Understanding the Role of Economic, Cultural, and Social Capital and Habitus in Student College Choice: An Investigation of Student, Family, and School Contexts

by

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ABSTRACT

Understanding the Role of Economic, Cultural, and Social Capital and Habitus in Student College Choice: An Investigation of Student, Family, and School Contexts

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This study investigates how habitus, especially when it interacts with economic, cultural, and social capital, shapes the college-choice process including whether or where to attend college. By explicitly including variables intended to serve as proxies for the construct of habitus and integrating economic and sociological perspectives, this study will deepen our understanding of the complex college-choice process.

Using the Education Longitudinal Study (ELS:2002) – the most recently available national longitudinal study – this study identified a sample of 11,800 high school class of 2004 seniors. Considering that the dependent variables of this study are binary or categorical variables (college enrollment as well as the types and selectivity of colleges in which students enroll), this study uses logistic and multinomial logistic regression. Also, by adding the interactions among forms of capital, this study examines the following questions: How do variables that are often used to proxy for different forms of capital and habitus influence whether or where to attend college? To what extent does one form of

capital reinforce the activation of other forms of capital? To what extent does the impact of forms of capital and habitus differ by a student's socioeconomic status in the college-choice process?

The results indicate that not all forms of capital, nor the proxies used to measure habitus, are associated with college choice in the same way. While proxies for economic capital (e.g., family income), social capital (e.g., parent-student involvement), and habitus (e.g., occupational expectations) have been shown to have direct, positive effects on college outcomes, the variables often used to measure cultural capital (e.g., involvement in arts) have not. The results also reveal two distinctly different patterns regarding the relationship among forms of capital. While the first pattern indicates that one form of capital may actually undermine, rather than reinforce, the activation of other forms of capital, the second pattern indicates that one form of capital does reinforce the activation of other forms of capital. Although there is little evidence of differential effects of the habitus proxies (a student's occupational expectation and comfort level at school) by socio-economic characteristics (e.g., family income and parents' education), the results indicate that the impact of these habitus proxies does differ by race/ethnicity. Possible explanations for the results and the implications of the findings are discussed.

Chapter 1

Introduction

Background of the Study and Statement of the Problem

Many studies have demonstrated that while college enrollment has increased among all income groups, the enrollment gains among low-income groups are far below those of high-income groups (Gladieux, 2004). High-income students are more likely to enroll in a selective four-year college, whereas their low-income peers are more likely to enroll in two-year community colleges (Ellwood & Kane, 2000). Although there are research findings about the type of college that students will likely attend, how students from different social status groups choose these colleges involves a complex, lengthy process, where the stakes are perceived as very high, and where the ultimate decision has a lasting influence on both individuals and society as a whole (Hossler, Schmit, & Vesper, 1999).

The research indicates that income differentials related to whether students attend college – and where they attend college – are persistent and have widened over time (Behrman, Rosenzweig, & Taubman, 1996; Brewer, Eide, & Ehrenberg, 1999; Kane, 1999; Kane & Rouse, 1995). In addition to the economic benefits of higher education, college graduates may enjoy non-economic benefits, including cognitive development, better health, and a better appreciation for and participation in cultural and social events (Becker, 1993; Pascarella & Terenzini, 1991). College education can also benefit society

as a whole, with well-educated citizens experiencing higher workforce productivity that is distributed across the population, higher levels of civic participation, and lower unemployment and poverty rates (Baum & Ma, 2007; Paulsen, 1996).

While higher education is regarded as a means of economic and social mobility, and underinvestment in higher education seen as inefficient for society, students' college-choice destinations remain, nevertheless, stratified by their socioeconomic status. The gains in the overall increase in enrollment of minority and low-income students sometimes mask the more complicated reality of class stratification in the types of colleges attended, a divergence along class lines that is expected to only increase in the future (Kinzie, Palmer, Hayek, Hossler, Jacob, & Cummings, 2004).

Empirical research has reached different conclusions about the reasons for the persistence of the gap in college-choice decisions between low-income, underrepresented students and high-income students. In her update of two reviews of college-choice literature (Hossler, Braxton, & Coopersmith, 1989; Paulsen, 1990), Perna (2006) summarizes these differences as falling into three categories: academic preparation, information, and finances. This divergence in research findings may be attributed, in part, to the fact that each of these research approaches are based on different theories and models and, consequently, empirically test different assumptions.

Efforts to understand the complex college-choice process have been primarily based on two theoretical frameworks, one economic and the other sociological. Drawing on the concepts of cost/ benefit analysis to explain student college choice, economic approaches address the role of financial aid (Manski & Wise, 1983) but do not delve into the indirect effects of aid on college choice. In addition, economic approaches do not

directly address the issue of why different socioeconomic status groups may make their college-choice decisions in different ways (DesJardins & Toutkoushian, 2005). Divergent factors may underlie the decision-making process for different socioeconomic groups, and researchers have pointed out that non-economic, less-tangible factors may also influence students' college choices (Paulsen, 2001).

Given that students cannot access every piece of information that might contribute to their decision-making (March, 1994; Simon, 1957), behavioral economics has employed the concept of bounded rationality to explain college-choice decisions in the context of uncertainty (Dynarski & Scott-Clayton, 2008). Although behavioral economics has thereby enhanced the explanatory power of student college choice models, economic approaches may still be missing preexisting structural forces such as social and historical factors.

To address these deficiencies, sociological theories of capital have attempted to capture the structural contexts and to further understand why college-choice behavior differs among diverse groups. Maintaining that the structure and functioning of the social world can only be understood by taking into account all forms of capital, Bourdieu (1986) distinguishes three fundamental forms of capital: economic, cultural, and social. Economic capital is directly convertible into money, and may be manifested in family income and wealth (Akerhielm, Berger, Hooker, & Wise, 1998; Ellwood & Kane, 2000; Orr, 2003; Paulsen & St. John, 2002). Cultural capital has been defined as symbolic resources or goods that are transmitted from generation to generation among the middle and upper classes in order to maintain class status (Bourdieu, 1977; McDonough, 1997). Cultural capital may be operationalized as cultural knowledge and is of particular

relevance here because it encompasses the value placed on college attainment (DiMaggio & Mohr, 1985; Perna, 2006). The definitions of social capital generally center around social networks and relationships, although scholars, including Bourdieu and Coleman, differ in their specific conceptualization (Dika & Singh, 2002; Portes, 1998). In empirical work, social capital may be measured both by relationships within the family and external to the family (e.g., peers, counselors, and teachers) (Coleman, 1988; Stanton-Salazar, 1997; Tierney & Venegas, 2006). The criticism of cultural and social capital actually results from its initial strengths; originally, the value of a focus on cultural and social capital was that it countered an overly heavy emphasis on economic factors. At the same time, this focus on cultural and social capital can overlook the very factors that in fact shape these forms of capital, such as family finances in the formation of cultural capital and the role of financial aid in college enrollment (St. John, 2006a).

While research studies have framed analytic tools that combine both theoretical perspectives (i.e., economic and sociological), the three-stage model of Hossler and Gallagher (1987) is the most frequently cited model, and the one with the greatest longevity, possibly due to its strengths of being simple yet all-inclusive. In the first stage (predisposition), high school students decide whether they will continue on to higher education. In the second stage (search), students gather information about colleges, and formulate the college choice set to which they will apply. The third stage (choice) involves the decision about which college a student will actually attend.

The role of habitus. Overall, although these theories and models have illuminated students' college-choice processes, one other influential theoretical construct has received relatively little attention in college-choice research, namely the influence of habitus.

Habitus is the lasting, intrinsic values system common to a member of one's social class, and is directly influenced by a wider community (McDonough, 1997). Habitus operates in two key ways: 1) it is structured by one's circumstances, and 2) it is structuring in that it shapes one's present and future practices. The former suggests that students' college-choice process should be understood in their situated contexts, including the volume and type of capital they possess, which helps to understand why they choose colleges in the ways that they do. The latter helps to understand how a student's habitus shapes her college-choice trajectory.

Through the concept of habitus, Bourdieu aims to transcend dichotomies of structure and agency, statics and dynamics, consciousness and the unconscious, or the individual and society (Bourdieu, 1990b; Bourdieu & Wacquant, 1992; Brubaker, 1993; Hillier & Rooksby, 2005; Horvat, 2001). This broad-reaching perspective is subject to multiple interpretations, which have led to substantial debates and criticisms (Jenkins, 2002; LiPuma, 1993; Nash, 1999; Reay, 1995, 2004). Most of the disagreements, however, do not reflect a fundamental opposition to the concept, but involve instead a matter of degree, in terms of addressing which dimensions Bourdieu emphasizes and which dimensions he does not.

Along with interacting with capital within a given context to generate college-choice practice, habitus may also play a role in students' determination both of whether to activate capital (dispositions) and how such capital may be activated (skills) (Lareau & Horvat, 1999; Lin, 1999). The influence of habitus as "the feel for the game" (Bourdieu, 1990a, p. 63) or a "sense of one's place" (Bourdieu, 1989, p. 131) in the college-choice process may also be explained by certain features of indirect exclusion, specifically self-

elimination (or self-exclusion), over-selection, and relegation. Self-elimination is a term that refers to individuals' excluding themselves because they internalize subjective aspirations about objective chances and feel uncomfortable in certain places due to a lack of familiarity with social norms. Over-selection occurs when culturally-disadvantaged individuals are exposed to the same type of selection as the privileged and are expected to perform equally well; in fact, over-selection often translates to the need of culturally-disadvantaged individuals to outperform their more privileged counterparts. Relegation refers to the situation in which individuals with less-valued forms of capital receive fewer awards for their investment of capital (Bourdieu & Passeron, 1979; Lamont & Lareau, 1988).

In light of the role of habitus described above (e.g., indirect exclusion), it seems reasonable to assume that habitus is indeed a factor in the college-choice process. As Paulsen and St. John (2002) maintain, "each student's habitus serves to 'situate' and 'contextualize' [his or her] choices" (p. 196). Given the potential importance of habitus within the framework of other existing theories regarding college choice, this study examines how habitus, interacting with economic, cultural, and social capital, shapes the college-choice process including whether or where to attend college.

Purpose of the Study

Building on the theories and models on which the college-choice literature has been based, the purpose of this study is to join forms of capital and habitus (as represented by proxy variables) in a college-choice model. It should be noted, however, that this study is not truly testing these theories per se, instead, it is testing whether proxies for the theoretical constructs (proxy variables will be delineated in the measures

section) differentially affect students' college choices. Unless specifically noted otherwise, throughout the dissertation "forms of capital" ("economic capital," "cultural capital," or "social capital") and "habitus" should be understood to refer to the proxies used, rather than measures of the theoretical constructs themselves. Three specific sub-questions are as follows:

(1) How do different forms of capital and habitus influence whether or where to attend college?

(2) To what extent does one form of capital reinforce the activation of other forms of capital?

(3) To what extent does the impact of forms of capital and habitus differ by a student's socioeconomic status in the college-choice process?

The term college choice is used here in the broader context used by most researchers; that is, college choice does not refer only to the college that is ultimately chosen but also to the process of deciding whether to attend college as well as selecting a college. According to Hossler, Braxton, and Coopersmith (1989), college choice refers to "a complex, multistage process during which an individual develops aspirations to continue formal education beyond high school, followed later by a decision to attend a specific college, university or institution of advanced vocational training" (p. 234). The present study conceptually notes this broader definition of college choice and employs the three-stage model (predisposition, search, and choice) in discussing existing empirical research. The empirical tests of this study, however, relate exclusively to the final stage of the college-choice process – the decision of which college to attend. This study is, nevertheless, different from the college access model in that it encompasses *whether* a

student attends college as well as *where* to attend college.

Significance of the Study

Even though a substantial number of studies have examined the effects of cultural capital and other forms of capital on student college access and choice, a substantial portion of those research studies did not incorporate Bourdieu's concept of habitus, which was of central importance to Bourdieu's own research. In an attempt to deepen the understanding of the complex college-choice process, this study explicitly includes measures intended to serve as proxies for the construct of habitus, along with students' resources (economic, cultural, and social capital). Studying capital alone cannot fully explain how students navigate the college-choice process; in addition to the resources (capital) students possess, the disposition toward the use of those resources (habitus) to generate college-choice process should be considered in order to account for the mechanisms of how individual agency bounded by social constraints may (or may not) act to produce educational advantages.

This study may illuminate how one form of capital reinforces the activation of other forms of capital and how habitus plays a role in this process. Given that no previous quantitative research has investigated these relationships, the results of this study may provide new empirical evidence that may be useful in informing our understanding of Bourdieu's conceptualization of social capital (i.e., the way that possession of cultural capital facilitates access to social capital) to the extent that this conceptualization can be captured by the proxies used in this study. This research finding may call attention to the need to rethink the impact of parent involvement in the college-choice process. Despite parents' desire to help their children, their lack of knowledge and time may prevent them

from doing so. The investigation of parent involvement, along with the consideration of parents' capability to be involved, given economic, cultural, and psychological barriers, will lead to a greater understanding of the role of parent involvement in the student college-choice process and how educational practices can mitigate inequalities in students' educational outcomes.

Although a growing body of research identifies college-choice processes that are differentiated by social group status, continued research is needed to fully determine the extent of the variation by social groups and the reasons for it. Accordingly, this study pays particular attention to why students' college destinations differ by a subgroup of students and how proxies representing habitus, interacting with students' initial resources, operates in the student college-choice process. Although both high- and low-income students may make it to similar elite colleges, low-income students may have better academic records. This suggests that in order to enroll in similar elite colleges, unlike high-income students, low-income students may need to exert special effort. Even when students have similar academic profiles, low-income students tend to end up in colleges of lower level than do higher income students.

Bowen, Chingos, and McPherson (2009), using the concept of *undermatch*, provide evidence that some high-achieving students end up choosing less-selective colleges than others and not surprisingly, these undermatches are particularly prominent in certain social group status (e.g., low-income students, African Americans). The current study delves into why the undermatch may be distinctly pronounced in specific groups of students and addresses students' structural barriers, such as a lack of initial resources, and their structured habitus of their situated circumstances.

Despite Bourdieu's effort to transcend structure and agency through the concept of habitus, the concept, as critics argue, implies a deterministic feature. While this study will empirically examine the extent to which individual agency plays a role in the college-choice process, theory predicts that the roles of individual agency beyond their structural context are limited. This may not, however, be a weakness of Bourdieu's theory, but, instead, a strength in that it may well explain unequal social realities, specifically the college opportunities among social groups.

Organization of the Study

Following this first chapter's discussion of the context and significance of this study, the remainder of this paper contains four chapters. The next chapter reviews the theoretical approaches and conceptual models that have been used to frame investigations of student college choice. This chapter will focus on the economic theory of human capital investment, theories of cultural and social capital, and conceptual models of student college choice, and will also draw on the proxies for construct of habitus in an effort to enhance the understanding of the college-choice process. Additionally, with respect to its review of empirical research, this chapter will use Hossler and Gallagher's (1987) three-stage model of student college choice to analyze how proxies for forms of capital (economic, cultural, and social capital) influence the college-choice process. Building on the reviewed research, this chapter will attempt to re-conceptualize student college choice in a way that integrates both economic and sociological perspectives and illustrates mechanisms in which students' college-choice processes are differentiated within and through habitus.

The methodology of this study is the focus of the third chapter. This chapter will

include the sources of data, samples and measures, and analytic approaches. Using the Education Longitudinal Study (ELS:2002) – the most recently available national longitudinal study – this study will identify a sample of 11,800 high school class of 2004 seniors. Considering that the dependent variables of this study are binary or categorical variables, logistic and multinomial logistic regressions will be conducted.

The fourth chapter will examine the impact of forms of capital (e.g., cultural and social capital) and habitus on students' college-choice process. The fourth chapter first presents descriptive statistics that will help contextualize the study, and then the results from the factor analysis. Next, this chapter includes findings from logistic and multinomial logistic regression analyses associated with the probability that students will enroll in colleges and choose a particular type of college. After presenting three logistic regressions (whether a student enrolls in any college, a four-year college, or a highly-selective college, respectively), this study also displays OLS estimations of school-level variables. This chapter then illustrates the simulation results produced by using the estimated parameters from logistic and multinomial logistic regressions and by computing predicted probabilities of enrolling in colleges in a given condition. This chapter concludes with a discussion about the robustness of the results.

The last chapter will summarize the key findings of this study and conclude with implications for research and practice.

Chapter 2

Review of Literature and Conceptual Framework

Theories and Models of College Choice

This chapter first reviews economic theories, most of which are based on human capital investment. Also reviewed are sociological theories ranging from status attainment theory to the theoretical constructs of cultural and social capital. This chapter discusses the shortcomings of existing theories and closes with a new conceptual framework which underpins the present study.

Economic Perspective of Human Capital Investment

Classical economic theories assume that students compare the expected benefits and costs of higher education, and behave in a way that will maximize their utility (Becker, 1993; Schultz, 1961). Thus, according to the traditional economic model, in the college-choice decision-making process students will choose to go to college if the benefits of doing so outweigh the costs. While the expected benefits of higher education include monetary benefits and non-monetary benefits, the expected costs of college education include both direct costs (e.g., tuition, fees, books, and lodging expenses) and indirect costs (e.g., foregone earnings, foregone leisure) (Becker, 1993; Young & Reyes, 1987). Drawing on the concepts of benefit/cost analysis to explain students' college-choice behavior, some economic approaches that examine the role of student aid emphasize the importance of government intervention (Manski & Wise, 1983). These

economic theories, where public and private returns from education are emphasized, have had an important influence on government financing for higher education, including the 1965 authorization and 1972 reauthorization of Higher Education Act (St. John, 2006b; St. John & Paulsen, 2001).

The rationale for government intervention, particularly the introduction of financial aid in the higher education market, is also based on market failure (e.g., liquidity constraints and existence of externalities) (Long, 2007). Individuals may face liquidity constraints (i.e., financial barriers) and thus the introduction of financial aid as a means of supplementing these capital constraints is justified. In addition, externalities of education (i.e., its spillover effect) do exist; higher education may lead to contributions in diverse fields that benefit society in a myriad of ways as well as lead to decreases in crime, to name only two of many consequences of higher education. Failure to recognize such market failures and how they impede higher education can result in underinvestment in higher education below what is socially optimal (Long, 2007; Paulsen, 2001b; Poterba, 1995).

Primarily based on human capital theory, the concept of student price response has been developed (Heller, 1997; Leslie & Brinkman, 1987; Somers & St. John, 1997; St. John, Asker, & Hu, 2001; St. John & Paulsen, 2001), which posits that increases in financial aid are expected to be related to increases in college enrollment because of the reduced net price (i.e., tuition-grants). However, economists have noted the puzzling fact that this hypothesis often is not supported empirically, particularly in relation to the impact of the Pell Grants (Hansen, 1983; Kane, 1995). Explanations for these counter-intuitive results include the possibility that the financial aid did not target the right

population or was insufficient to influence students' college-choice behavior.

Mixed research findings about the impact of financial aid may be related to both methodological and theoretical challenges. In terms of empirical difficulties, students' college choice may be influenced by many unobservable characteristics other than variables included in the research (Dynarski, 2002; Long, 2007). With regard to theoretical limitations, behavioral economics (which will be discussed below) may provide insights about making decisions in uncertain situations with imperfect information, which is unaccounted for by human capital theory.

Limitations of Human Capital Theory: A Perspective from Behavioral Economics. Criticisms of human capital theory are primarily related to the concept of rationality. Traditional human capital theories assume that individuals maximize their utility, in the pursuit of their best interests, under the constant preference system with perfect information where all alternatives are identifiable, all criteria are calculable, and outcomes can be predicted precisely (March, 1994; Simon, 1957). As is well-known, these assumptions of traditional economic theory have evolved in ways that make more realistic explanations possible. Proposing the concept of bounded rationality (or limited rationality), behavioral economists have argued that individuals may make decisions that satisfy rather than maximize their utility (i.e., choosing an alternative that meets certain criteria rather than choosing the best alternative) due to cognitive limitations and imperfect information (March, 1994; Simon, 1957). With respect to making college decisions, McDonough (1997), for instance, states that the "college choice process is not the economist's rational choice model of a world with perfect information…It is a teenager left to her own devices" (p. 150). Furthermore, focus on the *outcomes* of rational

decision making may result in disregarding the *process* of choice (Simon, 1978). When individuals confront a level of uncertainty and a lack of knowledge in a given circumstance, the decision-making process may be more complex than that assumed by the traditional rational choice model (March, 1994; Simon 1957, 1978).

Adapting a behavioral economics perspective, Dynarski and Scott-Clayton (2006, 2008) present four related principal concepts in relation to college choice to explain obstacles to higher education: loss aversion (i.e., avoiding college to avoid the risk that college will not provide a desired return); default behavior, where the default of low-income students is seen as not going to college; time-inconsistent preferences, which result in placing more emphasis on the immediate costs and sacrifices (e.g., applying for aid) rather than the future gains; and identity salience in which asking for a particular group identification on the financial aid applications (e.g., FAFSA) causes so much distress that students avoid applying for financial aid.

Educational researchers criticize economic approaches for not directly addressing the issue of why different socioeconomic status groups may make their college choices in different ways (DesJardins & Toutkoushian, 2005). Divergent factors may come into play, and non-economic, less-tangible factors may also influence students' college choices (Paulsen, 2001a). While economic research is statistically sophisticated in its investigations of the effect of financial aid, it typically does not delve into the indirect effects of financial aid. The concerns about finances may affect students' aspirations of college attainment and their academic preparation, thereby affecting their college choice (St. John, 2006a).

