessons, and the number of books in the home. Another parental involvement composite was developed that includes lower cost measures like parent attitudes or activities like reading at home with children. A CC composite consisting of higher cost activities is a much better predictor of chooser status than a low cost composite, which often has little or no association with chooser status. The high cost CC composites improve model fit much better than low cost or mixed CC composites and more substantially mediate SES's association with chooser status. The results provide preliminary support for the idea that participation in school choice is more heavily influenced by a family's opportunity and mobility than it is by parents' attitudes or engagement in their children's education.

Section 3 presents results from models testing whether or not family's SES relative to their neighborhood increases their likelihood of participating in school choice above and beyond their absolute SES. This hypothesis, which is derived from classic stratification theory, is tested

with a measure of parents' education level relative to the median education level in their census tract. As predicted, this indicator has a stronger association with private school choice than residential or non-residential public school choice. For private school choice, the addition of the indicator improves relative model fit, and the positive association between private school choice and being above the median education level for a census tract approaches statistical significance. The evidence in this exploratory analysis is not sufficient to either confirm or rule out this classic stratification hypothesis. Better indicators of parents' SES relative to their neighborhood are needed to test the hypothesis more thoroughly.

Section 4 examines whether or not the strength of the association between SES, CC, and relative SES and participation in school choice differs by race. When interaction effects between SES and race/ethnicity dummy variables are added to the models, both absolute and relative measures of model fit improve substantially. Results indicate that higher SES has a much stronger association with participation in non-residential or private school choice for black and Hispanic families than it does for White and Asian families. For participation in residential public school choice, SES has a weaker association with participation for black and Hispanic families than it does for White and Asian families. These results are consistent with earlier findings suggesting that residential public school choice in urban areas is a relatively distinct phenomenon from suburban residential choice or private and non-residential choice in urban areas. The addition of CC and race interactions only made modest improvements to model fit, but it did reveal stronger CC effects for black and Hispanic families, with particularly strong effects for Hispanic families. The addition of race interactions to the indicators of high SES relative to one's neighborhood improved model fit and changed the effects considerably.

Having higher educational attainment than one's neighbors was positively associated with private and non-residential choice for white and black families, but not for other groups.

Descriptives and Comparisons of Means and Frequencies

Results in this section crosstab the four chooser types (non-choosers, residential public choosers, non-residential public choosers, and private choosers) against a range of demographic, socioeconomic, and family composition indicators. ProcSurvey Reg and ProSurvey Freq functions in SAS were used with jackknife variation estimation to account for the complex sampling design in ECLS. Rao-Scott chi-square tests, which account for sampling design, are used to test frequency differences, and ANOVAs are used to test differences in continuous variables.

Chooser types

Table 1 provides the counts and proportions of the four chooser types included in the analytic samples. 46% of the families included were non-choosers, meaning that they described their school as "assigned" and they did *not* state that the school affected their housing location. Residential public school choosers were the second largest group at 27%. Non-residential public school choosers, who stated that their school was chosen but not through residential selection, comprise 14% of the sample. Private school choosers are 13% of the sample. All chooser types have more than 400 families represented, and there are nearly 1,500 non-choosers.

Table 1: Chooser types

| Chooser type | Weighted N | % of total |
|---------------------------------|------------|------------|
| Non-Chooser | 1492 | 45.49% |
| Residential Public Choosers | 870 | 26.52% |
| Non-Residential Public Choosers | 465 | 14.18% |
| Private School Choosers | 453 | 13.81% |
| Total | 3280 | |

Gender, Race, and Ethnicity

Table 2 presents the child's gender and race/ethnicity distributions for the four chooser types. There are no statistically significant differences in child's gender across the chooser types. Whites are overrepresented in the private chooser and non-residential chooser populations, at 53.3% and 35% respectively, compared to the nonchooser and residential chooser groups. Hispanic students constitute almost twice the proportion of non-choosers (42%) as they do private choosers (23%). Black students constitute 15 to 20% of the population for all chooser types. Asian students are somewhat overrepresented among residential choosers at 9% of the population, compared to 4 to 7% of the other chooser types.

Table 2: Child Race and Gender by Chooser Type

| Race / Gender | Non-residential | | | |
|---------------------------------|-----------------|----------------------------|----------------|-----------------|
| | Non-chooser | Residential Public Chooser | Public Chooser | Private Chooser |
| Female | 49.8% | 50.3% | 47.5% | 50.7% |
| Hispanic | 42.2%** | 38.2%** | 33.0%** | 22.5%** |
| White (Non-Hispanic) | 27.4%** | 27.9%** | 35.0%** | 53.3%** |
| Black (Non-Hispanic) | 19.6% | 19.8% | 18.4% | 15.0% |
| Asian (Non-Hispanic) | 4.4%* | 8.7%* | 6.5%* | 5.2%* |
| Two races/ Other (Non-Hispanic) | 6.5% | 5.3% | 7.1% | 4.0% |

** Rao Scott Chi-Square $P < .001$

* Rao Scott Chi-Square $P < .01$

Socioeconomic status

Table 3 presents three measures of average socioeconomic status and one measure of parents' employment status for the four chooser types. The standardized SES composite consists of maternal and paternal educational attainment, household income, and maternal and paternal job prestige. A score of zero represents the national average. As with many of the socioeconomic and family composition measures in this study, private choosers tend to be the most advantaged group here, followed by non-residential public choosers. Non-choosers tend to be the least advantaged group, while residential choosers are slightly more advantaged than non-choosers on average.

Non-choosers have the lowest average SES score, almost half a standard deviation below the national average. Residential choosers have a slightly higher average score, at 0.3 of a standard deviation below the mean. Non-residential public choosers are slightly below the national average on the SES composite. Private choosers are almost half a standard deviation above the national average and are nearly 0.9 of a standard deviation above non-choosers. A similar pattern emerges for the standardized job prestige composite. Private choosers are .55 above the national average and almost three-quarters of a standard deviation above non-choosers. Nearly 90% of private school choosers have at least one parent who is employed full-time compared to 68% and 71% of non-chooser and residential public choosers, respectively.

Differences in parents' educational attainment are particularly stark. Non-residential public choosers are almost twice as likely as non-choosers to have at least one parent with a bachelor's degree or higher, despite having similar job prestige scores on average. Likewise, private choosers are 3.5 times as likely as non-choosers to have at least one parent with a bachelor's or higher.

School type attended

Table 4 outlines the types of schools attended by the four different chooser types. 86% of nonchoosers attend traditional public schools (TPS) with the remainder attending magnet schools. Attendance at a magnet school does not necessarily indicate choice, since many magnets have enrollment plans that guarantee spots for kids in the neighborhoods around the school. 80% of residential choosers attend TPSs, 18% attend magnets, and interestingly, 1.5%

Table 3: Socioeconomic Status Indicators by Chooser Type

| | Non- chooser | Residential Public Chooser | Non- residential Public Chooser | Private Chooser |
|---|-----------------|----------------------------------|--|--------------------|
| SES Z-score composite | -0.42 | -0.29* | -.09** | 0.44** |
| Job prestige Z-score | -0.17 | -0.05* | -.13** | 0.55** |
| Parent education: Bachelor's degree or higher | 21.1% ^ | 30.2% ^ | 37.8% ^ | 72.0% ^ |
| At least one parent full-time employed | 68.2% ^ | 71.3% ^ | 76.2% ^ | 87.5% ^ |

* ANOVA with Jackknife Variance Estimation $p \leq .05$

** ANOVA with Jackknife Variance Estimation $p < .001$

^ Rao Scott Chi-Square $p < .001$

attend charter schools. Although residing in a particular area is not required for charter school attendance, geographic proximity has been shown to be one of the leading factors in parents' school selections. So it is not entirely surprising that some families would have their location of residence affected by their preference for a charter school. A majority of charter school attendees, however, are non-residential public choosers. 14.5% of the kids in this group attend charters, 30% attend magnets or other public schools of choice, and 56% attend TPSs.

Table 4: School type by Chooser type

| Chooser type | Regular Public School | Magnet, School of Choice, Other Public | Charter School | Private School |
|---------------------------------|--------------------------|---|-------------------|-------------------|
| Non-Choosers | 85.8% | 14.2% | 0% | 0% |
| Residential Public Choosers | 80.4% | 18.1% | 1.5% | 0% |
| Non-Residential Public Choosers | 55.9% | 29.5% | 14.5% | 0% |
| Private School Choosers | 0% | 0% | 0% | 100% |

Household characteristics

Table 5 outlines household size and other parent characteristics for the four types of choosers. The average non-chooser household has 4.8 individuals, compared to 4.3 for private choosers. As with many descriptive outcomes, residential and non-residential public choosers fall in between private choosers and non-choosers on this indicator. Over 80% of private choosers live in two-parent households with parents that are currently married. About two-thirds of non-choosers live in two-parent households, and residential and non-residential public choosers are slightly higher at 70% and 71% respectively. Over 35% of non-choosers and residential chooser mothers were teenagers when they first had a child, compared to 32% of non-residential public chooser mothers and only 9% of private school mothers.

Center-based preschool

Table 6 presents the proportion of students who had center-based daycare arrangements in the year preceding kindergarten. Combining Head Start and other center-based arrangements, 69% of non-choosers and 65% of residential public chooser had center-based care. Not surprisingly, private choosers had the lowest proportion of Head Start enrollment at 6%. Center-based preschool was particularly prevalent among non-residential public choosers with 84%

participation. Combining Head Start and other center-based arrangements, private choosers and non-residential public choosers have essentially the same overall participation rate.

Table 5: Household size and parent characteristics

| | Non- chooser | Residential Public Chooser | Non- residential Public Chooser | Private Chooser |
|---------------------------------|-----------------|----------------------------------|--|--------------------|
| Number of children in household | 2.65 | 2.66 | 2.53 | 2.27** |
| Total in household | 4.78 | 4.73 | 4.53** | 4.27** |
| Two-parent household | 67.6%^ | 69.7%^ | 71.0%^ | 83.4%^ |
| Teen mother at first birth | 36.8%^ | 35.2%^ | 31.6%^ | 9.0%^ |
| Parents currently married | 54.4%^ | 58.0%^ | 61.3%^ | 80.6%^ |

* ANOVA with Jackknife Variance Estimation $P \leq .05$

** ANOVA with Jackknife Variance Estimation $P < .001$

^ Rao Scott Chi-Square $P < .001$

Table 6: Center-based daycare before kindergarten

| | Non- chooser | Residential Public Chooser | Non- residential Public Chooser | Private Chooser |
|----------------------------|-----------------|----------------------------------|--|--------------------|
| Head Start | 20.7%^ | 18.5%^ | 19.2%^ | 6.1%^ |
| Other center-based daycare | 48.7%^ | 46.3%^ | 64.3%^ | 77.6%^ |

^ Rao Scott Chi-Square $P < .001$

Home language

Table 7 presents the proportion of families in each chooser group that report sometimes using non-English languages at home. This variable was selected rather than the child's LEP status because the parents and the household environment are the greater emphasis in this study. Over a quarter of families in all student groups sometimes used non-English languages.

Residential choosers have the highest proportion of these families at 47%, followed by 44% of non-choosers, 34% of non-residential public choosers, and 26% of private choosers.

Table 7: Home language

| | Non-chooser | Residential Public Chooser | Non-residential Public Chooser | Private Chooser |
|---|-------------|-------------------------------|-----------------------------------|--------------------|
| Non-English language sometimes used at home | 43.5%^ | 46.9%^ | 34.1%^ | 25.7%^ |

^ Rao Scott Chi-Square $P < .001$

SES relative to neighborhood

One of the hypotheses tested in this study concerns the socioeconomic status of choosers and nonchoosers *relative* to their residential context. In other words, are choosers more likely to be better off than their neighbors, regardless of their absolute SES level? The upper half of Table 8 provides data on the median educational levels of the census tracts in which the four chooser types reside. The lower half of Table 8 provides data on the proportion of parents with educational attainment levels above or below the median for their neighborhood, broken out by chooser type. The outcome in this table is a 9-level set of educational attainment categories with “8th grade or below” as the lowest level and “doctorate or professional degree” as the highest level.

Looking at the median education level in their respective census tracts, choosers live in more educated neighborhoods than nonchoosers. Over half of non-choosers live in neighborhoods where the median education level is high school or lower. In comparison, 42-43% of residential and non-residential public choosers and only 24% of private choosers live in such tracts.

Turning to parents' education level relative to their neighborhood median, fairly large gaps are evident between the types of choosers. Residential choosers are similar to non-choosers in that about 40% of surveyed parents had educational attainment levels above the median for their neighborhood. Since schools and neighborhoods are tied together for residential choosers and many choosers will often pick schools with families similar to themselves, it is perhaps not surprising that families moving into a neighborhood for the schools would often be close to the median in the area socioeconomically.

Likewise, since non-residential public choosers and private choosers are picking schools other than their assigned neighborhood school, one might anticipate that these groups would be more likely to have educational levels above the median for their neighborhood. Indeed, over half of non-residential public choosers have education levels above the median, and another 27% are at the median. 89% of private choosers are either at or above the neighborhood median education level, and 70% are above it.

Private choosers live in more educated neighborhoods than non-choosers and are still much more likely to be above the median education level in those tracts. This finding does not necessarily provide support for a classic stratification hypothesis, however, since high SES and being more educated than your neighbors are correlated. Regression analyses including both SES and relative education level indicators will be needed to determine if being more educated than one's neighbors is predictive of private school choice above and beyond the association with SES.

Table 8: Education attainment in Census Tract and Parents' Education Level in Relation to Their Neighborhood

| | Non- chooser | Residential Public Chooser | Non- residential Public Chooser | Private Chooser |
|--|-----------------|----------------------------------|--|--------------------|
| Neighborhood median ed level HS diploma or lower | 52.6%^ | 42.5%^ | 42.4%^ | 23.8^ |
| Neighborhood median ed level bachelor's degree or higher | 7.4%^ | 15.1%^ | 11.4%^ | 26.9%^ |
| Parent ed level is higher than neighborhood median | 37.8%^ | 40.4%^ | 51.8% | 69.5%^ |
| Parent ed level is lower than neighborhood median | 30.8%^ | 31.7% | 21.5%^ | 10.7%^ |

^ Rao Scott Chi-Square $P < .001$

Neighborhood disadvantage index

The Neighborhood Disadvantage Index (Sampson & Raudenbush, 1999) provides another way to look at the census tracts in which different types of choosers reside. The index is a commonly used composite consisting of the proportions of residents in a neighborhood that are below the poverty line, unemployed, a female head of household, black, or under the age of 18. High scores on the index indicate a more disadvantaged neighborhood. Table 9 provides raw and regionally adjusted standardized Disadvantage Index scores for the different chooser types. Regional adjustments in the Disadvantage Index are necessary in a national study because the index was designed and implemented at a time and place with relatively little Hispanic population. Non-choosers, on average, live in neighborhoods with Disadvantage scores .14 standard deviations above the mean, indicating their neighborhoods are more disadvantaged than the national average. Residential and non-residential choosers have scores at the mean essentially, and private choosers are .43 standard deviations below the mean and .57 standard deviations below non-choosers, on average. The last row in the table presents the proportion of

families that live in particularly disadvantaged neighborhoods, those with an index score more than one standard deviation above the mean. About 10% of private choosers live in these neighborhoods, less than would be anticipated in a normal distribution. About 21% of non-choosers live in these neighborhoods, more than would be anticipated in a normal distribution.

Perceptions of neighborhood safety

Parents in ECLS were also asked about their perceptions of dangers in their neighborhood. Since concerns about the neighborhood could motivate parents to pursue schools outside of the area, it may be useful to examine parents' responses on these items. Table 10

Table 9: Neighborhood Disadvantage Components by Chooser Type

| | Non- chooser | Residential Public Chooser | Non- residential Public Chooser | Private Chooser |
|--|-----------------|----------------------------------|--|--------------------|
| Poverty rate | 17.9% | 15.9%* | 17.3% | 11.1%** |
| Percent of family households with female head | 27.6% | 25.3%* | 27.4% | 20.2%** |
| Unemployment rate | 9.8% | 7.7%* | 9.8% | 9.3% |
| Percent under age 18 | 26.9% | 25.5% | 24.7%* | 26.4% |
| Percent black | 19.7% | 17.2% | 17.5% | 14.40% |

** ANOVA with Jackknife Variance Estimation $P < .001$

* ANOVA with Jackknife Variance Estimation $P \leq .05$

presents score frequencies on a composite variable consisting of three questions. The first question ask parents how safe it is for children to play in the area, and questions 2 and 3 ask about the extent to which drug use and burglary are problems in the area. Among attendees of publicly-funded schools, differences are present but they are not particularly large. 40% of

nonchoosers reported no problems, compared to 48% of residential choosers and 46% of non-residential choosers. 57% of private choosers reported no problems, 17 percentile points more than nonchoosers. 11-14% of attendees of publicly-funded schools report problems on all three issues, compared to 7% of private choosers.

Concerted cultivation and parental engagement composites

One of the key research questions in this study concerns concerted cultivation, a theory on how middle and upper class parents transmit the skills and tacit knowledge to their children, leading to class reproduction over time. This study examines the extent to which measures of concerted cultivation improve models predicting school choice and mediate the relationship between SES and active participation in choice. Four groups of variables were considered for

Table 10: Perceptions of Neighborhood Problems

| | Non- chooser | Residential Public Chooser | Non- residential Public Chooser | Private Chooser |
|--|-----------------|----------------------------------|--|--------------------|
| Zero Reported Problems; Perceived Very Safe | 40.2%^ | 48.5%^ | 45.9%^ | 56.9%^ |
| Problem reported on 1 issue (Safe to play, drugs in area, or burglary) | 27.6%^ | 27.1%^ | 26.0%^ | 26.9%^ |
| Problem reported on 2 issues (Safe to play, drugs in area, or burglary) | 17.8%^ | 13.9%^ | 15.8%^ | 9.5%^ |
| Problem reported on all 3 issues (Safe to play, drugs in area, and burglary) | 14.3%^ | 10.5%^ | 12.3%^ | 6.5%^ |

^ Rao-Scott Chi-Square $p < .001$

inclusion in concerted cultivation or parental involvement composites in this study. These measures include the frequency of educational and enrichment activities outside the home (e.g.

dance lessons, music lessons), the number of books in the home, the frequency of educational and enrichment activities inside the home (e.g. reading books, doing art), and parents' attitudes on the importance of children's academic readiness for kindergarten. In an effort to see if parental involvement's connection to school choice was more about means or parental attitudes and priorities, "high cost" activities like extracurricular enrichment were separated from "low cost" activities like reading and doing art at home.

Table 11 presents standardized scores for each of these groups of measures, broken out by chooser type. Interestingly, the gaps between nonchoosers and different types of choosers vary widely based on the type of measure being examined. The gaps between choosers and nonchoosers are much larger for the composites measuring the number of books in the home and the frequency of enrichment activities outside the home. On those two composites, the gaps between private choosers and nonchoosers are about two-thirds of a standard deviation and the gaps between non-residential public choosers and nonchoosers are .32 to .35 standard deviations. In contrast, the gaps between these chooser types and nonchoosers are statistically insignificant and almost non-existent on measures of home-based educational activities and parent attitudes on kindergarten readiness. It is perhaps not surprising that the number of books in a child's home is somewhat predictive of their participation in school choice, but it *is* surprising that their reading and other educational engagement at home is *not* predictive. The "high cost" concerted cultivation measures, those with large gaps, typically require direct expenditures, transportation costs, and opportunity costs. The second set of measures, which have small or nonexistent gaps, largely involve opportunity costs and parent attitudes. Parents scoring high on any of these measures have seemingly demonstrated a willingness to invest a substantial portion of their time and energy into educational enrichment for their children, yet only the activities involving

mobility and cash expenditures seem to be associated with active participation in school choice.

This issue will be investigated further in the regressions conducted for this study.

Table 11: Concerted Cultivation Indicators by Chooser Type

| | Non- chooser | Residential Public Chooser | Non- residential Public Chooser | Private Chooser |
|---|-----------------|----------------------------------|--|--------------------|
| Concerted Cultivation involving direct expenditures and transportation | | | | |
| Z-score Activities outside the home (dance, music, etc.) | -0.16 | -0.06* | 0.16** | 0.49** |
| Z-score Number of children's books at home | -0.15 | -0.07 | 0.20** | 0.45** |
| Concerted Cultivation involving attitudes and opportunity costs | | | | |
| Z-score Home-based educational activities (reading, drawing, etc.) | -0.05 | 0.03 | 0.03 | 0.07 |
| Z-score Attitudes on kindergarten readiness, 3 academic indicators | 0.00 | -0.04 | 0.05 | 0.03 |

* ANOVA with Jackknife Variance Estimation $P \leq .05$

** ANOVA with Jackknife Variance Estimation $P < .001$

Parental depression

Family process models suggest that parental well being may affect parents' ability or inclination to perform some aspects of parenting. Table 12 presents parents' average scores on a depression composite, broken out by chooser type. This composite consists of three questions concerning the frequency with which responding parents felt sad or depressed. The vast majority of respondents reported no or minor depression symptoms. Private choosers are somewhat less likely to report being depressed than public choosers and non-choosers. 8% of

private choosers report these symptoms, compared to 15.5% of non-choosers and 11.6% of non-residential choosers.

Table 12: Parent Depression by Chooser Type

| | Non- chooser | Residential Public Chooser | Non- residential Public Chooser | Private Chooser |
|---|-----------------|----------------------------------|--|--------------------|
| No reports of depression symptoms | 59.4%* | 60.4%* | 63.1%* | 67.9%* |
| Self reports of moderate or worse depression symptoms | 15.5%* | 14.3%* | 11.6%* | 7.9%* |

* Rao-Scott Likelihood Ratio $p < .05$

Child's attentiveness and eagerness to learn

Human capital perspectives would suggest that parents would be more likely to undertake the costs associated with school choice if they perceive that their children would benefit from the seemingly improved schooling that choice would provide. Table 13 compares how nonchoosers and different types of choosers rated their child on a four-point scale on six questions concerning their attentiveness, helpfulness, and eagerness to learn. These results were totaled and standardized. Private choosers rated their children about half of standard deviation higher than nonchoosers and two-tenths of standard deviation higher than non-residential public choosers. About one-third of private choosers rated their children very high on this scale, compared to about 20% of the other groups.

Table 13: Parents' Rating of Child's Attentiveness

| | Non- chooser | Residential Public Chooser | Non- residential Public Chooser | Private Chooser |
|----------------------------|-----------------|----------------------------------|--|--------------------|
| Attentiveness Z-score mean | -0.09 | 0.08* | 0.16** | 0.38** |
| High Attentiveness Z-score | 18.2% ^ | 23.4% ^ | 19.0% ^ | 32.0% ^ |

* ANOVA with Jackknife Variance Estimation $P \leq .05$

** ANOVA with Jackknife Variance Estimation $P < .001$

^ Rao Scott chi-square $P < .001$

Regression Models

There are three major groups of logistic regressions in this study, one corresponding to each research question. 1) The first group is a mediation analysis testing the extent to which a concerted cultivation composite mediates the relationship between SES and active participation in school choice. 2) The second group of regressions examines the extent to which families' status relative to their neighborhood predicts their participation in school choice after accounting for their absolute SES. 3) The last group of regressions adds interaction effects to the models to examine whether or not the association between SES and school choice varies by race.

Within each of these groups, there are three binary logistic regressions in which nonchoosers are the reference category. The cases included in the analysis are restricted accordingly. In other words, the residential choosers regressions include only non-choosers and residential choosers in the dataset, and the model predicts the odds of a child's family being residential choosers. The other two sets of logistic regressions are nonchoosers with nonresidential public choosers and nonchoosers with private school choosers.

Although all four outcomes could be included in a multinomial regression model, this approach offers a few advantages. First, multinomial models can be cumbersome to interpret.

Since this study is an exploratory analysis, there is a high priority placed on interpretation of the results. Second, estimating separate models for the different types of choosers allows for the models to differ if particular predictors are deemed to be irrelevant for the outcome in question. For example, having an SES higher than one's neighbors is predicted to be positively associated with private school choice but not necessarily associated with residential choice.

Mediation of SES's association with school choice

Research question 1 concerns the extent to which a concerted cultivation composite mediates the association between SES and active participation in school choice. Testing this mediation requires three regressions. First, the mediator, concerted cultivation, is treated as the outcome in step 1. Then the school choice outcome is regressed on SES in Step 2, and finally, the school choice outcome is regressed on both SES and the concerted cultivation mediator in Step 3. The percentage of SES effect on the school choice outcome that is mediated by concerted cultivation can be then be calculated. Because the Step 1 outcome, the concerted cultivation composite, is continuous, and the Step 2 and 3 outcomes are categorical, the effects have to be standardized following Mackinnon and Dwyer (1993) before the mediation calculation can be made.

Step 1: Concerted cultivation as outcome

The concerted cultivation Z-score composite was regressed on SES and the other predictors outlined in Figure 2. This analysis was conducted with three sets of cases: (a) nonchoosers and residential public choosers, (b) nonchoosers and nonresidential public choosers, and (c) nonchoosers and private school choosers. These regressions are not of primary interest in this study, as they are conducted mainly to enable a mediation test. Accordingly, these results

are briefly summarized rather than fully presented in tables. Full tables are available upon request.