Sociological Criticism of the Economic Notion of Rational Choice. While

research from other disciplines as well as economic literature abounds with criticisms of economic rationality, those from sociology may merit particularly close examination here because of their relevance to the theoretical perspective that underpins this current study. Sociologists articulate that individuals may not precisely estimate their objective probabilities of success, even with the assumption of perfect information; individuals' behaviors may be based on those possibilities that they perceive, given their capital and circumstances instead of the statistical, objective possibilities (Bourdieu, 1990b). While economic approaches assume a stable system of preferences, they do not explain how those preferences have been formed; cultural factors may operate in the formation of preferences that economic approaches ignore (Lamont, 1992). There is a paradox between the supreme emphasis classic economic theories place on economic rationality without, at the same time, acknowledging the similarly economic preconditions that are necessary to develop that rationality (Bourdieu, 1990a).

Bourdieu's conceptualization (particularly the notion of habitus that will be discussed in detail later in this study) appears to have commonalities with the economic theory of bounded rationality (Simon, 1957; March, 1978) in that both theories agree that human behaviors are limited in the extent to which they operate out of fully rational principles; both of these theories reject the model of pure rationality. Given limited options and circumstances**,** people make decisions that are reasonable, because individuals make decisions in a way that makes sense to them; the decisions of lower SES students may not make sense to others who have not experienced similar social restrictions and lack of resources (Bourdieu & Wacquant, 1992; Calhoun, 1993; Swartz, 1997). Bourdieu, however, asserts that his conceptualization is fundamentally different

from economists'; his notions are "socially and historically constituted rather than universally given" (Bourdieu & Wacquant, 1992, p. 118). Bourdieu's conceptualization gains strength from combining an understanding of not only micro but also macro forces (social structure), which may allow his theory to effectively explain the social phenomena of educational inequality that cannot be explained by behavioral economics. In other words, Bourdieu's theory may better take into account specific social and cultural conditions, compared to behavioral economics.

Sociological Perspectives

Status Attainment Theory. Blau and Duncan (1967) are credited for the development of status attainment theory. Their seminal work, considering the effects of social origin, academic ability, and occupational aspirations, pointed out that as people age, their past career exerts a greater influence on them than does earlier social origin. Further refinements of this theory added social psychological variables, seen to be overlooked, such as the influence of significant others (Sewell, Haller, & Portes, 1969). While a status-attainment perspective has helped illuminate how social status influences the development of aspirations for educational attainment (Hearn, 1984, 1988; Hossler & Stage, 1992), the perspective has been criticized for being atheoretical in that it entails a set of descriptive statistics, absent analysis of underlying complex questions probing why the mechanism between one's ascriptive characteristics and status attainment occurs. Horan (1978) nonetheless argues that status attainment is not atheoretical; the concept of social structure can be included in the stage of practical implications, and theory can be constructed through the interpretation of empirical literature, rather than propositions that guide empirical research. In sum, the applicability of the status-attainment framework

may remain limited to specific individuals, without taking into account social and cultural aspects in explanations of stratification (Farkas, 1996). This assumption of homogeneity across groups has resulted in insufficient attention being given to the socially imposed limitations in the process of social stratification (Goldman & Tickamyer, 1984). In addition, the status-attainment perspective gives little insight into the process through which status attainment operates over time, rather than its one-time effects (Hossler et al., 1999). Partly due to these theoretical limitations, more recent research draws on theories of capital as discussed in the following section.

Theories of Capital: Economic, Cultural, and Social Capital. According to Bourdieu (1984), capital refers to "the set of actually usable resources and powers" (p. 114). Capital is accumulated over time, plays a significant role in producing and reproducing profits in individuals' life opportunities, and is most valued when it is scarce (Bourdieu, 1986). The fact that more value is attached to capital when it is scarce has implications for college choice; attending selective colleges may be more valuable compared to attending colleges with relatively open admission policies or choosing non-enrollment, partially because the former is less easily accessible, given one's economic and cultural resources. Maintaining that the structure and functioning of the social world can only be understood by taking into account all forms of capital, Bourdieu distinguishes three fundamental forms of capital: economic, cultural, and social.

Economic Capital. Economic capital is directly convertible into money, and may be manifested in family income and wealth (Akerhielm, Berger, Hooker, & Wise, 1998; Ellwood & Kane, 2000; Orr, 2003; Paulsen & St. John, 2002). Early guarantees or commitment of college financial aid may function as a supplement for a lack of economic

capital (Heller, 2006; St. John & Hu, 2006; St. John, Musoba, Simmons, Chung, Schmit, & Peng, 2004). Given that guarantees of financial aid are given earlier than grants of financial aid immediately before entering college, the former may be more helpful in supplementing deficiencies in economic capital. In addition, these guarantees may influence students' college aspirations and academic preparation during high school by reducing their concerns about college cost.

In order to reflect the cumulative nature of a family's economic condition rather than discrete one year income, some researchers (e.g., Conley, 2001; Orr, 2003) argue that wealth, defined as total assets, rather than yearly income, is more appropriate to capture the concept of economic capital. Economic capital is captured in part by socioeconomic status (SES), but there are particular problems with using SES as an aggregate variable. This is largely because SES is composed not only of family income, but also parents' education and occupational status and, therefore, it is unclear what component of SES is responsible for a certain effect (Paulsen & St. John, 2002), notwithstanding indications of a high correlation between parents' education and family income (Avery & Kane, 2004; Terenzini, Cabrera, & Bernal, 2001).

Although Bourdieu recognizes economic capital as one form of capital that is necessary to understand the social world, he actually does not pay specific attention to economic capital believing that its absence does not necessarily hinder the possession of all other forms of capital and that economic capital is insufficient in itself to understand how advantages in individuals' life opportunities are produced and reproduced. College-choice literature also indicates the need to consider students' socio-cultural circumstances (McDonough & Calderone, 2006).

Cultural Capital. Cultural capital has been defined as symbolic resources or goods that are transmitted from generation to generation among the middle and upper classes in order to maintain class status (Bourdieu, 1977a; Farkas, 2003). Bourdieu (1986) distinguishes among three kinds of cultural capital: embodied cultural capital refers to manifestations of individual appreciations of cultural goods through their actions and style; objectified cultural capital refers to the cultural goods themselves such as art works, books, and instruments; and institutionalized cultural capital entails forms of objectification such as educational credentials.

The concept of cultural capital was initially developed by Bourdieu and his colleagues in order to explain cultural and social reproduction in French society (i.e., why students from well-to-do families disproportionately enjoy academic success, while students from poor families do not) (Bourdieu, 1977a, Bourdieu & Passeron, 1979). In this sense, cultural capital is the most valuable in relation to education; cultural capital is the most relevant to one's academic success in school (Bourdieu, 1986). At the same time, there have been questions raised about whether the very notion of cultural capital, developed in France, is applicable in the U.S., where high culture signals may be less distinct (Kingston, 2001; Lamont, 1992; Lamont & Lareau, 1988). In other words, in a diverse society such as the U.S., "elite" cultural tastes in arts (music or literature) that signal a person's social class may not be distinctive or exclusive, compared to France.

Empirical research operationalizes the notion of cultural capital in relation to cultural knowledge and the value placed on college attainment (Perna, 2006a). DiMaggio (1982) notes that: "while it would be preferable to ground these measures in *observed* [italics added] cultures of dominant status groups, in the absence of such a rigorous data

base, high cultural measures [e.g., self-reports of involvement with the arts] represent the best alternative" (p. 191).

The criticism of cultural capital actually derives from its initial strengths; originally, the value of a focus on cultural capital was that it countered an overly heavy emphasis on economic factors. At the same time, this focus on cultural capital can overlook the very factors that in fact shape these forms of capital, such as family finances in the formation of cultural capital and the role of financial aid in college enrollment (St. John, 2006a).

Social Capital. The definitions of *social capital* generally center around social networks and relationships, although unlike social networks, the concept of social capital broadly implies potential assistance and resources that could be drawn when needed (Coleman, 1988, 1990; Hofferth, Boisjoly, & Duncan, 1998; Lin, 1999). While scholars differ in their specific conceptualizations of social capital, Bourdieu's and Coleman's definition of the term merits in-depth discussion because their perspectives have been especially influential in educational research. Bourdieu's definition of social capital consists of two components: social relationships and resources which inhere in the relationships (Bourdieu, 1986; Portes, 1998). Coleman's (1988) conceptualization of social capital emphasizes that individuals do not exist independently of each other and explores relationships among individuals; "social capital is defined by its function. It is not a single entity but a variety of different entities, with two elements in common: they all consist of some aspect of social structures, and they facilitate certain actions of actors – whether persons or corporate actors – within the structure" (p. S98). One of the major differences in conceptualizations of social capital between Bourdieu and Coleman

pertains to the scholars' different orientations. Through the concept of social capital, Bourdieu explains social reproduction as it concerns the unequal power among status groups, whereas Coleman's conceptualization of social capital does not articulate the role of unequal access to resources among status groups or structural constraints (e.g., poverty, resource-lacking school) that may obstruct the building of social networks (Dika & Singh, 2002; Lareau, 2001; Stanton-Salazar, 1997, 2001).

Controversy concerning social capital also relates to whether closure of social networks or weak ties (i.e., professional contacts characterized by less intimacy and shorter duration) produce more social capital. While Coleman (1988) conceives of the development of social capital in the situation of closure of social networks, others (e.g., Burt, 1992, 2000; Granovetter, 1973, 1983) differ in their approaches in that they emphasize the importance of weak ties in creating social capital. Granovetter, for instance, elaborates the concept of weak ties; compared to strong ties with kin which may not provide particular scholastic information, weak ties may better contribute to building institutional resources and opportunities. Building on Granovetter among others, Burt formulates an individual who stands in between structural holes has broad and entrepreneurial control over information (i.e., social capital) in that the individual can reach more individuals who have developed their own knowledge.

Some researchers argue that social capital itself should be distinguished from resources that are acquired through social capital (Portes, 1998). Coleman (1988) does not explicitly distinguish the mechanisms that shape social capital (e.g., obligations and social norms) from the consequences of social capital (e.g., information that is obtained through social capital), and this conceptualization may lead to circular reasoning; cause

(e.g., social capital) is explained by result (e.g., resources). Despite this convincing viewpoint of Portes, the distinction is not always easy because a social network tends to entail such issues as how and why it was formed.

Specifically in the college-choice context, Hossler and others (1999) list three strengths of social capital: 1) social capital provides resources; 2) social capital, unlike SES, is obtainable outside of the family, meaning that there is room for overcoming family background limitations; and 3) since social capital is formed over time, there is room for adjusting to behaviors of parents and students in a way that ensures desirable college-choice process.

While the theory of social capital has gained more popularity, Portes (1998) argues that the strengths of social capital have been, to some extent, overstated. Notwithstanding its conceptually appealing label, social capital is not a new theoretical concept, but one that has been previously discussed under different labels; social capital, furthermore, does not necessarily solve social problems, unlike the arguments of its advocates. In this context, Portes emphasizes the importance of a balanced approach to social capital that examines the negative features of social capital as well as the positive ones. While social capital has positive elements that operate as a source of social control, family support, and benefit through extra-familial networks, social capital at the same time has several negative effects (Portes, 1998; Portes & Landolt, 1996; Portes & Sensenbrenner, 1993; Waldinger, 1995). Portes categorizes four negative dimensions of social capital: exclusion of outsiders (as it relates to closure of social networks); excessive claims on group members (e.g., group members excessively seek jobs or loans from successful entrepreneurs based on the shared normative structure); restriction on

individual freedom (demands for conformity and observance of norms that may be excessive); and downward leveling norms (i.e., individual success may be thwarted where it is perceived as harmful to the group membership in a community where individual successes are rare and, given that rarity, the group emphasizes homogeneity within group members).

Coleman (1988) operationalizes several aspects of social capital: physical presence of parents (presence of two parents and lower number of siblings), attention to be given to children (mother's expectation on the child' college-going), and intergenerational closure (number of times the child has changed schools). With regard to parents' aspirations, Coleman uses an example of Asian immigrant families who buy another copy of the textbook in order for the mother to help the child perform better in school. Elaborating on the work from Coleman and Hoffer (1987), Goddard (2003) states that social capital has both structural (i.e., relational networks) and functional (i.e., social trust and norms) components; in addition to the presence of social relationships, the functionality of relationships should be considered.

Although social capital is not a central theme in McDonough's (1997) research, she has included the concept in her research in her reference to family and friends without considering external agents (i.e., teachers, counselors). This focus is probably attributable to the nature of her research, which does not include direct observation of the individual counselors or teachers, but rather the organizational context. McDonough distinguishes between the influence of guidance support systems and that of family and friends, in conceptualizing the former within the context of organizational habitus and the latter within the context of social capital. Although the units of analysis differ (one is the

school and the other is the student), McDonough's concept of organizational habitus and Stanton-Salazar's (1997, 2001) conceptualization of social capital focus on a similar phenomenon, that is the effects of external agents. McDonough's use of the concept of social capital, however, only encompasses family and friends, and, in contrast, Stanton-Salazar's use of the concept of social capital only refers to external agents (what the researcher calls institutional agents). Given that social capital generally refers to social networks and relationships, this study regards both relationships within the family and external to the family as the operational concept of social capital.

The Applicability of the Concept of Academic Capital

Overview of Academic Capital. Beyond these three principal forms of capital (economic, cultural, and social), Bourdieu (1984, 1988, 1998) also uses the concept of academic capital. However, compared to his detailed explanations of other forms of capital (e.g., cultural capital), Bourdieu's work, overall, does not evidence a particular attention to academic capital. While scholars, including Bourdieu, have not formally defined the concept of academic capital, an examination of how academic capital has been applied in the literature may help more fully understand the concept.

Measures of Academic Capital. Bourdieu operationalizes academic capital as duration of schooling (Bourdieu, 1984) or graduation from a prestigious school (Bourdieu, 1988). The former may be understood as the quantitative amount of education, and the latter may reflect the quality of that education in addition to its quantity. Following Bourdieu's conceptualization, several scholars use academic capital to represent educational credentials (Cote, 1997) or higher education qualifications (Collinson, 2000).

When academic capital is applied within the higher education system, researchers

measure academic capital as the total of educational experiences or products (Burawoy, 2005, 2009; Eddy, 2006; Lucas, 2006). For example, Eddy (2006) measures academic capital through publications, teaching experience, and the strength of professional networks. In a similar context, Burawoy (2005, 2009) conceptualizes collegiate academic capital as an individual's curriculum vitae, which include published articles, papers at conferences, research grants, and awards and prizes. However, as the author recognizes, this conceptualization of academic capital may not capture the full range of academic capital across disciplinary fields; depending on the fields of study, certain academic qualities (e.g., teaching) may be worth more.

One research study applied the concept of academic capital in the pre-collegiate settings, and uses intellectual ability and academic achievement as a proxy for academic capital (Marjoribanks, 1998). However, this study does not go further to explain why academic achievement can be considered as academic capital and how such a consideration is valuable in terms of adding explanatory power in the study.

Academic Capital and Cultural Capital. Just as Bourdieu articulates conversions among forms of capital, he states an interrelationship between academic capital and cultural capital. For example, Bourdieu (1984) maintains that "academic capital is in fact the guaranteed product of the combined effects of cultural transmission by the family and cultural transmission by the school (the efficiency of which depends on the amount of cultural capital directly inherited from the family)" (p. 23). As this statement suggests, Bourdieu regards academic capital as an outcome resulting from forms of cultural capital that are transmitted through family and school.

In a similar context, several scholars conceptualize academic capital as an

institutionalized form of cultural capital, which is based on qualities encompassing prior educational achievement and academic speech and writing styles (Naidoo, 2004).

Application of Academic Capital in the College-Choice Context. It appears that academic capital itself is primarily more applicable to adults who have accumulated a certain amount of education and educational experiences, compared to high school students who are in the process of consolidating academic capital.

For high school students who are in the process of forming their academic capital, college-going may be one of the important intermediate outcomes related to academic capital. Thus, it may be reasonable to use college-going and the status of the college the student plans to attend as a proxy for academic capital.

This conceptualization of academic capital is consistent with that of higher education research. For example, Tierney (1999), incorporating the concept of academic capital, highlights the importance of college-degree attainment in addition to high-school graduation and college enrollment. Most recently, St. John, Hu, and Fisher (2010) have developed the concept of academic capital formation. The authors investigate how family, school, and intervention programs (e.g., financial aid guarantees) relate to academic capital formation.

The distinction between adults and high school students – adults who already possess academic capital, and younger students, who are in the process of consolidating it – has clear ramifications for the present study, the focus of which is on the population of high school students. Given that the main population of interest in my study of college choice is high school students of a single cohort, their academic capital when it is measured by schooling duration is probably the same, unless students skipped a grade,

were forced to repeat a year, or had dropped out of high school. In this context, schooling duration as an independent variable would not provide much variation in the analysis, nor produce meaningful results because most students have not skipped or repeated grades nor dropped out of school. Given this technical issue, applying schooling duration as a predictor in the college choice context would not appear to be warranted.

Instead, considering that Bourdieu uses academic capital not only as schooling duration but also as graduation from a prestigious school, academic capital may be measured by the status of high school in a pre-collegiate setting. By doing this, it is assumed that those who had attended prestigious schools, such as elite preparatory schools, may possess qualitatively different forms of academic capital, compared to their public school counterparts.

At the same time, an opposing argument would be that applying the concept of academic capital does not add any explanatory power in the study of college choice; the explanatory power may remain the same, regardless of whether academic capital is used or not. Furthermore, given that my college-choice study investigates several forms of capital (economic, cultural, and social capital) as predictor variables, adding the variable of academic capital may result in some conceptual overlap or ambiguity.

Relationship among Forms of Capital. Economic capital differs from other forms of capital (e.g., cultural capital) in that it is the only tangible, material form of capital, while other forms of capital are symbolic. Bourdieu sometimes describes symbolic capital (i.e., prestige and social honor) as a separate form of capital (e.g., Bourdieu, 1986), while at other times (e.g., Bourdieu, 1989), he employs the term to cover all types of capital that are perceived as legitimate.

However, economic capital can be converted into other forms of capital in specific circumstances (Bourdieu, 1986; Harker, Mahar, & Wilkes, 1990). Other types of capital (e.g., cultural and social) may be a "transubstantiated" forms of economic capital (Moore, 2008, p. 102). Other forms of capital are also reduced to economic capital (Portes, 1998).

Scholars argue that the degree of convertibility may differ in different contexts. For example, in complex capitalist societies, capital is more easily convertible into other forms of capital (Calhoun, 1993). Indeed, economic capital may exert a stronger power in social mobility in the American context, relative to that occurring in the French context where distinct high cultural signals may be more pronounced. The facility of the convertibility of capital and the extent to which it may be converted may also vary by time; it is important to note that the volume and structure of capital evolve over time (Bourdieu & Wacquant, 1992). It remains unaddressed whether one form of capital tends to remain unchanged or, rather, be converted to other forms of capital in the process of evolution. While the convertibility of capital and the inter-relationships of different forms capital is insightful and compelling in theory, empirical estimations of this issue of convertibility are complicated; it may be difficult to untangle the different forms of capital and investigate how they combine and influence social practices.

Combined Models

Building on previous college-choice models (e.g., Chapman, 1986; Jackson, 1982; Litten, 1982), Hossler and Gallagher (1987) proposed a three-stage model of student college choice: predisposition, search, and choice. In the first stage (predisposition), high school students decide whether they will continue on to higher education. In the second

stage (search), students gather information on colleges, and formulate the college-choice set to which they will apply. The third stage (choice) involves the decision of which college a student will actually attend.

While the term predisposition originated from the notion of aspiration in the status-attainment perspective, Hossler and Gallagher emphasize that their notion of predisposition is, despite these origins, different from the notion of educational aspirations within the status-attainment perspective in that they focus on decision-making instead of intention. Search and choice come out of the decision-making perspective of economics. While focusing on traditional college-bound students, Hossler and Gallagher trace the stage of predisposition as beginning from early childhood and lasting until 9th or 10th grade, the stage of search from 9th or 10th grade to the fall of senior year, and the stage of choice from fall of senior year to spring of senior year.

This three-stage model is the most inclusive in that a wide range of factors that are important in college choice have been included within it. Also, its multistage approach explicitly recognizes that student college choice is not a one-time, discrete happening in a student's senior year and is, instead, a longstanding process that starts from early childhood. However, the three-phase model is limited in its usefulness in that the model focuses primarily on the college-choice process of traditional students, ranging in age from childhood to high school years and does not acknowledge older non-traditional student groups (i.e., adult students) who may differ in their college-choice process. Furthermore, not all students follow this three-stage model in that poor students may omit one of the stages or may be less proactive in their college search, primarily due to lack of resources such as cultural, social, and financial, among others.

More recently, while integrating economic and sociological perspective, Perna (2006a) identified four sets of factors that are important to a student's college choice: the individual context (e.g., demographic characteristics, cultural capital, social capital), the school and community context (e.g., availability of resources, types of resources, structural supports and barriers), the higher education context (e.g., marketing and recruit, location, institutional characteristics), and the social, economic, and policy context. However, Perna does not explicitly hypothesize how and when these factors influence students' college-choice process.

Summary: Shortcomings of Existing Conceptualizations

Although the existing conceptualizations (e.g., economic, sociological, and combined models) have contributed to the development of college-choice research, those formulations may have limitations in drawing a complete picture of students' college-choice process.

The shortcomings of the classical economic theories are particularly related to the concept of rationality, which may not fully explain a student's decision making in uncertain situations with less than optimal information. Drawing on the concept of bounded rationality, behavioral economists have further attempted to explain college-choice decisions under uncertainty. The use by behavioral economists of the concepts of risk aversion, default behavior, time-inconsistency preferences, and identity salience demonstrates a change in the concept of economic rationality, emphasizing individuals' behavioral characteristics. However, despite paying attention to the outcomes of preference systems and behaviors, how those preferences and behaviors have been formed has been overlooked; economists may still be missing preexisting structural

factors.

Sociological theories of capital do capture the structural contexts, but theories of capital alone do not capture how the possession of capital does (or does not) turn to educational outcomes; in addition to the resources (capital) students possess, their disposition toward the use of those resources (habitus) to generate their college-choice process should be considered.

While combined models have contributed to identifying the factors that affect college-choice decisions, further elaboration may be needed to pinpoint how and why some factors, either independently or in combination with each other, influence the college-choice process. In addition, although Hossler and Gallagher's model assumes that students who are predisposed toward college options would end up choosing colleges, the link between predisposition, search, and choice is only assumed, and does not explain the fact that intention does not always lead to behavior.

In summary, in comparing the above models, an alternative perspective that explicitly incorporates the construct of habitus, while integrating both economic and sociological perspectives, may provide a more complete picture of students' college-choice process.

Enhancing the Understanding of College-Choice Process: The Role of Habitus

Before turning to a discussion of habitus in terms of how this concept may provide a fuller understanding of the college-choice process, a more general discussion about how the concept of habitus has been conceptualized and operationalized may be merited. This is particularly important given that both the conceptual and operational

definition of habitus remain far from clear, notwithstanding the growing use of this concept.

Conceptualization of Habitus and Related Debates about It

While the notion of habitus has a long history and various scholars have discussed concepts similar to it, this study draws on Bourdieu's conceptualization of habitus, which was directly influenced by Panofsky's work on the effect of scholastic thought on architecture (Nash, 1999; Reed-Danahay, 2005). Extending the concept to encompass individual agency and social structure, Bourdieu posits that people possess inherited dispositions of society which they then reformulate for themselves, generating a new concept appropriate for their own situations (Robbins, 2000). While Bourdieu elaborated this concept throughout his works (Bourdieu, 1977b, 1984, 1985, 1990b, 1996; Bourdieu & Passeron, 1990), the scope of the concept has been broadened since Bourdieu's own writings and applied in a wide range of settings (Swartz, 1997).

Bourdieu, through the lens of habitus, aims to transcend dichotomies of structure and agency, statics and dynamics, consciousness and the unconscious, and the individual and society (Bourdieu, 1990b; Bourdieu & Wacquant, 1992; Brubaker, 1993). The concept of habitus, according to Bourdieu, cannot be adequately grasped if one remains locked in dualisms. In *The Logic of Practice*, Bourdieu characterizes habitus as "systems of durable, transposable dispositions, *structured* [italics added] structures predisposed to function as *structuring* [italics added] structures, that is, as principles which generate and organize practices" (p. 53). In this classic definition of habitus, Bourdieu adopts the word *dispositions*, and his earlier work (Bourdieu, 1977b) explains that the term dispositions is suitable in that dispositions cover both structure and propensity. This is related to the

notion that habitus operates in a way that is both *structured* and *structuring*. Habitus differs from character in that habitus is acquired from social structures, and differs from habit in that habitus is far from a repetitive principle and has an inventive, generative capacity, yet exists within boundaries (Bourdieu, 2005). Bourdieu (1990b) writes that "the *habitus*, like every 'art of inventing', is what makes it possible to produce an infinite number of practices…but also limited in their diversity" (p. 55).

Bourdieu's view that habitus reconciles dichotomies has been subject to multiple interpretations which have led to substantial debates and criticisms that range from different views of Bourdieu's dense complex language to different expectations of American scholars about what the nature of a theory should be (all-encompassing, rather than the "thinking tools" Bourdieu describes) to, perhaps most of all, the determinism that underlies Bourdieu's theory (Harker et al., 1990; Jenkins, 2002; King, 2000; LiPuma, 1993; Nash, 1999; Reay, 1995, 2004b; Wacquant, 1989). This study clarifies and critiques these contested points in the debates on Bourdieu based on these four dualisms: structure and agency, statics and dynamics, consciousness and the unconscious, and the individual and society.

Structure and Agency. First and foremost, through the notion of habitus, Bourdieu intends to overcome the polarization of structure and agency. Given that habitus is both structured and structuring, he attempts to bridge the gap of objective social conditions and subjective individual agency: "the dialectic of the internalization of externality and the externalization of internality" (Bourdieu, 1977b, p. 72). To elaborate, objective probabilities of life chances are internalized, and, in turn, the internalized dispositions and appreciations are externalized and reflected in action which tends to perpetuate

opportunity structure. While Bourdieu introduces the role of social agents and the relationship between the agents and social conditions, his conceptualization primarily emphasizes the constraints by the social and economic structure (Bourdieu & Wacquant, 1992), which has made this conceptualization vulnerable to the charge of determinism (Jenkins, 2002). Even though Bourdieu describes the charge of determinism as "misinterpretation," he nevertheless also has acknowledged the element of determinism by stating that that "insofar as dispositions themselves are socially determined, one could say that I am in a sense hyperdeterminist" (Bourdieu & Wacquant, 1992, pp. 135-136).

In a sympathetic assessment of Bourdieu's effort, some scholars (e.g., DiMaggio, 1979; Hillier & Rooksby, 2005; Maton, 2008; Swartz, 1997) conceptualize habitus as a mediating link between individual agency and structure. Although a growing number of scholars concur with the perspective that habitus can be transformed, Bourdieu's explanations are, nonetheless, probably closer to social reproduction rather than social transformation, and thus there is room for improvement toward human agency, thereby avoiding the label of determinism.

Statics and Dynamics. The debates on whether habitus is predominantly static or whether it is mutable have been persistent (Hillier & Rooksby, 2005). Bourdieu asserts that habitus is "durable but not eternal" (Bourdieu & Wacquant, 1992, p. 133), and that habitus is "not a fate, not a destiny" (Bourdieu, 2005, p. 45). Being a product of history, it may be modified by historical action; the habitus is the "past which survives in the present" (Bourdieu, 1977b, p. 82). As shown in his conceptualization, Bourdieu identifies both aspects of statics and dynamics and past and present and emphasizes that the possibility of change in habitus exists.

Habitus's nature in relation to statics and dynamics can be understood as falling into three categories. First, in the case where individuals' habitus are compatible with their situations, habitus maintains the status quo. In the second category, where there is a slight incongruence between an individual's habitus and situation, the individual adapts to the structure while gradually modifying the habitus. In this process of adaptation, Bourdieu (1977b) is convinced that habitus is long-lasting, drawing on the concept of the "hysteresis effect" (p. 78). In support of this point, Bourdieu provides evidence that despite an expansion of educational opportunity in the 1970s, lower class youth did not rapidly adjust their perception to the new opportunity structure (Bourdieu & Passeron, 1979; Swartz, 1997). The last category encompasses what Bourdieu calls "times of crises" where substantial discrepancies between habitus and opportunity structure occur, and rapid transformation is therefore needed. While the third condition may come into conflict with the non-adaptive nature of habitus, this third condition is rarely presented in Bourdieu's conceptualization, which is primarily concerned with the adaptation of the habitus to circumstances (Swartz, 1997). Bourdieu thus overplays actors' adjustment with their condition while he regards change as an abnormal form which only occurs in a particular situation (Sayer, 2005). Furthermore, whether and how the mismatched conditions actually lead to change need to be better clarified, and the avenues of change, beyond the presence of the mismatch, need to be further examined (Swartz, 1997).

Since Bourdieu's conceptualization, most scholars (e.g., Baker & Brown, 2007; DiMaggio, 1979; Hillier & Rooksby, 2005; Maton, 2008) have framed the concept of habitus as standing in between the second and third categories; like Bourdieu, these scholars posit that habitus is continuously adapted and restructured over time and across

different circumstances, but, unlike Bourdieu, they also view habitus as inventive and creative, even in normal situations.

Consciousness and the Unconscious. In part because Bourdieu's concept of habitus originated from the criticism about an excessive focus on conscious forces of human agents, the concept of habitus is associated with unconscious forces deeply embedded within us and beyond the grasp of consciousness. Bourdieu (1996) presents the concept of habitus as "the best one to signify that desire to escape from the philosophy of consciousness without annulling the agent" (p. 180). Bourdieu does recognize the conscious operations of habitus, but only in relation to the situations of crises where subjective perception is incongruent with the objective opportunity structure. It is during these times of crisis that there is the potential for critical reflection on previously unquestioned assumptions that have been taken for granted. The importance of this opportunity for reflection notwithstanding, the potential for reflectiveness has been seen as underdeveloped in Bourdieu's work (Crossley, 2001). While Bourdieu overestimates the unconscious and underestimates "a mundane but crucial aspect of our lives: our 'inner conversations'" (Sayer, 2005, p. 29), the concept of habitus should be supplemented with a moral dimension that takes into account such factors as an individual's concerns and principles. This implies a theoretical potential that can broaden the scope of the conceptualization of habitus.

The Individual and Society. Bourdieu's disinclination to follow a highly individualistic theory is reflected in his highlighting of the collective basis of habitus in addition to the individual habitus, arguing that the same class has shared norms and their habitus is thus homogeneous (Bourdieu, 1990b). He articulates that "though it is

impossible for all (or even two) members of the same class to have had the same experiences, in the same order, it is certain that each member of the same class is more likely than any member of another class to have been confronted with the situations most frequent for members of that class" (pp. 59-60). His use of the term "conductorless orchestration" also emphasizes the "regularity, unity and systematicity to practices" without any coordination (p. 59). Confirming Bourdieu's perspective, Reay (2004b) views habitus as existing on both the individual and societal levels. Maton (2008) also conceives of habitus as connecting the individual and the social spheres in that while individuals may be different in their specific experiences, their structural stance is similar within society.

Operational Definitions of Habitus: Measurement in Qualitative and Quantitative Research

Bourdieu (1993) asserts that "one cannot grasp the most profound logic of the social world unless one becomes immersed in the specificity of an empirical reality" (p. 271); the concept of habitus can be fully captured when one observes how the concept is analytically used in empirical research (Bourdieu & Wacquant, 1992; Reay, 2004b). Despite the fact that Bourdieu repeatedly stresses the importance of the concept of habitus in empirical specification, the concept is far from being readily amenable to empirical operationalizations and analyses.

While the concept of habitus has been empirically tested in education research in general as well as other disciplines such as sociology, it has not received much attention in college-choice research, compared to other Bourdieuian concepts such as cultural capital. Some researchers (e.g., Paulsen & St. John, 2002) draw on the concept of habitus,

but do not operationalize it as a measure. Among those researchers who have operationalized the concept of habitus using qualitative and/or quantitative methods, it appears that qualitative research has been more widely used, probably due to the advantages of such research in capturing complex constructs. Given that more research on habitus has been done in the European setting, it is reasonable to address the question of how applicable Bourdieu's theory, which is primarily based on French society, is in other contexts, with different cultures and historical backgrounds. This is even true within the U. S. because the empirical literature that is available in the U. S. context is mostly based on the research on the West Coast, particularly California (e.g., Horvat, 1996, 1997; McDonough, 1997), and the educational settings in the West Coast may be different from those in other places such as Northeast. While Bourdieu has cautioned about the importance of researchers studying the social practices in close relation to the specific settings, it is also true that his concepts have been successfully applied in various contexts, reflecting the extent to which Bourdieu's theory may be trans-cultural (Brooks, 2008; Harker et al., 1990).

This section first discusses research studies that have been done in European settings, most of which adopt qualitative methods, and then turns to the literature in the American context, first discussing the qualitative and then the quantitative literature. In the UK university setting, one of the noteworthy findings from Ball, Davies, David, and Reay (2002) is that students' college-choice default is different according to their class status, which they call "social class in the head" (p. 52). Those who are in private high schools naturally expect to attend elite universities, and failure to apply to such institutions is considered deviant. On the other hand, the reference point for many who

are in non-private high schools is non-elite universities, and, therefore, thinking about elite universities requires a special effort outside of the norm. Students' perceptions are largely constructed in an interaction with friends and teachers as well as family, thereby resulting in a situation where lower class students either never get to the position where they can deliberate college options or exclude themselves from pursing these options either because of financial risk or feelings of not fitting in (Ball et al., 2002).

Although researchers, including Bourdieu, primarily work with the concept of class habitus, Brooks (2003, 2008) criticizes that the class habitus may fail to explain the fact that members of the same class may make college-choice decisions differently. The author examines how peer relationship may mediate the relationship between social class and educational outcomes, and finds that institutional rankings set by friends are directly perceived as a hierarchy of institutions. While still recognizing the influential impact of class habitus, the author concludes that peers have a substantial interaction effect on the perception of what a feasible option is. The author observes that students' perception is long-lasting, and argues that, similar to Jenkins (2002), the transformation of habitus may not be easy.

Baker and Brown (2007) examine how members within the same social class as well as ones between social classes differently interpret college-choice process, confirming Brooks's (2003, 2008) criticism of class habitus for not fully addressing intra-group differences. The departing and contrasting finding from Brooks is that while some of the lower class students do not deny their social origin, they do adjust to the transition into colleges that are very different from where they are from. Within the habitus framework in the U.S. context, similar to Baker and Brown's research in European

context, Horvat (1997) finds that some students develop a dual identity; while they maintain their identity in social relationships with their friends, they create a second identity, more resembling that of the more privileged students so that they could succeed in schools. This ability to reshape one's identity can be seen as affirming that habitus can be transformed. These results, taken together, suggest that while social reproduction in higher education is substantially perpetuated, the dynamics of students' college choice are more intricate, showing both the perpetuation and disruption of social reproduction.

Horvat (1996) found that students chose colleges where they felt they would fit in with their peer group of other students because those students resembled them, and, further, students' college expectations, grounded in their social origins, shaped different college-choice patterns. The author emphasizes that these two factors operate together; shared norms and expectations, based on student background, exclude a particular type of college, which would otherwise be similarly excluded even without those expectations because of a cohort of students at these colleges that are seen as non-kindred. Similar findings with Horvat's have been cumulated. For instance, using a qualitative study of 50 students who enrolled in one of the Ivy League institutions, Mullen (2009) found that despite their success in enrolling an elite institution with a high academic profile, less-privileged students originally did not consider the Ivy League as possible options due to possible discomfort and concerns of elitism.

Educational researchers have extended the concept to the institutional habitus that considers schooling reality (Horvat & Antonio, 1999; McDonough, 1997; Reay, 1998; Reay, David, & Ball, 2005). Given its wide recognition in the field of higher education, McDonough's conceptualization of habitus merits discussion here. McDonough

conceptualizes two layers of habitus: individual and organizational habitus. With respect to individual habitus, McDonough elaborates on Bourdieu's concepts and used the concept of entitlement to explain why students may choose one college over another; that is students postulate that they are entitled to a certain kind of college education corresponding to their family background or class status. In terms of the concept of organizational habitus, McDonough examines the strength of guidance support systems in high schools (defined by counselor-to student ratios) and whether high schools have a greater number of high SES students compared to low SES students (defined by parents' education and occupational status). McDonough argues that organizational habitus encompasses more than organizational culture because the former is connected to a wider socioeconomic structure. Social class shapes individuals' perception and inclination toward colleges through high school to influence their educational outcomes, and individuals and schools act on each other and are acted upon in return. While this research is insightful and has been influential, to the extent that it does not help further our understanding of the relative importance between individual and organizational habitus, its practical implications may be limited.

Despite their strengths in capturing complex constructs, the qualitative studies reviewed above share a common problem of generalizability, partly due to small sample size. Pointing out this limitation, a few quantitative researchers have attempted to utilize the concept of habitus (Dumais, 2002, 2006; Nora, 2004). For example, Dumais (2002) is one of the few researchers who use the theory of habitus as a central theory, applying quantitative methods to analyze nationally representative data (i.e., National Education Longitudinal Study; NELS). Following the lead of McClelland (1990), Dumais uses

students' occupational aspirations as a proxy for habitus, and finds that a student's habitus play a decisive role in academic achievement. In her later work, Dumais (2006) studies children in the early years of elementary school, recognizing that habitus plays a role from early days. While she finds that some of the measures of parental habitus (e.g., parents' college expectations) are positively associated with teachers' evaluations of students' achievement, she suggests that students' habitus (e.g., students' comfort level at school and their future outlook), rather than parental habitus, would better capture the role of habitus as it relates to educational outcomes.

While previous research may have opened the door for the potential for operationalization of the concept of habitus, yet what is striking in this body of research is the divergence of views about analytic methods and the very different beliefs about the explanatory power of habitus. Researchers' perspectives stand in marked contrast with one another at opposite ends of a continuum, ranging from the perspective that it does not add any explanatory power (e.g., Tooley & Darby, 1998) to the perspective that once one adopts the concept, all things are explained by the concept (Maton, 2008). Considering that researchers tend to use the operational definition of habitus as social background such as social class, race, and gender, Tooley and Darby argue that the explanatory power may remain the same whether one looks only at social background, without reference to habitus, or examines habitus as well, and thus there is no need to draw on the concept of habitus. Even if a full understanding of habitus suggests that habitus is not synonymous with social background and thus undercuts this argument to some extent, the argument does raise an important point in zeroing in on the problem of research studies that interchangeably use habitus with social background. Such studies may miss the

disjuncture between habitus and social background.

The recurring observation that habitus is all encompassing also presents problems because it is so undefined, and therefore unwieldy for empirical research. As has been noted in the literature, there is an important need, if empirical research can be undertaken, for habitus to be defined in such a way that there is some minimal boundary in order to enhance its explanatory potential and to answer specific research questions (Swartz, 1997).

The divergence of the perspectives of explanatory power of the habitus may be partially due to the concept itself. Reay (1995) argues that while the concept of habitus is indeed indeterminate, the conceptual looseness of habitus may be advantageous rather than disadvantageous in providing researchers with room for appropriate accommodation, and the very "messiness" of the concept may better explain a phenomenon which is similarly nuanced, complicated and not clear-cut. This argument is, however, harshly criticized by others. Tooley and Darby (1998), for example, call Reay's research an "adulation of great thinkers" (p. 56) and question how a messy concept can illuminate an issue. This criticism may arise because the conceptual strengths of habitus are not always converted into empirical strengths (Maton, 2008). Swartz (1997) reasons that "this very appealing conceptual versatility sometimes renders ambiguous just what the concept actually designates empirically" (p. 109).

These difficulties in examining habitus empirically are even more pronounced in Bourdieu's conceptualization of habitus as the unconscious. Clearly, it is hard to use survey questions that ask why respondents behave as they do when an understanding of that behavior is beyond the grasp of consciousness. Bourdieu (1990b) also recognizes this

by saying that "he [the respondent] is no better placed to perceive what really governs his practice and to bring it to the order of discourse, than the observer" (p. 91). He argues that researchers may be able to better observe patterns of one's dispositions and actions objectively. Habitus is the conceptual tool through which researches can prove that apparently unrelated reactions to circumstances are in fact interrelated; habitus makes the taken-for-granted assumptions visible in empirical research (Hillier & Rooksby, 2005; Reay, 1995). Although researchers cannot perceive habitus in itself, they can observe the effects of habitus on one's values and practices (Maton, 2008). However, to the extent that researchers' pre-assumptions and subjective interpretations may interfere with objective observation, respondents' practices may not necessarily be the result of perception.

There are also weaknesses with Bourdieu's empirical method. He tends to primarily use descriptive statistics and, at times, correlation analysis, and uses statistical methodology only as a starting point in his sociological explanations (Jenkins, 2002). Partially for this reason, Bourdieu has been criticized on the grounds that he needs to further explain processes of cause and effect and that his theories do not always include "empirical backing or the specification of appropriate empirical tests" (MacLeod, 1995, p. 14).

The Interaction of Habitus and Capital in College-Choice Practice: Activating Capital and Indirect Exclusion

Based on existing conceptualizations and empirical findings on habitus, this section elaborates how the concept of habitus may enhance the understanding of the college-choice process. This development of discussion will benefit from initiating the

brief note about the Bourdieu's related concepts. Even though Lash (1993) frames habitus as being comprised of cultural capital, most researchers (e.g., Reay, 2004b) conceptualize habitus and capital as separate yet related. To explicitly describe the picture of the relationships of these concepts, Bourdieu (1984, p. 101) uses the following formulation: [(Habitus) (Capital)] + Field = Practice.

This equation highlights the interrelationship of habitus and capital in a given field that generates practice. Habitus is shaped by capital and, in turn, reshapes capital (Hillier & Rooksby, 2005). No resources by themselves are valuable, but the value of capital is only determined in relation to the given field (Horvat, 2001; Lamont, 1992). Practice is generated at the intersection between habitus and field (Swartz, 1997). The relationship between habitus and field is dialectic and dynamic because both habitus and field are evolving according to their own trajectories.

Specifically in the college-choice context, capital alone is not sufficient, particularly because resources are not automatically converted into educational advantages; individuals' dispositions define the value of capital investment, and individuals should have skills to activate the capital (Lareau & Horvat, 1999). The analogy of a card game illustrates this perspective more concretely: "Players are dealt different cards (e.g., social and cultural capital), but the outcome is dependent on not only the cards…but the skills with which individuals play their cards. Depending on their 'investment patterns' individuals can realize different amounts of social profits from relatively similar social and cultural resources" (Lamont & Lareau, 1988, p. 154).