The results were very consistent across all three sets of cases. The models were reasonably good predictors of concerted cultivation values, with r^2 values ranging from .25 for the non-residential chooser model to .27 for the private chooser model. The SES z-score was a strong predictor of concerted cultivation in each model. In the private chooser/nonchooser model, a one standard deviation (SD) increase in SES was associated with a .25 SD increase in concerted cultivation, after controlling FOR a host of other background factors. In the residential chooser and non-residential chooser models, a 1 SD increase in SES was associated with a .21 SD and .24 SD increase in concerted cultivation, respectively.

Other predictors in these models included dummies for gender, race/ethnicity, two-parent household, teen mother at first birth, non-English language spoken at home, and center-based preschool and Headstart preschool attendance in the year preceding Kindergarten. The number of children in the household and a Neighborhood Disadvantage Index z-score were also included in the models. Six of these predictors have statistically significant associations with concerted cultivation across all three sets of cases. Having a female child and attendance at Headstart or other center-based preschools were positively associated with concerted cultivation. These positive effects were relatively small, ranging from .07 to .09 SDs. Negative effects for Asians and for families that use non-English languages at home were larger. Being Asian was associated with a .27 to .32 SD decrease in concerted cultivation, and use of a non-English language was associated with a .13 to .17 SD decrease. Being black or Hispanic had negative effects on concerted cultivations ranging from .05 to .09 SDs, and these effects approached

statistical significance at times. Lastly, each additional child in a household was associated with a .01 to .02 SD decrease in concerted cultivation.

Selection of which concerted cultivation composite for inclusion in models

As noted in the descriptive analyses section, the size of the gap in concerted cultivation behaviors between choosers and nonchoosers was very sensitive to the types of measures included in the concerted cultivation composite. When the composite consisted of “expensive” measures like dance lessons, music lessons, and the number of books in the home, the gaps between choosers and nonchoosers were moderately large and statistically significant. However, when the composite consisted of attitudinal measures and lower cost activities like reading at home, the gaps between choosers and nonchoosers almost vanished. Before proceeding to the Step 2 and Step 3 logistic regressions in the mediation analysis, it is worth examining which of these composites would be best to include in the regression models. While it seems likely that the first composite consisting of higher costs activities will be a better predictor of choice activity, it is possible that the lower cost composite could also be a decent predictor of choice after accounting for all of the other family background controls. One might anticipate that the amount of time spent doing educational enrichment activities at home would be associated with school choice, after controlling for family background.

These two different composites, the “resource intensive” composite and the “low cost” composite, were tested in logistic regressions predicting the three types of choosers. Table 14 summarizes the effect on model fit of adding the two different concerted cultivation composites to the models. The odds ratios associated with one standard deviation increase in each concerted cultivation composite are also presented. The differences between the “resource-intensive” and “low cost” composites are quite stark. The addition of the “resource-intensive” composite to the

models predicting each type of chooser substantially improved relative model fit. AIC values declined by 17 to 25 points. This composite was moderately strongly associated with participation in choice. A one standard deviation increase in this composite is associated with a 1.7 odds ratio for private choosers, a 1.5 odds ratio for nonresidential public choosers, and 1.4 odds ratio for residential choosers. All of these effects were significant with a $p < .001$. Surprisingly, the “low cost” parental involvement composite has almost no positive association with choice. AIC values indicate that the addition of this composite to the models made almost no improvement to model fit. Likewise, the odds ratios for a one standard deviation increase in this composite were not significantly different from 1.0 for all three types of choosers. Based on these results, only the “resource-intensive” composite was included in the logistic regression models in the rest of the study.

Table 14: Comparison of Different Concerted Cultivation Composites

| | <i>Resource-intensive Concerted Cultivation Composite</i> | | <i>Low Cost Concerted Cultivation Composite</i> | |
|--|---|------------|---|------------|
| | Change in AIC | Odds ratio | Change in AIC | Odds ratio |
| Private Choosers/ Nonchooser | -25 | 1.7** | + 2 | 1.1 |
| Nonresidential Public Choosers/ Nonchoosers | -18 | 1.5** | +1 | 1.1 |
| Residential Public Choosers/Nonchoosers | -17 | 1.4** | +2 | 1.0 |

** $p < .001$

Mediation step 2 and step 3 regressions: Private school choosers and nonchoosers

Table 15 presents results of logistic regressions modeling the odds of being a private school chooser. The dataset for these regressions includes 1,492 nonchoosers and 453 private school choosers, meaning that 23% of the cases are choosers. The odds of being a private school chooser are 1 to 3.29.

The predictors are added in 6 stages. The first model includes only the intercept and the SES Z-score composite. Model 2 adds race, gender, and ethnicity dummy variables, with male and white serving as reference categories. Model 3 adds household factors concerning the number of parents and kids in the household, the use of non-English languages, and mother's age at first birth. Model 4 adds dummy variables for Head Start and other center-based preschool attendance, and Model 5 adds the census tract disadvantage index z-score. Finally, the "resource-intensive" concerted cultivation composite is added in model 6.

Compared to models of public school choosers, these models of private choice fit better. Model 1, containing only the intercept and SES composite, has a rescaled r^2 of 0.28. The addition of gender and race/ethnicity dummies in model adds only a little to model fit, reducing the AIC by just over 3 points. The household composition variables added in Model 3, on the other hand, improve model fit considerably, increasing the r^2 from .29 to .31 and reducing the AIC by 26 points. The indicators of Head Start and other center-based preschool attendance also improve model fit, reducing the AIC by 13 points. The addition of tract disadvantage index in Model 5 reduces the AIC by 4 points, and lastly, the concerted cultivation composite reduces the AIC by 25 points and bring the r^2 value up to .34.

The association of the SES composite with choice is reduced somewhat with the addition of each block of variables, though it remains the strongest predictor of choice involvement in the model. In Model 1, a one s.d. increase in SES increases the odds of being a private school chooser at a ratio of 3.8: 1. This ratio corresponds to an increase in the proportion of private school choosers by 30 percentile points under the condition of higher SES in this sample, compared to SES at the mean. The addition of race and gender variables basically does not affect this ratio, but the addition of family composition variables does reduce the odds ratio associated with a one s.d. increase in SES from 3.7 down to 3.3. The addition of indicators for center-based preschool attendance further reduces this odds ratio down to 3.1, and the addition of the census tract disadvantage index reduces it to 2.9. The concerted cultivation composite, the key mediator of interest, does indeed reduce the SES effect substantially, lowering the odds ratio for a one s.d. increase in SES from 2.9 down to 2.5. The SES effect in this model predicts that, all other factors being equal, the proportion of private school choosers is increased by 12 percentile points in this sample by a one s.d. increase in SES, compared to SES at the mean. The SES effect remains statistically significant with a $p < .001$ in all 6 models.

Dummy variables for black and Hispanic had negative associations with private school choice in the more basic Model 2, but the Hispanic association washed out after the addition of more family characteristics to the models, and the black association actually reversed direction. More specifically, the odds ratio for the black dummy variable represents a slightly negative association in Model 2 at 0.8, but it becomes essentially neutral by the addition of family composition variables and language variables. The association becomes positive in later models and has an odds ratio of 1.4 in model 6. The dummy variables for Asian and multi-racial have moderate negative associations with private school choice, with odds ratios of 0.8 and 0.6,

respectively, in Model 6. The association for multi-racial is statistically significant with a $p < .10$. (Due to the exploratory nature of this study, there is additional interest in avoiding Type II error. The alpha was set at .10 for these models accordingly.)

Living in a two-parent household and speaking a non-English language at home have essentially no association with private school choice in Model 6, with odds ratios close to 1. Being a teenager when the mother had her first child was rather negatively associated with private school choice with an odds ratio of 0.5. Also, each additional child in a household decreases the likelihood of private school choice, as one might anticipate since the same set of household resources will be divided across more children. Each additional child beyond 1 has an odds ratio of .8 with the baseline odds of being a private school chooser. The teen mother and number of children associations were statistically significant with $p < .10$.

Attendance at Head Start, which has income eligibility guidelines, is negatively associated with private school choice, while attendance at other center-based preschools is positively associated with private school choice. Both associations are moderately strong and are largely unaffected by the addition of the neighborhood disadvantage index and concerted cultivation composite in Models 5 and 6. The positive association of center-based preschool attendance has an odds ratio of 1.4 compared to other forms of preschool child care and is statistically significant at $p < .10$. This amounts to a 7.6 percentile point increase in the proportion of private school choosers in this sample, all other things being equal. The neighborhood disadvantage index, in which higher scores indicate a more disadvantaged neighborhood, is only weakly negatively associated with private school choice.

The “high cost” concerted cultivation composite, the major mediator of interest, had a moderately strong relationship with private school choice. A one s.d. increase in this composite has odds ratio of 1.7 compared to concerted cultivation at the mean. This corresponds to a 11.4 percentile point increase in the proportion of private school choosers in this sample. Increases in SES and concerted cultivation combined increase the likelihood of private school choice fairly substantially. Compared to SES and concerted cultivation at the mean, an individual whose family is one s.d. higher on both SES and concerted cultivation has a odds ratio of 4.1 , corresponding with a 33.8 percentile point increase in the proportion of private school choosers in this sample. In comparison, in Model 5, which is identical to Model 6 apart from the inclusion concerted cultivation composite, a one s.d. increase in SES equates to a 25.8 percentile point increase in the proportion of private choosers in this sample. The concerted cultivation composite clearly provides a meaningful improvement to the model.

Following Mackinnon and Dwyer (1993), SES and concerted cultivation effects from Steps 1, 2, and 3 were combined to estimate the proportion of SES’s effect on the likelihood of being a private school chooser that is mediated by concerted cultivation. According to these calculations, concerted cultivation mediates about 9% of SES’s effect on the likelihood of being a private chooser. This mediation is statistically significant at $p < .01$ on a Sobel test. Both SES and concerted cultivation are positively associated with private school choice, and concerted cultivation only explains a modest portion of SES’s association.

Mediation step 2 and step 3 regressions: Non-residential public choosers and nonchoosers

Table 16 presents results of logistic regressions modeling the odds of being a non-residential public school chooser. The dataset for these regressions includes 1,492 nonchoosers

and 465 choosers, meaning that 24% of the cases are non-residential public school chooser. The odds of being a private school chooser are 1 to 3.26. As in Table 15, the predictors are added in 6 stages.

Compared to the models of private school choice, these models do not fit nearly as well. Model 1, containing only the intercept and SES composite, has a rescaled r^2 of 0.06. The addition of gender and race/ethnicity dummies and family composition variables add little to absolute model fit, and they make the AIC worse. The indicators of Head Start and other center-based preschool attendance, however do improve model fit, reducing the AIC by over 12 points and increasing the r^2 to .08. The addition of tract disadvantage index in Model 5 reduces the AIC by over 3 points, and lastly, the concerted cultivation composite reduces the AIC by 18 points and brings the r^2 value up to .09.

In the private chooser models, the association of the SES composite with choice reduced somewhat with the addition of each block of variables. In these models, on the other hand, the association between SES and non-residential public school choice remains relatively steady across Models 1 - 5. In Model 1, a one s.d. increase in SES increases the odds of being a chooser at a ratio of 1.79: 1, a substantially lower ratio than the 3.8 ratio seen in the private chooser models. A odds ratio of 1.79 corresponds to 12.6 percentile point increase in the proportion of non-residential public choosers in this sample. In models 2-5, this odds ratio does not change much. The addition of the concerted cultivation composite does however lower the association between SES and choice down to an odds ratio of 1.49. The SES effect remains statistically significant with $p < .001$ across all six models.

With the exception of Asians, race, gender, and ethnicity indicators have little association with this form of school choice. Asians are positively associated with non-residential public school choice, and this association increases after family composition and home language indicators are controlled for. The addition of the concerted cultivation composite increase the odds ratio for Asians up to 1.67, and the p value is approaching significance at .14. This odds ratio corresponds to 9.5 percentile point increase in the proportion of choosers in this sample.

Indicators for a two-parent household and being a teen mom at first birth have essentially no association with being a non-residential public chooser. The negative association between an increased number of kids and the likelihood of choice is small and not statistically significant. Speaking a non-English language at home is negatively associated with this type of choice, with an odds ratio of .86 in Model 6, though this effect is not statistically significant.

Center-based preschool attendance, including both Head Start and other options, is one of the better predictors of non-residential public choice in these models. In Model 6, Head Start attendance has an odds ratio of 1.45 that approaches statistical significance, and attendance at other center-based care has a statistically significant odds ratio of 1.75. These positive relationships with choice are slightly stronger in Model 5, before concerted cultivation is added. In Model 6, Head Start attendance corresponds with a 6.6 percentile point increase in the proportion of choosers in this sample, and attendance at other center-based care corresponds with a 10.5 percentile point increase.

The neighborhood disadvantage index, in which higher scores indicate a more disadvantaged neighborhood, has a small, nonsignificant positive association with non-residential public choice. Residing in a tract with a disadvantage index one s.d. above the mean

Table 15: Logistic Regressions of Private School Choosers and Nonchoosers

| | Model 1 | | | Model 2 | | | Model 3 | | | Model 4 | | | Model 5 | | | Model 6 | | |
|--|----------|-------|------------|----------|-------|------------|-----------|-------|------------|----------|-------|------------|----------|-------|------------|----------|-------|------------|
| | B | SE | Odds ratio | B | SE | Odds ratio | B | SE | Odds ratio | B | SE | Odds ratio | B | SE | Odds ratio | B | SE | Odds ratio |
| Intercept | -1.255 | 0.096 | 0.285 | -1.141 | 0.175 | 0.319 | -0.497 | 0.290 | 0.609 | -0.779 | 0.359 | 0.459 | -0.845 | 0.329 | 0.430 | -0.925 | 0.342 | 0.396 |
| SES Composite (Z) | 1.346 ** | 0.168 | 3.843 | 1.320 ** | 0.169 | 3.742 | 1.206 ** | 0.152 | 3.340 | 1.120 ** | 0.158 | 3.064 | 1.080 ** | 0.131 | 2.944 | 0.909 ** | 0.125 | 2.481 |
| Female | | | | 0.126 | 0.118 | 1.134 | 0.160 | 0.117 | 1.174 | 0.139 | 0.118 | 1.149 | 0.147 | 0.116 | 1.159 | 0.103 | 0.127 | 1.109 |
| Black | | | | -0.165 | 0.404 | 0.848 | -0.049 | 0.418 | 0.952 | 0.060 | 0.425 | 1.062 | 0.196 | 0.410 | 1.216 | 0.367 | 0.431 | 1.443 |
| Asian | | | | -0.601 | 0.419 | 0.548 | -0.512 | 0.367 | 0.600 | -0.488 | 0.364 | 0.614 | -0.487 | 0.361 | 0.614 | -0.250 | 0.375 | 0.779 |
| Two races/Other race | | | | -0.800 * | 0.358 | 0.450 | -0.723 * | 0.367 | 0.485 | -0.710 * | 0.362 | 0.492 | -0.680 * | 0.340 | 0.507 | -0.602 * | 0.345 | 0.548 |
| Hispanic | | | | -0.271 | 0.263 | 0.763 | -0.067 | 0.287 | 0.935 | -0.059 | 0.281 | 0.943 | -0.020 | 0.294 | 0.980 | 0.046 | 0.290 | 1.047 |
| Two-parent household | | | | | | | -0.062 | 0.216 | 0.940 | -0.084 | 0.217 | 0.919 | -0.106 | 0.213 | 0.899 | -0.097 | 0.215 | 0.908 |
| Teen mom at first birth | | | | | | | -0.800 ** | 0.246 | 0.449 | -0.747 * | 0.236 | 0.474 | -0.725 * | 0.232 | 0.484 | -0.657 * | 0.234 | 0.518 |
| Non-English language at home | | | | | | | -0.180 | 0.224 | 0.836 | -0.125 | 0.218 | 0.883 | -0.110 | 0.210 | 0.896 | -0.030 | 0.224 | 0.970 |
| Number of children in home | | | | | | | -0.205 * | 0.094 | 0.814 | -0.194 * | 0.093 | 0.823 | -0.190 * | 0.091 | 0.827 | -0.197 * | 0.093 | 0.821 |
| Center preschool, not Head Start | | | | | | | | | | 0.425 * | 0.189 | 1.529 | 0.412 * | 0.196 | 1.509 | 0.348 * | 0.197 | 1.416 |
| Head Start preschool | | | | | | | | | | -0.425 | 0.350 | 0.654 | -0.404 | 0.354 | 0.667 | -0.450 | 0.357 | 0.637 |
| Tract disadvantage index (Z) | | | | | | | | | | | | | -0.151 | 0.205 | 0.860 | -0.123 | 0.201 | 0.884 |
| Concerted Cultivation Composite High Education relative to tract | | | | | | | | | | | | | | | | 0.512 ** | 0.129 | 1.669 |
| AIC | 1721.617 | | | 1718.194 | | | 1692.573 | | | 1679.629 | | | 1675.947 | | | 1650.733 | | |
| Rescaled r ² | 0.281 | | | 0.289 | | | 0.310 | | | 0.321 | | | 0.324 | | | 0.341 | | |

* p < .10

** P < .001

Table 16: Logistic Regressions of Non-Residential Public Choosers and Nonchoosers

| | Model 1 | | | Model 2 | | | Model 3 | | | Model 4 | | | Model 5 | | | Model 6 | | |
|---|----------|-------|------------|----------|-------|------------|----------|-------|------------|----------|-------|------------|----------|-------|------------|----------|-------|------------|
| | B | SE | Odds ratio | B | SE | Odds ratio | B | SE | Odds ratio | B | SE | Odds ratio | B | SE | Odds ratio | B | SE | Odds ratio |
| Intercept | -1.045 | 0.18 | 0.352 | -0.993 | 0.25 | 0.37 | -0.885 | 0.26 | 0.413 | -1.375 | 0.28 | 0.253 | -1.324 | 0.28 | 0.266 | -1.381 | 0.275 | 0.251 |
| SES Composite (Z) | 0.581 ** | 0.112 | 1.788 | 0.572 ** | 0.113 | 1.771 | 0.554 ** | 0.108 | 1.740 | 0.488 ** | 0.109 | 1.629 | 0.540 ** | 0.103 | 1.715 | 0.401 ** | 0.122 | 1.493 |
| Female | | | | -0.118 | 0.128 | 0.888 | -0.103 | 0.126 | 0.902 | -0.109 | 0.125 | 0.897 | -0.112 | 0.123 | 0.894 | -0.135 | 0.127 | 0.874 |
| Black | | | | -0.006 | 0.273 | 0.994 | -0.014 | 0.249 | 0.986 | -0.009 | 0.247 | 0.991 | -0.145 | 0.246 | 0.865 | -0.054 | 0.235 | 0.948 |
| Asian | | | | 0.169 | 0.378 | 1.184 | 0.361 | 0.381 | 1.435 | 0.327 | 0.353 | 1.386 | 0.324 | 0.363 | 1.383 | 0.512 | 0.352 | 1.669 |
| Two races/Other race | | | | 0.034 | 0.285 | 1.034 | 0.041 | 0.280 | 1.042 | 0.060 | 0.283 | 1.062 | 0.036 | 0.293 | 1.037 | 0.099 | 0.282 | 1.104 |
| Hispanic | | | | -0.021 | 0.275 | 0.979 | 0.147 | 0.303 | 1.158 | 0.131 | 0.299 | 1.139 | 0.086 | 0.312 | 1.090 | 0.141 | 0.307 | 1.152 |
| Two-parent household | | | | | | | 0.011 | 0.134 | 1.011 | 0.009 | 0.135 | 1.009 | 0.028 | 0.134 | 1.028 | 0.016 | 0.132 | 1.016 |
| Teen mom at first birth | | | | | | | 0.032 | 0.132 | 1.033 | 0.036 | 0.134 | 1.037 | 0.023 | 0.131 | 1.024 | 0.066 | 0.125 | 1.069 |
| Non-English language at home | | | | | | | -0.267 * | 0.146 | 0.766 | -0.200 | 0.143 | 0.819 | -0.207 | 0.143 | 0.813 | -0.155 | 0.147 | 0.857 |
| Number of children in home | | | | | | | -0.042 | 0.064 | 0.959 | -0.029 | 0.064 | 0.972 | -0.036 | 0.062 | 0.965 | -0.036 | 0.062 | 0.965 |
| Center preschool, not Head Start | | | | | | | | | | 0.587 ** | 0.179 | 1.798 | 0.608 ** | 0.184 | 1.837 | 0.562 * | 0.183 | 1.754 |
| Head Start preschool | | | | | | | | | | 0.422 * | 0.233 | 1.526 | 0.408 * | 0.234 | 1.504 | 0.371 | 0.238 | 1.449 |
| Tract disadvantage index (Z) | | | | | | | | | | | | | 0.145 | 0.154 | 1.155 | 0.166 | 0.153 | 1.180 |
| Concerted Cultivation Composite High Education relative to tract | | | | | | | | | | | | | | | | 0.408 ** | 0.094 | 1.503 |
| AIC | 2073.79 | | | 2081.972 | | | 2086.222 | | | 2073.817 | | | 2070.429 | | | 2052.253 | | |
| Max R Sq | 0.059 | | | 0.061 | | | 0.063 | | | 0.076 | | | 0.079 | | | 0.093 | | |

* p < .10

** p < .001

Table 17: Logistic Regressions of Residential Public Choosers and Nonchoosers

| | Model 1 | | | Model 2 | | | Model 3 | | | Model 4 | | | Model 5 | | | Model 6 | | |
|----------------------------------|----------|-------|------------|----------|-------|------------|----------|-------|------------|-----------|-------|------------|-----------|-------|------------|-----------|-------|------------|
| | B | SE | Odds ratio | B | SE | Odds ratio | B | SE | Odds ratio | B | SE | Odds ratio | B | SE | Odds ratio | B | SE | Odds ratio |
| Intercept | -0.468 | 0.078 | 0.626 | -0.591 | 0.134 | 0.554 | -0.588 | 0.165 | 0.556 | -0.237 | 0.203 | 0.789 | -0.197 | 0.191 | 0.821 | -0.233 | 0.188 | 0.792 |
| SES Composite (Z) | 0.226 * | 0.087 | 1.253 | 0.215 * | 0.070 | 1.240 | 0.251 ** | 0.070 | 1.285 | 0.301 ** | 0.072 | 1.351 | 0.237 * | 0.078 | 1.267 | 0.129 * | 0.078 | 1.138 |
| Female | | | | 0.086 | 0.087 | 1.090 | 0.075 | 0.091 | 1.078 | 0.072 | 0.091 | 1.075 | 0.083 | 0.093 | 1.086 | 0.060 | 0.093 | 1.061 |
| Black | | | | 0.062 | 0.208 | 1.064 | 0.066 | 0.199 | 1.068 | 0.102 | 0.206 | 1.107 | 0.258 | 0.195 | 1.294 | 0.344 * | 0.186 | 1.410 |
| Asian | | | | 0.607 * | 0.269 | 1.835 | 0.347 | 0.240 | 1.415 | 0.384 | 0.245 | 1.469 | 0.404 * | 0.241 | 1.498 | 0.558 * | 0.266 | 1.746 |
| Two races/Other race | | | | -0.138 | 0.157 | 0.871 | -0.180 | 0.153 | 0.835 | -0.191 | 0.154 | 0.827 | -0.147 | 0.154 | 0.864 | -0.133 | 0.158 | 0.876 |
| Hispanic | | | | 0.088 | 0.184 | 1.092 | -0.134 | 0.239 | 0.875 | -0.128 | 0.239 | 0.880 | -0.002 | 0.217 | 0.998 | 0.059 | 0.217 | 1.061 |
| Two-parent household | | | | | | | -0.062 | 0.086 | 0.940 | -0.071 | 0.090 | 0.931 | -0.098 | 0.087 | 0.907 | -0.110 | 0.085 | 0.896 |
| Teen mom at first birth | | | | | | | -0.009 | 0.106 | 0.991 | -0.012 | 0.108 | 0.988 | -0.002 | 0.114 | 0.998 | 0.011 | 0.114 | 1.011 |
| Non-English language at home | | | | | | | 0.358 * | 0.162 | 1.430 | 0.315 * | 0.171 | 1.370 | 0.327 * | 0.166 | 1.387 | 0.392 * | 0.162 | 1.481 |
| Number of children in home | | | | | | | 0.002 | 0.035 | 1.002 | -0.012 | 0.036 | 0.988 | -0.008 | 0.037 | 0.992 | -0.011 | 0.036 | 0.989 |
| Center preschool, not Head Start | | | | | | | | | | -0.421 ** | 0.102 | 0.656 | -0.447 ** | 0.106 | 0.640 | -0.481 ** | 0.106 | 0.618 |
| Head Start preschool | | | | | | | | | | -0.392 * | 0.149 | 0.676 | -0.371 * | 0.153 | 0.690 | -0.394 * | 0.154 | 0.675 |
| Perceptions neighborhood dangers | | | | | | | | | | | | | -0.145 ** | 0.040 | 0.865 | -0.147 ** | 0.038 | 0.863 |
| Tract disadvantage index (Z) | | | | | | | | | | | | | -0.149 * | 0.067 | 0.861 | -0.130 * | 0.068 | 0.878 |
| Concerted Cultivation Composite | | | | | | | | | | | | | | | | 0.344 ** | 0.087 | 1.410 |
| AIC | 3096.497 | | | 3093.052 | | | 3092.637 | | | 3078.147 | | | 3057.919 | | | 3040.613 | | |
| Max R Sq | 0.011 | | | 0.019 | | | 0.024 | | | 0.034 | | | 0.047 | | | 0.059 | | |

* p < .10

** p < .001

increases the odds of choice at a ratio of 1.2. The direction of this association could indicate that residing in a struggling neighborhood increases the likelihood of seeking public schooling not connected to residential location. However, an indicator of parents' perceptions of neighborhood dangers had no association with this type of choice, and its addition to the models made the AIC worse. This indicator was dropped from the private and non-residential public chooser models but is included in the residential chooser model.

As in the private chooser models, the “resource intensive” concerted cultivation composite, the major mediator of interest, had a moderately strong relationship with non-residential public school choice. A one s.d. increase in this composite has odds ratio of 1.5 compared to concerted cultivation at the mean. This ratio was 1.7 in the private chooser models. A ratio of 1.5 corresponds to a 7.3 percentile point increase in the proportion of choosers in this sample.

SES and concerted cultivation are stronger predictors of private school choice than non-residential public school choice, which is perhaps not surprising, given the direct costs associated with private school tuition. For non-residential public choosers, a one s.d. increase in both SES and concerted cultivation has an odds ratio of 2.25 compared to those values at the mean. In comparison, the same association in the private chooser models had an odds ratio of 4.1. An odds ratio of 2.25 corresponds to a 16 percentile point increase in the proportion of non-residential public choosers in this sample.

Concerted cultivation mediates a slightly larger portion of the SES effect in the non-residential public chooser models than it does in the private chooser models. Following Mackinnon and Dwyer (1993), SES and concerted cultivation effects from Steps 1, 2, and 3 were

combined to estimate the proportion of SES's effect on the likelihood of being a chooser that was mediated by the addition of concerted cultivation. According to these calculations, concerted cultivation mediates 14.1% of SES's effect on the likelihood of being a chooser. This mediation is statistically significant at $p < .01$ on a Sobel test. As in the private chooser models, both SES and concerted cultivation are positively associated with non-residential public school choice, and concerted cultivation only "explains away" a modest portion of SES's association.

Mediation step 2 and step 3 regressions: Residential public choosers and nonchoosers

Table 17 presents results of logistic regressions modeling the odds of being a residential public school chooser. The dataset for these regressions includes 1,492 nonchoosers and 870 choosers, meaning that 37% of the cases are residential public school choosers. The models in Table 17 differ from those in Tables 15 and 16 in one respect. A measure of parent's perceptions of dangers in the neighborhood is included in the residential chooser models but was dropped from the other two sets of models because it did not contribute to model fit in those models or have a meaningful association with the outcome. This predictor is added in Model 5 along with the Neighborhood Disadvantage Index.

Compared to the models of private and non-residential public choice, these models fit the worst of all three. Model 1, containing only the intercept and SES composite, has a very poor rescaled r^2 of 0.01. The addition of gender and race/ethnicity dummies improve the r^2 to .02 but only improves the AIC slightly. The family composition variables add little to absolute model fit and only slightly improve the AIC. The indicators of Head Start and other center-based preschool attendance do meaningfully improve model fit, reducing the AIC by over 14 points and increasing the r^2 to .03. The addition of the neighborhood perceptions and tract

disadvantage index in Model 5 reduces the AIC by nearly 20 points and improves the r^2 to .05. Lastly, the concerted cultivation composite reduces the AIC by 17 points and brings the r^2 value up to .06.

In the private chooser models, the association of the SES composite with choice reduced somewhat with the addition of each block of variables. In these models, on the other hand, the association between SES and residential public choice remains relatively steady across the six models. The association between SES and choice is also noticeably weaker in these models than in private and non-residential public chooser models. In Model 1, a one s.d. increase in SES increases the odds of being a chooser at a ratio of 1.25: 1, a substantially lower ratio than the 3.8 ratio seen in the private chooser models. An odds ratio of 1.25 corresponds to 5.5 percentile point increase in the proportion of non-residential public choosers in this sample. In models 2-6, this odds ratio does not change much. In Model 6, after the addition of the concerted cultivation composite, a one s.d. increase in SES is associated with only a 1.14 odds ratio. The SES effect is statistically significant with $p < .10$ across all six models. In the private and non-residential public chooser models, SES was always one of the strongest predictors of choice, but that is not the case for residential public choice.

Being black or Asian is positively associated with residential public choice. The association for Asians is moderately large in models 2-6, and has an odds ratio of 1.75 in the final model. This ratio corresponds with a 13.8 percentile point increase in the proportion of residential choosers in the sample. The positive association for blacks increases as family composition, preschool, neighborhood and concerted cultivation indicators are added in models 3-6. In model 6, being black increases the odds ratio of residential choice at a ratio 1.41: 1.

This odds ratio corresponds to 8.6 percentile point increase in the proportion of choosers in this sample.

A number of indicators in this model have a different direction of association than might have been anticipated based on private chooser and non-residential chooser models. In other words, some variables with positive associations with private and non-residential choice have negative associations with residential public choice and vice versa. Speaking a non-English language at home has a weak negative relationship with private and non-residential public choice but has a moderately strong positive relationship with residential public choice. In Model 6, speaking a non-English language has an odds ratio of 1.48, corresponding to a 9.8 percentile point increase in the proportion of residential choosers in this sample.

Likewise, center-based preschool attendance, which was positively associated with private and non-residential public choice, is negatively associated with residential choice. Head Start attendance and other center-based preschool attendance have odds ratios of 0.68 and 0.62, respectively. The Head Start odds ratio corresponds with a 9.4 percentile point decline in the proportion of residential choosers in the sample, and the other center-based preschool attendance ratio corresponds with an 11.3 percentile point decline.

In these models, unlike the private chooser and non-residential public chooser models, statistically significant associations are found between the neighborhood disadvantage indicator and the likelihood of school choice. More specifically, a one s.d. increase in the disadvantage index, which would indicate a more disadvantaged neighborhood, was negatively associated with residential choice with an odds ratio of 0.88. In short, residential choosers were indeed picking somewhat “better” neighborhoods compared to nonchoosers. Also, a measure of parents’

perceptions of neighborhood dangers, in which higher scores indicate greater perceived danger, was negatively associated with residential choice. A one unit increase in this three-level composite (very safe, somewhat safe, not safe) has an odds ratio of 0.863, indicating that residential choosers, not surprisingly, perceive their neighborhoods to be somewhat safer than nonchoosers do.

In the residential choice models, the “resource intensive” concerted cultivation composite had a similar, moderately positive association as was present in the private chooser and nonresidential chooser models. A one s.d. increase in this composite has odds ratio of 1.41 compared to concerted cultivation at the mean. This ratio was 1.67 in the private chooser models and 1.5 in the non-residential public chooser models. A ratio of 1.41 corresponds to a 8.6 percentile point increase in the proportion of residential choosers in this sample.

SES and concerted cultivation together are much stronger predictors of private and non-residential public choice than residential choice, with much of the gap explained by weaker SES associations for residential choosers. A one s.d. increase in both SES and concerted cultivation has an odds ratio of 1.6 for residential choosers, compared to ratios of 2.25 for non-residential choosers and 4.1 for private choosers.

Concerted cultivation mediates a larger portion of the SES effect in the residential public chooser models than it does in the private and non-residential chooser models. Following Mackinnon and Dwyer (1993), SES and concerted cultivation effects from Steps 1, 2, and 3 were combined to estimate the proportion of SES’s effect on the likelihood of being a chooser that was mediated by the addition of concerted cultivation. According to these calculations, concerted cultivation mediates 24.7% of SES’s effect on the likelihood of being a chooser. This mediation

is statistically significant at $p < .01$ on a Sobel test. Of course, the SES effect being mediated here is also much smaller overall than in private and non-residential chooser models, so it is easier to mediate a more substantial portion of that effect.

Parents' affluence relative to their neighborhood as a predictor of choice

While concerted cultivation is among the most widely accepted modern theories for class reproduction and stratification, a classic theory of stratification is also tested here. In this view, consumption decisions serve as signals of families' perceived social statuses. In this context, selection of schooling options perceived to be representative of upper social class could be one way for parents to signal their position. For this study, it is predicted that parents who are in the upper portion of the SES distribution in their neighborhood will want to differentiate themselves from lower SES neighbors by picking "high class" schools, namely private schools. Since being in the upper portion of a neighborhood's SES distribution will correlate with high absolute SES, the goal is to determine if being more affluent than your neighbors predicts private choice above and beyond the SES effect alone.

An effect, if present at all, is hypothesized to be most likely to appear for private choosers. Unlike private choosers, residential public choosers are making a school consumption decision that affiliates them with a specific neighborhood and its perceived social class. Classic stratification would not predict that residential choosers would be more likely to be above the average SES level for the neighborhood into which they are moving.

Tables 18, 19, and 20 present four regression models each for private choosers, non-residential public choosers, and residential public chooser, respectively. Models 5 and 6 are identical to the last two models in the previous regression tables. Model 5 includes all of the

predictors except concerted cultivation and the indicator of affluence relative to one's census tract. Model 6 adds the concerted cultivation indicator to Model 5. Model 7 adds the indicators of affluence relative to one's census tract to Model 5. Lastly, Model 8 includes both the concerted cultivation composite and the classic stratification indicator.

In these models, being in the upper portion of the SES distribution for one's neighborhood is captured with dichotomous variable labeled "High education relative to tract". Census data were used to determine the median educational attainment of adults in each census tract. The dichotomous variable captures if the highest educational attainment of the parent(s) was above the median for their census tract. Although an indicator that considers family income, parents' educational attainment, and job prestige relative to the neighborhood would be preferable, the educational indicator was the only option available in the data.

As predicted, this classic stratification indicator is most useful in models predicting private school choice. In Tables 19 and 20, which present results for non-residential and residential public choosers, respectively, the addition of the "high education relative to tract" indicator in Model 7 does not noticeably improve the r^2 and makes the AIC values worse. In the non-residential choosers models in Table 19, having an education level above one's neighborhood median has a very weak positive association (odds ratio 1.15) with choice that is not statistically significant. Likewise, in the residential public chooser models in Table 20, this indicator has a very weak negative association (odds ratio 0.96) with choice that is not statistically significant. In contrast, this indicator does have a meaningful association with private school choice, and the addition of the variable to the models improves both measures of model fit. The addition of the "high education relative to tract" variable to Model 5 reduces the AIC value by almost 5 points, and the indicator has a statistically significant ratio of 1.49 with

the odds of being a private chooser. Comparing Model 5 to Model 7, the SES effect is also reduced notably by the addition of the classic stratification variable, dropping from an odds ratio of 2.94 to in Model 5 to 2.53 in Model 7.

Similar results are observed when the “high education relative to tract” indicator is added to Model 6, which also includes the concerted cultivation composite. Comparing Model 8 to Model 6, the AIC improves by more than 3 points, and the SES effect is reduced from an odds ratio of 2.48 to 2.17. In Model 8, the “high education relative to tract” indicators has an odds ratio of 1.44 that approaches statistical significance. The odds ratio associated with a one s.d. increase in concerted cultivation is unaffected by the addition of the relative education indicator, changing from 1.67 in Model 6 to 1.65 in Model 8.

The combination of a one s.d. increase in SES and being above the median education level in Model 8 has a stronger association with private choice (odds ratio 3.13) than a one s.d. increase in SES does in Model 6 (odds ratio 2.48). In Model 8, a one s.d. increase in SES alone corresponds to a 16.9 percentile point increase in the proportion of private choosers in the sample, while the combination of a one s.d. increase in SES along with being above the neighborhood median education level corresponds to a 26.0 percentile point increase.

There does appear to be some very preliminary support for the classic stratification hypothesis as it relates to private school choice. A better indicator of SES relative to one’s neighborhood, one that includes both educational attainment and family income variables, will be necessary to better test this hypothesis in the future.

Table 18: Logistic Regressions of Private School Choice with SES Relative to Neighborhood Indicator

| | Model 5 | | | Model 6 | | | Model 7 | | | Model 8 | | |
|----------------------------------|----------|-------|------------|----------|-------|------------|----------|-------|------------|----------|-------|------------|
| | B | SE | Odds ratio | B | SE | Odds ratio | B | SE | Odds ratio | B | SE | Odds ratio |
| Intercept | -0.845 | 0.329 | 0.430 | -0.925 | 0.342 | 0.396 | -1.044 | 0.358 | 0.352 | -1.106 | 0.373 | 0.331 |
| SES Composite (Z) | 1.080 ** | 0.131 | 2.944 | 0.909 ** | 0.125 | 2.481 | 0.928 ** | 0.168 | 2.529 | 0.773 ** | 0.169 | 2.167 |
| Female | 0.147 | 0.116 | 1.159 | 0.103 | 0.127 | 1.109 | 0.153 | 0.115 | 1.166 | 0.111 | 0.125 | 1.117 |
| Black | 0.196 | 0.410 | 1.216 | 0.367 | 0.431 | 1.443 | 0.212 | 0.410 | 1.236 | 0.379 | 0.431 | 1.460 |
| Asian | -0.487 | 0.361 | 0.614 | -0.250 | 0.375 | 0.779 | -0.470 | 0.356 | 0.625 | -0.241 | 0.369 | 0.786 |
| Two races/Other race | -0.680 * | 0.340 | 0.507 | -0.602 * | 0.345 | 0.548 | -0.667 * | 0.347 | 0.513 | -0.592 * | 0.353 | 0.553 |
| Hispanic | -0.020 | 0.294 | 0.980 | 0.046 | 0.290 | 1.047 | -0.019 | 0.292 | 0.981 | 0.046 | 0.289 | 1.047 |
| Two-parent household | -0.106 | 0.213 | 0.899 | -0.097 | 0.215 | 0.908 | -0.113 | 0.210 | 0.894 | -0.103 | 0.211 | 0.902 |
| Teen mom at first birth | -0.725 * | 0.232 | 0.484 | -0.657 * | 0.234 | 0.518 | -0.720 * | 0.235 | 0.487 | -0.654 * | 0.237 | 0.520 |
| Non-English language at home | -0.110 | 0.210 | 0.896 | -0.030 | 0.224 | 0.970 | -0.155 | 0.213 | 0.856 | -0.071 | 0.226 | 0.932 |
| Number of children in home | -0.190 * | 0.091 | 0.827 | -0.197 * | 0.093 | 0.821 | -0.194 * | 0.091 | 0.824 | -0.200 * | 0.093 | 0.818 |
| Center preschool, not Head Start | 0.412 * | 0.196 | 1.509 | 0.348 * | 0.197 | 1.416 | 0.387 * | 0.198 | 1.473 | 0.327 * | 0.199 | 1.387 |
| Head Start preschool | -0.404 | 0.354 | 0.667 | -0.450 | 0.357 | 0.637 | -0.412 | 0.354 | 0.663 | -0.454 | 0.355 | 0.635 |
| Tract disadvantage index (Z) | -0.151 | 0.205 | 0.860 | -0.123 | 0.201 | 0.884 | -0.218 | 0.205 | 0.804 | -0.185 | 0.201 | 0.832 |
| Concerted Cultivation Composite | | | | 0.512 ** | 0.129 | 1.669 | | | | 0.501 ** | 0.129 | 1.651 |
| High Education relative to tract | | | | | | | 0.401 * | 0.227 | 1.493 | 0.367 | 0.229 | 1.443 |
| AIC | 1675.947 | | | 1650.733 | | | 1671.123 | | | 1647.158 | | |
| Max R Sq | 0.324 | | | 0.341 | | | 0.328 | | | 0.344 | | |

* p < .10

** p < .001

Table 19: Logistic Regressions of Non-Residential Choice with SES Relative to Neighborhood Indicator

| | Model 5 | | | Model 6 | | | Model 7 | | | Model 8 | | |
|----------------------------------|----------|-------|------------|----------|-------|------------|----------|-------|------------|----------|-------|------------|
| | B | SE | Odds ratio | B | SE | Odds ratio | B | SE | Odds ratio | B | SE | Odds ratio |
| Intercept | -1.324 | 0.275 | 0.266 | -1.381 | 0.275 | 0.251 | -1.396 | 0.286 | 0.248 | -1.445 | 0.288 | 0.236 |
| SES Composite (Z) | 0.540 ** | 0.103 | 1.715 | 0.401 ** | 0.122 | 1.493 | 0.479 ** | 0.133 | 1.614 | 0.347 * | 0.146 | 1.415 |
| Female | -0.112 | 0.123 | 0.894 | -0.135 | 0.127 | 0.874 | -0.111 | 0.123 | 0.895 | -0.135 | 0.127 | 0.874 |
| Black | -0.145 | 0.246 | 0.865 | -0.054 | 0.235 | 0.948 | -0.143 | 0.245 | 0.866 | -0.053 | 0.234 | 0.948 |
| Asian | 0.324 | 0.363 | 1.383 | 0.512 | 0.352 | 1.669 | 0.322 | 0.372 | 1.379 | 0.509 | 0.362 | 1.663 |
| Two races/Other race | 0.036 | 0.293 | 1.037 | 0.099 | 0.282 | 1.104 | 0.031 | 0.294 | 1.032 | 0.094 | 0.282 | 1.099 |
| Hispanic | 0.086 | 0.312 | 1.090 | 0.141 | 0.307 | 1.152 | 0.074 | 0.319 | 1.077 | 0.130 | 0.315 | 1.139 |
| Two-parent household | 0.028 | 0.134 | 1.028 | 0.016 | 0.132 | 1.016 | 0.032 | 0.133 | 1.033 | 0.019 | 0.132 | 1.019 |
| Teen mom at first birth | 0.023 | 0.131 | 1.024 | 0.066 | 0.125 | 1.069 | 0.031 | 0.135 | 1.032 | 0.073 | 0.129 | 1.076 |
| Non-English language at home | -0.207 | 0.143 | 0.813 | -0.155 | 0.147 | 0.857 | -0.218 | 0.138 | 0.804 | -0.164 | 0.142 | 0.849 |
| Number of children in home | -0.036 | 0.062 | 0.965 | -0.036 | 0.062 | 0.965 | -0.036 | 0.063 | 0.965 | -0.035 | 0.063 | 0.965 |
| Center preschool, not Head Start | 0.608 ** | 0.184 | 1.837 | 0.562 * | 0.183 | 1.754 | 0.601 * | 0.188 | 1.823 | 0.555 * | 0.186 | 1.742 |
| Head Start preschool | 0.408 * | 0.234 | 1.504 | 0.371 | 0.238 | 1.449 | 0.403 * | 0.237 | 1.496 | 0.367 | 0.239 | 1.444 |
| Tract disadvantage index (Z) | 0.145 | 0.154 | 1.155 | 0.166 | 0.153 | 1.180 | 0.125 | 0.152 | 1.133 | 0.148 | 0.150 | 1.160 |
| Concerted Cultivation Composite | | | | 0.408 ** | 0.094 | 1.503 | | | | 0.406 ** | 0.095 | 1.500 |
| High Education relative to tract | | | | | | | 0.140 | 0.222 | 1.150 | 0.124 | 0.222 | 1.132 |
| AIC | 2070.429 | | | 2052.253 | | | 2071.407 | | | 2053.466 | | |
| Max R Sq | 0.079 | | | 0.093 | | | 0.080 | | | 0.095 | | |

* p < .10

** p < .001

Table 20: Logistic Regressions of Residential Choice with SES Relative to Neighborhood Indicator

| | Model 5 | | | Model 6 | | | Model 7 | | | Model 8 | | |
|----------------------------------|-----------|-------|------------|-----------|-------|------------|-----------|-------|------------|-----------|-------|------------|
| | B | SE | Odds ratio | B | SE | Odds ratio | B | SE | Odds ratio | B | SE | Odds ratio |
| Intercept | -0.197 | 0.191 | 0.821 | -0.233 | 0.188 | 0.792 | -0.179 | 0.188 | 0.836 | -0.215 | 0.185 | 0.807 |
| SES Composite (Z) | 0.237 * | 0.078 | 1.267 | 0.129 * | 0.078 | 1.138 | 0.254 * | 0.093 | 1.290 | 0.146 * | 0.089 | 1.158 |
| Female | 0.083 | 0.093 | 1.086 | 0.060 | 0.093 | 1.061 | 0.083 | 0.092 | 1.086 | 0.060 | 0.093 | 1.061 |
| Black | 0.258 | 0.195 | 1.294 | 0.344 * | 0.186 | 1.410 | 0.258 | 0.195 | 1.294 | 0.344 * | 0.186 | 1.411 |
| Asian | 0.404 * | 0.241 | 1.498 | 0.558 * | 0.266 | 1.746 | 0.407 * | 0.239 | 1.503 | 0.561 * | 0.264 | 1.752 |
| Two races/Other race | -0.147 | 0.154 | 0.864 | -0.133 | 0.158 | 0.876 | -0.144 | 0.156 | 0.866 | -0.130 | 0.161 | 0.878 |
| Hispanic | -0.002 | 0.217 | 0.998 | 0.059 | 0.217 | 1.061 | 0.000 | 0.218 | 1.000 | 0.061 | 0.218 | 1.063 |
| Two-parent household | -0.098 | 0.087 | 0.907 | -0.110 | 0.085 | 0.896 | -0.100 | 0.087 | 0.905 | -0.112 | 0.084 | 0.894 |
| Teen mom at first birth | -0.002 | 0.114 | 0.998 | 0.011 | 0.114 | 1.011 | -0.003 | 0.114 | 0.997 | 0.010 | 0.114 | 1.010 |
| Non-English language at home | 0.327 * | 0.166 | 1.387 | 0.392 * | 0.162 | 1.481 | 0.331 * | 0.162 | 1.392 | 0.396 * | 0.159 | 1.486 |
| Number of children in home | -0.008 | 0.037 | 0.992 | -0.011 | 0.036 | 0.989 | -0.007 | 0.037 | 0.993 | -0.011 | 0.036 | 0.989 |
| Center preschool, not Head Start | -0.447 ** | 0.106 | 0.640 | -0.481 ** | 0.106 | 0.618 | -0.446 ** | 0.107 | 0.640 | -0.480 ** | 0.107 | 0.619 |
| Head Start preschool | -0.371 * | 0.153 | 0.690 | -0.394 * | 0.154 | 0.675 | -0.370 * | 0.153 | 0.690 | -0.393 * | 0.155 | 0.675 |
| Perceptions Neighborhood Danger | -0.145 ** | 0.040 | 0.865 | -0.147 ** | 0.038 | 0.863 | -0.143 * | 0.040 | 0.866 | -0.146 ** | 0.039 | 0.864 |
| Tract disadvantage index (Z) | -0.149 * | 0.067 | 0.861 | -0.130 * | 0.068 | 0.878 | -0.144 * | 0.070 | 0.866 | -0.125 * | 0.072 | 0.883 |
| Concerted Cultivation Composite | | | | 0.344 ** | 0.087 | 1.410 | | | | 0.344 ** | 0.087 | 1.410 |
| High Education relative to tract | | | | | | | -0.041 | 0.134 | 0.960 | -0.041 | 0.134 | 0.960 |
| AIC | 3057.919 | | | 3040.613 | | | 3059.779 | | | 3042.477 | | |
| Max R Sq | 0.047 | | | 0.059 | | | 0.047 | | | 0.058 | | |

* p < .10

** p < .001

Differential effects by race and low socioeconomic status

The models presented above estimate a single SES effect for families in the sample. However, the strength of the association between increases in SES and choice may differ substantially for lower SES families or different racial groups. In a previous study of choosers and nonchoosers in ECLS- K 1999, the addition of interaction effects between race and the SES composite revealed that SES was a much stronger predictor for black and Hispanic families than it was for whites (Weitzel, 2009). Also, increases in income have often been found to have larger positive effects for families at the lower end of the economic distribution. In other words, adding \$5,000 to a family's income often makes a bigger difference in social outcomes for families making \$25,000 than it does for families making \$90,000.

This study expands on the previous models to test if SES's association with choice differs for low SES families and for racial minorities. Variation in the SES effect by race and for lower income families is examined in two sets of models. First, the best models of choice above, Model 8 for private choosers and Model 6 for Residential and Non-Residential public choosers, are estimated with a restricted portion of the sample. More specifically, the sample is restricted to families with SES composites below the national mean. This approach, presented in Tables 21, 22, and 23, provides an indication of how all effects in the model differ for lower SES families.

In the second approach to testing variation in SES effects, interaction effects for SES and the race/ethnicity dummy variables are added to the best models thus far. These models, presented in tables 24, 25, and 26, are estimated with the full samples. Race interactions are

also added for concerted cultivation and the classic stratification indicator that identifies families with an education attainment level above the median for their neighborhood.