In their representative work on education, *The Inheritors,* Bourdieu and Passeron (1979) find that social class has "its influence throughout the whole duration of schooling,

particularly at the great turning points of a school career" (p. 13). While they analyze this educational inequality, they trace it to deeper roots, arguing that "the chances of entering higher education can be seen as the product of a selection process which…is applied with very unequal severity, depending on the student's social origin. In fact, for the most disadvantaged classes, it is purely and simply a matter of *elimination*" (p. 2). As is clear in *The Inheritors,* among others, Bourdieu's conceptualization of habitus encompasses not only direct exclusion but also certain features of indirect exclusion, specifically self-elimination, overselection, and relegation.

Self-elimination (or self-exclusion) refers to individuals' excluding themselves because they internalize subjective aspirations about objective chances and feel uncomfortable in certain places due to a lack of familiarity with social norms. Only in the case that investing the resources (i.e., capital) makes sense given their habitus will students use the capital, otherwise they are self-excluding (Bellamy, 1994; Bourdieu, 1977a; Dumais, 2002; Horvat, 2001).

Bourdieu (1989) states that habitus implies "a 'sense of one's place' but also a 'sense of the place of others'" (p. 19), whereby individuals are inclined toward probable, possible, and favorable milieus, and exclude improbable, impossible, and unfavorable environments (Bourdieu, 1990b). The draw of the former is that it allows us to stay within a comfort zone of familiarity. Individuals may seek to understand their own worlds and develop their sense of possibility, but still exclude all "extravagances" which may be viewed as "not for the likes of us" (Bourdieu, 1990b, p. 56). Individuals thereby maintain the status quo and prevent radical change or crisis by this process and, beyond this maintenance of their own original dispositions, those dispositions and situations are

culturally and socially reproduced (Bourdieu, 1990b; Jenkins, 2002). Self-selection may occur beneath the level of conscious thought where students never reach the position to even deliberate certain options: "If one asked a slum youth why he did not take steps to pursue a middle-class path to success…the answer might well be not 'I don't want that life,' but instead, 'Who, me?' One can hardly pursue success in a world where the accepted skills, styles, and informal know-how are unfamiliar" (Swidler, 1986, p. 275).

While choice is central to the concept of habitus, exercising choices within habitus are, as Bourdieu repeatedly stresses, bounded within limits, and lower SES individuals may feel that 'that's the only one thing to do' (Reay, 1995). In this context, Ball et al. (2002) reasonably address the problem of the concept of choice; while the concept of choice implicitly assumes formal equality and the existence of free agents who behave based on their preferences, the term decision-making would be probably more appropriate in that it implies constraints.

Overselection occurs when culturally-disadvantaged individuals are exposed to the same type of selection as the privileged and are expected to perform equally well; in fact, overselection often translates to the need for culturally-disadvantaged individuals to outperform their more privileged counterparts. Horvat (1996) uses the analogy of a house and its rooms in her explanation of habitus; the privileged occupy rooms that are closer to the door of college attendance, and thus, as this analogy relates to overselection, they pass through the door with greater ease than those for whom it is more remote.

Relegation refers to the situation in which individuals with less-valued forms of capital receive fewer awards for their investment of capital (Bourdieu & Passeron, 1979; Lamont & Lareau, 1988). Probably because lower class students see the relegation occur

to others around them, they may find that higher education is not profitable for them, which may further dampen their aspirations. Pertinent to this point is the work of Reay, Davies, David, and Ball (2001); they note one interview transcript from a working class student; "there is a creeping assumption…that if we open up higher education to working class students then we can all become professionals. This is the biggest fiction of all" (p. 872). While the present study focuses on this indirect exclusion process, there are other concepts (e.g., frames and scripts) that may exist at the intersection of cultural capital and habitus and thus merit a brief discussion.

Applicability of the Concepts of Frames and Scripts in the College-Choice Process. The discussion of Bourdieu's concept of habitus covers very similar territory with the concepts of frames and scripts developed by several American scholars (Harding, 2007, 2010; Young, 2004). In an attempt to illuminate how disadvantaged adolescents make sense of their lives and future opportunity structure and how they make decisions in domains such as schooling, several sociologists draw concepts such as frames and scripts (Harding, 2007, 2010; Young, 2004). According to these studies, *frames* are defined as a lens through which one interprets the world, and *scripts* refer to strategies of action to approach problems or achieve goals.

Through interviews of black and Latino boys in poor neighborhoods, Harding (2010) discovered that the extent of cultural heterogeneity in frames and scripts is greater in disadvantaged neighborhoods than in more affluent areas, and these various frames and scripts put disadvantaged adolescents at an even greater disadvantage. Harding articulated the negative consequences of cultural heterogeneity through three concepts: *model shifting, dilution*, and *simultaneity.*

Adolescents may switch from one path to another because alternative models are readily available and they receive equal social support (model shifting). In poor neighborhoods that are culturally heterogeneous, adolescents are likely to face multiple frames and scripts concerning their educational and career trajectories. Various scripts make it difficult for adolescents to navigate effective pathways. When they encounter challenges to realizing one script, they may shift from one script to another, which may cause some risks in the long-term.

Adolescent boys may realize that each path is obscured by competing models for future success, and information about a particular script is not specific enough to navigate complex educational and career trajectories (dilution). In neighborhoods where multiple options coexist, there will be on average less information about how to realize a particular path and fewer people who followed a particular script. For example, those who want to realize a script for college attendance may be frustrated about the fact that there are fewer neighbors who successfully followed that path and that there exists only limited or unclear information about how to navigate the college enrollment process and the complex financial aid system.

The coexistence of both mainstream and alternative mental models may result in confusing the adolescents' efforts to accomplish the desired goals (simultaneity). In terms of educational decision making, for example, even in the case of attending a four-year college, there exists a wide array of scripts; one can be a star football player and be recruited to play for the college team; or one can enroll in a community college and transfer to a four-year college. This exposure to multiple and contradictory scripts may distract boys from focusing on schooling as a pathway to future success, reducing their

commitments toward academic preparation. In addition, adolescents may find it difficult to know which one is the best to carry out and how to follow feasible pathways for educational success.

As noted, the discussion regarding cultural frames and scripts appears similar to Bourdieu's concept of habitus in that both relate to dispositions toward action yet are not determinative. However, Harding (2010) argued that frames and scripts emphasize conscious aspects rather than unconscious ones, and that they also focus on heterogeneity. This emphasis may provide comparative advantage to the concepts of frames and scripts over the concept of habitus, when applied to the more diversified American society.

Summary: Strengths and Weaknesses of the Concept of Habitus

Although the concept of habitus is not without weaknesses, it presents distinct strengths. One is the explicit recognition that behavior that is structured and constrained may synchronize with behavior that is structuring, by simultaneously considering both structure and agency. While similar logic exists in other dualisms, such as consciousness and unconsciousness, this is a critical step that emphasizes that one extreme alone is not sufficient and calls attention to the intersection of the two dimensions that have been overlooked in theory, research, and practice. Indeed, habitus "provides a means of maintaining but relating such dualisms" (Maton, 2008, p. 61).

Another definitive advantage of the habitus concept, along with the elaboration of activating capital and aspects of indirect exclusion, is that it explicitly incorporates the existence of individual agency and the mechanism through which dispositions structured by social constraints are linked to externalized practice. For example, without habitus as an individual's disposition to decide to activate capital, we do not know how the

possession of capital becomes an educational advantage.

Also, habitus is clearly embodied in the causes and prescriptions of educational inequality. For instance, drawing on structural constraints, Bourdieu argues that educational opportunities are unequal; therefore, in the college-choice context, students' college choice should be understood in their situated context. Because individuals make college decisions in a way that makes sense to them, the college choice of lower SES students may not make sense to others who have not experienced social restrictions and a lack of resources. For example, if we assume that low-status students have parents, teachers, and counselors who are readily available, that there is a plethora of college-related information everywhere, and that they can be academically prepared if they want to and try to, there is no way to clear their obstacles in the college-choice process. Clearly, the concept of habitus suggests that more attempts are needed in order to understand the college-choice process of low-class students from their own perspectives in their situated circumstances. This would lead to a more complete understanding about what factors operate to hamper their college-choice process and how to approach and resolve the problems.

Despite the great strength of habitus as transcending dualisms, which was a key underpinning of Bourdieu's theory, some scholars believe the concept is diluted because Bourdieu leans toward one dimension of the dualism he intends to transcend. Whereas Bourdieu criticizes economic rationality, he is himself criticized as being at the other extreme, overly deterministic, due to his stronger emphasis on unconscious forces deeply embedded within social constraints rather than rational, conscious considerations (Crossley, 2001; Jenkins, 2002).

Bourdieu's conceptualization that people's sense of place exists or is absent depending on their sense of the possibilities those places hold for them actually overlooks gray areas of uncertainty that may exist between these two poles, and manifests the very dualism which he originally rejects. The interplay of objective structure and subjective beliefs may be more complex than Bourdieu's conceptualization (Swartz, 1997).

Regardless of Bourdieu's emphasis on empirical specification of his theory, a further disadvantage of his theory is that it is difficult to test empirically. For example, when college-choice researchers utilize data on already-enrolled students, those who self-select out of postsecondary education cannot be investigated because they are already excluded from the data. Further, even when researchers use longitudinal data that encompass high school experiences leading to college, researchers cannot demonstrate that non-enrollment or enrolling in a two-year institution compared to a four-year institution results from self-selection since self-selection may occur before high school.

Thus, overall, although the fact that Bourdieu theorizes the transcending forces of habitus (as structured and structuring) is an improvement from the capital theory alone in that it leaves a space for human agency, and overcomes some of the limitations of economic human capital theory, the conceptual strengths are not readily amenable to the strengths of empirical analysis. These empirical difficulties notwithstanding, to proactively resolve educational inequalities in college choice, researchers should be willing to utilize the elusive habitus concept in empirical work. When theory and empirical research work together to fully capture an evolving concept, however difficult to capture, researchers may be able to exert the maximum strength of Bourdieu's theory.

Empirical Research that Examines College-Choice Process

This section has organized the extensive literature on college choice into three sub-sections: economic capital, cultural capital, and social capital. In each sub-section, the effects of each form of capital on the college-choice process will be reviewed, using the three-stage model as the conceptual framework for organizing empirical investigations of college choice.

How Does Economic Capital Influence Student College Choice?

The Predisposition Stage. The findings of previous reviews of research on the impact of family income on students' educational aspirations are inconclusive (Paulsen, 1990; Perna, 2006a). In their review of college-choice research, Hossler et al. (1989) conclude that while SES has an effect on predisposition, the effects may not be direct; rather, SES influences parental encouragement or academic achievement, which, in turn, influences college predisposition. In their later work, Hossler et al. (1999) do not find an effect of family income on college aspirations, emphasizing instead the positive effects of parental encouragement or support.

In contrast, other research studies find that low socioeconomic status is more likely to shape lower level of aspirations and to cause these low aspirations to be sustained over time (e.g., Terenzini et al., 2001). In observing the low level of aspiration of lower income students, MacLeod (1995) finds that home and community environments where college-going is rare and where effort is not necessarily rewarded may shape the educational attainment levels to which students aspire, and speculates that, for lower income youth, going to college may preclude earning money from jobs, and these forgone earnings may be the biggest college cost for lower income students. Using the

NELS data, Kao and Tienda (1998) find that lower SES students have lower aspirations by the time they are in eighth grade, which do not change through twelfth grade. Through focus-group discussions, Kao and Tienda confirm their quantitative findings and elaborate that students' lower aspirations may be due to the fact that their aspirations are less concrete and they lack information about college and financial aid packages.

Bourdieu's theory predicts that since working class students have internalized this limited opportunity structure, they do not aspire to higher levels of educational attainment (Swartz, 1997). Hearn (2001) finds that while earlier research concludes, in large part, that low-income students tend to have lower levels of college aspiration, more recent research finds that the gap in college aspiration between low-income students and higher income students is negligible.

Through focus group discussions conducted with 109 non-participant working-class Londoners, Archer and Hutchings (2000) describe how viewpoints about the value of higher education operate during the college navigation process. Although respondents generally agree with the potential economic benefit of higher education, they also perceive higher education as too risky in that it is too costly and returns are uncertain for them. This result suggests that while working-class groups do share the aspiration to higher education, they are confronted with both a lack of resources and psychological hurdles that impede stepping forward to higher education.

Using wealth as a proxy for economic capital, Orr (2003) finds that wealth is positively associated with academic achievement, while mediated through cultural capital (as measured by possession of cultural resources and participations of cultural activities), and that the influence of wealth on academic achievement held true, even after

controlling for socioeconomic status (including family income). Thus, the author concludes that wealth plays a role in academic achievement that is independent from SES.

The Search Stage. Researchers note that the opportunity structures of lower income students are constrained even before they apply to colleges or apply for college financial aid, suggesting that family background and educational experiences operate to limit the range of colleges that will be considered by these students (Paulsen, 1990; St. John et al., 2001).

Many studies have demonstrated that SES is a very dominant variable in the college search process; lower income students are less likely to apply to high-status colleges and universities (DesJardins, Dundar, & Hendel, 1999; Hossler et al., 1989; Lillis & Tian, 2008). On the other hand, Toutkoushian (2001) found that there is little variation among family income groups concerning whether they initially consider more expensive colleges or not. This study's conclusions, however, are questionable because the sample included only those students who submitted SAT scores; excluding students who did not take the SAT or submit scores may result in an unrepresentative depiction of how SES affects college-choice decisions as some of this excluded group may come from economically disadvantaged families.

The Choice Stage. Research on choice considerations within this larger category of economic capital indicates that different choices are not the result of different aspirations but rather economic realities. This body of literature explores how aspirations may or may not differ in different groups and the economic factors that leave the aspirations of some unrealized. Research studies find that while lower income students may develop similar college aspirations, their actual enrollment is far below than that of

higher income students, suggesting that their aspirations remain unfulfilled or are not fully realized (Hearn, 2001; Luna De La Rosa, 2006). In a similar vein, in their review on the poor in postsecondary arena, Terenzini and colleagues (2001) underscore that the huge disparities in college attendance levels between the lowest and highest SES quartile students are not attributable to different aspirations; effective ways to overcome the current situation where the poor must "swim against the tide" and grapple with downward forces would involve broad, integrated approaches.

While working with the COACH (College Opportunity and Career Help) program in Boston, a program in which low-income Boston public high school students are mentored by Harvard students, Avery and Kane (2004) compiled survey data to compare the college plans and decisions of inner-city low-income students (COACH students) with those of suburban youth. The researchers again found that college aspirations and perceptions of college as economically beneficial were present yet also found that not following through with academic procedures, i.e., registering for the SAT, thwarted these aspirations. The failure to comply with academic procedures was traced to such factors as lack of familiarity with SAT registration procedures and remote testing sites. This research does not provide any information on the evaluation of the COACH program, partly due to the lack of cumulative data, but further research may confirm whether this type of mentoring program may help students realize their aspirations.

Hearn (1990) argues that family income is the most decisive nonacademic factor in college choice. He reasons that because the most selective colleges are generally more costly than others, and because family income directly influences college destinations in his research, "there is a strong suggestion that the barriers to elite college entry are more

material than social" (p. 138). However, the outcome variable of the selectivity indicator, as the author recognizes, may not effectively distinguish elite colleges from non-elite colleges. In his later research, Hearn (1991, 1992) confirms that SES is related to students' college destinations; lower income students are more likely to attend less-selective institutions, regardless of those students' levels of academic ability, achievement, and expectations.

Akerhielm and others (1998) found that, controlling for other factors including academic preparation, lower income students are less likely to enroll in postsecondary institutions. In a similar vein, exploring three decades of trends of relationship between socioeconomic status and whether students go selective colleges from the Cooperative Institutional Research Program (CIRP), Astin and Oseguera (2004) found that even among academically qualified students, SES has a direct influence on students' college destinations, and this pattern has been aggravated during past three decades. Reflecting on these concerns, some scholars (e.g., Bowen, Kurzweil, & Tobin, 2005; Carnevale & Rose, 2003) argue class-based affirmative action may be needed.

Paulsen and St. John (2002) find that college-choice patterns are distinctly different among income groups; most low-income students chose colleges because of high financial aid and/or low tuition. This research contributes to the research on higher education in both theoretical and empirical respects. Theoretically, the authors add a new insight through their conceptualization of the student-choice construct that highlights a sequence in educational choices in relation to financial aspects and the financial nexus model which has established linkages between college-choice behavior and persistence. Empirically, unlike previous research that primarily paid attention to the main effects of

the entire sample as a whole, the sub-group analysis of these authors is an improvement that reveals the distinct college-enrollment patterns by income groups. At the same time, notwithstanding this improvement, adding interaction effects in one analysis instead of doing a sub-group analysis may provide a means of more meaningfully comparing the differential effect among different groups.

Criticizing the National Center for Education Statistics (NCES) studies of college enrollment (e.g., Cabrera & La Nasa, 2001; Horn, 1997) for basing its sample only on students with specific high school courses or test scores, some researchers argue that these research studies are flawed in their procedures of variable selection (Becker, 2004; St. John, 2003). To rectify this design error, St. John (2006b) includes the group of students who did not take certain courses or test, and reexamines the NCES studies using the same data (i.e., NELS). The author finds that high-income students were more likely than middle-income students to enroll in four-year colleges than not to enroll, even after controlling for academic preparation and parents' education. This suggests that while academic preparation is, in general, an important condition for college enrollment, academically prepared low-income students are constrained by other non-academic hurdles, which are most likely to be financial barriers.

A substantial volume of research traces one cause of the growing gap in college attendance levels between high-income and low-income students to the fact that colleges are increasingly unaffordable (Kinzie et al., 2004; McPherson & Schapiro, 1998; Mortenson, 2001; Sazama, 1994). While documenting the growth of loan or merit-based aid compared to need-based aid, McPherson and Schapiro argue: "the considerable increases in net tuition for low-income students…have led to a growing gap between

enrollment rates for high-income and low-income students and to an increased concentration of low-income students at the least costly institutions" (p. 140). Also focusing on the affordability of higher education, Gladieux (2004) finds that while the college enrollment has increased among all income groups, the enrollment gains among low-income groups are far below than the enrollment gains among high-income groups. High-income students are more likely to enroll in a selective four-year college, while their low-income peers are more likely to enroll two-year community colleges (Ellwood & Kane, 2000).

While college affordability has received substantial attention from economic and educational researchers, McDonough and Calderone (2006) suggest that a socio-cultural conceptualization of affordability is also important in order to understand how low-income students perceive college cost. Unlike the economic definition of affordability, this socio-cultural construct defines affordability as a personal sense about whether the consumption decision is within financial reach, which is based on individuals' internalized assessment of value in their own particular circumstances (Tierney, 2009). Tierney and Venegas (2007) argue that previous research overlooks how students make sense of prospective financial aid during the college-choice process. Drawing on the concept of cultural ecology, Tierney and Venegas assume that students' understanding of financial aid and actions regarding it are informed by broader contextual considerations, encompassing peer, family, and community environments.

Although researchers generally find family income has an effect on college choice, views vary regarding how well the existing research methodology has measured this effect and whether the effect of family income is related to students' financial barriers to

college attendance or to differences in financial resources that have an earlier effect on other factors (e.g., academic achievement). In terms of the first issue, researchers have addressed the difficulties to capture the true effect of family income on college enrollment since it is difficult to isolate that effect on college enrollment exclusively because lower family income may already have had an effect on other variables (e.g., academic preparation), which, in turn, affects college enrollment. In other words, to the extent that low-income students may perceive that they will not go to college, resulting in being ill-prepared academically for college, this low academic achievement may already reflect the impact of family income on future college enrollment. Thus, it is hard to capture the independent effect of family income on college enrollment.

In terms of the second debate, Ellwood and Kane (2000) find that the impact of family income on college enrollment is related to differences in academic achievement in the early school days of students in low-income families. Ellwood and Kane argue that despite financial aid programs (e.g., Pell Grant), low-income students continue to lag behind high-income students in their college enrollment, and this may be attributable to the fact that only students who apply to colleges become aware of the available financial aid. Cameron and Heckman (2001) strongly believe that the effects of family income on college attendance do not translate into credit constraints during the college-going years. Using National Longitudinal Survey of Youth (NLSY) 79 data, they find that long-term circumstances including family background and academic preparation, rather than short-term credit constraints are important determinants in student college choice. While family income is seen as an important factor, it is viewed as operating in a way to influence academic achievement, rather than credit constraints. The authors further claim that

family income has a greater influence earlier in students' lives and that financial aid programs geared to college education may not target the population whose schooling decisions are contingent on the receipt of aid. However, Belley and Lochner (2007) argue that unlike the results from NLSY79, results from the survey almost two decades later, NLSY97, indicate that short-term credit constraints do matter for the more recent population. Further research evidence is needed to resolve this debate, but although it is true that family income predominantly influences academic achievement, it is also true that academically prepared low-income students do face credit constraints at the last minute (Heller, 2006; St. John, 2006b). While the debate is based on the assumption that financial aid is given only after most decisions are reached, empirical research that examines early guarantees of financial aid may lead to a more constructive formulation of this discussion.