Models with SES-restricted samples

Table 21 presents private chooser models with and without a sample restricted by family SES. Model 8, which includes concerted cultivation and a dummy variable indicating parents with educational attainment above the neighborhood median, is estimated here because it is the best fitting model at this stage for private choosers. The full sample, which is presented in the first set of columns, includes 1,492 nonchoosers and 453 private school choosers, meaning that 23% of the cases are choosers. The sample restricted to families with an SES composite below the national mean includes 1,100 nonchoosers and 110 private school choosers, meaning that 9% of the cases are choosers.

As predicted, the positive association between SES and the odds of being a private chooser is indeed somewhat stronger when the sample is limited to lower SES families. In the unrestricted sample, the odds ratio associated with a one s.d. increase in SES is 2.27, but it increases to 2.54 in the restricted sample. Notably, the odds ratio associated with a one s.d. increase in concerted cultivation rises dramatically in the restricted sample, increasing from 1.65 to 2.93. Parents having educational levels above the neighborhood median remains positively associated with private choice, increasing slightly from an odds ratio of 1.44 in the unrestricted sample to 1.53 in the restricted sample. In the restricted sample, all of the odds ratios for the race indicators get closer to a neutral odds ratio of 1. The indicator for Hispanic ethnicity, however, becomes negatively associated with private choice in the restricted sample, decreasing from 1.05 in the full sample to 0.60 in the SES-limited sample.

Table 22 presents results for non-residential public choosers with the full and SES-restricted sample. Model 6, which includes concerted cultivation but not the dummy variable indicating parents with educational attainment above the neighborhood median, is estimated here because it is the best fitting model at this stage for non-residential public choosers. The full sample, which is presented in the first set of columns, includes 1,492 nonchoosers and 465 choosers, meaning that 24% of the cases are non-residential public school choosers. The sample restricted to families with an SES composite below the national mean includes 1,100 nonchoosers and 244 non-residential public choosers, meaning that 18% of the cases are choosers.

As in the private chooser models, the positive association between SES and the odds of being a non-residential chooser is indeed stronger when the sample is limited to lower SES families. In the unrestricted sample, the odds ratio associated with a one s.d. increase in SES is 1.49, but it increases to 1.83 in the restricted sample. The odds ratio associated with a one s.d. increase in concerted cultivation also rises slightly in the restricted sample, increasing from 1.50 to 1.63. In the restricted sample, most of the odds ratios for the race indicators remain similar to the results in the full sample, but there is one exception. That strength of the positive association between Asian race and non-residential public choice increases when the sample is limited to lower SES families. This odds ratio increases from 1.67 in the full sample to 2.06 in the restricted sample.

Table 23 presents results for residential public choosers. The sample in these models includes 1,492 nonchoosers and 870 choosers, meaning that 37% of the cases are residential public school choosers. The restricted sample, in comparison, is 34% choosers with 1,100 nonchoosers and 572 residential choosers.

The association between higher SES and residential choice is quite weak in the full sample and vanishes entirely in the SES-restricted sample. As in the private and non-residential public chooser models, the positive association between increased concerted cultivation and choice gets somewhat stronger with the restricted sample. The odds ratio associated with a 1 s.d. increase in concerted cultivation increases from 1.41 in the full sample to 1.52 in the restricted sample.

Most of the other effects in the residential chooser models remain the same in the restricted sample model, compared to the full sample results. The positive odds ratio for black race does increase in the restricted sample, rising from 1.41 in the full sample to 1.69 in the restricted sample. The positive association for Asian race decreases from 1.75 in the full sample to 1.45 in the restricted sample.

Models with interaction effects for race

Tables 24, 25, and 26 include interaction effects between race and SES for the three types of choosers. Race interactions also added for to stratification or class reproduction mechanisms included in the study, concerted cultivation and the indicator for parents with educational attainment above the median in their neighborhood.

Private choosers

Table 24 presents these models for the full private chooser and nonchooser sample. The table starts with Model 8, the best available model without interactions. In Model 9, interaction effects are added between the SES z-score and the black, Asian, multiracial/other, and Hispanic dummy variables. Model 10 adds concerted cultivation and race interactions to Model 8, and

Table 21: Logistic Regressions of Private Choice with SES-limited sample

| | Model 8 | | | Model 8 with sample limited to SES Z-score < 0 | | |
|----------------------------------|----------|-------|------------|--|-------|------------|
| | B | SE | Odds ratio | B | SE | Odds ratio |
| Intercept | -1.106 | 0.373 | 0.331 | -0.888 | 0.581 | 0.412 |
| SES Composite (Z) | 0.773 ** | 0.169 | 2.167 | 0.933 * | 0.490 | 2.541 |
| Female | 0.111 | 0.125 | 1.117 | 0.064 | 0.225 | 1.066 |
| Black | 0.379 | 0.431 | 1.460 | 0.040 | 0.545 | 1.040 |
| Asian | -0.241 | 0.369 | 0.786 | -0.127 | 0.549 | 0.880 |
| Two races/Other race | -0.592 * | 0.353 | 0.553 | -0.199 | 0.411 | 0.819 |
| Hispanic | 0.046 | 0.289 | 1.047 | -0.505 | 0.431 | 0.603 |
| Two-parent household | -0.103 | 0.211 | 0.902 | -0.340 * | 0.204 | 0.712 |
| Teen mom at first birth | -0.654 * | 0.237 | 0.520 | -0.440 * | 0.261 | 0.644 |
| Non-English language at home | -0.071 | 0.226 | 0.932 | 0.191 | 0.479 | 1.210 |
| Number of children in home | -0.200 * | 0.093 | 0.818 | -0.218 * | 0.123 | 0.804 |
| Center preschool, not Head Start | 0.327 * | 0.199 | 1.387 | 0.403 | 0.342 | 1.496 |
| Head Start preschool | -0.454 | 0.355 | 0.635 | -0.610 | 0.488 | 0.543 |
| Tract disadvantage index (Z) | -0.185 | 0.201 | 0.832 | 0.132 | 0.208 | 1.141 |
| Concerted Cultivation Composite | 0.501 ** | 0.129 | 1.651 | 1.075 ** | 0.198 | 2.930 |
| High Education relative to tract | 0.367 | 0.229 | 1.443 | 0.423 * | 0.251 | 1.526 |
| AIC | 1647.158 | | | 654.896 | | |
| Max R Sq | 0.344 | | | 0.204 | | |

* p < .10

** p < .001

Table 22: Logistic Regressions of Non-Residential Public Choice with SES-limited sample

| | Model 6 | | | Model 6 with sample limited to SES Z-score < 0 | | |
|--|----------|-------|------------|--|-------|------------|
| | B | SE | Odds ratio | B | SE | Odds ratio |
| Intercept | -1.381 | 0.275 | 0.251 | -1.020 | 0.385 | 0.361 |
| SES Composite (Z) | 0.401 ** | 0.122 | 1.493 | 0.605 ** | 0.196 | 1.831 |
| Female | -0.135 | 0.127 | 0.874 | -0.142 | 0.177 | 0.868 |
| Black | -0.054 | 0.235 | 0.948 | -0.243 | 0.236 | 0.784 |
| Asian | 0.512 | 0.352 | 1.669 | 0.723 | 0.555 | 2.061 |
| Two races/Other race | 0.099 | 0.282 | 1.104 | 0.175 | 0.355 | 1.191 |
| Hispanic | 0.141 | 0.307 | 1.152 | -0.142 | 0.402 | 0.868 |
| Two-parent household | 0.016 | 0.132 | 1.016 | -0.045 | 0.154 | 0.956 |
| Teen mom at first birth | 0.066 | 0.125 | 1.069 | 0.168 | 0.127 | 1.183 |
| Non-English language at home | -0.155 | 0.147 | 0.857 | -0.137 | 0.240 | 0.872 |
| Number of children in home | -0.036 | 0.062 | 0.965 | -0.035 | 0.062 | 0.966 |
| Center-based preschool, not Head Start | 0.562 * | 0.183 | 1.754 | 0.375 * | 0.225 | 1.455 |
| Head Start preschool | 0.371 | 0.238 | 1.449 | 0.219 | 0.256 | 1.245 |
| Tract disadvantage index (Z) | 0.166 | 0.153 | 1.180 | 0.222 | 0.156 | 1.249 |
| Concerted Cultivation Composite | 0.408 ** | 0.094 | 1.503 | 0.490 ** | 0.142 | 1.632 |
| AIC | 2052.253 | | | 1250.104 | | |
| Max R Sq | 0.094 | | | 0.065 | | |

* $p < .10$ ** $p < .001$

Table 23: Logistic Regressions of Residential Public Choice with SES-limited sample

| | Model 6 | | | Model 6 with sample limited to SES Z-score < 0 | | |
|----------------------------------|-----------|-------|---------------|---|-------|---------------|
| | B | SE | Odds ratio | B | SE | Odds ratio |
| Intercept | -0.233 | 0.188 | 0.792 | -0.423 | 0.216 | 0.655 |
| SES Composite (Z) | 0.129 * | 0.078 | 1.138 | 0.026 | 0.158 | 1.027 |
| Female | 0.060 | 0.093 | 1.061 | 0.076 | 0.137 | 1.079 |
| Black | 0.344 * | 0.186 | 1.410 | 0.522 * | 0.203 | 1.686 |
| Asian | 0.558 * | 0.266 | 1.746 | 0.374 | 0.291 | 1.454 |
| Two races/Other race | -0.133 | 0.158 | 0.876 | -0.099 | 0.286 | 0.906 |
| Hispanic | 0.059 | 0.217 | 1.061 | 0.159 | 0.251 | 1.172 |
| Two-parent household | -0.110 | 0.085 | 0.896 | -0.052 | 0.092 | 0.949 |
| Teen mom at first birth | 0.011 | 0.114 | 1.011 | 0.029 | 0.121 | 1.029 |
| Non-English language at home | 0.392 * | 0.162 | 1.481 | 0.412 * | 0.193 | 1.510 |
| Number of children in home | -0.011 | 0.036 | 0.989 | -0.009 | 0.035 | 0.991 |
| Center preschool, not Head Start | -0.481 ** | 0.106 | 0.618 | -0.522 ** | 0.117 | 0.593 |
| Head Start preschool | -0.394 * | 0.154 | 0.675 | -0.464 * | 0.148 | 0.629 |
| Perceptions Neighborhood Danger | -0.147 ** | 0.038 | 0.863 | -0.150 * | 0.051 | 0.860 |
| Tract disadvantage index (Z) | -0.130 * | 0.068 | 0.878 | -0.090 | 0.072 | 0.914 |
| Concerted Cultivation Composite | 0.344 ** | 0.087 | 1.410 | 0.424 ** | 0.104 | 1.528 |
| AIC | 3040.613 | | | 2120.952 | | |
| Max R Sq | 0.059 | | | 0.050 | | |

* p < .10

** p < .001

Model 11 includes race interactions for both SES and concerted cultivation. Lastly, Model 12 expands on Model 9 by adding interactions between the race variables and the indicator of parents having educational attainment higher than their neighborhood.

The addition of SES and race interactions in Model 9 leads to a noticeable improvement in model fit, reducing the AIC by 10 points and increasing the r^2 by over 1 percentile point. The main SES effect, which represents the SES effect for the white reference category, declines from an odds ratio of 2.2 in Model 8 to 1.8 in Model 9. The SES effects for black and Hispanic families, however, increase substantially in Model 9. For black families, a one s.d. increase in SES is associated with a 2.8 odds ratio, and the same effect is even higher for Hispanic families at 4.0. The SES effects for Asian and multiracial families are slightly lower than the effect for the white reference category. Among these interaction effects, only the Hispanic effect is statistically significant.

In Model 10, the addition of race and concerted cultivation interactions to Model 8 reduces the AIC by less than 3 points. The main concerted cultivation odds ratio declines from 1.7 in Model 8 to 1.4 in Model 10. Again, though, race interactions indicate stronger concerted cultivation effects for some groups. The odds ratio associated with a one s.d. increase in concerted cultivation is 1.7 for black and multiracial families and 2.8 for Hispanic families. As in Model 9, only the interaction for Hispanic families is statistically significant. Model 11, which includes race interactions for both SES and Concerted Cultivation, has a worse AIC than Model 9, suggesting that the race and SES interactions alone may be a better model.

In Model 12, race interactions are added to Model 9 for the “high education relative to tract” dummy variable, which identifies families with parental educational attainment higher than

the neighborhood median. Compared to model 9, these interactions improve the model fit and produce notable changes in a number of effects in the model. The AIC is reduced by 7 points and the r^2 is improved by 1 percentile point. The main effect for “high education relative to tract”, which is also the effect for the white reference group, increases from an odds ratio of 1.4 to 2.0 and becomes statistically significant. Interestingly, interaction effects between this variable and Asian, multiracial, and Hispanic negate or even reverse this effect. The odds ratios for Asians and Hispanics are 0.38 and 0.69, respectively, and both effects are statistically significant. Blacks, on the other hand, have an odds ratio slightly higher than whites.

In Model 12, the main race effects for Asians and Hispanics are positive and moderately large, with odds ratios of 2.0 and 1.6, respectively. The SES effect for Hispanics is especially large in this model. For this group, a one s.d. increase in SES increases the likelihood of being a private chooser at an odds ratio of 5.15. The other racial groups have SES odds ratios ranging from a low of 1.58 for whites to a high of 2.44. As in previous private chooser models, concerted cultivation and center-based preschool attendance remained positively associated with private school choice. Being a teenage mother at the birth of one’s first child and having more kids remained negatively associated with private school choice.

Non-residential public choosers

The results for the addition of race interactions to non-residential public chooser models, which are presented in Table 25, are similar to those for private choosers. The table starts with Model 6, a model lacking “the high education relative to tract” variable, which is the best

Table 24: Logistic Regressions of Private Choice with Race Interactions

| | Model 8 | | | Model 9 | | | Model 10 | | | Model 11 | | | Model 12 | | |
|--|----------|-------|------------|----------|-------|------------|----------|-------|------------|----------|-------|------------|----------|-------|------------|
| | B | SE | Odds ratio | B | SE | Odds ratio | B | SE | Odds ratio | B | SE | Odds ratio | B | SE | Odds ratio |
| Intercept | -1.106 | 0.373 | 0.331 | -0.951 | 0.378 | 0.387 | -0.967 | 0.379 | 0.380 | -0.892 | 0.382 | 0.410 | -1.149 | 0.361 | 0.317 |
| SES Composite (Z) | 0.773 ** | 0.169 | 2.167 | 0.562 * | 0.196 | 1.754 | 0.754 * | 0.170 | 2.125 | 0.608 * | 0.205 | 1.837 | 0.455 * | 0.225 | 1.576 |
| Female | 0.111 | 0.125 | 1.117 | 0.099 | 0.127 | 1.104 | 0.112 | 0.125 | 1.119 | 0.097 | 0.127 | 1.102 | 0.101 | 0.131 | 1.106 |
| Black | 0.379 | 0.431 | 1.460 | 0.223 | 0.451 | 1.250 | 0.252 | 0.434 | 1.286 | 0.172 | 0.464 | 1.187 | 0.085 | 0.577 | 1.089 |
| Asian | -0.241 | 0.369 | 0.786 | -0.147 | 0.362 | 0.864 | -0.400 | 0.360 | 0.670 | -0.187 | 0.349 | 0.829 | 0.678 | 0.440 | 1.971 |
| Two races/Other race | -0.592 * | 0.353 | 0.553 | -0.590 * | 0.325 | 0.554 | -0.706 * | 0.374 | 0.493 | -0.692 * | 0.340 | 0.501 | 0.061 | 0.442 | 1.063 |
| Hispanic | 0.046 | 0.289 | 1.047 | -0.079 | 0.315 | 0.924 | -0.151 | 0.334 | 0.860 | -0.165 | 0.338 | 0.848 | 0.497 | 0.324 | 1.644 |
| Two-parent household | -0.103 | 0.211 | 0.902 | -0.125 | 0.194 | 0.882 | -0.116 | 0.214 | 0.891 | -0.138 | 0.196 | 0.871 | -0.129 | 0.196 | 0.879 |
| Teen mom at first birth | -0.654 * | 0.237 | 0.520 | -0.610 * | 0.244 | 0.543 | -0.638 * | 0.245 | 0.529 | -0.612 * | 0.251 | 0.542 | -0.611 * | 0.245 | 0.543 |
| Non-English language at home | -0.071 | 0.226 | 0.932 | 0.051 | 0.228 | 1.053 | 0.018 | 0.226 | 1.018 | 0.076 | 0.230 | 1.079 | 0.081 | 0.235 | 1.085 |
| Number of children in home | -0.200 * | 0.093 | 0.818 | -0.197 * | 0.091 | 0.821 | -0.195 * | 0.093 | 0.823 | -0.194 * | 0.092 | 0.823 | -0.193 * | 0.092 | 0.825 |
| Center preschool, not Head Start | 0.327 * | 0.199 | 1.387 | 0.319 | 0.197 | 1.376 | 0.289 | 0.201 | 1.335 | 0.303 | 0.202 | 1.354 | 0.335 * | 0.193 | 1.398 |
| Head Start preschool | -0.454 | 0.355 | 0.635 | -0.437 | 0.355 | 0.646 | -0.503 | 0.374 | 0.605 | -0.455 | 0.367 | 0.635 | -0.388 | 0.344 | 0.678 |
| Tract disadvantage index (Z) | -0.185 | 0.201 | 0.832 | -0.154 | 0.200 | 0.857 | -0.172 | 0.198 | 0.842 | -0.152 | 0.200 | 0.859 | -0.152 | 0.193 | 0.859 |
| Concerted Cultivation Composite | 0.501 ** | 0.129 | 1.651 | 0.490 * | 0.128 | 1.632 | 0.303 * | 0.168 | 1.354 | 0.359 * | 0.165 | 1.432 | 0.485 ** | 0.129 | 1.625 |
| High Education relative to tract | 0.367 | 0.229 | 1.443 | 0.335 | 0.225 | 1.399 | 0.364 | 0.225 | 1.439 | 0.341 | 0.223 | 1.406 | 0.681 * | 0.294 | 1.976 |
| SES Comp* Black | | | | 0.454 | 0.603 | 1.574 | | | | 0.417 | 0.683 | 1.517 | 0.436 | 0.734 | 1.547 |
| SES Comp* Asian | | | | -0.218 | 0.317 | 0.804 | | | | -0.295 | 0.333 | 0.745 | 0.303 | 0.433 | 1.353 |
| SES Comp* Two Races/Other | | | | -0.114 | 0.314 | 0.892 | | | | -0.284 | 0.298 | 0.753 | 0.333 | 0.542 | 1.394 |
| SES Comp* Hispanic | | | | 0.819 * | 0.262 | 2.268 | | | | 0.636 * | 0.261 | 1.889 | 1.184 ** | 0.303 | 3.268 |
| Concert Cultiv Comp* Black | | | | | | | 0.235 | 0.450 | 1.264 | 0.094 | 0.597 | 1.098 | | | |
| Concert Cultiv Comp* Asian | | | | | | | 0.086 | 0.394 | 1.090 | 0.236 | 0.375 | 1.266 | | | |
| Concert Cultiv Comp* Two Races/Other | | | | | | | 0.187 | 0.483 | 1.206 | 0.442 | 0.431 | 1.555 | | | |
| Concert Cultiv Comp* Hispanic | | | | | | | 0.738 * | 0.292 | 2.091 | 0.466 * | 0.290 | 1.594 | | | |
| High Educ Relative to Tract* Black | | | | | | | | | | | | | 0.125 | 0.586 | 1.133 |
| High Educ Relative to Tract* Asian | | | | | | | | | | | | | -1.636 * | 0.716 | 0.195 |
| High Educ Relative to Tract* Two Races/Other | | | | | | | | | | | | | -1.348 | 0.859 | 0.260 |
| High Educ Relative to Tract* Hispanic | | | | | | | | | | | | | -1.049 * | 0.345 | 0.350 |
| AIC | 1647.158 | | | 1637.234 | | | 1644.540 | | | 1641.443 | | | 1630.378 | | |
| Max R Sq | 0.344 | | | 0.355 | | | 0.351 | | | 0.357 | | | 0.364 | | |

* p < .10

** p < .001

Table 25: Logistic Regressions of Non-Residential Public Choice with SES and Race Interactions

| | Model 6 | | | Model 9 | | | Model 10 | | | Model 11 | | | Model 12 | | |
|--|----------|-------|------------|----------|-------|------------|----------|-------|------------|----------|-------|------------|----------|-------|------------|
| | B | SE | Odds ratio | B | SE | Odds ratio | B | SE | Odds ratio | B | SE | Odds ratio | B | SE | Odds ratio |
| Intercept | -1.381 | 0.275 | 0.251 | -1.312 | 0.279 | 0.269 | -1.294 | 0.282 | 0.274 | -1.271 | 0.286 | 0.281 | -1.570 | 0.302 | 0.208 |
| SES Composite (Z) | 0.401 ** | 0.122 | 1.493 | 0.205 | 0.149 | 1.228 | 0.411 ** | 0.121 | 1.509 | 0.256 * | 0.156 | 1.292 | 0.011 | 0.189 | 1.011 |
| Female | -0.135 | 0.127 | 0.874 | -0.151 | 0.125 | 0.859 | -0.144 | 0.129 | 0.866 | -0.154 | 0.126 | 0.857 | -0.160 | 0.127 | 0.852 |
| Black | -0.054 | 0.235 | 0.948 | -0.082 | 0.244 | 0.921 | -0.117 | 0.231 | 0.890 | -0.111 | 0.242 | 0.895 | 0.301 | 0.341 | 1.351 |
| Asian | 0.512 | 0.352 | 1.669 | 0.541 | 0.365 | 1.717 | 0.346 | 0.331 | 1.413 | 0.513 | 0.338 | 1.671 | 1.144 * | 0.632 | 3.138 |
| Two races/Other race | 0.099 | 0.282 | 1.104 | 0.009 | 0.282 | 1.009 | 0.040 | 0.280 | 1.040 | -0.012 | 0.287 | 0.988 | 0.270 | 0.559 | 1.310 |
| Hispanic | 0.141 | 0.307 | 1.152 | 0.271 | 0.306 | 1.311 | 0.084 | 0.296 | 1.087 | 0.223 | 0.293 | 1.250 | 0.644 * | 0.376 | 1.903 |
| Two-parent household | 0.016 | 0.132 | 1.016 | -0.006 | 0.134 | 0.994 | 0.009 | 0.134 | 1.009 | -0.010 | 0.135 | 0.990 | -0.003 | 0.129 | 0.997 |
| Teen mom at first birth | 0.066 | 0.125 | 1.069 | 0.097 | 0.128 | 1.102 | 0.083 | 0.125 | 1.086 | 0.100 | 0.128 | 1.105 | 0.102 | 0.132 | 1.107 |
| Non-English language at home | -0.155 | 0.147 | 0.857 | -0.044 | 0.159 | 0.957 | -0.097 | 0.155 | 0.908 | -0.032 | 0.161 | 0.969 | -0.057 | 0.154 | 0.945 |
| Number of children in home | -0.036 | 0.062 | 0.965 | -0.032 | 0.061 | 0.969 | -0.030 | 0.061 | 0.970 | -0.031 | 0.060 | 0.970 | -0.035 | 0.062 | 0.965 |
| Center-based preschool, not Head Start | 0.562 * | 0.183 | 1.754 | 0.553 * | 0.187 | 1.738 | 0.535 * | 0.182 | 1.708 | 0.541 * | 0.188 | 1.717 | 0.560 * | 0.193 | 1.750 |
| Head Start preschool | 0.371 | 0.238 | 1.449 | 0.355 | 0.237 | 1.427 | 0.324 | 0.237 | 1.382 | 0.338 | 0.237 | 1.401 | 0.371 | 0.239 | 1.449 |
| Tract disadvantage index (Z) | 0.166 | 0.153 | 1.180 | 0.183 | 0.150 | 1.201 | 0.171 | 0.154 | 1.186 | 0.185 | 0.152 | 1.203 | 0.179 | 0.144 | 1.196 |
| Concerted Cultivation Composite | 0.408 ** | 0.094 | 1.503 | 0.405 ** | 0.093 | 1.500 | 0.217 * | 0.134 | 1.243 | 0.296 * | 0.140 | 1.344 | 0.399 * | 0.094 | 1.490 |
| High Education relative to tract | | | | | | | | | | | | | 0.538 * | 0.246 | 1.712 |
| SES Comp* Black | | | | 0.366 * | 0.220 | 1.442 | | | | 0.303 | 0.222 | 1.354 | 0.643 * | 0.270 | 1.903 |
| SES Comp* Asian | | | | -0.398 | 0.314 | 0.672 | | | | -0.463 | 0.287 | 0.629 | 0.021 | 0.336 | 1.021 |
| SES Comp* Two Races/Other | | | | -0.137 | 0.366 | 0.872 | | | | -0.133 | 0.398 | 0.875 | 0.057 | 0.527 | 1.059 |
| SES Comp* Hispanic | | | | 0.758 ** | 0.192 | 2.135 | | | | 0.638 ** | 0.206 | 1.893 | 1.019 * | 0.240 | 2.769 |
| Concert Cultiv Comp* Black | | | | | | | 0.284 | 0.284 | 1.329 | 0.165 | 0.297 | 1.179 | | | |
| Concert Cultiv Comp* Asian | | | | | | | -0.165 | 0.405 | 0.848 | 0.164 | 0.308 | 1.178 | | | |
| Concert Cultiv Comp* Two Races/Other | | | | | | | -0.104 | 0.391 | 0.901 | -0.011 | 0.373 | 0.989 | | | |
| Concert Cultiv Comp* Hispanic | | | | | | | 0.557 * | 0.189 | 1.745 | 0.278 | 0.207 | 1.320 | | | |
| High Educ Relative to Tract* Black | | | | | | | | | | | | | -0.741 * | 0.344 | 0.477 |
| High Educ Relative to Tract* Asian | | | | | | | | | | | | | -1.169 * | 0.647 | 0.311 |
| High Educ Relative to Tract* Two Races/Other | | | | | | | | | | | | | -0.537 | 0.766 | 0.585 |
| High Educ Relative to Tract* Hispanic | | | | | | | | | | | | | -0.695 * | 0.315 | 0.499 |
| AIC | 2052.253 | | | 2035.989 | | | 2049.701 | | | 2042.125 | | | 2038.232 | | |
| Max R Sq | 0.094 | | | 0.112 | | | 0.102 | | | 0.114 | | | 0.118 | | |