Public Finance as a Way of Supplementing Economic Capital. Some researchers (e.g., Heller, 2006) call into question the timeline of the current financial aid system, which only allows students to find out their amount of financial aid right before they applied to college. This timing of notification may be too late to influence students, particularly low-income students, in that students may not have time to make preparations for meeting their financial needs, absent knowing the financial aid package (Kane, 1999). In two studies investigating the early guarantees of financial aid programs (e.g., Indiana's Twenty-first Century Scholars Program and the Washington State Achievers Program), the authors found that students who participated in these programs were more likely to have high aspirations to apply to and enroll in colleges than students from non-participating high-poverty schools (St. John & Hu, 2006; St. John et al., 2004).

However, as the authors note, the comparison group may not serve as an ideal control group (e.g., students who were low-income and did not enroll in the program) in part because establishing such a control group raises ethical issues of excluding certain students from a desirable program for which they would otherwise be eligible.

While one of the advantages of this program is that the program allows students to have time to prepare academically to attend colleges because of early financial aid guarantees, the implementation of the program involves some difficulties such as negotiating funding sources, setting appropriate eligibility criteria, and the need for changing the award given family circumstances (Heller, 2006; Perna & Swail, 2001; Schwartz, 2009). While other factors in addition to early commitment of financial aid may be intricately related to students' college-choice process, financial reasons are, nevertheless, important in that students will be less likely to prepare for colleges if they think that colleges are not affordable for them (Heller, 2006).

Summary. Studies suggest that college aspirations of low- and high-income students are similar (Hearn, 2001). However, some fine-tuning may be required to draw firm conclusions about how varying or stable these aspirations are over time, to what extent they are realized and, if not realized, what factors prevent their realization. Despite similar college aspirations among social class groups, the realization of college aspiration for low-income students is far less likely than their high-income counterparts (Luna De La Rosa, 2006). Clearly, high aspirations alone are insufficient for actual college realization (St. John, 1991). In addition, although the overall college enrollment of low-income students may have increased, the enrollment gap among income groups at four-year, selective colleges has actually widened over time (Baker & Velez, 1996; Ellwood &

Kane, 2000; Kinzie et al., 2004; Mortenson, 2001). It is indeed true that high level of college aspirations may have a positive influence low-income students' college choice, but high aspirations alone are not sufficient to their actual college realization (St. John, 1991). While high-income students may need only college aspirations and a specific level of academic achievement to attend college, low-income students must have funding in addition to college aspirations and academic preparation (Blau & Duncan, 1967).

The renowned sociologist Talcott Parsons (1959) articulates that while it is reasonable to expect that the high-status, high-ability youth are more likely to enroll in college, relative to their low-status, low-ability counterparts, it is more important to note the groups whose status does not correspond with their ability. It is less critical to focus on high-status, low-ability youth because in their society, characterized by upward mobility, a downward spiral, despite low ability, is more limited than it is for low SES youth. Further, there are often safety back-up approaches for high-status youth such as entering colleges that have lower academic standards. Given this circumstance, it is crucial to provide more attention to low-status, high-ability youth. As Bowen et al. (2005) suggest, class-based affirmative action may indeed be necessary.

How Does Cultural Capital Influence Student College Choice?

The Predisposition Stage. Parents with college educations may value educational attainment and their own experience may help their children to navigate the college-choice process. Evidence abounds that parental education is a strong indicator in students' predisposition toward colleges (Hamrick & Stage, 2004; Hossler et al., 1989).

Hossler and colleagues (1999) categorize three types of parental involvement: parental influence, parental encouragement, and parental support. While parental

influence refers to sending implicit signals (e.g., college price and quality), and parental encouragement refers to parent-child discussions about expectations and plans, parental support is more tangible and involves active parental backing such as parents saving money for college for their children or attending a financial aid workshop. Examining cultural capital in the context of predisposition to college decision-making, research finds that parental encouragement shapes college aspirations during middle school and early high school years (Hossler et al., 1999; Stage & Hossler, 1989). Carpenter and Fleishman (1987) find that as the perceived encouragement of parents increases, student academic achievement increases, thereby influencing student college plans. High achievers receive more encouragement about college education from parents, other family members, peers, and teachers (Hossler et al., 1999). Parents who value educational attainment may further influence students' college-choice process by sending their children to expensive private high schools (McDonough & Calderone, 2006). Zweigenhaft (1993) compared Harvard students who came from public high school backgrounds with those who had attended elite prep schools, and found that the latter group of students, who are more likely from upper class backgrounds, were significantly less successful academically. This result suggests that those who are least likely to have upper class backgrounds have to excel academically more than their wealthy counterparts in order to gain a similar access to an elite college.

In her qualitative research of the college-related decisions of 12 white girls who were middle-range academic performers attending four high schools in California, McDonough (1997) found that "the patterns of students' aspirations...were shaped by the class context of the communities, families, and schools in which students lived their daily

lives" (p. 151). Freeman's (2005) particular choice of an analogy to illustrate the sustaining importance of a group's culture is evidence that her view of the first phase of the college-choice model is one of predetermination rather than predisposition; her analogy is that attaching a wing to a turtle does not enable it to fly. Nonetheless, this analogy may present problems to the extent to which some turtles do fly, i.e., people transcending their cultural backgrounds.

In an attempt to examine whether empirical evidence confirms or refutes Bourdieu's theory of cultural capital, educational sociologists have identified two different types of models of how cultural capital mediates the relationship between social status and academic success: the cultural reproduction and cultural mobility models. While the cultural reproduction model assumes that cultural capital advantages already-privileged groups, the cultural mobility model posits that the effects of cultural capital are greater for the less-privileged groups, thereby leaving room for social mobility of the low-status group.

In his influential research on cultural capital, DiMaggio (1982) examines this form of capital through the lens of the extent of involvement with the arts, broadly defined, and finds that such measures of cultural capital have a significant influence on students' high school grades, controlling for family background and ability. While this widely cited finding may be interpreted as supporting Bourdieuian reproduction theory, a closer examination reveals that the finding supports the cultural mobility model in that cultural capital is beneficial for any student regardless of their class status. Dumais (2006) also finds support for the cultural mobility model. Cultural capital (e.g., participation of cultural activities) plays a positive role in teachers' perceptions of low-socioeconomic

status students' academic skills. That these findings, taken together, support the cultural mobility model leads some researchers (e.g., Kingston, 2001) to argue that the cultural mobility model, rather than cultural reproduction model, better explains cultural capital within the American context. Kingston asserts that Bourdieu's promise that cultural capital will explain the relationship between social class and academic success remains unfulfilled; cultural practices differ between the U.S. and France, and while Bourdieu's theory predicts that school teachers reward the elite culture, no convincing evidence has been demonstrated in the American context. Kingston further interprets research results showing that exclusionary class-based high-status cultural signals may be weak in highly diverse societies such as the U.S., thereby undercutting the Bourdieuian cultural capital theory.

On the other hand, supporting and elaborating on Bourdieu's point, Swartz (1997) focuses on an example of the lower class students who academically succeed and who are more likely to depend on the school for the acquisition of cultural capital. As the level of school is higher, lower class students may perform equally well on a specific task, compared to upper class counterparts because surviving lower class comprises highly select academic group. The surviving lower class students, nevertheless, do not do well on tasks related to broad cultural knowledge because they do not have any background on the subject. Swartz maintains that academic achievement may be the complex product of interrelated factors including cultural capital and degree of selection. Bourdieu states: Schools "consecrate social distinctions by constituting them as academic distinctions" (Bourdieu & Passeron, 1990, p. 201). While the criteria appear to be meritocratic, it is actually given by social forces that perpetuate social class differentials by advantaging

the culturally privileged (Bourdieu, 1977a; Lamont & Lareau, 1988).

The Search Stage. Existing research has indicated that lower class students are more likely to rely on school teachers or counselors for the college information than their family members (e.g., McDonough & Calderone, 2006). Compiling longitudinal survey data, Galotti and Mark (1994) find that students with college educated parents indicated more reliance on their parents as information sources, especially during the busiest time of college-choice process (e.g., search phase). When the family is silent due to the lack of cultural capital or other resources, school and peers play a stronger role; the family perceives they are not knowledgeable on the college issues and they may not contribute to their child's college-choice process (McDonough, 1997).

The Choice Stage. Although researchers do not always relate parental education with the form of cultural capital, they have emphasized the sizable effect of parental education on students' college-choice process. Using a qualitative study of 50 Yale students, Mullen (2009) found that privileged families operate to influence children's destination to elite institutions in at least three ways: 1) these families convey to their young children the importance and expectation of entering prestigious institutions; 2) through their own college experience and knowledge about college, they enable children to perceive prestigious institutions as proper destinations for them where they will feel comfortable; and 3) they invest resources in their children geared to preparing the child for higher education, such as sending their children to private high schools where enrolling in prestigious institutions is regarded as a norm.

One of the NCES summary reports published by the American Council on Education (ACE) concluded that parents' education was the most important predictor of

college enrollment (Choy, 2002). This finding, however, has been criticized by other researchers. While the finding seems to discredit the role of public policy given that parents' education is an immutable factor, at least in the short term, the policy tools of financial aid and adjustment to tuition levels remain important to close the gap among income groups if that gap is related to the different level of resources available to those groups (Heller, 2004; St. John & Parsons, 2004).

When cultural capital is operationalized as cultural participation, not all studies have shown a significant influence (e.g., Perna & Titus, 2005). Yet, most studies, particularly those by DiMaggio and colleagues, have generally demonstrated that cultural capital measures are influential in educational attainment. DiMaggio and Mohr (1985) examine how high-status cultural participation affects educational attainment, and find that the effect of a measure of cultural capital is greater for the sons of less-privileged families.

Using NELS, Kaufman and Gabler (2004) examined how participation in various extra-curricular activities influences attendance at four-year colleges overall as well as attendance at more selective four-year colleges and found that students' direct involvement in the arts is positively associated with the enrollment in general four-year colleges, but does not have analogous effects on the enrollment in elite colleges. In terms of elite college enrollment, however, they find that students with parents who go to art museums are significantly more likely to enroll in elite colleges, reflecting, in the researchers' view, the way inherited cultural capital privileges students. Unlike DiMaggio's (1982) finding that middlebrow cultural activities (e.g., hobbies such as photography and drawing) do not affect educational outcome as measured by high school

grades, Kaufman and Gabler find that participation in hobbies, such as membership in an after-school club, is associated with enrollment in elite colleges. They speculate that their findings differ from those of DiMaggio because while DiMaggio measured activities outside of school, they measure school-related activities.

Some recent research has explored whether the children of faculty or children of alumni from the same college are in a privileged position with respect to college choice (Martin & Spenner, 2009; Siegfried & Getz, 2006). As one such study, Martin and Spenner, using data from a panel study of students attending one elite institution, examine whether legacies – having parents who are alumni of the institution – bestow advantages in an elite institution admission. They find that legacies are more likely to be an already-privileged group, characterized by the possession of economic, cultural, and social capital and thus the admissions preference for legacies favors this distinctly high-status group, not purely academic criteria. Yet because they only have a data for students who have already matriculated to the institutions, they do not know about the students who would have been accepted had there not been an admissions privilege for legacies. Also, analysis of one institution, as was done here, may be limited in generalizability to other institutions because of different student characteristics.

McDonough (1997) observes that college-choice processes vary by social class. For example, in terms of cost considerations, while high SES students view their parents as primarily responsible for college costs, and they are more concerned with acceptance regardless of college costs, low SES students perceive themselves as the ones with primary responsibility for college costs, and thus cost considerations matter throughout the college-choice process. While most of the researchers in higher education who utilize

national data set (e.g., NELS) use SES variables which are comprised of family income as well as parents' education and occupational status, McDonough, in contrast, classifies high SES and low SES with the criteria of parents' education and occupational status, thereby excluding family income. This exclusion may be because it is hard to obtain information on family income in a qualitative research study without quantitative data. Nevertheless, by doing so McDonough fails to consider the potential independent influence of family income apart from other SES components.

The reasons for investment decisions about college education may differ by social class. For example, middle-class groups invest in higher education in order to attain economic rewards because they perceive that their inherited cultural capital is limited and place more value on acquiring usable knowledge and skill in a job market, whereas the intellectual elite who already possess substantial cultural capital tend to be more concerned with the prestige level of higher education (Swartz, 1997). Using CIRP, McDonough, Antonio, and Horvat (1997) found that while students who attended non-elite colleges chose colleges because of expectations of future gains in economic capital (e.g., being well off financially), students who attended elite colleges chose colleges due to expectations regarding future cultural capital (e.g., developing a meaningful career in life). While prior research often focused on how students' cumulative possession of capital influenced their college-choice process, the framework in McDonough et al. inverts that sequence; it is the projected future acquisition of different forms of capital post-college that influence students' college-choice decisions. This extended perspective suggests that whereas the former research paradigm tends to view an elite college as an end in itself, the latter posits an elite college as a bridge between earlier life and further

status attainment. This conceptualization is akin to Paulsen and St. John's (2002) financial nexus model, although their focus is different (one is on Bourdieuian forms of capital, and the other is on finances).

Summary. Partly because Bourdieu initially developed the concept of cultural capital in an effort to explain academic inequality across social class, a large body of literature has explored that relationship between cultural capital and academic inequality. While research generally confirms a positive association between cultural capital and academic achievement, one key area of scholarly contention is whether the relationship actually explains social reproduction or social mobility. Findings regarding the beneficial effect of cultural capital on low-income students' academic achievement have led some researchers (Kingston, 2001) to argue that the social mobility model, rather than the Bourdieuian social reproduction model, works better in an American context. This argument, however, ignores how and under which situations cultural capital influences students' academic achievement. Those who succeed academically may be those who have ongoing success in the educational system, and large numbers of low SES students may have already disappeared from the existing educational system due to standards favoring the culturally advantaged. The importance of educational standards notwithstanding, it is also crucial to recognize that such standards may operate to perpetuate the existing educational inequality.

When cultural capital is measured by the value parents place on educational attainment (as reflected, for instance, in their own educational background), studies consistently report a positive relationship between cultural capital and the college-choice process (Hamrick & Stage, 2004; Hossler et al., 1989). Parents play a strongest role in

students' early stage by influencing their college aspirations. In the search stage, parents may play a role in a certain ways in relation to financial aid and college application, although parents' encouragement or support alone does not play a decisive role in students' actual college enrollment. Despite its varying influence in the extent, family backgrounds may be cumulative and still influence through early stages to final stage (Hossler et al., 1999). However, when cultural capital is operationalized as cultural participation or cultural knowledge, the research findings are mixed, ranging from findings that cultural capital had a positive impact (DiMaggio & Mohr, 1985) to findings that it had no impact (Perna & Titus, 2005). These inconclusive findings may suggest that the measures of cultural capital are not consistently used and some of them may lack reliability and validity. In addition, the fact that some research did not examine the group differences (e.g., social status) in an impact of cultural capital on college-choice decisions may have resulted in such confounding effects. Clearly, to reach some consensus on how cultural capital affects college choice, reliable measures of cultural capital must be developed and applied in investigations of students from different SES groups.

How Does Social Capital Influence Student College Choice?

The Predisposition Stage. Studies have recognized the many different forms that parental involvement takes, although it is not usually referred to as social capital (e.g., Pomerantz, Moorman, & Litwack, 2007). There is a vast body of literature studying parent involvement in relation to students' academic achievement with mixed findings, ranging from findings that such involvement had a positive impact (e.g., Goddard, 2003) to findings that it had no impact (e.g., McNeal, 1999). McNeal finds that parent involvement has an influence on behavioral outcomes, but not cognitive outcomes, and

that the effects of it are stronger for affluent students.

Hossler and colleagues (1999) find that although external relationships with teachers and counselors do not strongly influence the educational aspirations of freshmen and sophomores, they do exert an influence when students are juniors and seniors. Through interviews with high- and low-income students, Brantlinger (1992, 1993) documents the effect of students' social class on schooling as interpreted by high- and low-income students and school counselors. School counselors and low-income students implicitly agree with each other on their perception that low-income students do not need to be academically prepared because they are not going to college. High school teachers and counselors tend to disproportionately allocate their time and effort to the high-income students who in fact may need relatively less attention in the sense that the outlook for their future is clearer and they already receive help from their own family. The author offers two explanations for this lopsided emphasis: 1) in responding to the more directly voiced needs of high-income clientele, school counselors find little time left for low-income students; and 2) while counselors do recognize the needs of low-income students, they cannot foresee a hopeful response to certain gloomy realities, and thus they evade confronting the situation. At the same time, exacerbating this problem, low-income students attribute the lack of attention on the part of teachers and counselors not to the failings of teachers and counselors but to their own academic underperformance (Brantlinger, 1993). However, as in other research that involves self-reports, there is a potential validity threat issue related to problems of unintentionally selective recall and the intentional presentation of self in only a certain way.

Researchers who concur with Bourdieu's social capital theory conceptualize how

other forms of capital (particularly cultural capital) shape social capital, accruing to profit, while other researchers, including Coleman, pay attention to how social capital itself creates educational advantages (McNeal, 1999; Vryonides, 2007). An extensive body of literature attributes low-income students' underrepresentation in higher education to failures in individual responsibility such as the student's low academic preparation or the parents' lack of support. Cumulative findings from the different perspectives indicate that low-status students may self-select themselves out of higher education due to systematic structural exclusion in an educational system that lacks institutional resources for them (Lareau & Horvat, 1999; Reay, 2004a; Stanton-Salazar & Dornbusch, 1995; Weininger & Lareau, 2003). For example, Lareau (1989) finds class-based differences in how parents shape relationships with institutional personnel and how parents become involved in school matters, where class-linked patterns are so deeply rooted and intractable. The way of involvement of higher class parents provides children a "home advantage" through their cultural resources which is linked to social class to generate educational benefit such as academic excellence. As Bourdieu (1986) argues, social capital may be used as a means of manipulating academic qualification in higher social classes who emphasize educational investment; they may use social capital, for example to "pull strings" or lean on an "old boy network" (p. 58). Working-class parents, like middle-class parents, desire to help their children, but lack the resources to become involved in a way that will influence children's important school matters and, further, may have a different perspective on education, viewing home and school as separate, and believing that academic matters will be dealt with by teachers who have more authority than themselves.

Drawing on the concept of weak ties, Stanton-Salazar and Dornbusch (1995)

developed several social capital measures including such features as the number of nonfamily weak ties and school-based weak ties. When low-status students reveal their cultural practices through grades or language traits, institutional agents interpret these signals to decide whether it is worthwhile to invest their time and energy for these youths. In relation to social capital, the youth's cultural display operates both to facilitate students to seek help from the school and motivate school staff to provide it. Although these researchers astutely observe the possible favorable effects of social ties and status characteristics, the social capital measures, as they note, do not draw an accurate picture about actual transmission of resources, and, as a result, questions about how social capital is indeed converted into educational advantages remain unanswered.

Stanton-Salazar (2001) observes social networks-building and help-seeking experiences of low-status adolescents, and draws a conceptual framework that simultaneously considers social structure (constraints) and individual's agency (coping strategies). The troubled pattern the author found is that there is a vicious cycle of exclusion in the process of interaction between low-status adolescents and institutional agents. Despite surface appearances, low-status adolescents' internal feelings are often ones of quiet shame and powerlessness, which, when conveyed to institutional agents, may be ignored or met with responses of disapproval, however unwitting. And, in turn, the messages from institutional agents aggravate adolescents' frustration and resentment, and their coping strategies of contempt and resistance move them even further away from possibilities of network-building or help-seeking behaviors, thereby only perpetuating their low social status. Although these adolescents are in a situation where they desperately need help, they are willing to forego seeking help if the psychological costs

are too high for them. Even in the case where there are ample interactions with significant figures, such interactions are generally not accompanied by the social and institutional resources necessary for optimal development and social mobility. Stanton-Salazar argues that enhancing social networks of low-status youth without fundamental transformation of social structure is a shortsighted strategy that only leads to a "gentler and kinder" process of social reproduction; serious efforts are needed to solve the high-status's monopoly of institutional resources for a genuine long-term solution.

The Search Stage. Research has consistently found that information and awareness about college and financial aid is helpful to students' college application and choice process. Considering that most research investigates college-related information as it is obtained (or not obtained) given the relationships between the giver and receiver, this study situates the research within the discussion of social capital. Regarding the time frame in which students and parents become familiar with information about college and financial aid, some research finds that students obtain related information at a very late stage in the process when most of the decisions have already been made, and thus early awareness about college and college financial aid positively influences students' aspirations (Fenske, Geranios, Keller, & Moore, 1997; Flint, 1993; Somers, Cofer, & VanderPutten, 2002).

Some research focuses on such factors as the lack of familiarity with complicated application procedures for financial aid and inadequate knowledge about college and college attributes as barriers to college choice for those who most need financial assistance (Dynarski & Scott-Clayton, 2006, 2008; Kane, 1999; Luna De La Rosa & Tierney, 2006). Between 1999–2000 and 2003–04, although the total number of

undergraduate who filed a Free Application for Federal Student Aid (FAFSA) increased, the number of low-income undergraduates who did not file a FAFSA increased from 1.7 million to 1.8 million. It is estimated that a substantial portion of students would have been likely to receive a Pell Grant if they had applied (King, 2006).

The troubling aspect of many previous research studies on college and financial aid information is that access, availability, and usability differ markedly among different social status groups (McDonough & Calderone, 2006). Drawing on data from CIRP, McDonough, Antonio, Walpole, and Perez (1998) investigated which groups of people use college guides or college-ranking reports in magazines and found that the information is not distributed equally across social classes. The authors find that high SES students, who can obtain college knowledge from their homes and who may receive guides from private college counselors, are more likely to use college guides and college ranking reports only for legitimizing their status, whereas low SES students do not even purchase such material because it is seen as conveying empty messages which low SES students may not feel relevant. Proliferation of private resources like newsmagazines may suggest that those who want to sell the private commodity will target those who will buy the goods, estranging low SES students (McDonough et al., 1998).

Luna De La Rosa (2006) finds that 11th and 12th grade low-income high school students in California, who aspired to a four-year college, were more proactive in their use of college and financial aid information than those seeking two-year community colleges. While this result suggests self-exclusion from college options even before obtaining information, certain research design problems in it, i.e., the use of only descriptive statistics and the absence of control of related variables, are problematic and

suggest the need for future research.

Other quantitative research consistently finds that parents with college experience are more likely to be familiar with the complex college and financial aid application procedures (Olson & Rosenfeld, 1984; Orfield, 1992). Students whose parents have had a college education start the college navigation process earlier than students whose parents have not gone to college (Litten, 1982). The accuracy of estimating college costs varies by socioeconomic status, with low-income students making less accurate estimates than those made by higher income students (Grodsky & Jones, 2007; Horn, Chen, & Chapman, 2003; Paulsen, 2001a).

Perna (2006b) argues that although there may be plenty of information about college and financial aid available, parents and students are, nevertheless, not well informed. The role of information about college may be broadly framed as operating in two ways – either available but perceived as not relevant or available in a form that is too complex to be meaningful (Luna De La Rosa, 2006; Perna, Rowan-Kenyon, Thomas, Bell, Anderson, & Li, 2008). As a research finding that supports the second way information operates, Venegas (2006) finds that although low-income students do have access to Web-based resources, they face several constraints including a lack of knowledge and support, the perception that the process is too complicated, difficulty finding assistance, and struggling with following through with the application process, resulting in insufficient submissions or missed deadlines. This study suggests that in order to help students navigate the online process for college and financial aid and effectively communicate with financial agencies in cyberspace, the availability of Internet-linked computer information alone is not sufficient and instrumental knowledge

and guidance from knowledgeable figures should also be given.

There is a growing body of research that demonstrates that while providing access to information on financial aid is necessary, it is not sufficient to increase college enrollment; it should be linked to the fact that academically prepared, low-income students could receive financial aid in order to ensure enrollment in four-year institutions (St. John, 2006a). A review of related empirical research also reveals that it is unclear whether information helps students to be more involved in college-choice process or whether students who are already committed to college-choice process are searching for related information (Perna, 2006b).

Coleman's (1988) approach which takes family size into account finds that a large number of siblings translate into scattered parental attention and support, resulting in less social capital. However, this interpretation may overlook siblings' helpful interactions with one another to provide assistance (Morrow, 1999). In light of this second perspective, Ceja (2006), in her qualitative study, observes how older siblings function as information resources when parents have limited ability to assist children during the college-application process, due to their social and economic situations.

Tierney and Venegas (2006) note the role of peer counselors in the development of social capital that, in turn, benefits the peer counselors themselves in their financial aid and college application process. Using ethnographic and survey data from a three-year study in nine low-income high schools in Los Angeles, Tierney and Venegas explore the way that participating in peer counseling programs develops fictive kin networks and thus leads to a shared college-going identity and social gains such as emotional and informational help. There is a possibility that participating in a peer counselor group itself

may mean that the students self-select, and thus will probably attend college in any event, even if they were not acting as peer counselors. The authors, however, refute this interpretation, claiming instead that the effects of peer counselor group are distinct regardless of self-selection in that not all peer counselors were from academically elite groups. This research found that the link between intention and actual realization of college enrollment was stronger for peer counselors, despite the fact that previous research reported the gap between intention and actual enrollment.

Teachers and counselors are particularly important sources of college and financial aid information for low-income students in instances where their own families do not serve as resources. Despite this greater need, the school counselors, nevertheless, tend to be unavailable, inaccessible, or uninformed, especially in schools serving higher percentage of lower income population (McDonough & Calderone, 2006; Luna De La Rosa, 2006). The national public school student-to-counselor ratio was 466:1, reaching as high as 990:1 in some states (Hawkins & Clinedinst, 2007). In addition, the time spent counseling for college was on average 23% of counselors' time in public schools as of 2006, whereas it was more than twice that amount (56%) in private schools. This statistical data indicates that counselors play a less influential role in students' college choice at most public high schools, exerting a much stronger influence in affluent public high schools or private schools (Kinzie et al., 2004; Perna et al., 2008).

McDonough and Calderone (2006) find that there are perceptual differences about college affordability between middle-income counselors and low-income students. Counselors' presumption about the students' college aspirations and possibility of college enrollment is based on students' family background, which, in turn, influences the way of

interacting and advising students (George & Aronson, 2003). Students from different social classes differently perceive the same amount of tuition and fees, largely being influenced by different points of reference such as family in their situated context; for the upper income families, the college cost may be negligible, and on the other hand, low-income families perceive the college cost as too expensive. Furthermore, a counselor's either/or framework – either you have money for a wide range of four-year colleges or you should go to a community college – may gear low-income students toward two-year colleges and away from other possible better options.

The Choice Stage. Prior research finds that students who frequently discuss school-related matters with parents were more likely to enroll in four-year colleges rather than not enroll in college (St. John & Hu, 2006). Using NELS, Plank and Jordan (2001) measure social capital as parent-student discussion, parent-school communication, and parent discussion with other parents, and find that information about college, guidance, and actual actions taken (e.g., taking SAT/ACT) are positively associated with initial enrollment in a four-year college, as opposed to enrollment in a two-year college or non-enrollment. Drawing on the concept of talent loss – defined as academically prepared students not reaching their full potential – they further find that this talent loss is the most pronounced in low SES students and is largely explained by their lack of information about college. Using the same national data set (i.e., NELS), Perna and Titus (2005) operationalize social capital in terms of different forms of parent involvement as well as disruptions to involvement and find that the measures of social capital are positively associated with college enrollment, controlling for the level of individual and school resources.

Through a qualitative study on low-income single mothers in communities where a high school diploma is valued as symbol of status mobility, Smith (2009) finds that while there is a high level of parent involvement surrounding high school graduation, which the parents have also experienced, there is no similar involvement with the college attendance, where college is seen as unfamiliar and beyond their comfort zone. The author highlights the value these parents place on educational attainment, despite the low level of parents' involvement in their children's college-choice process, and, in conclusion, suggests that more attention be devoted to the consideration of structural constraints that impede acting on that value given to education.

In their well-known application of Coleman's concept of social capital, Furstenberg and Hughes (1995) utilize data from a 20-year longitudinal study of 252 at-risk youth (children of teenage mothers) originally residing in the Baltimore area. Under the umbrella of social capital, they include two broad categories (i.e., social capital within the family and social capital in the community) and find that different types of social capital are positively related to certain outcomes such as college enrollment. It remains unclear, however, whether the social capital measures consist of distinctly different dimensions or whether some are better proxies for social capital, with further research needed to develop a strong consensus on the effects of different types of social capital on one's life trajectories.

Some research suggests that the role of social capital in college-choice process varies by family income groups (Hofferth et al., 1998). Relying on Coleman's theory and using a sample of 901 students who were evaluated in their early to mid teens and then again at age 22, the findings indicate that parents' perception about potential assistance

from friends is significantly associated with college attendance for high-income students but not for low-income students. Residential mobility appears to increase the college attendance of children from high-income families, but it is detrimental to the college attendance of children from low-income families, largely because, in the authors' view, geographic moves may reflect the upward mobility of high-income families, unlike low-income families. These findings may suggest unequal benefits from social capital measures across social class. One of the interesting research approaches has been to examine how one type of social capital loss can be compensated by other types of social capital. For example, in the Canada context, Hagan, MacMillan, and Wheaton (1996) confirm Coleman's conceptualization, finding that a family's move in general has a negative effect on children's educational attainment by decreasing community-related social capital. The authors find, however, that families with higher levels of involvement and support can compensate for the loss of community social capital through the family-based social capital.

Previous research has identified that relationships with peers as forms of social capital have an effect on student's college aspirations and enrollment (Choy, 2002; Choy, Horn, Nunez, & Chen, 2000; Horn, 1997). Students with friends who planned to go four-year colleges were more likely to have college aspirations and enroll in four-year colleges (Hossler et al., 1999).

Using an interpretive analysis based on interviews with both selective college students and community college students, Levine and Nidiffer (1996) examined the way that poor, first-generation college students made it to selective colleges, and found that mentors, defined as including both mentors who were part of the family and ones who

were not, played a significant role, notwithstanding that some of these mentors did not themselves have college experience or extensive knowledge about college. The authors' view is that mentorship is nonetheless valuable because its greater longevity and intimacy compensate for a mentor's lack of college background. Significant others (i.e., mentors) tend to collaborate with each other to help students to enroll in selective colleges, and as a result of this collaboration, students may gain abilities to navigate ways to manage college costs which are significantly greater than what their family's income can afford. These results suggest that students may construct a sense early in their life about whether they may be able to enter the university despite their poverty, and lasting and collaborative work with significant others plays a critical role in the college-choice process of those who overcome disadvantaged backgrounds. One limitation of this research, despite its rich insights, is that a study that, as here, only observes students from low SES backgrounds who are already enrolled in colleges, and does not collect data on those from similar backgrounds who did not enroll may overstate the reasons for their success. The existence of an appropriate comparison group (i.e., the poor who did not go to colleges) could strengthen their research design and mitigate against a narrative that does not show the full picture. Building upon Levine and Nidiffer's work, Macy (2000), through interviews with 20 low- and moderate-income students who enroll in colleges, finds that mentors played a critical role in helping students navigate college.

Summary. Few studies have investigated Bourdieu's conceptualization of social capital. Virtually no quantitative research exists evidencing the need for research to explore the interrelationship of symbolic capital (cultural and social capital) quantitatively. Most educational research on social capital, which includes a growing

number of qualitative studies, follows Coleman's (1988) conceptualization of social capital, primarily noting relationships within and outside the family (Furstenberg & Hughes, 1995). Some studies confirm Coleman's theory, concluding that parents, peers, teachers, and counselors are important in students' college-choice process, while other studies offer slightly different findings. For example, Hofferth et al. (1998) illuminate the degree to which the effects of social capital on students' college choices vary by income group. Hagan et al. (1996) illustrate how when one type of social capital is lost, other forms can compensate for that loss.

The lack of social capital can be detrimental to all students, but is particularly so for low-income students whose parents generally lack college-related knowledge. Difficulties in finding guidance are compounded by the fact that low-income students also attend schools with high student-counselor ratios, whereas high-income students who have access to college-related information at home, can employ private counselors, and have relatively available counselors in their schools. This set of circumstances operates to widen the income gap in the college-choice process.

Building on the work of those scholars in the economic and sociological literature reviewed in this section, the next section proposes a new conceptual framework which underpins the current study. This framework will incorporate the concept of habitus with previous college choice models to study the effects of forms of capital and habitus on college choice.

Conceptual Framework

Although several studies have examined the effects of capital on student college

choice, many did not incorporate the concept of habitus, which was central to Bourdieu's own research. The conceptual framework proposed here draws on the notion of habitus while integrating economic and sociological perspectives to deepen the understanding of the complex college-choice process. Studying capital alone cannot fully explain how students navigate the college-choice process; in addition to the resources (capital) students possess, the disposition toward the use of those resources (habitus) to inform the college-choice process should be considered to explain the mechanisms of how individual agency, bounded by social constraints, acts to produce educational advantages.

One assumption of the conceptual framework illustrated in Figure 1 is that individuals have a multi-layered reality in which they are structured by institutions (school organizations) and broader environments (policy contexts) (Perna, 2006). This proposed conceptual framework also assumes that an understanding of student choice in higher education must be based on an examination of the situated circumstances of diverse student groups (St. John et al., 2001). This is related to one of the conceptual strengths of habitus in that it operates in two key ways: 1) it is *structured* by one's circumstances, and 2) it is *structuring* in that it shapes one's present and future practices. The former suggests that students' college-choice process should be understood in their situated contexts, which can clarify *why* they choose colleges in the ways that they do. Students' situated contexts encompass their early educational experiences that are shaped by their values and stances as well as limited resources and capital (Paulsen & St. John, 2002). The fact that habitus is structuring helps to understand *how* a student's habitus shapes her college-choice trajectory. Thus, the concept of habitus has distinctive merit in that, unlike capital theory alone, it explicitly incorporates the existence of individual

agency and the mechanism through which dispositions, which are structured by social constraints, link to externalized behavior.

Students' situated contexts that are shaped by their economic, cultural, and social capital influence their college-choice decisions. As noted in an earlier section on theories of capital, forms of capital are not independent from each other, but rather interrelated, with blurred boundary distinctions in some cases. Given the convertibility of material capital (economic capital) and symbolic capital (cultural and social capital), Figure 1 draws bi-directional arrows between material and symbolic capital. Among symbolic capital, emphasis is placed on dynamic interrelationships; the appropriate graphical expression may be closer to interlocking and overlapping shapes.

While habitus interacts with capital within a given context to generate college-choice practice (Hillier & Rooksby, 2005; Swartz, 1997), it may play a more fundamental role in students' determination both of whether to activate capital (dispositions) and how they may activate the capital (skills) (Lareau & Horvat, 1999; Lin, 1999). Given the same resources, some individuals better activate those resources than others, thereby producing more educational profits. The influence of habitus as "the feel for the game" (Bourdieu, 1990a, p. 63) or a sense of one's place on the college-choice process may also be explained by specific features of indirect exclusion, specifically self-elimination, overselection, and relegation; terms that were defined earlier in the section on habitus. These concepts suggest that lower SES students may exclude themselves due to their lack of familiarity with social norms or lack of initial resources, even before they seriously think about colleges (self-elimination). When they do enter the realm of college-bound students, they may need to exert greater effort to surmount these disadvantages. For

similar reasons, lower SES students may also need to overcome psychological barriers such as a sense of being ill at ease and inadequate, despite their academic excellence (overselection). Even if they do activate their resources, they may further realize that their educational benefits are different from those of privileged students (relegation).

Adding the concept of habitus to forms of capital draws on the existence of individual agency with structural constraints and better explains the inequality in opportunity structure in the college-choice process in that the concept of habitus suggests that individuals make a college decision in a way that makes sense to them; the college choice of lower SES students, that may not make sense to others who do not experience similar social restrictions and lack of resources, make sense within the situated contexts of these students, as the habitus concept illuminates.

Reflecting the fact that habitus and capital are separate yet related, Figure 1 illustrates that habitus interacts with capital to generate differential outcomes of college choice. While this study recognizes that student college choice involves several stages (e.g., predisposition, search, choice), the proposed conceptual framework restricts its focus to the last stage of the college choice process where students make specific decisions about which college they will attend. This approach allows the conceptual framework to be aligned with the methodological approach of this study, which will be discussed in the next chapter.

Chapter 3

Research Methodology

Data Sources and Sample

Data sources. This study primarily uses the Education Longitudinal Study (ELS:2002) – the most recently available national longitudinal study. ELS:2002 follows a nationally representative cohort of students beginning when they are in 10th grade in 2002, with follow-ups in 2004 and 2006. The advantage of this survey design is that it illustrates how students' earlier aspirations and academic and social experiences influence their subsequent experiences such as postsecondary education over time, allowing the examination of populations over time. Unlike data that include only already-enrolled students, the ELS includes those who did not enroll in postsecondary education; considering that students who did not enroll in college are more likely to suffer from a variety of impediments, including a lack of initial resources, inclusion of this population is important in studies of how students' resources (capital) influence their college-choice decisions. In addition, unlike retrospective survey data, the ELS avoids recall problems, which often occur when students are surveyed about their high school experiences only after they enroll in college. The ELS also includes a rich source of information on student demographics, family background characteristics, and students' academic achievement during high school, all of which were previously found to be important or are conceptually important variables in the college-choice analysis.

In addition to the ELS, this study also uses the National Postsecondary Student Aid Study (NPSAS:04) to impute the amount of financial aid for ELS cohorts who graduate high school (the reason to draw this data will be described later in the section titled "Imputation of the financial-aid variable"). NPSAS:04 is based on a nationally representative sample of enrolled students in all types and levels of postsecondary education institutions. The data were collected from institutional records and from student interviews from the 90,750 study respondents. NPSAS includes detailed information about student financial aid which allows a thorough examination of the effects of financial aid on student choice. Heller (2004) asserts that NPSAS could be an alternative for researchers to use in examining the impact of financial aid and college costs on college participation, a relationship on which research studies using other national datasets have given relatively little focus. The imputation procedures will be discussed in detail later in the chapter.

Sample. The information in ELS was gathered in a stratified two-stage design; in the first stage, a sample of schools was selected, stratified according to size and in the second stage, equal numbers of 10^{th} graders were selected within the schools. Specifically, of the 1,221 eligible schools, 752 schools participated in the study (68 percent weighted participation rate) (Ingels, Pratt, Wilson, Burns, Currivan, Rogers, & Hubbard-Bednasz, 2007). For these schools, lists of 10^{th} graders were compiled, and about 26 students were selected from each school list (Ingels et al., 2007). This resulted in 17,591 eligible students (i.e., spring-term 10^{th} graders in 2002), 15,362 of whom completed the survey (87 percent weighted student response rate) (Ingels et al., 2007). Students were then surveyed repeatedly over time including, in 2004 (i.e., 12^{th} graders) and post graduation,

in 2006.

The sample for this study is restricted to those students who earned a high school diploma or GED. Although it would be useful to examine the group of students who did not complete high school, this study focuses on what factors influence students' college choice, conditional on high school graduation (i.e., those who at least have an option to enroll in college). I exclude students for whom there is no information about postsecondary enrollment from the analysis because their information regarding outcome variables is unavailable. Also excluded are students who enrolled in private for-profit four-year or above, private for-profit two-year, private for-profit less than two-year, private not-for-profit two-year, and private not-for-profit less than two-year colleges. These students are excluded, largely because students in those institutions are not the focus of my study, and even combining them resulted in a group of only 580 high school students, and this group is very heterogeneous in nature. Finally, 11,800 students comprise the effective sample used in this study (see Table A1).

Weights. This study employs a student weight variable that takes into account the probability that the observation is selected because of the sampling design. Because this study uses variables from all three surveys (i.e., base-year, the first and the second follow-up survey), it uses a panel weight that adjusts for the non-response patterns from all of the three surveys. The use of an F2F1WT panel weight is appropriate in this regard.

Also, the use of the G10CHORT variable in concert with the F2F1WT weight allows me to get a nationally representative population of the 2002 sophomore class, in that the G10 cohort flag (G10CHORT) identifies sophomore cohort members in 2002 (1= sophomore cohort member; 0=not sophomore cohort member). The final student weight

variable for this study is generated by multiplying F2F1WT by G10CHORT (F2F1WT*G10CHORT). According to the ELS investigators, the weight variable allows a sample that accurately represents the ELS base-year sample and includes the largest possible sample.

Data Analysis

Imputing missing data. Missing data often present problems in empirical research. This is because in nearly all statistical methods every case is presumed to have information on all the variables to be included in the analysis (Allison, 2001). Given this problem, missing data may qualify the conclusions derived from the data, but it is nevertheless difficult to properly handle missing values.

Even when several methods of dealing with missing data are available, those techniques assume that observations are *missing at random* (MAR). MAR suggests that the missing value of a variable is not related to the observed value of the variable, controlling for other variables (Allison, 2001; Cohen, Cohen, West, & Aiken, 2003). A somewhat stronger assumption, *missing completely at random* (MCAR), suggests that the missing value of a variable is not related to the value of the variable itself or to the values of any other variable (Allison, 2001).

Research generally utilizes three ways to deal with missing values: dummy variable adjustment, listwise deletion, and imputation. Dummy variable adjustment is one of the most straightforward approaches, and it is used in practice. The limitation of this approach is that heterogeneous groups of students are combined into the same group as a "missing" group, ignoring the differences across the group members. Listwise deletion is a method available in several statistical packages including Stata. Listwise deletion

excludes cases that have missing values for any variables included in the regression. However, one of the limitations of this approach relates to the sample size. Since any cases that have missing values are excluded from the sample, a substantial number of observations may be dropped from the analysis, and thus the sample size may be too small to make a meaningful and precise inference. Further, the results produced using listwise deletion may be biased because of selection.

Another approach is to do multiple imputation of missing values. While there are several ways to do multiple imputation using different statistical software, this study uses the ICE command in Stata (Royston, 2010). ICE stands for Imputation by Chained Equations, and it creates multiple copies of imputed data sets (typically five), by using prediction equations for each variable. The specific procedure to execute the command is delineated by Royston (2010).

To test the sensitivity of the aforementioned missing data approaches, the results based on the data set that used the three methods (i.e., dummy coding adjustment, listwise deletion, and multiple imputation) ideally could have been compared. However, the present study could not produce models using the dummy coding adjustment, because continuous variables, which cannot be used to create dummy variables for the missing groups, are used as predictors in the analysis. In this case, only two results, models from listwise deletion and models based on multiply imputed data, are compared. When the results are not statistically different in terms of regression coefficients and standard errors, it can be concluded that the results are, to some extent, robust regardless of missing values. When the results from the two approaches are very different, further attempts may be needed to identify the reasons for these differences. This can be done by creating

dummy variables where missing values equal one and non-missing cases equal zero and by regressing each of these dummy variables on key independent variables. While this approach may suggest that the data is not missing at random, it is actually impossible to confidently conclude that the data is missing at random (Allison, 2001).