* p < .10

** p < .001

Table 26: Logistic Regressions of Residential Public Choice with SES and Race Interactions

| | Model 6 | | | Model 9 | | | Model 10 | | |
|--|-----------|-------|------------|-----------|-------|------------|-----------|-------|------------|
| | B | SE | Odds ratio | B | SE | Odds ratio | B | SE | Odds ratio |
| Intercept | -0.233 | 0.188 | 0.792 | -0.269 | 0.184 | 0.765 | -0.238 | 0.188 | 0.788 |
| SES Composite (Z) | 0.129 * | 0.078 | 1.138 | 0.288 * | 0.113 | 1.334 | 0.122 | 0.080 | 1.130 |
| Female | 0.060 | 0.093 | 1.061 | 0.068 | 0.094 | 1.070 | 0.057 | 0.093 | 1.059 |
| Black | 0.344 * | 0.186 | 1.410 | 0.297 * | 0.180 | 1.346 | 0.334 * | 0.180 | 1.397 |
| Asian | 0.558 * | 0.266 | 1.746 | 0.558 * | 0.269 | 1.747 | 0.568 * | 0.272 | 1.764 |
| Two races/Other race | -0.133 | 0.158 | 0.876 | -0.085 | 0.157 | 0.918 | -0.200 | 0.191 | 0.819 |
| Hispanic | 0.059 | 0.217 | 1.061 | -0.052 | 0.227 | 0.949 | 0.036 | 0.225 | 1.036 |
| Two-parent household | -0.110 | 0.085 | 0.896 | -0.084 | 0.088 | 0.919 | -0.114 | 0.083 | 0.892 |
| Teen mom at first birth | 0.011 | 0.114 | 1.011 | 0.016 | 0.118 | 1.016 | 0.010 | 0.114 | 1.010 |
| Non-English language at home | 0.392 * | 0.162 | 1.481 | 0.353 * | 0.169 | 1.424 | 0.367 * | 0.162 | 1.443 |
| Number of children in home | -0.011 | 0.036 | 0.989 | -0.018 | 0.035 | 0.982 | -0.008 | 0.036 | 0.992 |
| Center-based preschool, not Head Start | -0.481 * | 0.106 | 0.618 | -0.484 ** | 0.107 | 0.617 | -0.483 ** | 0.108 | 0.617 |
| Head Start preschool | -0.394 * | 0.154 | 0.675 | -0.390 * | 0.155 | 0.677 | -0.385 * | 0.154 | 0.681 |
| Tract disadvantage index (Z) | -0.130 * | 0.068 | 0.878 | -0.137 * | 0.070 | 0.872 | -0.133 * | 0.069 | 0.876 |
| Perception Neighborhood Safety | -0.147 ** | 0.038 | 0.863 | -0.148 ** | 0.038 | 0.863 | -0.145 ** | 0.039 | 0.865 |
| Concerted Cultivation Composite | 0.344 ** | 0.087 | 1.410 | 0.321 ** | 0.090 | 1.379 | 0.360 ** | 0.104 | 1.433 |
| SES Comp* Black | | | | -0.333 | 0.205 | 0.717 | | | |
| SES Comp* Asian | | | | -0.016 | 0.194 | 0.984 | | | |
| SES Comp* Two Races/Other | | | | -0.096 | 0.249 | 0.909 | | | |
| SES Comp* Hispanic | | | | -0.379 * | 0.158 | 0.685 | | | |
| Concert Cultiv Comp* Black | | | | | | | -0.054 | 0.208 | 0.947 |
| Concert Cultiv Comp* Asian | | | | | | | -0.092 | 0.225 | 0.912 |
| Concert Cultiv Comp* Two Races/Other | | | | | | | 0.454 | 0.296 | 1.575 |
| Concert Cultiv Comp* Hispanic | | | | | | | -0.130 | 0.119 | 0.879 |
| AIC | 3040.613 | | | 3041.657 | | | 3044.854 | | |
| Max R Sq | 0.058 | | | 0.062 | | | 0.060 | | |

* p < .10

** p < .001

available model without interactions. In Model 9, interaction effects are added between the SES z-score and the race/ethnicity variables. Model 10 adds concerted cultivation and race interactions to Model 6., and Model 11 includes race interactions for both SES and concerted cultivation. Lastly, Model 12 expands on Model 9 by adding interactions between the race variables and the indicator of parents having educational attainment higher than their neighborhood. Although the “high education relative to tract” variable was previously dropped from the non-residential chooser models, it was tested with race interactions due to the surprisingly good performance of those interactions in private chooser models.

The addition of SES and race interactions in Model 9 leads to a noticeable improvement in model fit, reducing the AIC by 16 points and increasing the r^2 by almost 2 percentile points. The main SES effect, which represents the SES effect for the white reference category, declines from an odds ratio of 1.49 in Model 6 to 1.23 in Model 9 and ceases to be statistically significant. As in the private school chooser models, the SES effects for black and Hispanic families increase in Model 9. For black families, a one s.d. increase in SES is associated with a 1.76 odds ratio, and the same effect is even higher for Hispanic families at 2.62. The SES effects for Asian and multiracial families are slightly lower than the effect for the white reference category. Among these race interaction effects, only the Black and Hispanic effects are statistically significant.

In Model 10, the addition of race and concerted cultivation interactions to Model 6 reduces the AIC by less than 3 points. The main concerted cultivation odds ratio declines from 1.5 in Model 8 to 1.2 in Model 10. Again, though, race interactions indicate stronger concerted cultivation effects for some groups. The odds ratio associated with a one s.d. increase in concerted cultivation is 1.65 for black families and 2.17 for Hispanic families. Only the interaction for Hispanic families is statistically significant. Model 11, which includes race

interactions for both SES and Concerted Cultivation, has a worse AIC than Model 9, suggesting that the race and SES interactions alone may be a better model.

In Model 12, race interactions are added to Model 9 for the “high education relative to tract” dummy variable, which identifies families with parental educational attainment higher than the neighborhood median. Compared to model 9, these interactions make the AIC value worse. However, the main effect for “high education relative to tract”, which is also the effect for the white reference group, is statistically significant at a 1.7 odds ratio. As in the private school chooser models, the race interactions for the “high education relative to tract” effectively negate the positive association that white families have. Having higher educational attainment than one’s neighbors is only predictive of nonresidential school choice for white families.

As with the private chooser models, the main effects for the race indicators become larger in Model 12. The main effects for Asians and Hispanics are positive, moderate to large, and statistically significant, with odds ratios of 3.1 and 1.9, respectively. There is no SES effect for whites in this model, but blacks and Hispanics maintain moderate to large SES associations with odds ratios of 1.9 and 2.8, respectively.

As in previous nonresidential chooser models, concerted cultivation, HeadStart, and other center-based preschool attendance remained positively associated with non-residential public school choice. A one s.d. increase in concerted cultivation has an odds ratio of 1.5 and attendance at a center-based preschool has an odds ratio of 1.7.

Residential public choosers

As presented in Table 26, race interactions do not substantially improve models of residential public school choice. In Model 9, interaction effects are added between the SES z-

score and the race/ethnicity variables, and Model 10 adds concerted cultivation and race interactions to Model 6.

Overall model fit remains poor, and both SES and concerted cultivation interactions with race variables make the AIC worse and improve the r^2 less than half of a percentile point. As in private and non-residential public chooser models, race interactions with SES perform better than race interactions with concerted cultivation.

In Model 9, SES has a positive association with residential choice for only white and Asian groups. These odds ratios are still relatively small at 1.3. For Hispanic students, an increase in SES is actually negatively associated with residential choice at a statistically significant odds ratio of 0.9. In private and non-residential chooser models, Hispanics had especially strong and positive SES effects, suggesting that when Hispanic families have more resources for school choice they are much more inclined to use those resources for private nonresidential public schooling than residential selection of a school.

Being black or Asian or speaking a non-English language at home remained positively associated with residential choice. Concerted cultivation was also positively associated with residential choice with an odds ratio of 1.4 for a one s.d. increase in the composite. Center-based preschool attendance, both Headstart and otherwise, maintained statistically significant negative associations with residential public school choice.

Summary of Regression Results

Figure 7 summarizes the results for the three types of chooser/nonchooser models. The private chooser models, with an r^2 above .30, performed much better than the public chooser models in terms of model fit. Since many of the predictors in the model are related to family

socioeconomics and other family factors that can affect the resources available to individual children, it is perhaps not surprising that the private chooser models had better fit. Among the school types included, only private schools can directly charge tuition. Residential and non-residential public school choice can certainly involve both direct expenditures and opportunity costs, but private school choice will typically include similar opportunity costs and greater financial costs. The SES associations with private school choice were strong for all groups, but especially so for Black and Hispanics. Indicators that tend to be associated with lower family resources, such as Headstart attendance and teen parentage were negatively associated with private school choice, as one would predict.

Although the relatively poor performance of the residential public chooser model may be surprising, it is important to keep in mind that the typical portrait of a residential chooser is often based on suburban school choice and suburban real estate. Residential choice in urban areas may be a different phenomenon that does not necessarily involve spending a lot more on real estate in pursuit of “better” public schools. The direction of some significant associations with residential choice, including the positive association for non-English home language and the negative association for center-based childcare, is unexpected and opposite of the direction for other types of choice. SES also has a considerably weaker relationship with residential choice than it does with private and non-residential public school choice. Residential school choice in urban areas may be related to other factors not captured well in these models. Additional exploratory analyses may be needed to produce a better sociological portrait of this phenomenon.

Residential school choice is of course the only type of choice in which your school is officially determined by your residential location, so it was not surprising that geographic relationships were found for these choosers but not for the other types of choosers. Residential

choosers did in fact pick “better” neighborhoods, compared to nonchoosers. There was a statistically significant negative association between the neighborhood disadvantage index, in which higher scores mean more disadvantage, and participation in residential choice. There was also a negative association between perception of danger in the neighborhood and residential choice.

Non-residential public choosers, which include charter and magnet school attenders as well as attenders of regular public schools via open enrollment plans, may be the group that is most interesting from an urban public policy perspective. These models fit better than residential chooser models but not nearly as well as the private chooser models.

SES, concerted cultivation, and both types of center-based preschool had moderately strong positive associations this type of public school choice. Interestingly, the SES association all but vanished for white families once race interactions were added to the models. The positive association between choice and a one s.d. increase in SES for blacks and Hispanics, however, got stronger and was especially strong for Hispanics with an odds ratio of 2.8.

While the size of the SES effect varies substantially across the models, the odds ratio associated with a one s.d. increase in concerted cultivation is fairly consistent. The positive association between a child’s enrichment activities outside the home, the number of books at home, and their participation in school choice is slightly stronger for private school choosers than public choosers, but the effects are all in a similar moderate range. For each chooser/nonchooser group, concerted cultivation also mediated a statistically significant portion of the SES effect. As discussed earlier, it is equally notable that other types of enrichment behaviors like reading and doing art at home were not related to school choice after controlling

Figure 7: Summary of Regression Results

| | Private School Chooser/ Nonchooser | Non-residential Public Chooser/Nonchooser | Residential Public Chooser/ Nonchooser |
|---|--|---|---|
| Model fit | Good: $r^2 = .34$ to $.36$ (with interactions) | Moderate to Poor: $r^2 = .09$ to $.12$ (with interactions) | Poor: $r^2 = .06$ (with or without interactions) |
| SES Composite Effect (without interactions) | Strong positive relationship. Odds ratio for one s.d. increase is 2.2 to 2.9, depending on model. | Moderate positive relationship. Odds ratio for one s.d. increase is 1.4 to 1.7, depending on model. | Weak positive relationship. Odds ratio for one s.d. increase is 1.2 to 1.3, depending on model. |
| Concerted Cultivation Composite | Moderate positive relationship. Odds ratio for one s.d. increase is 1.6 to 1.7, depending on model. Mediates 9% of SES effect. | Moderate positive relationship. Odds ratio for one s.d. increase is 1.5. Mediates 14% of SES effect. | Moderate positive relationship. Odds ratio for one s.d. increase is 1.4. Mediates 25% of SES effect. |
| High Parental Educational Attainment Relative to Tract (without interactions) | Moderate positive relationship. Families with educational attainment above neighborhood median more likely to choose at odds ratio of 1.4. Mediates 17% of SES effect. (see race interactions) | No relationship with choice in absence of race interactions. Odds ratio of 1.1. | No relationship with choice. Odds ratio of .96 |
| Race/Ethnicity Main Effects (without interactions) | Black: + association; Asian: - association; Biracial/Other: - association | Asian: + association | Black: + association; Asian: + association; |
| Center-based Childcare | Head Start: - association Other center care: + association | Head Start: + association Other center care: + association | Head Start: - association Other center care: - association |
| Other Significant Effects | Teen mom: - association Increased # of kids: - association | None | Speak non-English lang. at home: + association Greater neighborhood disadvantage: - association Greater perceived danger in neighborhood: - association |
| Race Interactions with SES | SES odds ratio: 1.6 to 1.8 for whites; 2.4 to 2.8 for blacks; 4.0 to 5.2 for Hispanics | SES odds ratio: 1.0 to 1.2 for whites; 1.8 to 1.9 for blacks; 2.6 to 2.8 for Hispanics | SES odds ratio: 1.3 for whites; 0.9 for blacks and Hispanics |
| Other Race Interactions | High educational attainment relative to neighborhood odds ratio: 2.0 for whites and blacks; 0.4 for Asians; 0.7 for Hispanics; Elevated concerted cultivation effect for Hispanics | High educational attainment relative to neighborhood odds ratio: 1.7 for whites; 0.8 for blacks and Hispanics; 0.5 for Asians | None |
| Sample Limited to SES Below Median | Compared to full sample, SES effect is larger and concerted cultivation effect is much larger (2.9 odds ratio vs. 1.7) | Compared to full sample, SES, Asian, and concerted cultivation positive effects are larger | Compared to full sample, Black and concerted cultivation positive effects are slightly larger. |

for SES. Types of parental involvement or educational enrichment that depend on direct expenditures and transportation were moderately predictive of school choice, while types of involvement mostly requiring opportunity costs in the home were not.

The second major hypothesis in this study concerned how parents' socioeconomic position relative to their neighbors might influence their participation in non-residential forms of choice, particularly private school choice. Even with a fairly crude indicator of relative SES, parents' educational attainment relative to the neighborhood median, some preliminary support for this hypothesis was found. In private chooser models, a moderate positive effect that approached statistical significance was found before race interactions were added. When race interactions were added, the positive effect became larger and statistically significant for white and blacks but reversed direction for other racial groups. In non-residential public chooser models, a moderate and statistically significant positive effect for whites was found when the parents had educational attainment above the neighborhood median. For other racial groups, the effect was neutral or negative. The racial differences in these effects suggest that further investigation including neighborhood demographics is warranted. The association between higher SES relative to one's neighbors and school choice may be as much about ethnocentric moves as it is about socioeconomic stratification, or the two factors may both contribute to choice behaviors.

Different strengths of the SES and concerted cultivation effects were also observed for racial groups and the lower portion of the socioeconomic distribution. When the analytic samples were limited to the lower half of the SES distribution, the positive association between concerted cultivation and choice was stronger for all three types of choosers and quite a bit

stronger for private choosers. The positive association between SES and choice also grew stronger for private and non-residential public choosers.

The addition of racial interactions improved model fit for the private and non-residential public chooser models. In both of these models, the odds ratios for a one s.d. increase in SES were much larger for blacks and Hispanics than for whites. The SES effects were especially large for Hispanics, with an odds ratio above 4.0 in private chooser models and approaching 3.0 in non-residential chooser models. Concerted cultivation was also a stronger predictor for Hispanics than it was for other groups.

Overall, the results of this exploratory analysis provides preliminary support for a few sociological hypotheses concerning participation in school choice and identifies a number of issues for further study. In the concluding chapter, the implications of these findings for modern urban education policy and practice will be discussed. Recommendations for future research, both within ECLS and with other data, will also be provided.

CHAPTER 5: DISCUSSION

The backdrop for modern school choice systems includes levels of socioeconomic inequality not seen since the robber baron era (Mishel, Bivens, Gould & Shierholz, 2012). Economic mobility rates in the U.S., often measured by the likelihood of moving from one income quintile to another during one's life, are now lower than those in most first world countries (Urahn, Currier, Elliot, Welcher, Wilson & Colbert, 2012). Residential segregation along racial and socioeconomic lines is also on the rise again in many U.S. metropolitan areas (Iceland, Weinberg & Steinmetz, 2002). These gaps and divisions are by no means limited to urban areas, but cities, with pockets of both extreme wealth and extreme, concentrated poverty, often present some of the starkest contrasts in the opportunities available to different classes.

In this socioeconomic context, charter schools, voucher programs, and other forms of school choice are often presented as one of the most promising approaches for improving the educational opportunities and outcomes for disadvantaged urban students. In theory, school choice could indeed provide poor students in struggling schools with access to better schools, potentially improving their long-term educational outcomes. School choice could also improve school-level diversity by separating school enrollment from rather segregated residential neighborhoods. The potential of school choice to improve equity of opportunity is one of the most commonly voiced arguments in favor of this reform.

However, school choice could also provide additional ways for demographic groups or social classes to separate themselves from others. There are multiple stages of the school choice process during which differential participation rates or preferences could lead to net outcomes that are not necessarily more equitable. First, school choice remains a voluntary market,

particularly at the elementary school level, meaning that some families may simply accept their default option without making a choice. Second, the families that do participate in school choice could select schools that are more segregated or less effective than their default option. Lastly, school selections are by no means permanent, and some groups may be disproportionately more likely to leave or be nudged out of schools of choice (Taylor, 2015). Even if school choice does enable some poor and minority students in struggling schools to attend better options through the “liberation model”, the net benefit of these moves may be washed out by other students who use school choice to attend more racially or socioeconomically segregated schools.

Other sorts of segregation that could be exacerbated by school choice may be more difficult to detect. Observers have expressed concern that school choice could decapitalize traditional public schools in a sense by enabling the separation of students with more educated or engaged parents from students whose parents don't have the knowledge or means to engage in school choice (Henig, 1995a). Beyond the income indicator captured in free/reduced lunch status, choosers may be more advantaged than nonchoosers in other ways like having smaller families or having more extracurricular enrichment opportunities inside and outside of the home. Since school choice system often creates schools that are comprised entirely of choosers, the individual advantages of these students could be compounded by the peer effects of attending school with similarly situated students for years. Over time, even modest sorting effects through school choice could substantially change the circumstances and outcomes for many urban students.

Understanding the Challenges for Non-choosers

This study focuses on one of the earliest steps in school choice, whether or not one engages in a school selection process at all. The dataset used, the Early Childhood Longitudinal

Study (ECLS), is well suited for examining detailed aspects of family's circumstances. It thus has the potential to reveal differences between choosers and non-choosers that are often very difficult to observe. This study sits in contrast to a moderately large body of city-level enrollment studies that examine which schools choosers select and how those schools compare with their originally assigned public school. ECLS lacks the information to enable examination of specific school selections, but it does have much more detail on parents' socioeconomic circumstances, family structure, and parenting habits and attitudes. This data set is one of the few that can help explore in greater detail the family-level differences between choosers and nonchoosers. These nonchoosers, perhaps not surprisingly, are in many ways the least studied population in school choice research.

Prior research suggests that even tuition-free forms of school choice are unevenly accessed. The SES gap between choosers and nonchoosers is well established, but very few attempts have been made to formally test possible explanations for that gap. Lower SES families, on average, may be less likely to participate in school choice because they "can't". They may lack the social, financial, or transportation resources to either become aware of choice options or utilize them. More pessimistically, lower SES families may be less likely to choose because they don't want to or "don't care". They may be less inclined to make educational investment a high priority or more likely to believe that "all schools are the same" or that "schools don't make a difference". There are also multiple potential explanations for why higher SES families are more likely to choose on average. Middle and upper class families may be more likely to choose simply because they "can". They have the money, social networks, and transportation to make school shopping and attendance at many schools feasible. They could be more inclined to invest substantially in education because they value it highly, or they may desire

to separate themselves from lower income families or portray a lifestyle consistent with a high social class.

At the level of individual families, of course, many other personal factors and specific local circumstances will undoubtedly affect decisions around school attendance. Any attempt to statistically model an action like school choice without detailed information on local school option, relying largely on household characteristics and parenting behaviors, is bound to be noisy or problematic. Nonetheless, if associations are consistently found between some common household characteristics and choice, it could help identify ways in which modern choice systems are systematically, even if inadvertently, biased against participation from certain groups.

From the perspective of policymakers, particularly those supporting non-residential public choice models, any systematic bias is arguably a problem, since one of the foundational goals of these choice systems is to improve equity of access for disadvantaged families. However, a finding that poor families “can’t” participate in public school choice is perhaps more troubling for policymakers than a finding that poor families don’t want to participate or “don’t care” about school choice. If poor families “can’t” participate in public school choice due to the structural conditions and costs involved, the onus is on policymakers to lower the costs in order to improve equity of access. Identifying indicators associated with non-choosers could also help practitioners proactively target these families with information and other supports around school choice.

Testing Classic and Modern Stratification Theories

From a sociological perspective, ECLS data on modern school choice markets also offer the opportunity to test both classic and presently popular theories of how parents in higher social

classes transfer their advantages to their children. In classic stratification theory, families will acquire and consume products, including schools, that are representative or consistent with their perceived social class in order to send the signal that they are members of that class. School selection and consumption could have especially profound effects for class reproduction. While a private school and a luxury car can both send the signal that a family is upper class, the private school can also provide children with a social network of similarly affluent families and reinforce behavioral norms consistent with that class.

This study offers a preliminary test of this classic stratification concept in relation to school choice. ECLS is not ideally designed to examine such consumption motivations in relation to school choice because it does not ask families about their perceived social class. However, it does provide geographic indicators that enable comparisons between a family's educational attainment and the average attainment of their neighbors. If private schools are perceived as high status schools, one could anticipate that families might be more likely to select such schools when they are higher status than their neighbors. When families have the same socioeconomic status as their neighbors, the assigned public school may be sufficient as it is somewhat more likely to have a status level relatively consistent with the status of the family in question. This study tests a classic stratification hypothesis that families that are more educated than their neighbors will be more likely to engage in private school choice, even after controlling for socioeconomics, family composition, some parenting practices, and a number of other factors.

ECLS is also well-suited to examining potential connections between school choice and one of the leading modern theories of class reproduction: concerted cultivation (Lareau, 2003). This theory states that the parenting practices of middle and upper class families differ from

those of working and lower class families in ways that better prepare high SES kids to succeed in schools and other social institutions. According to the theory, middle and upper class parents deliberately have more inquisitive verbal exchanges with their children, provide them with extensive organized enrichment activities, and encourage them to assert their own self-interest in the context of major institutions. Research in ECLS has found that these parenting practices are associated with higher student achievement and that concerted cultivation partially mediates the relationship between SES and achievement (Cheadle, 2009). Could concerted cultivation play a similar role in school choice? Why are higher SES families more likely to choose? Are they more likely to choose because they can afford the direct expenditures and opportunity costs involved with school choice? Or are they more likely to choose because school choice is consistent with a broader set of deliberate parenting practices around educational enrichment and language development? Or is it a combination of both? When lower SES families practice concerted cultivation, are they more likely to engage in school choice? The study presented here cannot definitively settle these questions, but it can provide some preliminary evidence to help inform future studies along these lines.

Descriptive Results

Not surprisingly, the descriptive results comparing non-choosers, private choosers, and residential and non-residential public choosers revealed that private school choosers were the most advantaged group. While this general result was certainly expected, ECLS data helps demonstrate that these advantages stretch across a wide variety of household and lifestyle indicators. More than half of private choosers were white, while whites were a third or less of public choosers. Private choosers were more than half a standard deviation higher than all other families on SES composites and had higher parental educational attainment and employment

rates. Their households were slightly smaller and were more likely to include two married parents. They attended center-based preschool at higher rates and had the lowest rates of non-English language usage at home. They lived in more affluent neighborhoods and were more likely to be in the upper portion of the education distribution in their neighborhood. On concerted cultivation measures, private school children were more than half a standard deviation higher than non-choosers and residential public choosers on enrichment activities outside the home and on the number of books in the home.

On these concerted cultivation measures, non-residential public choosers, 45% of whom attend magnets, charters, or other special public schools, had smaller gaps with private school choosers of about one-third of a standard deviation. These non-residential public choosers consistently had a family profile that was more advantaged than other public school attenders but not quite as affluent as private choosers. Compared to other public school attenders, this group was more white, more educated, and employed at higher rates, though the gaps between this group and private choosers were still substantial. Similar results were found for family size, the prevalence of two parent households and married parents, the use of non-English languages at home, and the proportion of mothers who were teenagers when they first had a child. Nearly two-thirds of non-residential public choosers attended center-based preschools, compared to less than half of other public attenders. Non-residential public choosers live in neighborhoods that are socioeconomically similar to those of residential public choosers, but they are more likely to have higher educational attainment than their neighbors.

Residential public choosers in urban areas are the most similar to non-choosers. Their SES composite is only about one-tenth of a standard deviation higher than non-choosers, and they have similar parental employment rates as non-choosers. They also have similar household

sizes and prevalence of teen parenting. Compared to non-choosers, residential choosers are equally likely to be white or black but twice as likely to be Asian. Residential choosers also have the highest prevalence of non-center-based childcare and speaking non-English languages in the home. Residential choosers live in neighborhoods that have about the same level of need as non-residential public choosers and a lower level of need than the neighborhoods of nonchoosers. Not surprisingly, residential choosers feel relatively positive about their neighborhoods, and only private choosers are more likely to report no problems with safety. On measures of enrichment activities outside the home and the number of children's books in the home, residential choosers are .22 to .27 standard deviations below non-residential public choosers and .52 to .55 standard deviations below private choosers. As with the main SES composite, residential choosers are only about one-tenth of an SD above nonchoosers on the concerted cultivation measures. One of the more notable findings in this study is that this profile of urban residential choosers seems to differ substantially from the advantages typically associated with suburban residential choosers who trade higher residential costs for "better" public schools. This analysis was not designed to specifically test differences between these urban and suburban residential choosers, but such comparisons should be possible with ECLS data.

These descriptive findings reinforce the notion that choosers are indeed different from nonchoosers. Moreover, types of choosers may differ from each other as well. In a study of *both* urban and suburban residential and non-residential choosers and nonchoosers in ECLS 1999, the gaps among these groups differed somewhat with the results seen in this study (Weitzel, 2012). In the current study limited to urban areas, residential choosers were almost twice as likely to be Asian, but no difference was observed in the study with 1999 data. Also,

when both urban and suburban choosers were included in the 1999 study, there was no SES difference between residential and non-residential public choosers. Both of these groups were about two-tenths of an SD higher than non-choosers. In the current study, on the other hand, residential choosers are .13 SD higher than non-choosers and .20 SD lower than non-residential choosers. Disaggregating the 1999 results by urban and suburban location and comparing the urban results with the current study will help determine how the profiles of chooser types differ across contexts and how they may have shifted in the period from 1999 to 2010, a time of dramatic expansion for charter schools and other choice options. Expanding the 1999 study to include private school students will also facilitate useful comparisons with 2010 data.

Charter schools are often presented as more affordable alternatives to private schools in urban areas, and some private school sectors have felt a pinch from the new competition. Providing a detailed profile of private choosers in 1999 and 2010 could also help illuminate how the expansion of charter schools has affected the types of families opting for private schools. Similar comparisons could be also be made at higher grade levels in ECLS 1999 and 2010 data to see if the gaps between choosers and nonchoosers change as kids progress through school, though such an analysis may be problematic due to attrition from the ECLS sample.

These descriptive results may also be valuable for research translation and practitioner engagement purposes. The public discussion over charter schools and school choice often emphasizes the liberating or innovative aspects of these systems, but some commentators and administrators have expressed concern over the inequalities in these systems. These descriptive results can help these observers understand the differences between choosers and nonchoosers in a more sophisticated way than simply looking at free/reduced lunch status, race, and achievement scores. Practitioners who are looking to increase the equity of access to their

systems of choice could also use these data to help identify families that are less likely to participate in school choice. For example, utilization of center-based preschools before kindergarten is one of the better predictors of non-residential forms of school choice. If students in other forms of childcare can be identified, outreach efforts directed at these groups could be a good way to expand participation in non-residential school choice. Likewise, recognizing that parental education levels, both in absolute terms and relative to one's neighborhood, may be associated with school choice could help urban leaders increase the inclusivity of their choice systems. Moreover, with the use of data scientists and predictive analytics becoming more common in educational management, even the regression results from this study might also prove useful for practitioners.

Modeling School Choice with SES and Family Characteristics

While there may be tendencies for particular social classes to participate in school choice at higher rates than others, school choice is still a very personalized and localized event that is likely substantially affected by factors that are not observed in ECLS data. Although ECLS can provide information on the school a student selects, it is not well suited for determining either what school a student was assigned to geographically or the other viable alternatives available to a family. ECLS certainly does not observe local anecdotal or reputational information on schools or school systems, nor does it provide any indication of what types of hard or soft information families consider or value. At best, one can merely infer something about parents' social networks and their use of information from their educational levels and their engagement with social institutions. Simply put, many of the factors likely affecting families' participation in school choice are almost impossible to observe at large scale and thus are not included in ECLS or the regression models in this study.

ECLS does, however, have a wealth of information on families' composition, resources, and general parenting behaviors and attitudes. Although the regression models in this study include a substantial set of these variables as predictors, it was not a foregone conclusion that school choice could be meaningfully modeled with these variables alone, without much information on the local school market. Socioeconomic differences between choosers and nonchoosers have been found in dozens of studies, but it was not clear if socioeconomics and parenting behaviors would explain much of the variation in choice participation.

These models certainly worked the best in terms of fit when modeling the cost-intensive action of private school choice. The best models of private school choice have r^2 values above .35, while the best models of non-residential and residential public choice have values of .11 and .06, respectively. Model fit for residential choice models can be regarded as "poor", and fit for non-residential public choice models might be considered "moderate to poor". While the mix of socioeconomic and parenting factors in these models alone does a reasonably good job explaining participation in private school choice, they are not nearly as powerful for lower cost types of choice. More information, possibly including the types of local school context data not provided in ECLS, is likely needed to better model these outcomes. The variables included in this study are perhaps not *sufficient* to thoroughly model public school choice, but that does not mean they are not *useful*. Changes in AIC values with the addition of most variable blocks indicated meaningful improvements to relative model fit, even if the overall model fit was not as good as desired.

One of the clear implications of this project is that the richer socioeconomic and family portraits provided by ECLS data could help improve other school choice research, particularly studies on the sorting effects of choice. Many studies of sorting focus on single cities or metro

areas and have precise addresses for families, enabling researchers to determine both the assigned and attended schools for children. However, in terms of socioeconomic data and family profiles, these studies are often limited to free/reduced lunch status and race. Even when additional survey data are included, these surveys are not often used to build out a richer portrait of home life for the children involved. The findings of this study should strengthen the argument in favor of including such data in surveys of families involved in school choice. If one were to include a handful of variables from this study in such surveys, parents' educational attainment, types of childcare utilized, home language usage, and participation in enrichment activities outside the home might be good measures to include.

Adding these variables to sorting studies could improve the explanatory power of those models, and it could also identify additional ways in which choice sorts students. For example, we know that choice can enable ethnocentric school selection, possibly reducing racial diversity, but does it also generate schools with less diversity in family size, home language, and concerted cultivation? This study suggests that choice *could* lead to that outcome, but such a hypothesis would need to be more explicitly tested through sorting studies.

Given the results of prior research, moderately strong positive SES associations were expected for all types of choosers included in this study. Such results were indeed found for private and non-residential public choosers. However, the results for residential choosers were somewhat surprising. In these models the SES association was relatively weak and was essentially explained away with the addition of concerted cultivation and other controls. Other findings in the residential chooser models were also surprising. Speaking a non-English language at home was positively associated with residential public choice, which runs counter to the expectation that families with less experience in the U.S. school system may have greater

difficulty navigating the challenges of school choice. Also, while center-based preschool attendance was rather positively associated with private and non-residential school choice, the opposite was true for residential public choosers. Some of the strongest racial associations in these models were also found for residential choice, with blacks and Asians being more likely to exercise this form of choice. Evidence was also found that residential choosers in urban areas were indeed picking “better” neighborhoods. The disadvantage index, in which higher scores indicate greater neighborhood disadvantage, was negatively associated with residential choice, the only time a significant association was found for this measure. Likewise, perceptions of greater neighborhood dangers were also negatively associated with residential choice, meaning that nonchoosers felt their neighborhoods were more dangerous. When all of these associations are considered, particularly those involving race, home language, and the weak SES association, the results suggest that residential choosers in urban areas might be making neutrally ethnocentric moves. ECLS data is not capable of testing that hypothesis directly, but it could be explored in sorting studies designed to track families as they change neighborhoods or schools.

Childcare associations

Earlier studies of choosers in ECLS 1999 found moderately strong positive relationships between center-based childcare and participation in school choice. Apart from the surprising negative association between center-based care and residential school choice, the associations were in the direction expected in this study. For non-residential public school choice, which does not entail direct tuition expenditures, both Head Start and other center-based care had positive associations with choice. For the higher cost of private school choice, Head Start usage, which requires low family income, was negatively associated with choice while other center-based care was positively associated.

There are multiple reasons that childcare could be associated with school choice. For one, selection of a center-based childcare does involve a market decision somewhat analogous to school choice. Also, childcare centers may provide an avenue for acquiring information about school choice options, either from other parents using the center or from center staff. Although center-based childcare usage may correlate with higher family SES, the moderately large positive Head Start association for non-residential choosers suggests that this relationship is not purely about income. Further investigations in ECLS may be able to shed some light on why childcare is associated with choice, but more specific qualitative or survey work may be needed due to limitations in ECLS data. At a minimum, urban school and district leaders looking to identify choosers and nonchoosers early can benefit from the knowledge that center-based preschool attendance is a decent predictor of participation in non-residential choice opportunities like charter schools, magnet schools, and open enrollment plans.

SES effects for low income families

Typically, increases in family income or socioeconomic status have a bigger impact on social outcomes for poor families than they do for families in the middle class and higher (e.g. Noble, et. al., 2015; Dahl & Lochner, 2012). In other words, there seem to be diminishing returns to increases in family income as one moves up the economic distribution. This study makes an initial, albeit crude, attempt to determine if this dynamic exists in the modeling of participation in school choice. For this test, the analytic samples were restricted to families with SES at or below the mean. For both types of non-residential choice, public and private, odds ratios associated with an increase in SES were indeed larger with the restricted sample than with the full sample. This provides preliminary indication that there are greater returns to higher SES with respect to choice participation for poorer families, but this possibility should be tested in

greater detail. For example, SES could be treated categorically, perhaps with quintiles in either an ordinal arrangement or with dummy variables. One could also explore the possibility that choice participation might have somewhat different ideal models for lower income families than for middle and upper class families. For example, economic means could be a more powerful limiting factor at the lower end of the economic spectrum while parent attitudes and priorities have greater influence on variation in choice behavior among higher SES families. There may be thresholds in standard of living beyond which choice becomes substantially more likely, and more refined modeling could help examine that possibility. These analyses might also enhance our understanding of the reasons nonchoosers don't engage in the choice process.

Concerted Cultivation as a Predictor of Choice and Mediator of SES Effects

Prior research, including some in ECLS, has established that parenting behaviors consistent with concerted cultivation are associated with positive academic outcomes in elementary school (Cheadle, 2009; Cooper, Crosnoe, Suizzo & Pituch, 2010). Higher levels of concerted cultivation are associated with higher student achievement, and concerted cultivation partially mediates the relationship between SES and achievement.

School choice and concerted cultivation seemingly have a lot in common. Both concepts involved deliberate actions on the part of parents to better their children's social or intellectual development. School choice and concerted cultivation both involve non-negligible costs for parents. At a minimum, both practices require opportunity costs due to the time involved. Real expenditures may also be involved, particularly for external enrichment opportunities like music lessons and organized sports, tuition costs for private schools, and transportation costs for both non-neighborhood schooling and extracurricular enrichment activities.

While it seems likely that concerted cultivation would be associated with active school choice, that relationship has never been properly tested. Given concerted cultivation's prominent place in the current study of class reproduction and stratification, it is worthwhile to examine potential relationships between these parenting practices and other outcomes of interest to social scientists. This study is similar to prior quantitative studies of concerted cultivation in the sense that it positions concerted cultivation as a mediator between socioeconomic status and the outcome of interest. By focusing on school choice rather than academic achievement, this study, in a sense, tests a previously defined path on a new outcome.

As expected, concerted cultivation was indeed associated with school choice, and the strength of that association was fairly consistent across all three types of school choice examined. A one s.d. increase in concerted cultivation was associated with a 1.4 to 1.6 times increase in the odds of being a chooser, after accounting for SES and the full set of other controls. Concerted cultivation also improved the variance explained by the models in all three cases. The construct does also partially mediate the relationship between SES and school choice at a statistically significant level in all three cases (Sobel test $p < .01$). The portion of the SES effect mediated by concerted cultivation ranges from a low of 9% for private chooser models to a high of 25% for residential chooser models. Although this difference seems fairly substantial, it is important to keep in mind that the SES effect in residential chooser models is much smaller than it is for private chooser models. It is particularly notable that concerted cultivation main effect is roughly the same size across the different outcomes, while the SES effect varies substantially.

These results provide preliminary evidence that concerted cultivation is associated with school choice, suggesting that choice may be somewhat consistent with broader patterns of

parenting behavior around educational enrichment. This finding should be tested more thoroughly with structural equation modeling (SEM). With SEM, concerted cultivation can be treated as a latent construct, and different measurement models accounting for error can be tested in relation to the school choice outcome. SEM will also allow different constraints to be added or removed from the model, such as permitting or restricting correlations between predictors. Sociologists who are interested in better understanding both the nature of concerted cultivation and its relationship to social paths and outcomes may want to include the additional capabilities of SEM in any efforts to further test or confirm the preliminary findings from this study.

Along with SEM analysis, more rigorous testing of racial differences in concerted cultivation effects would be prudent, as was done by Cooper, Crosnoe, Suizzo & Pituch (2010) in their family process study in ECLS. In the current study, interaction effects with concerted cultivation and race/ethnicity indicators were tested, revealing noticeable differences in concerted cultivation effects across groups. For private and non-residential public choice, blacks and Hispanics had substantially higher odds ratios associated with a one s.d. increase in concerted cultivation than whites or Asians, with Hispanics having particularly strong effects. Interestingly, SES effects were also substantially larger for black and Hispanics, compared to other groups.

This study is not capable of explaining why these differences may occur. One possibility is that SES and concerted cultivation increases have larger effects for black and Hispanics because they have lower average SES to start with. For many social outcomes, increases in income have a stronger positive association with the outcome for families below the national median income (e.g. Dahl & Lochner, 2012). In this study, when the sample was restricted to families with SES below the mean, main SES effects did indeed grow larger for both private and

non-residential public choice models. While this dynamic is one possible explanation for stronger SES and concerted cultivation effects for black and Hispanic families, many other factors related to their neighborhood contexts, assigned schools, parenting preferences or social networks could be in play. Once again, combining the sociological and parenting practices in ECLS data with the school assignments and neighborhood level specificity in single-city sorting studies would be a good way to explore these possibilities further.

One potential factor contributing to racial differences in SES effects and the effects of being more affluent than one's neighbors is the level of socioeconomic inequality in the neighborhoods of black and Hispanic families. Due to housing discrimination, a lack of wealth, and other factors, even higher income minority families are often unable to relocate to substantially better neighborhoods. The large differences in SES among neighbors in these circumstances might increase the likelihood that higher SES black and Hispanic families may engage in non-residential school choice. Gini coefficients in census data could be used further test this hypothesis. One would expect to see larger SES and relative SES effects when Gini coefficients in census tracts are higher.

Concerted cultivation constructs could also be tested in relation to more specific choice outcomes, although that probably cannot be done in ECLS data. This study simply identifies those who claim to make an active choice or not. It does not distinguish between choosers who were leavers, those who departed their assigned public school, and stayers. It also does not distinguish between parents who selected more racially or socioeconomically homogenous schools for their children, the neutral ethnocentrism model, and those who exited a poor performing public school in favor of a higher performing school. It would be worthwhile to investigate how concerted cultivation is related to those different types of choice moves.

More importantly, such findings could have profound implications for our understanding of student sorting through school choice. For example, if concerted cultivation turns out to be particularly strongly associated with neutrally ethnocentric or white flight choices, that finding would provide good evidence that the increased segregation occurring through market-based systems runs deeper than the racial or socioeconomic make-up of the school. Choice may also be serving to separate students who experience concerted cultivation at higher degrees from those experiencing what Lareau calls the “accomplishment of natural growth” model of parenting (2003). While commentators have expressed concern that this type of segregation may already be occurring through school choice, supporters of market-based models simply counter with data on the prevalence of free/reduced lunch students in many charter schools. Without hard findings on the parenting tendencies of nonchoosers and different types of choosers, this debate goes nowhere.

Lack of association between choice and home-based educational enrichment

Another interesting finding from this study was the lack of relationship between some other forms of educational enrichment and participation in school choice. As presented in Table 14 and its accompanying regressions, concerted cultivation composites only had a positive association with school choice when they were composed of relatively costly or transportation-intensive activities like dance lessons, music lessons, organized sports, and the number of books a child has at home. An alternative composite consisting of home-based enrichment like the frequency of reading and doing art at home and parental attitudes about the importance of kindergarten readiness had essentially no relationship with choice. This latter finding is particularly surprising since more resource-intensive parental engagement measures were among the best predictors of choice, particularly for black and Hispanic families. It seems odd that

parents who are devoting more time at home to educational activities are no more likely to be active in school choice, after controlling for their SES and other household characteristics.

Arguably, this finding supports the claim that participation in school choice is more about opportunity and resources than parental attitudes or engagement in their children's education. Parents with the time, money, transportation, and informational resources to take their kids to more dance lessons, organized sports, museums, and science clubs, were more likely to engage in school choice. Qualitative studies of choosers find that some parents spend a great deal of time reviewing school information, visiting schools, and discussing options with other parents. Parents also share how family logistics and demands on their time can make both the choice progress and attendance at non-neighborhood schools very difficult (e.g. Bell, 2009a; 2009b). Given these prior findings, it is perhaps not surprising that resource or transportation-intensive types of concerted cultivation are more strongly related to choice than other sorts of parental engagement.

This finding is likely not good news for many choice advocates, particularly those interested in the liberation model. In that model, poor parents who are located in the catchment areas of low performing schools and commit the time and effort to improving their children's educational outcomes can be liberated by school choice options. In this study, the parents committing more time to home-based educational activities are no more likely to participate in school choice, at least casting some doubt on the viability of the liberation model.

This issue of course can be investigated more thoroughly by including concerted cultivation measures in sorting studies that can specifically identify the choosers making school moves consistent with the liberation model as opposed to the outgroup avoidance or neutral

ethnocentrism models. Additional examinations of resource-intensive concerted cultivation could also be conducted in ECLS. It may be worthwhile to profile the families who engage in high degrees of concerted cultivation in greater detail to see how transportation, family structure, employment time commitments, social networks, and neighborhood contexts affect concerted cultivation and the likelihood of engaging in school choice. Such analyses may also help unpack why nonchoosers do not engage with school choice markets. For example, it is worth noting that home-based enrichment activities, unlike school choice and the more resource-intensive activities outside the home, do not require much engagement with formal institutions on the part of parents. Perhaps the bureaucracy involved in school choice itself also creates a barrier that decreases the likelihood that poor and working class parents who are otherwise very invested in educational enrichment will engage in school choice.

Some observers may contend that the “opportunity cost” concerted cultivation composite discussed here, the composite capturing parent attitudes and kids’ enrichment activities at home, is not concerted cultivation at all. This argument does have some merit. Lareau’s notion of concerted cultivation identified three major types of behaviors: (a) deliberate, organized activities for children, (b) more inquisitive and complex verbal exchanges with children, and (c) the modeling of an assertive stance in relation to major institutions. The second and third types of behaviors here are not directly captured in ECLS. Researchers have sometimes used proxy measures in ECLS, including home-based measures like reading, storytelling, and the number of books, in an attempt to capture parents’ verbal practices. The opportunity cost composite used in this study also adds a measure of parents’ attitudes on the importance of kindergarten readiness. Unfortunately, only the ECLS questions concerning enrichment activities outside the home, like music lessons, dance lessons, and organized sports, directly align with Lareau’s

definition of concerted cultivation. One can certainly argue that home-based proxy measures are not good operationalizations of concerted cultivation, and that they instead represent another type of parental engagement in education. From that perspective, only the resource-intensive concerted cultivation composite accurately represents the concept, and so the results of this study clearly demonstrate a relationship between concerted cultivation and school choice. Such a distinction may be important for researchers who are interested in further studying concerted cultivation and its relationship to class reproduction and other social outcomes. The distinction is perhaps less important to education policy observers who are interested in how parental involvement in education relates to participation in school choice. For that audience, whether or not home-based educational activities constitute concerted cultivation is probably irrelevant.

One could also argue that the opportunity cost composite may be unrelated to choice participation because choosers are simply getting more of their enrichment outside of the home through organized activities and center-based care. In other words, choosers would likely have higher frequencies of reading and doing art at home if they weren't spending so much time out at dance lessons and organized sports. Although this possibility cannot be definitively ruled out, results of the regression analyses, which are only partially presented in Table 14, do not provide support for this hypothesis. Controls for center-based daycare are included in the analysis, and the presence or absence of this control does not affect the relationship between the two concerted cultivation composites and the likelihood of school choice. Likewise, the odds ratios for a one s.d. increase in the two concerted cultivation composites are unaffected by the presence or absence of the other concerted cultivation composite in the model.

School Choice as a Status symbol in Classic Stratification

This study does indeed provide some evidence that modern ideas on the mechanisms of class reproduction and stratification are related to participation in school choice. It also tests a classic concept of stratification in relation to school choice, although data limitations only permit a crude approach to this issue. Family's consumption decisions can be influenced by a desire to send a signal about their social class, and few consumption decisions are bigger than the selection of a school for the family's children. According to classic stratification theory, families will tend to consume services in a manner consistent with their social class. Testing this idea in relation to school choice is difficult though because residential areas tend to be socioeconomically segregated, meaning that families will often share the same social class and educational tendencies as their neighbors. Upper middle class neighborhoods will often have assigned traditional public schools with largely upper middle class enrollments. In that circumstance, attending the traditional public school could indeed send the "right" signal about an upper middle class family's social class. That same family, however, might make a different school choice if they live in a neighborhood or school catchment area that primarily serves working class families.

In order to see if school choice may be serving as a status symbol for some families, it is important to measure not just a family's absolute SES but also their status relative to their neighbors. This study looks for families that have higher SES than their neighbors and examines whether or not these families are more likely to exercise private school or non-residential public school choice. Due to data limitations, families with higher SES than their neighbors are simply identified as those who have higher educational attainment levels than the median attainment level in their census tract.

The results indicate that having higher educational attainment than one's neighbors is indeed somewhat positively associated with private school choice on average before race interactions are added to the models. This indicator did also reduce the main SES effect, so the association could just be a reflection of the high SES of the families that are above the norm for their neighborhoods. The results are much more compelling after race interactions are added to the private chooser and non-residential chooser models. For white and black families, being above the neighborhood median in educational attainment was rather positively associated with private school choice, while results were close to neutral for other groups. For non-residential public choice, the same indicator had a substantial positive effect for white families and brought the main SES effect for whites down to neutral. Interestingly, Hispanics, who had much larger SES and concerted cultivation effects than other groups, had effects on this educational attainment measure that were closer to neutral.

There are at least a couple of possible interpretations of these results. Perhaps white and black families are somewhat more likely to use private school choice as a status symbol. Families' social networks tend to be segregated along racial and socioeconomic lines, and those networks certainly may value different signals of status more than others. An equally likely scenario, however, is that these results may have more to do with race than with socioeconomics. Since this study was focused on socioeconomic stratification mechanisms, it did not examine neighborhood racial composition, apart from the inclusion of some racial measures in the neighborhood disadvantage index. Likewise, the study identifies minority families but it does not identify those that are minorities in relation to their neighborhood racial composition.

At a minimum, those indicators should be added to the current models to determine the extent to which racial composition may influence participation in private and non-residential

school choice. Enriching traditional sorting studies with relative SES indicators would also be beneficial. Single-city sorting studies, while lacking in socioeconomic detail, capture racial context relatively well, usually by looking at a student's race and the racial composition of his or her assigned school. As noted previously, those studies could benefit from greater detail on SES and parenting practices. One way for those studies to look beyond free/reduced lunch cutpoints would be to employ the approach used here. Combining family-level and neighborhood-level educational attainment and racial data from the census with school-level data would provide a good opportunity to thoroughly examine how racial and socioeconomic factors are associated with participation in choice.