Imputation of the financial-aid variable. The inclusion of financial-aid variables is important in college-choice analysis, because their exclusion is likely to introduce omitted variable bias and overlook the role of finances in college choice (Becker, 2004). However, the proper use of the variable in an analysis is often difficult, because students are usually informed of their amount of financial aid right before enrolling in college and, thus, most data collected include financial aid information only when students are already in college. As illustrated in previous research studies of financial aid (e.g., DesJardins, Ahlburg, & McCall, 2006), the use of financial aid information obtained when students are already in college may lead to endogeneity in the analysis of college choice, and this possibility exists in my analysis from the ELS data. In other words, although the ELS includes information about financial aid, this information is only made available once students are in their second year in college.

In an attempt to yield more precise estimations of financial-aid variables, this study draws financial-aid variables from other national data sets (i.e., National Postsecondary Student Aid Survey; NPSAS:04) for the 2002, 2003, or 2004 academic year. It is worthwhile to note that although both NPSAS and ELS are nationally representative samples, they consist of very different populations. To mitigate this limitation, this study chose reasonably similar cohorts; the NPSAS sample includes first-time, first-year undergraduate students (dependent students) in the 2002, 2003, or 2004

academic year (*N*=14,920), and the ELS sample includes students who had at least graduated from high school in 2004 (*N*=11,800). Using these two samples (the NPSAS and ELS sample), the financial-aid variable is estimated, and the predicted financial-aid variable is used in the college-choice model. Specific procedures regarding the imputation of the financial-aid variable are described below.

The first step for financial aid imputation is to determine the common variables in the NPSAS and ELS data that have theoretical and empirical reasons to be included to estimate financial aid. Current financial aid determination formulas (such as FAFSA) also provide information on financial aid predictors. However, the fact that conducting this type of analysis requires matching variables to be selected in both the NPSAS and ELS data sets precluded the inclusion of some of the possible predictors of financial aid (e.g., family size and the number of family members in college), which are widely used in financial-aid determination (Dynarski & Scott-Clayton, 2008). Although these variables are available in the NPSAS data set, which includes detailed information related to financial aid, the ELS does not contain those variables, and thus I could not include those variables in my financial aid estimation model.

The selected matching variables in the financial aid equation included a family income variable, because many types of financial aid, including Pell Grants and Stafford Loans, are means tested, and lower-income students are more likely to receive that type of need-based aid than their higher-income counterparts. In order to include the factors that merit-based aid determination is often based on, the financial aid equation also included academic achievement variables such as whether students took SAT/ACT college exams or had advanced placement credits in high school. The model also contains

the following student background characteristics that theory suggests are related to financial aid determination: race/ethnicity, gender, parents' highest education level, parents' marital status, and whether English was the primary language in the home. The model also includes whether students chose a college for its reputation and/or for financial reasons.

In addition, interaction variables were incorporated into the financial aid model for several reasons. In regression models, interaction variables reveal whether one variable has a differential effect in response to a change in the other variable. By including the interaction variables of family income and other variables, the financial aid estimation was able to ascertain differences in how family income groups respond to a change in the other variable. The interaction variables included were jointly significant (LR chi2=86.81, $p<0.001$). Adding interaction terms to a financial-aid equation may also serve as a way to reduce potential collinearity in the college-enrollment equation. Collinearity arises when all of the predictors of financial aid (e.g., family income) and the estimated financial-aid variable are simultaneously included in one equation (e.g., college enrollment) as regressors. This is largely because financial aid itself is, by definition, estimated by its predictors in the financial-aid equation and, thus, at least one financial-aid predictor is perfectly predicted by the other financial-aid predictors in the college-enrollment equation. Furthermore, interaction variables may serve as a valid "instrument" in that the type of variables that are related to financial aid may not be (conditionally) related to college enrollment. For example, Pell formulas are a function of family income, family size, and other variables, and when interacted with other variables, the interactions are non-linearly related to financial aid. The interaction terms that are included help

identify the estimation strategy by being related to aid determination, but not necessarily (conditionally) related to enrollment. For all the reasons discussed above, I added interaction terms to the financial-aid equation, but did not include the same interaction terms in the college-enrollment equation.

There are also a limited number of variables that are used to predict financial aid but are not used to predict college enrollment. Conceptually, the variables that predict financial aid may be different than the predictors of college enrollment. For example, while parental marital status may be important in predicting financial aid, including this characteristic may not improve the model fit in the college enrollment model and, further, is not guided by the conceptual framework that underpins the present study.

Using the selected matching variables, the probability of aid receipt was first estimated and then the amount of financial aid conditional on aid receipt was predicted (the results are presented in the Appendix in Tables A2 and A3, respectively). These two fitted values were saved and included in the college enrollment model to represent the expected amount of financial aid for each student.

The most important predictors of aid receipt were found to be family income and academic achievement variables, and the most important predictors of the amount of financial aid received were academic achievement variables. This method explained 12 percent of the variance in the amount of financial aid received (R-squared coefficient of 0.12).

Measures

Outcome variables. This study investigates four outcome variables in relation to student college choice. First, three binary outcome variables representing whether a

student attends any college (1=enrolling in any college; 0= not enrolling in any college), a four-year college (1=enrolling in a four-year college; 0=not enrolling in a four-year college), and a highly-selective college (1=enrolling in a highly-selective college; 0=not enrolling in a highly-selective college) are examined. In terms of institutional selectivity, given that institutional selectivity measures from the ELS (i.e., the Carnegie selectivity measure based on 25th percentile SAT/ACT scores of entering freshmen) do not provide necessary variation in selectivity among institutions, this study creates a new selectivity measure based on the 2004 edition of the *U.S. News and World Report* rankings. These rankings are based on widely accepted indicators of excellence such as retention and graduation rates and the strength of the faculty. This study considers a college highly selective if the 2004 edition of the *U.S. News* guide featured the institution among one of the fifty overall top-ranked national universities or the fifty overall top-ranked liberal arts colleges. The 2004 edition was purposely selected because it would have been the most recently available edition when most of the ELS students were applying for college.

The final outcome variable of this study is the type of college that students attended. There is a multinomial outcome where 1 equals non-enrollment, 2 equals enrolling in public four-year institutions, 3 equals enrolling in private four-year institutions, and 4 equals enrolling in public two-year institutions. Non-enrollment is used as a base outcome for public four-year institutions, private four-year institutions, and public two-year institutions.

Student-level variables. Based on the conceptual framework of this study and consistent with prior studies of college choice, the model in this study includes measures of cultural and social capital and habitus, controlling for other individual, family, and

school characteristics. Table 1 describes the variables used in this study.

The economic capital construct is proxied for by family income. Family income is divided into three categories; low-income group (less than $35,000), middle-income group ($35,001-$75,000), and high-income group ($75,001 or more). Because the distribution of an initial family income variable indicated an uneven number of students in each of 13 categories (i.e., proportions range from less than 1% (0.35) to over 20% (21.54)), the family income variable was collapsed into three roughly equal groups (low, middle, and high). Given that family income measures earnings for one year and may fluctuate, while wealth reflects family assets over time (Orr, 2003), it would be useful to investigate the impact of wealth on the student college-choice process. In the absence of measures of wealth, this study uses other physical resources such as the possession of a computer, access to the Internet, more than 50 books at home, and one's own room, along with the family income variable.

It is a matter of contention, however, whether these physical resources are measures of economic capital or cultural capital. To the extent that those resources represent objectified cultural goods, one might use these sets of variables as a proxy for cultural capital. However, the present study conceptualizes cultural capital as a type of symbolic capital which differs from a tangible, material form of economic capital, although economic capital can be converted into other forms of capital in specific circumstances (Bourdieu, 1986; Harker, Mahar, & Wilkes, 1990). Further, although having a computer, many books, and one's own room may not be a good indicator of wealth today, largely because those resources are easily accessible even for less-wealthy families or, alternatively, families can be wealthy but not necessarily possess those

resources in the home, it could have been a representation of wealth, considering all resources together, when the ELS data were collected in 2002. For these reasons, despite the recognition of difficulties of untangling the different forms of capital, these family resources are used a proxy for economic capital in this study.

Measures of cultural capital include two variables: one is a student's cultural exposure (i.e., how often a student takes music, art, and/or language classes outside of school) and the other is parents' cultural capital (i.e., whether parents attended concerts/plays/movies with the 10th grader). The former was included to reflect the fact that the extent of involvement with the arts may capture a student's familiarity with the arts or cultural knowledge (DiMaggio, 1982; Perna, 2006). Furthermore, given that cultural capital is particularly manifested in elite class values, but is not taught in schools, measures of cultural capital in this study are restricted to non-scholastic cultural participation (DiMaggio, 1982). The latter was included to capture the extent to which parents' cultural capital is inherited by children, in addition to children's participation in the arts (Bourdieu, 1977; Kaufman & Gabler, 2004). Although this measure (i.e., whether parents attended concerts/plays/movies with the 10th grader) has been used in prior research to capture the parental cultural capital (Aschaffenburg & Maas, 1997; Kaufman & Gabler, 2004), one might argue that it is a measure of culture, but not cultural capital, in relation to education. To the extent that parents' engaging their children in arts represent cultural tastes, preferences, or knowledge that students accumulate from their parents, which may, in turn, operate as actually usable power by signaling their high-class cultural tastes, it may also be reasonable to expect that this parent/child attendance of the arts is a form of capital in addition to culture.

Primarily following Coleman's (1988) conceptualization, social capital is operationalized in this study with six sets of indicators that act as a proxy for this underlying construct. One variable used in the construction of my social capital proxy is the physical presence of both parents, which includes intactness of family (as measured by the presence of both parents in the same household). A second variable used is the number of siblings a student has, and this is included in an attempt to examine Coleman's logic, where he assumes that when a student has a larger number of siblings, this may be translated into less parental attention per child. A third variable, family mobility, is included and measured by the number of times that a student changed schools for reasons other than because of promotions; it is used to measure the extent of social capital available in the community, and it is assumed that those families who are more mobile are less likely to possess social ties in the community.

A fourth set of variables includes parental involvement indicators that are divided into three categories: parent-student involvement, parent-school involvement, and parent-parent involvement. Parent-student involvement is measured by a factor comprised of a series of variables that are reported by students. The results of the factor analysis used will be explained in detail in the results section. Parent-school involvement is operationalized with five variables from the parent questionnaire. Specifically, the questionnaire inquires whether parents belong to a parent-teacher organization, attend parent-teacher organization meetings, take part in parent-teacher organization activities, act as a volunteer at the school, and belong to other organizations with parents from school. This study sums the five binary responses (1=yes, 0=no) to create a measure that varies from 0 to 5. Although this approach of constructing a variable is used in research

(e.g., Dee, Ha, & Jacob, 2006; Dumais, 2002) that uses the NCES national data sets (e.g., NELS or ELS), one drawback may be that the approach assumes that the five binary variables are of equal weight or importance in creating the new summative variable, which may not be true. Four variables are included in the parent-parent involvement dimension: whether friends' parents gave advice about teachers/courses, did favors, received favors, or supervised 10^{th} graders on a field trip.

Although researchers (e.g., Perna & Titus, 2005) have operationalized these parental involvement variables as proxies for social capital, primarily following Coleman's (1988) conceptualization, it should be noted that the use and categorization of the proxy variables may differ, depending on different theoretical backgrounds. In fact, several scholars discuss parental involvement within the cultural capital framework (e.g., Lareau, 1989, 2003). Following the Bourdieuian framework, Lareau (1989) articulates class-based differences in parenting styles in parental involvement and the way that institutional personnel interpret such involvement as cultural signals. Thus, the focus of this line of study is to capture the power dynamics within the interactions, noting social reproduction as it concerns unequal power among status groups. Unlike this conceptualization, my study follows Coleman's conceptualization of social capital and focuses on social networks and the relationships themselves, as well as potential assistance and resources from the relationships. Thus, I use parental involvement variables as a proxy for social capital, rather than cultural capital. Nevertheless, the distinction between cultural capital and social capital is not clear-cut, and partially due to this blurred distinction some researchers (e.g., Perna, 2000; Wells, 2008) operationalize cultural and social capital together in the same sets of variables. Apart from the

conceptual problem in this particular approach, the approach may reflect the extent to which the concepts sometimes overlap and the difficulty in completely distinguishing them from each other.

A fifth variable used to construct my proxy for social capital is information sources, based on whether 10th graders have gone to the following individuals for college entrance information: parent, sibling, other relative, friend, school counselor, teacher, coach, or college representatives. Who provides information to the student may make a difference; thus, I include variables for each of eight individuals. Peer influence on college-going is a sixth and final indicator of social capital. This variable is measured by whether most friends plan to attend a four-year college/university.

This study uses two proxy variables to measure the construct of habitus: a student's occupational expectation and comfort level at school. Consistent with Dumais (2002), I create a proxy for habitus using a student's outlook for the future (i.e., occupational expectations at age 30). In so doing I am assuming the student's outlook has been formed in his/her family/school/community contexts (i.e., social conditions). A further assumption is that a student's outlook shapes his/her educational and occupational trajectories. For example, a student who desires professional work might be more geared toward a certain form of educational attainment, such as college-going. The professional jobs are based on the ELS coding system and divided into two categories: professional 1 (e.g., accountant, engineer, social worker; positions that do not require an advanced degree) and professional 2 (e.g., lawyer, scientist, college professor; jobs that require an advanced degree). In addition to these categories, students could select from the following types of occupations: laborer, operative, service, craftsperson, farmer,

protective services, proprietor, sales, clerical, manager, technical, and school teacher (Ingels et al., 2007).

This use of occupational expectations as a proxy for habitus attempts to rectify a limitation of previous studies in which researchers tended to operationalize the concept in conjunction with social background (e.g., social class, race). Although it is true that habitus is a deeply embedded pattern within different SES and racial/ethnic groups, the operational definition of habitus as merely social background may neglect divergences of habitus from social background. As Ball et al. (2002) suggest, habitus may be closer to "social class in the head" (p. 52), rather than social class itself in that habitus is a perceived social class or values system in a particular setting. Through the use of occupational expectations as a proxy for habitus, the conceptualization of habitus in this study leaves room for agency (individual will or choice) to shape social structures in addition to being shaped by those structures related to SES.

In ELS, students were asked in 2002 and in 2004 about the occupation they expect/plan to have at age 30. In an attempt to mitigate one limitation of my study (i.e., most information is only available at one discrete time point), when longitudinal information is available, I try to take full advantage of the data structure. In terms of how my proxy for habitus is constructed, I created four dummy variables that provide an indication of one's occupational expectations. The first of the dummy variables, occupational expectations (High-High: HH), equals 1 when the student responded that he/she expected to be in a professional job in both 2002 and 2004. Occupational expectations (Low-High: LH) equals 1 when a student expected a non-professional job in 2002 but a professional job in 2004. Occupational expectations (High-Low: HL) equals 1

when a student expected a professional job in 2002 but a non-professional job in 2004. The excluded reference category against which these three dummy variables are compared is when a student expected a non-professional job in both 2002 and 2004 (Low-Low: LL). With these variables, I can assess not only the impact of having high occupational expectations on college enrollment and choice, but also the impact of holding a deep-seated expectation of gaining upper-level white-collar jobs. It is assumed that students with such lasting occupational expectations hold a different habitus than those who start to expect upper-level white-collar jobs in the 12th grade or have never aspired to upper-level white-collar jobs. Nevertheless, one might argue that the current study cannot capture the habitus that is largely shaped during childhood because my proxy for habitus is only measured from the 10th grade on. How variable or stable these habitus-related measures are over time, and how time-varying measures from early childhood to high school affect college outcomes, merits further study and may benefit from longitudinal research designs.

The other proxy for habitus in addition to a student's occupational expectation is students' comfort level at school and is included to capture a component of habitus or worldview. The factor composite is comprised of five variables, and the result is displayed in the results section (Table 7). Students' comfort level at school may be related to the concept of self-elimination as an operation of habitus; students may exclude themselves from life opportunities (e.g., enrolling in elite colleges) if they feel uncomfortable in certain places due to a lack of familiarity with social norms. It is hypothesized that despite their success in enrolling in an elite institution with a high academic profile, students who feel uncomfortable at school and who are more likely to

be from less-privileged backgrounds may not consider the elite colleges as possible options due to possible discomfort and concerns of elitism.

Although there is virtually no prior quantitative research that examines the impact of a student's comfort level on college choice, one quantitative study (i.e., Dumais, 2006) suggests that students' comfort level at school is a better proxy to capture the role of habitus as it relates to educational outcomes than other proxies (e.g., parental habitus) used in that research. While quantitative researchers are primarily constrained by their available measures given data limitations, qualitative researchers (e.g., Horvat, 1996; Mullen, 2009) have more ability to capture the complex construct and have elaborated on this matter extensively. My use of students' comfort level at school as a proxy for habitus is probably one of the first attempts to do so in quantitative research, and this application may contribute to the body of quantitative literature as well as qualitative literature.

Academic preparation is measured by standardized composite test quartile and SAT/ACT participation. Expected benefit/cost is measured by the extent to which living at home while attending postsecondary institutions and academic reputation are important to students. Also, the expected amount of financial aid will be included. As described earlier, the variable will be drawn from the NPSAS:04.

In addition to these measures, this study includes several individual and family controls: demographic characteristics (race and gender), educational aspirations, parents' highest education level, and mother's expectations of the child's college-going. The variable for educational aspirations might be worthy of a brief explanation. This variable is available in both 10^{th} and 12^{th} grade. As was in the case with the variable for occupational aspirations, I intended to generate four dummy variables: had high

expectations in both 10th and 12th grade (HH), changed into high aspirations in 12th grade (LH), changed into low aspirations in 12th grade (HL), and stayed low in both 10th and 12th grade (LL). However, the fact that very few students belong to the fourth category provided little variation in my data. In particular, among students whose aspirations stayed low, there were no students who enrolled in highly-selective institutions (which is one of my outcome variables). Thus, I compare those students whose educational aspirations stayed high with all other cases in my regression analyses.

School-level variables. In addition to the proxy for habitus discussed above, I also operationalize the concept of organizational habitus through the construction of proxies measuring the extent to which a student's high school has a college-going norm. In their research on Chicago Public Schools, Roderick, Nagaoka, Coca, and Moeller (2008) report that teachers' encouragement of students' college-going and teachers' involvement in students' college application and preparation (i.e., the college-oriented climate of high schools) are influential factors in students' college enrollment. Following several insightful qualitative studies (e.g., McDonough, 1997) and the one quantitative study available (i.e., Grodsky & Riegle-Crumb, 2010), I create a proxy for organizational habitus by the extent to which a student's high school has a college-going norm. The variables measuring this norm are: teachers press students to achieve; counselors/teachers encourage students to enroll in academic classes; percent of 12th graders attending college application programs; percent of 12th graders attending programs on financial aid; percent of 12th graders attending school SAT/ACT courses; percent of 12th graders attending college fairs; percent of 12th graders attending meetings with college representatives; percent of 2003 graduates who went to four-year colleges; and percent of student body in

AP courses. Average SAT score is a school-level variable which is calculated from student-level data, and included to capture the quality of the high school in terms of academic preparatory commitment.

In an attempt to reduce the possible confounding effects of unobserved school characteristics on outcome variables, I include a number of informative, observed school-level variables. These variables include school control (i.e., public, Catholic, or other private), school size, percent minority, percent free/reduced-price lunch, geographic region of the school, and school urbanicity.

Analytic Approach

Descriptive statistics. In the first step of the analysis, descriptive statistics of the sample are calculated and presented, including means, standard deviations, and the number of observations. To identify the distributions of the variables, tabulations for all variables and histograms for continuous and categorical variables are analyzed. Cross tabulations are primarily used to determine whether variables need to be recoded. Following the suggestions from NCES (Ingels et al., 2007), variables are recoded if fewer than 30 cases are reported in a single cell in a cross-tabulation table.

Factor analysis. In addition to the original variables, I include several factor composites derived from the original variables. Cronbach's alpha is used to determine the reliabilities of the factors (Kim & Mueller, 1978).

Logistic regression and multinomial logistic regression. Next, logistic and multinomial logistic regressions are estimated. These techniques are theoretically and statistically appropriate in that the dependent variables of the study are binary or categorical variables. The multinomial logistic regression assumes the *independence of*

irrelevant alternatives (IIA), which means that the odds do not depend on other alternatives that are available. This study will examine whether the assumption of IIA is met in my multinomial logit model, using statistical tests.

In addition to exploring the main effects of variables of interest in students' college-choice decisions, I pay particular attention to how effects vary by social status groups (e.g., family income) by adding interaction terms. This approach is important because focusing only on main effects may lead to incorrect or incomplete conclusions (Chen & DesJardins, 2008; Jaccard, 2001).

I also estimate logit and multinomial logit regressions using the cluster option available in the Stata software package. The use of the cluster option is to adjust for the fact that observations may not be independent within clusters (e.g., state of residence), but are independent across clusters. By adjusting for standard errors, which directly influence statistical significances of the estimates, the cluster option may increase the precision associated with estimates.

The applicability of conditional logit. I will not estimate a conditional logit model. The conditional logit would fit a model regarding how characteristics of alternatives influence the choice among multiple alternatives (Long & Freese, 2006). Also known as McFadden's choice model, the conditional logit has been applied to study the choice of transportation and occupation. This method would also be well-suited in the student college-choice context in that students face multiple college alternatives, where colleges have different characteristics (Avery & Hoxby, 2004; Long, 2004; Manski & Wise, 1983).