Researchers examining the sorting effects of school choice may want to consider classic stratification hypotheses as they enrich their model designs. Likewise, sociologists interested in stratification mechanisms may also want to explore this issue further, particularly since this perspective is a counterpoint to the concerted cultivation and family process models that are so influential in studies of class reproduction today. This line of study could also be of interest to school marketers and district officials. Since Supreme Court decisions have removed the ability of schools to use race in school enrollment plans, some districts have turned to more sophisticated socioeconomic data to help maintain school diversity to some extent.

Understanding how the relative economic position of families to the neighbors or classmates affects their school choice behaviors could help these district leaders predict how policy changes might affect public school enrollments over time.

Limitations

Some important limitations need to be considered when interpreting this study. First, it is important to note that many of the choosers in this sample are self-identified based on two survey

questions. The first question asks parents if they moved to their current location for the school. The second question asks parents if their current school was assigned or chosen. Based on answers to these questions and the type of school attended, families were assigned a chooser type. Since many studies of choosers rely on behavioral indicators like leaving one's geographically assigned school, some observers may be concerned about parents' understanding of the questions and the subsequent assignment of them to chooser types.

A closer examination of the data and its collection procedures, however, suggests that the vast majority of parents understood the key survey questions. First, the surveys were collected by phone, which does enable a small degree of clarification between the participating parent and the surveyor using a computer-aided telephone interview system. Second, when both self-reports and behavioral indicators were available to indicate choice, the self-reports overwhelmingly aligned with the other indicators. For example, attenders of charter schools or private schools have unquestionably made a choice other than their assigned public school. In those circumstances, typically 98% or more of the participants answered the questions "correctly". These results increase the author's confidence that attendees of other school types also understood the key survey questions. Lastly, the regression results, particularly for the models of residential school choice provide some additional evidence that this group had indeed moved to a location deliberately for the schools. Two neighborhood indicators, the neighborhood disadvantage index and parents' perceptions of neighborhood safety, were included in the models. Residential choosers were the only group among the three types of choosers in which their school was determined by their residential neighborhood. The only time when significant effects were found for the neighborhood disadvantage index and perceptions of neighborhood safety variable was for the residential chooser model, and the direction of the

effects indicated that residential choosers had indeed picked better or safer neighborhoods compared to nonchoosers. This relationship was consistent enough to produce statistically significant effects, providing additional indications that parents understood the questions about residential choice.

Although there is still some risk that some parents will present themselves as choosers as a socially desirable survey response, the overall benefits of using self-reports and the family-level detail in ECLS outweigh this risk in the author's view. The key benefit of using self-reports is that choosers who are not leavers of their assigned school can be identified. Many studies conflate the definition of choosers and leavers, only considering attendees of non-neighborhood schools as choosers. While the clarity of a behavioral indicator is understandably appealing, if the research community is really interested in choosers and nonchoosers rather than leavers and stayers, parents' self reports need to be included at some level. Studying choice in ECLS essentially requires the use of parent self-reports, and ECLS's extensive parent surveys can greatly benefit school choice research, as this study hopefully demonstrates.

A second limitation or concern for the study is the way in which significant effects are identified. The alpha for this study was set at .10, and the groups of choosers and nonchoosers were compared on many different variables. This creates a situation in which multiple comparisons could be a concern, meaning that some observed differences may still be due to chance even if they appear to be statistically significant. Accordingly, the mere presence of a significant effect cannot be interpreted as meaningful in this context.

Multiple comparisons are indeed a concern but there are a number of reasons why the key effects in these results do not appear to be due to chance and why an alpha of .10 is defensible in

this context. The family-level detail in ECLS makes it very valuable, but it does have some critical limitations for studying school choice, namely the lack of a family's assigned school. Not knowing the characteristics of a students' assigned school removes some key variables for predicting choice participation, meaning that these models are bound to be noisy. This noise, along with the exploratory nature of the study, was the justification for setting the alpha at .10. None of the models in the study are intended to be confirmatory or ultimately conclusive. Concerted cultivation effects will be confirmed through SEM, relative SES indicators must be refined considerably to account for other neighborhood demographics, and most importantly, the general modeling approach is intended to enhance sorting studies that can directly identify students' assigned and attended schools. Avoiding Type II error is thus especially important at this very early stage in this research agenda.

The theoretical coherence of the key observed effects and their changes or consistencies depending on the chooser type modeled provide some additional support for claims that these effects are not likely due to chance. For example, with private school choice being more expensive due to tuition costs, one would anticipate stronger positive SES effects for this type a choice, and this prediction was confirmed in the results. Concerted cultivation, on the other hand, is less clearly linked to income, though some costs are involved. The effects for this indicator were of similar size across the chooser types and were statistically significant well below .05. The last of the key effects in this study, the indicator of being more educated than your neighbors, was predicted to be most associated with private school choice, and that proved to be the case in the results. In the absence of racial interactions, this effect was not significant with either an alpha of .10 or .05, though it approached .10 significance. When racial interactions were added, the effects were significant below .05 for the major racial groups and

were theoretically coherent, given the higher economic inequality in black urban neighborhoods. Other effects that were not a major focus of the study were also as predicted based on the chooser type being modeled. Since private choice is expensive and Head Start requires low income, a negative relationship would be anticipated between the two, though other center-based is likely positively associated with private choice. For non-residential public choice, both Head Start and other center-based care were anticipated to be positively associated. Both sets of predictions were confirmed in the results. Overall, there is little indication that the key effects in the results and the conclusions drawn from them were due to chance or were substantially affected by an alpha of .10. Standard errors for all effects and indicators of $p < .001$ were also included in the tables to permit additional interpretation around the significance of effects.

Additional Recommendations for Future Research

There have been very few studies in school choice research that have attempted to explain away the relationship between SES and choice. Applying the approach used here to different age ranges and geographies of the U.S. education system could help expand this body of knowledge. For example, conducting a study similar to this one on choosers and nonchoosers at middle school and high school levels would help determine if the gaps in access observed here persist, diminish, or expand over time. This study examines choice in the kindergarten year, meaning that many students and families have not directly consumed educational services at the elementary schools in question yet. School choice decisions that are made in reaction to negative experiences in K-12 schools are likely to be somewhat less prevalent at this stage than they would be in late elementary, middle, and high school. School choice is also more likely to be a voluntary market at the kindergarten level. Some urban districts have begun introducing mandatory choice models in which parents have to state a list of preferences during the

enrollment process. However, when mandatory choice models are present, they are more common at middle and high school levels.

Given all of the factors that make kindergarten choice different, it is possible that socioeconomics and class-based norms, attitudes, and social networks could have greater explanatory power at this stage in school choice. On the other hand, socioeconomics and these class-based factors could also substantially affect how parents become aware of or react to their children's negative educational experiences in schools. Perhaps families with sufficient means are more likely to vote with their feet, while lower SES families must try to resolve issues within the current school because exiting is less feasible. Conversely, if lower SES parents are less comfortable or less equipped to confront institutional actors, they might be more likely to exit rather than pursue democratic options. Most likely, the lower SES families may face disadvantages on both fronts, increasing the likelihood that they will be unsatisfied non-choosers. Replicating the current study with middle and high school populations could begin to test some of those hypotheses, though more detailed qualitative and survey work would of course be needed to test the mechanisms by which the gaps in choice access expand or contract over time. Examining the associations between concerted cultivation and choice over time could be useful as well. As students grow older, they may have greater say in both their extracurricular activities as well as their school choices. The extent of concerted cultivation in early childhood could have long running effects on extracurricular involvement, institutional engagement, and school choice over time.

Conclusion: Urban school choice after the tipping point

Some school choice commentators have argued that school choice will work most efficiently and equitably once participation reaches a certain critical mass (Merrifield, 2001). In

other words, once school choice becomes the dominant norm within an area, any issues with unequal participation in choice will decline considerably or even go away. It is hard to say exactly what this critical mass would look like or how it would be measured, but there is little doubt that charter schools and school choice systems have passed the tipping point in most states and are here to stay. Charter school organizations enjoy substantial political support on both sides of the aisle, and they have robust professional organizations, many devoted families, and a variety of deep-pocketed supporters. In most major metropolitan areas, it would be difficult to claim that the school choice system is still in its infancy. Many markets may have not reached the maturity of choice-intensive cities like Washington, D.C. and New Orleans, but relatively few of them would have been considered new to school choice and charter schools in 2010 when these ECLS data was collected.

At a point in time when non-residential forms of public school choice have become commonplace, considerable socioeconomic gaps between choosers and nonchoosers still remain. Importantly, some of these gaps may not be readily apparent in school enrollment data, and they may not be easy to understand for more casual observers of educational policy or those less interested in the sociology of education. Concerns that schools of choice are either creaming off the best students or cropping off the hardest to educate students from traditional public schools do indeed persist, and occasionally these issues will garner a little attention in education circles (e.g. O'Connor & Gonzalez, 2011). More robust data on the differences between choosers and nonchoosers and the sorting effects of school choice might help researchers elevate these concerns to a point where policy action is more likely to occur. However, for every study or story revealing inequities in school choice systems, there are counterpoints noting the percentage of charter school students that are free/reduced lunch and studies conducted by pro-school-choice

think tanks that find positive outcomes for charter schools (e.g. Winters, 2016). More importantly, the entire debate is easily trumped by coverage of largely minority charter schools with very high college placement rates and inspiring stories of low income students that were liberated from lousy public schools (e.g. Eldeib, 2010).

There is little question that charter schools and choice systems will persist in American cities and probably even expand over time. The more meaningful question at this time is how these choice systems will be regulated. Pursuing modest incremental, even technocratic, improvements in how urban districts measure and manage their choice systems is probably the best strategy for advocates of more equitable school choice. Additional research and stronger conclusions on inequitable participation in choice and the sorting effects of student moves will certainly help these efforts, but such data alone are far from sufficient to make meaningful progress in policy circles. Researchers and other political actors will need to craft coherent, accessible messages, meaningfully engage the media, persist in their efforts, and exploit political windows of opportunity when they become available. “Equal opportunity” is a difficult enough concept for even researchers to define and measure. Getting the public and their elected officials to care about nuanced ideas of equal opportunity in school choice systems will be a considerable challenge indeed.

References

- Acock, A. C., & Demo, D. H. (1994). *Family diversity and well-being*. Thousand Oaks, CA: Sage.
- Adler, M. & Raab, G. (1988). Exit, choice and loyalty: the impact of parental choice on admissions to secondary schools in Edinburgh and Dundee, *Journal of Education Policy*, 3:2, 155-179
- Allen, R. (2007). Allocating Pupils to their Nearest Secondary Schools: the Consequences for Social and Ability Stratification. *Urban Studies*, 44(4), 751-770.
- Amato, P. R., & Keith, B. (1991). Parental divorce and the well-being of children: A meta-analysis. *Psychological Bulletin*, 110, 26-46.
- Amato, P. R., & Fowler, F. (2002). Parenting practices, child adjustment, and family diversity. *Journal of marriage and family*, 64(3), 703-716.
- Ambler, J. S. (1994). Who benefits from educational choice? Some evidence from Europe. *Journal of Policy Analysis and Management*, 13(3), 454-476.
- Anderson, K. J., & Minke, K. M. (2007). Parent involvement in education: Toward an understanding of parents' decision making. *The Journal of Educational Research*, 100(5), 311-323.
- Andre-Bechely, L. (2007). Finding space and managing distance: Public school choice in an urban California district. *Urban Studies*, 44(7), 1355.
- Archbald, D. (1996). SES and demographic predictors of magnet school enrollment. *Journal of Research and Development in Education*, 23(3), 152-163.
- Archbald, D. (2004). "School Choice, Magnet Schools, and the Liberation model: An Empirical Study." *Sociology of Education*, 77, 283-310.

- Armor, D., & Peiser, B. (1998). Interdistrict choice in Massachusetts. In P. Peterson & B. Hassel (Eds.), *Learning from school choice* (pp. 157-186) Washington, DC: Brookings Institution.
- Arnold, D. H., Zeljo, A., Doctoroff, G. L., & Ortiz, C. (2008). Parent Involvement in Preschool: Predictors and the Relation of Involvement to Preliteracy Development. *School psychology review, 37*(1), 74-90.
- Arsen, D., & Ray, L. (2004). When do charter schools enroll students with disabilities? *Journal of Special Education Leadership, 17*(2), 71-81.
- Ball, S., Bowe, R., & Gewirtz, S. (1994). Market forces and parental choice. In S. Tomlinson (Ed.) *Educational Reform and its Consequences*. (p. 49-73). London: Cassell.
- Ball, S. J. (1993). Education markets, choice and social class: The market as a class strategy in the UK and the USA. *British Journal of Sociology of Education, 14*(1), 3-19.
- Ball, S. J., Bowe, R., & Gewirtz, S. (1996). School choice, social class and distinction: The realization of social advantage in education. *Journal of Education Policy, 11*(1), 89-112.
- Becker, G. S. (1964) *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*. Chicago: University of Chicago Press.
- Bell, C. (2009a). Geography in parental choice. *American Journal of Education, 115*(4), 493-521.
- Bell, C. A. (2009b). All choices created equal? The role of choice sets in the selection of schools. *Peabody Journal of Education, 84*(2), 191-208.
- Berger, L. M., Carlson, M. J., Bzostek, S. H., & Osborne, C. (2008). Parenting practices of resident fathers: The role of marital and biological ties. *Journal of Marriage and Family, 70*(3), 625-639.
- Bifulco, R., Ladd, H. F., & Ross, S. L. (2009a). The effects of public school choice on those left behind: Evidence from Durham, North Carolina. *Peabody Journal of Education, 84*(2), 130-149.

- Bifulco, R., Ladd, H. F., & Ross, S. L. (2009b). Public school choice and integration evidence from Durham, North Carolina. *Social Science Research*, 38(1), 71-85.
- Bifulco, R., & Ladd, H. F. (2006). The impacts of charter schools on student achievement: Evidence from North Carolina. *Education Finance and Policy*, 1(1), 50-90.
- Blank, R. K., Levine, R. E., & Steel, L. (1996). After 15 years: Magnet schools in urban education. In B. Fuller & R. Elmore (Eds.) *Who Chooses? Who Loses? Culture, Institutions, and the Unequal Effects of School Choice*. (p. 154-172). New York: Teacher's College Press.
- Booker, K., Zimmer, R., Buddin, R. (2005). *The Effects of Charter Schools on School Peer Composition*. RAND. WR-306-EDU. Retrieved http://www.rand.org/pubs/working_papers/WR306.html on 7-4-12.
- Bourdieu, P. (1977). *Outline of a Theory of Practice*. Translated by Richard Nice. New York: Cambridge University Press.
- Bourdieu, P. (1984). *Distinction: A Social Critique of the Judgement of Taste*. Cambridge, MA: Harvard University Press.
- Bodovski, K. & Farkas, G. (2008). Concerted Cultivation and unequal achievement in elementary school. *Social Science Research*, 37 903-919.
- Bodovski, K., Youn, M. (2010). Love, discipline and elementary school achievement: The role of family emotional climate. *Social Science Research* 39, 585–595.
- Booth, A., & Amato, P. R. (2001). Parental Predivorce Relations and Offspring Postdivorce Well-Being. *Journal of Marriage and Family*, 63(1), 197-212.
- Bradley, R. H., & Corwyn, R. F. (2002). Socioeconomic status and child development. *Annual review of psychology*, 53(1), 371-399.
- Brooks-Gunn, J., Duncan, G., & Aber, J. L. (Eds.). (1997). *Neighborhood poverty, volume 1: Context and consequences for children*. Russell Sage Foundation.

- Brooks-Gunn, J., & Duncan, G. J. (1997). The effects of poverty on children. *The future of children*, 55-71.
- Buddin, R., Cordes, J. J., Kirby, S.K. (1998). School Choice in California: Who Chooses Private Schools? *Journal of Urban Economics* 44, 110–134
- Bulman, R. C. (2004). School-choice stories: The role of culture. *Sociological Inquiry*, 74(4), 492-519.
- Burgess, S., Briggs, A. (2010). School assignment, school choice and social mobility. *Economics of Education Review* 29 (2010) 639–649
- Burkham, D., Lee, V. (2002). *Inequality at the Starting Gate: Social background differences in achievement as children begin school*. Washington, D.C.: Economic Policy Institute.
- Butler, J.S., Carr, D., Toma, E., Zimmer, R. (2010). Choice in a World of New School Types. NCSPE Working Paper 186. Retrieved http://www.ncspe.org/publications_files/OP186.pdf on 4-3-11.
- Campbell, D. E., West, M. R., & Peterson, P. E. (2005). Participation in a national, means-tested school voucher program. *Journal of Policy Analysis and Management*, 24(3), 523–541.
- Carnoy, M. (1993). School improvement: Is privatization the answer? In J. Hannaway & M. Carnoy (Eds.), *Decentralization and school improvement* (pp. 23-51). San Francisco: Jossey- Bass.
- Carnoy, M. & McEwan, P. (1999). Does privatization improve education? The case of Chile's National Voucher Plan. Stanford University Working Papers. Retrieved from <http://www.stanford.edu/dept/SUSE/ICE/pdfs/Chilepaper.pdf> on 10-10-09.
- Carroll, S., & Walford, G. (1997). Parents' responses to the school quasi-market. *Research Papers in Education: Policy and Practice*, 12(1), 3-26.
- Cascio, E. U., & Lewis, E. G. (2012). Cracks in the Melting Pot: Immigration, School Choice, and Segregation. *American Economic Journal: Economic Policy*, 4(3), 91-117.

- Center for Education Reform. (2014). *Choice and Charter School Facts*. Retrieved 9-28-14, from <https://www.edreform.com/issues/choice-charter-schools/facts/>.
- Chakrabarti, R. (2006). Do vouchers lead to sorting even under random private school selection? Evidence from Milwaukee voucher program (National Center for the Study of Privatization in Education Research Publication Series). New York: National Center for the Study of Privatization of Education, Teachers College, Columbia University.
- Cheadle, J. (2009). Parent Educational Investment and Children's General Knowledge Development. *Social Science Research* 38, 477-491.
- Cheadle, J., Amato, P. (2011). A Quantitative Assessment of Lareau's Qualitative Conclusions About Class, Race, and Parenting. *Journal of Family Issues* 32, 679-706.
- Chinn, S. (2000). A simple method for converting an odds ratio to effect size for use in meta-analysis. *Statistics in medicine*, 19(22), 3127-3131.
- Clotfelter, C. Ladd, H. Vigdor, J. (2006). Federal oversight, local control and the specter of resegregation *American Law and Economics Review*. 8, 1-43.
- Cobb, C. D., & Glass, G. V. (1999). Ethnic segregation in Arizona charter schools. *Education Policy Analysis Archives*, 7(1)
- Conger, R. D., Ge, X., & Lorenz, F. (1994). Economic Stress and Marital Relations. In R. D. Conger & G. H. Elder (Eds.), *Families in troubled times: Adapting to change in rural America* (pp. 187-203). New York, NY: Aldine de Gruyter.
- Coons, J. E., & Sugarman, S. D. (1978). *Education by choice: The case for family control*. Berkeley: University of California Press.
- Cooper, C., Crosnoe, R., Suizzo, M., & Pituch, K. (2010). Poverty, Race, and Parental Involvement During the Transition to Elementary School. *Journal of Family Issues*, 31, 859- 883.
- Crosnoe, R. (2004). Social capital and the interplay of families and schools. *Journal of Marriage and Family*, 66(2), 267-280.

- Crosnoe, R., & Cavanagh, S. E. (2010). Families with children and adolescents: A review, critique, and future agenda. *Journal of Marriage and Family*, 72(3), 594-611.
- Crosnoe, R., & Cooper, C. E. (2010). Economically Disadvantaged Children's Transitions Into Elementary School Linking Family Processes, School Contexts, and Educational Policy. *American Educational Research Journal*, 47(2), 258-291.
- Croxford, L., & Paterson, L. (2006). Trends in social class segregation between schools in England, Wales and Scotland since 1984. *Research Papers in Education*, 21(4), 26.
- Cullen, J. B, Jacob, B. A., & Levitt, S. (2005). The impact of school choice on student outcomes: An analysis of the Chicago Public Schools. *Journal of Public Economics*, 89(5), 729-760.
- Dahl, G. & Lochner, L. (2012). The impact of Family Income on Child Achievement: Evidence from the Earned Income Tax Credit. *American Economic Review*. 102(5): 1927-1956
- Dearing, E., McCartney, K., & Taylor, B. A. (2001). Change in family income-to-needs matters more for children with less. *Child Development*, 72(6), 1779-1793.
- Denessen, E., Driessena, G., & Slegers, P. (2005). Segregation by choice? A study of group-specific reasons for school choice. *Journal of Education Policy*, 20(3), 347-368.
- Diamond, J. B., & Gomez, K. (2004). African-American parents' educational orientations: The importance of social class and parents' perceptions of schools. *Education and Urban Society*, 36(4), 383-405.
- DeJarnatt, S. (2008). School choice and the (ir)rational parent. *Georgetown Journal on Poverty Law and Policy*, 15, 7-21.
- Delaney, D. (2002). The space that race makes. *The Professional Geographer*, 54(1), 6-14.
- Douse, M. (1985). The background of Assisted Places Scheme students. *Educational Studies*, 11(3), 211-217.
- Downey, D. B. (1995). When bigger is not better: Family size, parental resources, and children's educational performance. *American Sociological Review*, 746-761.

- Duncan, G. J., & Magnuson, K. A. (2005). Can family socioeconomic resources account for racial and ethnic test score gaps? *Future of Children*, 15(1), 35-54.;
- Echols, F. H., & Willms, J. D. (1995). Reasons for school choice in Scotland. *Journal of Education Policy*, 10(2), 143-156.
- Elacqua, G. (2009). The impact of school choice and public policy on segregation: Evidence from Chile. *International Journal of Educational Development*, 32, 444-53.
- Elder Jr., G.H., Eccles, J.S., Ardelt, M., Lord, S. (1995). Inner-city parents under economic pressure: perspectives on strategies of parenting. *Journal of Marriage and Family* 57, 771–784.
- Eldeib, D. (2010, March 5). “Every Urban Prep senior is college-bound”. *Chicago Tribune*. Retrieved http://articles.chicagotribune.com/2010-03-05/news/ct-met-urban-prep-college-20100305_1_metal-detectors-college-school-leaders on 1-7-13.
- Elmore, R. F. (1988). Choice in public education. In W. L. Boyd & C. T. Kerchner (Eds.), *The politics of excellence and choice in education: 1987 yearbook of the Politics of Education Association* (pp. 79-98). New York: Falmer.
- Entremont, C. & Gulosino, C. (2008). Circles of influence: How neighborhood demographics and charter school location influence student enrollments. NCSPE Working Paper. Retrieved from http://w.ncspe.org/publications_files/OP160.pdf
- Epple, D., Figlio, D. N., & Romano, R. E. (2004). Competition between private and public Schools: Testing stratification and pricing predictions. *Journal of Public Economics*, 88(7), 1215–1245
- Fairlee, R. W. (2006). *Racial segregation and the private/public school choice* (National Center for the Study of Privatization in Education Research Publication Series). New York: National Center for the Study of Privatization of Education, Teachers College, Columbia University.

- Farley, R., Richards, T., Wurdock, C. (1980). School Desegregation and White Flight: An Investigation of Competing Models and Their Discrepant Findings. *Sociology of Education*, 53, 123-139.
- Feinberg, M. E., Kan, M. L., & Hetherington, E. M. (2007). The longitudinal influence of coparenting conflict on parental negativity and adolescent maladjustment. *Journal of Marriage and Family*, 69(3), 687-702.
- Fomby, P., & Cherlin, A. J. (2007). Family instability and child well-being. *American Sociological Review*, 72(2), 181-204.
- Finn, C.E., Manno, B, Vanourek, G. (2001) *Charter schools in action: Renewing public education*. Princeton, NJ: Princeton University Press.
- Fisher, J. (1987). Social Class and Consumer Behavior: the Relevance of Class and Status. *Advances in Consumer Research*, 14, 492-496.
- Fitz, J., Edwards, A., & Whitty, G. (1986). Beneficiaries, benefits and costs: An investigation of the assisted places scheme. *Research Papers in Education*, 1(3), 169-193.
- Fossey, R. (1994). Open enrollment in Massachusetts: Why families choose. *Educational Evaluation and Policy Analysis*, 16, 320-334
- Frank, K. A. (2000). Impact of a confounding variable on a regression coefficient. *Sociological Methods & Research*, 29(2), 147-194.
- Frank, K.A. (2014). KonFound-it! Spreadshoot tool. Retrieved <https://www.msu.edu/~kenfrank/research.htm> on 10-7-14.
- Frankenberg, E., & Lee, C. (2003). Charter schools and race: A lost opportunity for integrated education. *Educational Policy Analysis Archives*, 11(32).
- Frankenberg, E., Siegel-Hawley, G., & Wang, J. (2010). Choice without equity: Charter school segregation and the need for civil rights standards. Los Angeles, CA: The Civil Rights Project/Proyecto Derechos Civiles at UCLA

- Garcia, D. R. (2008). Academic and racial segregation in charter schools. *Education and Urban Society*, 40, 590-612
- Garcia, D. R. (2010). Charter schools challenging traditional notions of segregation. In C. Lubienski and P. Weitzel (Eds.) *The Charter School Experiment: Expectations, Evidence, and Implications* (pp. 33-50). Cambridge, MA: Harvard Education Press.
- Gerdes, C. (2010). Does immigration induce native flight from public schools? Evidence from a large scale voucher program. IZA DP. No. 4788.
- Gershoff ET, Aber JL, Raver CC, Lennon MC. (2007). Income Is Not Enough: Incorporating Material Hardship Into Models of Income Associations With Parenting and Child Development. *Child Development*, 78(1):70-95.
- Gibson, A., & Asthana, S. (2000). Local markets and the polarization of public-sector schools in England and Wales. *Transactions of the Institute of British Geographers*, 25(3), 303-319.
- Goldring, E. (1997). Parent involvement and school choice: Israel and the U.S. In R. Glatter, P. Woods, & C. Bagley (Eds). *Diversity in schooling: Perspectives and prospects*. (pp. 173-198). London: Routledge.
- Gorard, S. & Fitz, J. (2000). Investigating the determinants of segregation between schools, *Research Papers in Education*, 15:2, 115-132
- Goyette, K., Freely, J., Farrie, D. (2006). This School's Gone Downhill: Racial Change and Perceived School Quality. Retrieved from <http://paa2006.princeton.edu/download.aspx?submissionId=60673> on 2-30-09.
- Greenwald, B.C, Stiglitz, J. E. (1986). Externalities in Economies with Imperfect Information and Incomplete Markets, *Quarterly Journal of Economics* 90, 229–264.
- Grusky, D. (Ed.) (2008). *Social Stratification: Class, Race, and Gender in Sociological Perspective*. 3rd edition. Boulder, CO: Westview Press.

- Gulosino, C. (2011). Schools' strategic responses to competition in segregated urban areas: Patterns in school locations in metropolitan Detroit. *Education Policy Analysis Archives*, 19 (13), 1-25.
- Guo, G, Harris, K.M. (2000). The mechanisms mediating the effects of poverty on children's intellectual development. *Demography*, 37, 431-447.
- Gutman, L. M., & Eccles, J. S. (1999). Financial strain, parenting behaviors, and adolescents' achievement: Testing model equivalence between African American and European American single- and two-parent families. *Child Development*, 70, 1464-1476.
- Hanushek E., Kain J., Rivkin, S., Branch, G. (2005). Charter School Quality and Parental Decision Making With School Choice. *NBER Working Paper 11252*. Cambridge, MA: National Bureau of Economic Research.
- Hastings, J., Weinstein, J. (2007). Information, School Choice, and Academic Achievement: Evidence from Two Experiments. NBER Working Paper 13623.
- Hastings, J. S., Kane, T. J., & Staiger, D. O. (2006). Parental preferences and school competition: Evidence from a public school choice program (National Bureau of Economic Research Working Paper No. 11805). Cambridge, MA: National Bureau of Economic Research.
- Henig, J. (1990). Choice in Public Schools: An Analysis of Transfer Requests Among Magnet Schools, *Social Science Quarterly*, 71, 69-82.
- Henig, J. R. (1995a). *Rethinking School Choice: Limits of the Market Metaphor*. Princeton, NJ: Princeton University Press.
- Henig, J. R. (1995b). Race and Choice in Montgomery County, Maryland, Magnet Schools, *Teacher's College Record*, 96, 729-743.
- Henig, J. R., & MacDonald, J. (2002). Locational decisions of charter schools: Probing the market metaphor. *Social Studies Quarterly*, 83(4), 962-980.

- Hipwell, A., Keenan, K., Kasza, K., Loeber, R., Stouthamer-Loeber, M., & Bean, T. (2008). Reciprocal influences between girls' conduct problems and depression, and parental punishment and warmth: A six year prospective analysis. *Journal of abnormal child psychology*, *36*(5), 663-677.
- Hirschmann, A. O. (1970). *Exit, voice, and loyalty: Responses to decline in firms, organizations, and states*. Cambridge, MA: Harvard University Press.
- Hoffman, S. D., Foster, E. M., & Furstenberg Jr, F. F. (1993). Reevaluating the costs of teenage childbearing. *Demography*, 1-13.
- Holme, J. J. (2002). Buying homes, buying schools: School choice and the social construction of school quality. *Harvard Educational Review*, *72*(2), 177-206.
- Holme, J. J., Richards, M. (2009). School Choice and Stratification in a Regional Context: Examining the Role of Inter-District Choice. *Peabody Journal of Education*, *84*, 150-71.
- Holme, J. J., & Wells, A. S. (2008). School choice beyond district borders: Lessons for the reauthorization of NCLB from interdistrict desegregation and open enrollment plans. In R. Kahlenberg (Ed.), *Fixing No Child Left Behind* (pp. 139–211). New York: The Century Foundation.
- Hoover-Dempsey, K.V., & Sandler, H. M. (1995). Parental involvement in children's education: Why does it make a difference? *Teachers College Record*, *97*(2), 310–331.
- Hoover-Dempsey, K.V., & Sandler, H. M. (1997). Why do parents become involved in their children's education? *Review of Educational Research*, *67*(1), 3–42.
- Hoover-Dempsey, K. V., Walker, J. M., Sandler, H. M., Whetsel, D., Green, C. L., Wilkins, A. S., & Closson, K. (2005). Why do parents become involved? Research findings and implications. *The Elementary School Journal*, *106*(2), 105-130.
- Horn, J., & Miron, G. (2000). An evaluation of Michigan's charter school initiative: Performance, accountability, and impact. Kalamazoo: Western Michigan University, The Evaluation Center.

- Howell, W. G. (2004). Dynamic selection effects in a means-tested, urban school voucher program. *Journal of Policy Analysis and Management*, 23(2), 225–250.
- Howell, W. G., & Peterson, P. E., Wolf, P. J., & Campbell, D. E. (2002). *The education gap: Vouchers and urban schools*. Washington, DC: Brookings Institution Press.
- Hsieh, C., & Urquiola, M. (2003). When schools compete, how do they compete? An assessment of Chile's nationwide school voucher program (National Bureau of Economic Research Working Paper No. 10008). Cambridge, MA: National Bureau of Economic Research.
- Hsieh, C.-T., & Urquiola, M. (2006). The effects of generalized school choice on achievement and stratification: Evidence from Chile's voucher program. *Journal of Public Economics* 90, 1477–1503
- Iceland, J. Weinberg, D., Steinmetz, E. (2002). Racial and Ethnic Segregation in the United States, 1980-2000. Census special reports. Retrieved http://www.census.gov/hhes/www/housing/housing_patterns/pdf/censr-3.pdf
- Israel, G. D., Beaulieu, L. J., & Hartless, G. (2001). The Influence of Family and Community Social Capital on Educational Achievement. *Rural sociology*, 66(1), 43-68.
- James, D., Beedell, P., Reay, D., Crozier, G., Jamieson, F. & Hollingworth, S. (2006). Community, capital, and calculation: Secondary school choice and the middle class self. Paper presented at the *British Educational Research Association Annual Conference*, University of Warwick, 6-9 September 2006.
- Jasti, S., Dudley, W. N., & Goldwater, E. (2008). SAS macros for testing statistical mediation in data with binary mediators or outcomes. *Nursing research*, 57(2), 118-122.
- Jencks, C. (1966). Who should control education? *Dissent*, March-April, 145-163.
- Johnson, P., Flake, E. (2007). Maternal Depression and Child Outcomes. *Psychiatric Annals*. 37, 123-47.

- Joshi, P., & Bogen, K. (2007). Nonstandard Schedules and Young Children's Behavioral Outcomes Among Working Low-Income Families. *Journal of Marriage and Family*, 69(1), 139-156.
- Kahneman, D., Tversky, A. (1979). Prospect Theory: An Analysis of Decision under Risk. *Econometrica* 47 (2): 263.
- Karsten, S. (1994) Policy on ethnic segregation in a system of choice: the case of The Netherlands *Journal of Education Policy* 9, 211-225.
- Karsten, S., Ledoux, G., Roeleveld, J. , Felix, C. , Elshof, D. School Choice and Ethnic Segregation. *Educational Policy*, 17,452-477.
- Koedel, C., Betts, J. R., Rice, L. A., & Zau, A. C. (2009). The integrating and segregating effects of school choice. *Peabody Journal of Education*, 84(2), 110-129.
- Kordi, A., & Baharudin, R. (2010). Parenting attitude and style and its effect on children's school achievements. *International Journal of Psychological Studies*,2(2), p217.
- Kurstjens, S., Wolke, D. (2001). Effects of maternal depression on cognitive development of children over the first 7 years of life. *Journal of Child Psychology and Psychiatry* 42 (5), 623-636.
- Lacireno-Paquet, N., Holyoke, T., Moser, M., Henig, J. (2002). *Educational Evaluation and Policy Analysis* 24 , 145-158.
- Ladd, H. F., & Fiske, E. B. (2001). The uneven playing field of school choice: Evidence from New Zealand. *Journal of Policy Analysis and Management*, 20(1), 43-63.
- Ladd, H. F., Fiske, E. B., & Ruijs, N. (2009). Parental choice in the Netherlands: Growing concerns about segregation. Paper presented at School Choice and School Improvement: Research in State, District and Community Contexts. Vanderbilt University, October 25-27, 2009.
- Lankford, H., Lee, E. S., & Wyckoff, J. (1995). An analysis of elementary and secondary school choice. *Journal of Urban Economics*, 38(2), 236-251.

- Lareau, A. (2003). *Unequal childhoods: Class, race, and family life*. Los Angeles, CA: University of California Press.
- Lareau, A., & Goyette, K. (Eds.). (2014). *Choosing Homes, Choosing Schools*. Russell Sage Foundation.
- Lindblom, A. (2010). School Choice in Sweden: Effects on Student Performance, School Costs, and Segregation. *Scandinavian Journal of Educational Research* , 54, 615–630.
- Linn, R. L., & Welner, K. G. (2007). Race-conscious policies for assigning students to schools: Social science research and the Supreme Court cases. Washington, DC: National Academy of Education.
- Lubienski, C., Gulosino, C., & Weitzel, P. (2009). School choice and competitive incentives: Mapping the distribution of educational opportunities across local education markets. *American Journal of Education*, 115(4)
- MacKinnon, D. P., & Dwyer, J. H. (1993). Estimating mediated effects in prevention studies. *Evaluation review*, 17(2), 144-158.
- Magnuson, K. (2007). Maternal education and children's academic achievement during middle childhood. *Developmental Psychology*, 43, 1497-1512.
- Martinez, V., Godwin, K., & Kemerer, F. (1996). Public school choice in San Antonio: Who chooses and with what affects? In B. Fuller & R. Elmore (Eds.), *Who chooses, who loses: Culture, institutions, and the unequal effects of school choice* (pp. 50–69). New York: Teachers College Press.
- Massey, D. S.. (2007). *Categorically unequal: The American stratification system*. New York: Russell Sage Foundation.
- Massey, D S., & Fischer M.J. (2003). The geography of inequality in the United States 1950-2000. In *Brookings-Wharton papers on urban affairs*, ed. William G. Gale and Janet Rothenberg Pack, 1-40. Washington, DC: Brookings Institution

- Massey, D. S., Denton, N.A. (1989). Hypersegregation in U.S. Metropolitan Areas: Black and Hispanic Segregation Along Five Dimensions. *Demography*, 26, 373-391.
- Merrifield, J. (2001). *The School Choice Wars*. Lanham, MD: Rowman & Littlefield.
- Massey, D., Rothwell, J. and Domina, T. (2009). The Changing Bases of Segregation in the United States. *The Annals of the American Academy of Political and Social Science*, 626, 74
- McLeod, J. D., & Nonnemaker, J. M. (2000). Poverty and child emotional and behavioral problems: Racial/ethnic differences in processes and effects. *Journal of Health and Social Behavior*, 137-161.
- McLoyd, V. C. (1990). The impact of economic hardship on black families and children. *Child Development*, 61, 311-346.
- McLoyd, V. C. (1998). Socioeconomic disadvantage and child development. *American Psychologist*, 53, 185-204.
- McPherson, M. Smith-Lovin, L., Cook, J. (2001). Birds of a Feather: Homophily in Social Networks. *Annual Review of Sociology*, 27, 415-444.
- Metcalf, K. K., West, S. E., Legan, N. A., Paul, K. M., & Boone, J. (2003). Evaluation of the Cleveland scholarship and tutoring program. Bloomington: School of Education, Indiana University.
- Mirowsky, J. (2005). Age at first birth, health, and mortality. *Journal of Health and Social Behavior*, 46(1), 32-50.
- Mishel, L., Bivens, J., Gould, E., & Shierholz, H. (2012). *The state of working America*. Cornell University Press.
- Miron, G., & Nelson, C. (2002). What's public about charter schools: Lessons learned about choice and accountability. Thousand Oaks, CA: Corwin Press
- Miron, G., Urschel, J., Mathis, W., Tornquist, E. (2010). Schools without diversity: Education Management Organizations, charter schools and the demographic stratification of the

- American school system. Boulder, CO: Education and the Public Interest Center.
Retrieved from <http://nepc.colorado.edu/files/emo-SEG.pdf>.
- Mistry, R., Vandewater, E., Huston, A., McLoyd, V. (2002). Economic Well-Being and Children's Social Adjustment: The Role of Family Process in an Ethnically Diverse Low-Income Sample. *Child Development* 73, 935–951
- Naylor, J. (2000, November 20). Charters favor diversity. *The Detroit News*, B2.
- Neild, R. C. (2005). Parent management of school choice in a large urban district. *Urban Education*, 40(3), 270-297.
- Noble, K. G., Houston, S. M., Brito, N. H., Bartsch, H., Kan, E., Kuperman, J. M., ... & Schork, N. J. (2015). Family income, parental education and brain structure in children and adolescents. *Nature neuroscience*, 18(5), 773-778.
- Noreisch, K. (2007): School catchment area evasion: the case of Berlin, Germany, *Journal of Education Policy*, 22:1, 69-90
- Ni, Y. (2012). The Sorting Effect of Charter Schools on Student Composition in Traditional Public Schools. *Educational Policy*, 26, 215-42.
- O'Connor, J. & Gonzalez, S. (2011). Florida Charter Schools Failing Disabled Students. *National Public Radio*. Retrieved <http://www.npr.org/2011/12/14/143659449/florida-charter-schools-failing-disabled-students> on 2-5-15.
- Parcel, T. L., & Dufur, M. J. (2001). Capital at home and at school: Effects on student achievement. *Social Forces*, 79(3), 881-911.
- Parke, R. D., Coltrane, S., Duffy, S., Buriel, R., Dennis, J., Powers, J., ... & Widaman, K. F. (2004). Economic stress, parenting, and child adjustment in Mexican American and European American families. *Child development*, 75(6), 1632-1656.
- Parents Involved in Community Schools v. Seattle School District No. 1. (2007). U.S. Supreme Court. 551 U.S. 701.

- Phillips, M., Brooks-Gunn, J., Duncan, G., Klebanov, & Crane, J. (1998). Family background, parent practices, and the black-white test score gap. In C. Jencks, & M. Phillips (Eds.), *The black-white test score gap* (p. 134-155). Washington, D.C.: Brookings Institution Press.
- Plank, D. N., & Sykes, G. (2003). *Choosing choice: School choice in international perspective*. New York: Teachers College Press.
- Potter, D., & Roksa, J. (2013). Accumulating advantages over time: Family experiences and social class inequality in academic achievement. *Social science research*, 42(4), 1018-1032.
- Poupeau, F., François, J.C. & Couratier, E. (2007): Making the right move: how families are using transfers to adapt to socio-spatial differentiation of schools in the greater Paris region, *Journal of Education Policy*, 22, 31-47.
- Powell, B., Steelman, L. C., & Carini, R. M. (2006). Advancing age, advantaged youth: Parental age and the transmission of resources to children. *Social Forces*, 84(3), 1359-1390.
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior research methods*, 40(3), 879-891.
- Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers*, 36(4), 717-731.
- Priebus, R. (2014, May 17). Why school choice is a civil rights issue. *CNN Opinion*. Retrieved <http://www.cnn.com/2014/05/17/opinion/priebus-school-choice/> on 9-1-14.
- Rangvid, B.S. (2010). School Choice, Universal Vouchers and Native Flight from Local Schools. *European Sociological Review*. 26 , 319–335
- Rapp, K. E., & Eckes, S. E. (2007). Dispelling the myth of "white flight": An examination of minority enrollment in charter schools. *Educational Policy*, 21(4), 615-661.

- Reay, D., & Ball, S. J. (1998). 'Making their minds up': Family dynamics of school choice. *British Educational Research Journal*, 24(4), 431-448.
- Reinoso, A. O. (2008). Middle-class families and school choice: Freedom versus equity in the context of a 'local education market'. *European Educational Research Journal*, 7(2), 176-194.
- Renzulli, L. A., & Evans, L. (2005). School choice, charter schools, and white flight. *Social Problems*, 52(3), 398-418
- Riedel, A., Schneider, K., Schuchart, C., Weishaupt, H. (2010): School Choice in German Primary Schools: How binding are school districts? Schumpeter Discussion Paper, University of Wuppertal.
- Rooney, P., Hussar, W. & Planty, M. (2007). *The Condition of Education 2006*. (NCES 2006-071). Washington, D.C.: Government Printing Office.
- Rothstein, R. (2004). *Class and schools: Using social, economic, and educational reform to close the black-white achievement gap*. Washington, D.C.: Economic Policy Institute.
- Saporito, S. (2003). Private choices, public consequences: Magnet school choice and segregation by race and poverty. *Social Problems*, 50(2), 181–203.
- Saporito, S., & Sohoni, D. (2006). Coloring outside the lines: Racial segregation in public schools and their attendance boundaries. *Sociology of Education*, 79(2), 81-105.
- Schneider, M., Teske, P., Marshall, M., & Roch, C. (1998). Shopping for schools in the land of the blind: The one-eyed parent may be enough. *American Journal of Political Science*, 42(3), 769-793.
- Schneider, K., Schuchart, C., Weishaupt, H., Riedel, A. (2012). The effect of free primary school choice on ethnic groups — Evidence from a policy reform. *European Journal of Political Economy*, 28, 430-44.
- Schellenberg, S. Porter, C. (2010). Resegregation in an Urban District after Ten year of Race-blind Student placement. Paper presented at AERA Denver, CO.

- Sigle-Rushton, W. & McLanahan, S. (2004). Father absence and child well-being. A critical review. In D. Moniyhan, T. Smeeding, & L. Rainwater (Eds.) *The future of the family* (NY: Russel Sage).
- Simon, H. (1957). "A Behavioral Model of Rational Choice", in *Models of Man, Social and Rational: Mathematical Essays on Rational Human Behavior in a Social Setting*. New York: Wiley.
- Sobel, M. E. (1982). Asymptotic confidence intervals for indirect effects in structural equation models. *Sociological methodology*, 13(1982), 290-312.
- Sohoni, D. & Saporito, S. (2009). Mapping School Segregation: Using GIS to Explore Racial Segregation between Schools and Their Corresponding Attendance Areas. *American Journal of Education*, 115, 4, 569-600.
- Stein, M., Goldring, E., & Cravens, X. (2010). Choosing Indianapolis charter schools: Espoused versus revealed academic preferences. Retrieved http://vanderbilt.edu/schoolchoice/documents/briefs/brief_stein_goldring_cravens.pdf on 7-8-12.
- Steinberg, L., Dornbusch, S. M., & Brown, B. B. (1992). Ethnic differences in adolescent achievement: An ecological perspective. *American Psychologist*, 47(6), 723-729.
- Stillman, Andrew (1990), "Legislating for Choice," in M. Flude and M. Hammer (eds.), *The Education Reform Act, 1988* London: The Falmer Press.
- Sun, Y., & Li, Y. (2009). Parental divorce, sibship size, family resources, and children's academic performance. *Social science research*, 38(3), 622-634.
- Taylor, C. (2009). Choice, Competition, and Segregation in a United Kingdom Urban Education Market. *American Journal of Education*, 115, 4, 549-568.
- Teske, P., Fitzpatrick, J., & Kaplan, G. (2006). The information gap? *Review of Policy Research*, 23(5), 969-981

- Tiebout, C. M. (1956). A pure theory of local expenditures. *The Journal of Political Economy*, 64(5), 416-24.
- Tourangeau, K., Nord, C., Lê, T., Sorongon, A.G., Hagedorn, M.C., Daly, P., and Najarian, M. (2012). Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User’s Manual for the ECLS-K:2011 Kindergarten Data File and Electronic Codebook (NCES 2013-061). U.S. Department of Education. Washington, DC: National Center for Education Statistics.
- Urahn, S., Currier, E., Elliot, D. , Welcher, L., Wilson, D. & Colbert, D. (2012). Pursuing the American Dream. Economic Mobility Across Generations. The Pew Charitable Trusts. Retrieved www.pewtrusts.org/~media/legacy/uploadedfiles/pes_assets/2012/pursuingamericandream.pdf on 1-5-15.
- Schneider, M., & Buckley, J. (2002). What do parents want from schools: Evidence from the internet. *Educational Evaluation and Policy Analysis*, 24(2), 133-144.
- Schneider, M., Teske, P., & Marschall, M. (2000). Choosing schools: Consumer choice and the quality of American schools. Princeton: Princeton University Press.
- Shafir, E, Tversky, A. (1992). Thinking through uncertainty: nonconsequential reasoning and choice. *Cognitive Psychology* 24 (4): 449–474.
- Vandewater, E.A., & Lansford, J.E., *A family process model of problem behaviors in adolescents*, *Journal of Marriage and the Family*, vol. 67 (2005), pp. 100-109
- Votruba-Drzal, E. (2003). Income changes and cognitive stimulation in young children's home learning environments. *Journal of Marriage and Family*, 65(2), 341-355.
- Walker, J. M., Wilkins, A. S., Dallaire, J. R., Sandler, H. M., & Hoover-Dempsey, K. V. (2005). Parental involvement: Model revision through scale development. *The Elementary School Journal*, 106(2), 85-104.
- Weber, M. (1947). *The Theory of Social and Economic Organization*. Trans. Henderson & Parson. New York: Simon and Schuster, Inc.

- Weiher, G. R., & Tedin, K. L. (2002). Does choice lead to racially distinctive schools? charter schools and household preferences. *Journal of Policy Analysis and Management*, 21, 79-92.
- Weitzel, P. (2011). "Who Chooses? A Sociological Portrait of Families Active in School Choice". Paper presented at the 2011 Annual Meeting of the American Sociological Association. Las Vegas, Nevada.
- Wells, Amy Stuart. (1993) "The Sociology of School Choice: Why Some Win and Others Lose in the Educational Marketplace." Pp. 29-48 in E. Russell and R. Rothstein (Eds.) *School Choice: Examining the Evidence*. Washington, D.C.: Economic Policy Institute.
- Wells, A. S. (1996). African-American students' view of school choice. In B. Fuller & R. Elmore (Eds.) *Who Chooses? Who Loses? Culture, Institutions, and the Unequal Effects of School Choice*. (p. 25-49). New York: Teacher's College Press.
- Wertheimer, R., Moore, K. Burkhauser, M. (2008). The well being of children in working poor and other families. Retrieved http://www.childtrends.org/wp-content/uploads/2013/03/Child_Trends-2008_09_29_RB_WorkingPoor.pdf on 1-9-14.
- Winship, C., & Radbill, L. (1994). Sampling weights and regression analysis. *Sociological Methods & Research*, 23(2), 230-257.
- Williams, D. T., Cheadle, J. E., & Goosby, B. J. (2013). Hard Times and Heart Break Linking Economic Hardship and Relationship Distress. *Journal of Family Issues*, 0192513X13501666.
- Willms, J. D., & Echols, F. (1992). Alert and inert clients: The Scottish experience of parental choice of schools. *Economics of Education Review*, 11(4), 399-350.
- Willms, J. D., & Echols, F. H. (1993). The Scottish experience of parental school choice. In *School Choice: Examining the Evidence*. (p.68-90). Washington, DC: Economic Policy Institute
- Wilson, W.J. (1996) *When Work Disappears: The World of the New Urban Poor*. New York: Alfred A. Knopf.

- Winters, M. (2016). Charter Schools are Better at Retaining Hard-to-educate Students. Manhattan Institute Issues. Retrieved <https://www.manhattan-institute.org/sites/default/files/IB-MW-0116.pdf> on 1-29-16.
- Witte, J. F. (2000). The market approach to education: An analysis of America's first voucher program. Princeton, NJ: Princeton University Press.
- Yeung, W. J, Linver, M.R. & Brooks-Gunn, J. (2002). How money matters for young children's development: Parental investment and family processes. *Child development*, 73, 1861-1879.
- Yeung, W.J., Pfeiffer, K.M. (2009). The black white test score gap and early home environment. *Social Science Research*, 38, 412-37.
- Yu, C.M., Taylor, W. (1997). Difficult choices: Do magnet schools serve children in need? Citizens' Commission on Civil Rights. Washington, DC: Government Press.
- Zimmer, R., Gill, B., Booker, K., Lavertu, S., Sass, T. R., & Witte, J. (2009). *Charter schools in eight states: Effects on achievement, attainment, integration, and competition* (Vol. 869). Rand Corporation.