Compared to the multinomial logistic regression, the conditional logit would be particularly preferred in a situation where researchers take advantage of match-specific

information between the individual and the college. These match-specific attributes include scholarships awarded, the tuition price charged, and distance to the college (Avery & Hoxby, 2004; Long, 2004). Thus, the variation that drives the estimates in the conditional logit is the college-specific attributes within a student's choice set rather than an individual's characteristics (e.g., race, gender, family income).

When the student characteristics are the same, regardless of the choice the student makes, students' attributes cannot be included as separate variables in the estimation of the conditional logit. Nevertheless, students' attributes may influence the way they respond to a particular college. For example, research indicates that low-income students are more responsive to the tuition price charged compared to their higher income counterparts. In order to determine this kind of possibility using conditional logit analysis, researchers need to do sub-group analysis (e.g., by family income) or add interaction terms (e.g., interaction terms between college option*low-income).

However, the college-choice model in my study is more interested in how individual characteristics (e.g., students' possession of cultural capital and social capital) influence students' choice of college rather than how college characteristics affect students' college choice. Therefore, multinomial logit is better suited than conditional logit, and thus, this study will use multinomial logistic regression.

Estimations of school fixed effects. In addition to individual-level variables, I analyze how school-level variables affect the student college-choice process. There exist several statistical methods that account for variation among different groups. Multi-level models, including hierarchical linear models (HLM), are one of the commonly used methods (Luke, 2004; Raudenbush & Bryk, 2002). Despite their popularity, one of the

limitations of random effects models such as HLM is that they are based on the assumption that any unobserved effects are not correlated with the predictors. If this strong assumption does not hold, the results may be biased if the estimation strategy used did not properly control for unobservable characteristics of the groups that are related to the outcome variable (e.g., college enrollment).

One method to overcome such drawbacks is to use a two-stage estimation approach; that is, in the first stage, logistic regression is fitted including school fixed effects, and in the second stage fixed-effects estimates are regressed on school-level variables. While this approach, like random-effects models, is able to provide evidence regarding how school characteristics affect individual student outcomes, the particular strength in the two-stage approach is that it does not require the assumption that the unobserved effect is not correlated with the predictors (Allison, 2009). Utilizing the described two-stage approach may produce more reliable results of how schools affect the student college-choice process.

In order to determine whether, taken simultaneously, schools have an impact on a given outcome variable, a likelihood-ratio test for the school fixed effects will be conducted. The likelihood-ratio test is computed by comparing the log likelihood from an unrestricted model (i.e., the model with school fixed effects) with that of a restricted model (i.e., the model without school fixed effects). If the result indicates that the effect of schools on the propensity of enrolling in colleges is statistically significant, the null hypothesis, that all the coefficients associated with school are simultaneously equal to zero, can be rejected.

One limitation of the two-stage approach is that, like any type of fixed-effects

model, it does not provide estimates for a school that has no variance in the outcome variable (e.g., in cases where either all students in the school enroll in college or all students in the school do not enroll in college). If there is no within-school variation, the school is dropped from the regression, thereby reducing the sample size.

Simulation. After fitting these regression models, I employ post-estimation analysis, from which graphical methods and tables of conditional probabilities can be generated to examine how the outcomes vary depending on the characteristics of students and schools. For example, the results of how the predicted probabilities of enrolling in a particular college are differentiated by social group status (e.g., family income and race), depending on a student's possession of cultural and social capital, will be presented.

This procedure has a comparative advantage over randomized experiments. Whereas randomized experiments may allow researchers to make causal inferences, experimental data are extremely expensive to collect even when it is possible to collect such data (Wooldridge, 2008). Also, establishing a control group may raise ethical issues of excluding some students from a potentially beneficial program, such as mentoring programs. Without addressing the drawbacks related to randomized experiments, simulation can test various hypotheses and provide useful information about how changes in the regressors can influence a student's behavior.

Limitations of the Study

One of the limitations of this analysis is that, as in any quantitative analysis of a secondary data set, the operationalized social constructs (e.g., cultural and social capital and habitus) may not fully contextualize the theoretical foundations upon which they are based. For example, while I am able to capture the types and the amount of social capital,

whether students actually received necessary support and guidance in their college-choice process (i.e., the qualities of social capital) remains unanswered.

Also, student college choice involves several stages (e.g., predisposition, search, choice); however, I did not empirically test the full range of stages, but rather focused on the final stage (making specific decisions about which college students will attend). Nevertheless, this study is different from the typical college access model in that it includes *where* students attend college as well as *whether* they attend.

It is possible that each form of capital is conceptually interrelated with other forms of capital. As is well-documented in prior research (e.g., Musoba & Baez, 2009), theories about the different forms of capital have different traditions, and so they are difficult to operationalize in such a way that scholars could reach consensus about them. Additionally, these concepts sometimes overlap; the categorization of the capital variables in this study may arguably not constitute the only possible categorization. Therefore, caution should be exercised in trying to provide interpretations. Methodologically, these blurred boundary distinctions among forms of capital also present problems in terms of potential collinearity. In order to diagnose and reduce the collinearity among variables, this study does extensive investigation on multicollinearity. For example, this study directly examines the intercorrelation of the independent variables. Also, the Variance Inflation Factor (VIF) will be checked for multicollinearity after the regression (Faraway, 2005; Lewis-Beck, 1980; Schroeder, Sjoquist, & Stephan, 1986).

I cannot make causal statements about how any of the forms of capital I am proxying for affect student outcomes. Given that the present study can only test the

impact of proxy variables in relation to theoretical constructs, caution is needed when claiming that my results either support or do not support the theories that frame my study.

This study, however, contributes to the existing research in several ways. First, by including school (or school district) fixed effects, this study was able to take into account unobservable school (or school district) characteristics. Also, unlike multi-level studies that assume that the unobserved effect is not correlated with the predictors, the two-stage approach employed in this study does not require such a strong assumption and may produce more reliable results concerning school effects on the student college-choice process. Also, this study addresses the temporal dimension by constructing several variables (e.g., occupational expectations) utilizing the longitudinal nature of the ELS design.

Chapter 4

Results

This chapter presents results, utilizing the methods described in the previous chapter. First, descriptive statistics are presented to help contextualize the study, and then the results from the factor analysis are presented. Next, this chapter includes findings from logistic and multinomial logistic regression analyses associated with the probability that students will enroll in colleges and choose a particular type of college. After presenting three logistic regressions – whether a student enrolls in any college (1=enrolling in any college; 0=not enrolling in any college), a four-year college (1=enrolling in a four-year college; 0=not enrolling in a four-year college), or a highly-selective college (1=enrolling in a highly-selective college; 0=not enrolling in a highly-selective college), respectively – this study also displays OLS estimations of school-level variables. This chapter then illustrates the simulation results produced by using the estimated parameters from the logistic and multinomial logistic regressions and by computing predicted probabilities of enrolling in colleges under a given set of conditions. The chapter concludes with a discussion about the robustness of the results.

Descriptive Statistics

Descriptive statistics for student-level variables. Table 2 presents descriptive statistics for individual-level variables *after* the multiple imputation of missing values.

Since regression analyses using multiply imputed data sets will be presented and explained in this study, descriptive statistics using multiply imputed data sets will also be presented and explained. Descriptive statistics *before* the multiple imputation of missing values are presented in an appendix (Table A4). The descriptive statistics both before and after the multiple imputation of missing values yielded nearly identical results.

For purposes of comparison, the descriptive statistics are reported for all students and also for a subgroup of students. Considering that the student's level of occupational expectation is the substantial variable of interest in this study, the subgroup is divided by that variable. As described earlier, a student's occupational expectations consist of four categories: 1) students who had a continuing expectation for a professional job; 2) students whose occupational expectations reflected a change in the direction of expecting a professional job that they had not previously expected; 3) students whose occupational expectations reflected a change in the opposite direction of not expecting a professional job whereas they had this expectation in the past; and 4) students who did not and had never expected a professional job.

Table 2 reveals distinct patterns between income groups and their occupational expectations. A larger percentage of high-income students compared to their low-income counterparts aspired to white-collar jobs in both 10^{th} and 12^{th} grade (35.5% compared to 25.8%, respectively).

In terms of cultural capital variables, 24.4% of students who had occupational aspirations for upper-level white-collar jobs also had experienced cultural exposure (i.e., involvement in arts), while 15.9% of students who expected non-white-collar jobs had cultural capital. As in the case with the student cultural capital measure, a larger

percentage of students who had occupational aspirations for white-collar jobs had inherited cultural capital from their parents (72.3%) compared to students who expected non-white-collar jobs (66%).

With regard to social capital proxies, there are pronounced differences in information sources according to the variable measuring habitus – students' occupational expectations. Students who had stable occupational aspirations for white-collar jobs are more likely than students who expected non-white-collar jobs to have had sought out college entrance information from family sources (e.g., parents, siblings, and other relatives) and school-related personnel (e.g., counselor and teacher).

The differences in occupational expectations are also strikingly related to students' academic achievement. Whereas 40.2 % of students who aspired to white-collar jobs are high-achieving students, only 9.2% of students who had white-collar job aspirations are low-achieving students. High-achieving students may develop a belief that having a prestigious job is possible, because they are already doing well in school and they receive confirming messages from family and school environments. At the same time, it is also plausible that there is a different causal relationship in which a high level of occupational aspirations may drive students to study hard in order to get good grades, leading to high academic achievement.

A large portion of students who continuously aspired to white-collar jobs also have high educational aspirations in both 10^{th} and 12^{th} grade (79.8%). Students of parents who graduate from college and students of mothers who have high educational expectations for their children are more likely to have high occupational expectations for themselves.

Descriptive statistics for school-level variables. Table 3 provides descriptive statistics for the school-level variables. The proportions of the schools' college-going norm variables (schools with 50% or more of the 12th graders attending college application programs; programs on financial aid; school SAT/ACT courses; college fairs; and meetings with college representatives) varied, ranging from 18.8% to 53.3%. The proportion of the college attendance variable (schools where 50% or higher of the 2003 graduates went to four-year colleges) comprised 44.2%, and the AP course enrollment variable (percentage of the student body in AP courses) comprised 13.6% of the study sample. The average SAT score was about 985.

Parochial or other private schools comprised 14% of schools, and schools with 800 or more students constituted 66% of the study sample. About half of the schools (52.1%) have 25% or more minority students, and about half of the schools (53.6%) have 20% or more of their students on free or reduced-fee lunch status. Schools are distributed across the four geographical regions with a somewhat larger percentage of schools in the South (i.e., the Northeast (17.2%), the Midwest (24.8%), the South (37.8%), and the West (20.3%)). In terms of school urbanicity, about half of the schools (48.6%) are located in suburban areas, about one-third (30.5%) are located in urban areas, and about one-fifth (20.9%) in rural areas.

Factor Analysis

Tables 4 through 7 present the results from the factor analysis. An exploratory factor analysis was conducted to draw possible factor composites from the original variables. The Kaiser criterion, which suggests retaining those factors with eigenvalues equal to or greater than 1, is used. In addition, Cronbach's alpha serves as a measure of

reliability (Kim & Mueller, 1978).

Tables 4 and 5 present the factor scale of parent-student involvement when the student is in 10^{th} grade and 12^{th} grade, respectively. The factors converged with a Cronbach's alpha of 0.85 and 0.84, respectively, suggesting that the factor composites are reliable (Kim & Mueller, 1978). The regression models in this study included the factor from parent-student involvement in 10^{th} grade and the difference between the factors in 10^{th} and 12^{th} grades.

Table 6 presents the factor scale of parent-parent involvement, which is derived from responses to questions about the parent of a student's friend giving advice about teachers and courses, giving and receiving favors from that parent, and whether such a parent has supervised a field trip. The factor converged with a Cronbach's alpha of 0.75, suggesting that the factor composite is reliable.

A final factor was derived in an attempt to capture a student's comfort level at school. As indicated in Table 7, the factor composite is comprised of five variables: 1) students get along well with teachers; 2) the teaching is perceived as good; 3) the teachers praise students' efforts; 4) classes are interesting and challenging; and 5) students are satisfied by doing what is expected in class. The factor converged with a Cronbach's alpha of 0.71, suggesting that the factor composite is reliable.

Logistic Regression Analyses

Logistic regression analysis of college enrollment. Table 8 presents the results of the logistic regression analysis of college enrollment. Model 1 does not include any fixed effects; Models 2 and 3 include school fixed effects and school district fixed effects, respectively. The inclusion of fixed effects allows researchers to properly control for

unobservable characteristics of the schools or school districts that are related to the outcome variable. When Models 1, 2, and 3 are compared statistically (e.g., the likelihood ratio test or information criteria such as AIC/BIC), the results reveal that Model 2, which includes school fixed effects, is preferred, followed by Model 3 (school district fixed effects) and then by Model 1 (no fixed effects). In light of this finding, my discussion of results will primarily focus on those from the preferred school fixed-effects model. However, when variables of substantive interest have different effects across models and may be worthy of explanation, the effect of those variables on the outcome variable will be described.

When between-school differences are not controlled, the results (Model 1 in Table 8) indicate that low-income students are less likely to enroll in colleges, whereas high-income students are more likely to do so. However, when school fixed effects are added to the model, the effects of family income on college enrollment disappear (Model 2 in Table 8; hereinafter descriptions of results are based on Model 2, unless noted).

The results indicate that cultural capital measures (both student cultural capital and parental cultural capital) have no main effects in the college enrollment model. There are, however, several interaction effects, which will be addressed later in this section. In terms of social capital proxies, students who live with their parents in the same household have 25% higher odds of enrolling in college than do their counterparts who do not live with their parents. The greater the number of siblings and the greater the number of times a 10^{th} grader has changed schools are negatively associated with college enrollment. With regard to parent-student involvement, both the parent-student involvement factor in 10^{th} grade, and the change in parent-student involvement between 10^{th} and 12^{th} grade, have

positive impacts on college enrollment. Specifically, parent-student involvement in the 10th grade increases the odds of enrolling by 18%, and the change in parent-student involvement between 10th grade and 12th grade increases the odds of enrolling by about 22%. Peers' influence on college-going (as measured by whether most friends plan to attend a four-year college/university) also increases the odds of enrolling, by about 49%.

With regard to measures for habitus, controlling for other factors, occupational expectations are significantly related to enrollment behavior, although a student's comfort level at school is not. The odds of enrolling in college are 1.42 times larger for occupational expectations (HH) than for occupational expectations (LL). This finding strongly suggests that even after controlling for forms of capital (economic, cultural, and social capital), habitus (as measured by occupational expectations) plays a significant role in a student's college enrollment.

As expected, there is a strong positive association between academic achievement measures and college enrollment. Students whose test results placed them in a higher standardized test quartile and students who took the SAT and/or ACT were more likely to enroll in colleges than those students who scored in lower quartiles in standardized tests or did not take these college preparatory exams.

Students who rated living at home while attending postsecondary institutions as an important consideration were less likely to enroll in colleges than students who did not rate this factor as an important consideration. There was also a positive association between students' ratings of the importance of the postsecondary institution's academic reputation and college enrollment.

Controlling for other factors, Asians are more likely than Whites, and females are

significantly more likely than males to enroll in college. Students who have high educational aspirations in both 10^{th} and 12^{th} grade are more likely to enroll in colleges. Students who are from better-educated families and whose mothers have high educational aspirations for their children have higher probabilities of enrolling in college than do individuals from less well-educated families and whose mothers have low educational aspirations for them.

The results also reveal several significant interaction terms. First, for those students who possess cultural capital (as measured by involvement in arts), the impact of having been to a teacher for college entrance information is counter-intuitively not as positive as for those students who do not possess cultural capital. On the other hand, for students who possess cultural capital, having high occupational expectations has a stronger impact on college enrollment compared to those students who do not possess cultural capital. This finding is consistent with Bourdieu's conceptualization, indicating the possibility that habitus, interacting with cultural capital, shapes a student's college trajectory (assuming the validity of the proxy variables used here).

Significant interaction is found between the family income and parent-school involvement variables. The impact of parent-school involvement is stronger for high-income students compared to middle-income students. This finding confirms previous research in sociology (e.g., Lareau 1989) and may be interpreted as indicating that economic capital reinforces the activation of social capital during a student's transition from high school to college.

Since habitus is structured by family context, it is possible that the impact of habitus varies by SES and may be stronger for students from high-SES backgrounds. To

investigate this possibility, I explored the possible interaction effects of proxies for habitus and socio-economic characteristics (e.g., family income, and parents' education) on college enrollment (models not shown). I found little evidence of differential effects of habitus by family income or parents' education level. The formal measure of fit (e.g., the likelihood ratio test) indicated that the model with the interaction terms did not improve the model fit compared to the model without those terms. The impact of proxies for habitus does, however, differ by race/ethnicity. It is interesting to observe that occupational expectations (LH) has a negative impact on college enrollment for Black students. In other words, when Black students change their occupational aspirations in their 12^{th} grade year from not aspiring to professional professions to aspiring to them, they are less likely to enroll in colleges.

Logistic regression analysis of four-year college enrollment. The college enrollment model discussed above illuminates the factors related to college enrollment in general, including two-year, four-year, and highly-selective programs grouped together. However, factors related to the type of college a student attends may differ from factors related to whether students enroll in any college. To investigate this possibility, this section focuses on examining the choice of enrollment in four-year colleges (1=enrolling in a four-year college; 0=not enrolling in a four-year college).

Table 9 displays the logistic regression analysis of four-year college enrollment. As was the case with the general college enrollment model (Table 8), the description of the results is primarily based on the school fixed-effects model (Model 2 in Table 9). The impact of family income is most pronounced in the four-year college enrollment model, even after taking school-level differences into account. Low-income students are less

likely to enroll in four-year colleges than middle-income students, who are, in turn, less likely to enroll in four-year colleges than are high income students. As was also true with the results of the college enrollment model, cultural capital measures do not exhibit any main effects in the four-year college enrollment model. In terms of social capital measures, parent-student involvement (both in 10^{th} grade and the change between 10^{th} and 12^{th} grade) is positively associated with four-year college enrollment. Peers' influence on college-going is also positively associated with four-year college enrollment.

Occupational expectations (HH) and occupational expectations (LH) increase the odds of enrolling in four-year colleges by 69% and 50%, respectively, compared to occupational expectations (LL). Although a student's comfort level at school is not statistically significant in Models 2 and 3 (school fixed-effects model and school district fixed-effects model, respectively), this factor variable raises the odds of enrolling in four-year colleges ($p<0.1$) in Model 1 (no fixed effects). It appears that controlling for heterogeneity across schools or school districts (such as region and average SES) may capture the impact of the factor variable on four-year college enrollment.

Like the general college enrollment model, academic achievement is highly positively associated with four-year college enrollment. High-achieving students are more likely to enroll in four-year colleges. The expected amount of financial aid, which is drawn from NPSAS data, is positively associated with four-year college enrollment. Specifically, the odds of enrolling in four-year colleges increase by 1.2 times for every thousand dollars a student expects in financial aid. Controlling for other factors, Asians are more likely, and Hispanics less likely, to enroll in four-year colleges. Students who have high educational aspirations in both 10^{th} and 12^{th} grade are more likely to enroll in

four-year colleges as are students who have parents who graduate from college and those students whose mothers have high educational expectations for the students.

Whereas the general college enrollment model (Table 8) reveals significant interaction effects between family income and parent-school involvement, the four-year college enrollment model (Table 9) indicates significant interaction effects between parental cultural capital and parent-school involvement. For students who benefit from cultural capital inherited from their parents, parent-school involvement has a stronger impact on four-year college enrollment than students who do not have cultural capital inherited from their parents. This finding may be explained by the fact that culturally advantaged families may have the ability to intervene in school matters in a way that institutional agents recognize as proper and legitimate (Lareau & Horvat, 1999). In addition, this particular style of displaying cultural advantage in parent-school involvement may confer more benefits on students from culturally privileged families in terms of four-year college enrollment.

Logistic regression analysis of highly-selective college enrollment. Table 10 presents the logistic regression analysis of highly-selective college enrollment (1=enrolling in a highly-selective college; 0=not enrolling in a highly-selective college). The results indicate that high-income students are more likely than middle-income students to enroll in highly-selective colleges, even after controlling for variations across schools (Model 2). In terms of social capital measures, the only statistically significant variable is peers' influence on college-going. When most of a student's friends plan to attend four-year colleges, the odds of enrolling in highly-selective colleges substantially increase, by about 145%.

As also seen in the college and four-year college enrollment model results, occupational expectations are significantly associated with highly-selective college enrollment. The odds of enrolling in highly-selective colleges are 88% higher for students who continued to expect upper-level white-collar jobs (occupational expectations (HH)) than for their counterparts who have never expected upper-level white-collar jobs (occupational expectations (LL)).

With regard to academic achievement variables, although standardized test scores are positively associated with highly-selective college enrollment, SAT/ACT participation does not provide statistical significance in the highly-selective college enrollment model. It appears that SAT/ACT participation alone does not provide enough variation in highly-selective college enrollment. As was also seen in the four-year college enrollment model, the expected amount of financial aid is positively related to highly-selective college enrollment. In all three outcome variables (i.e., any college enrollment, four-year college enrollment, and highly-selective college enrollment), Asians and students from better-educated families have higher probabilities than their White peers and students from less educated families, respectively.

Multinomial Logistic Regression Analysis of College Choice

The logistic regression models described above help with the understanding of how student characteristics are related to college enrollment in general, in terms of four-year college enrollment, and for highly-selective college enrollment, compared to not enrolling in any college, not enrolling in a four-year college, and not enrolling in a highly-selective college, respectively. On the other hand, the multinomial logit model (discussed below) simultaneously estimates binary logits for all comparisons among these

alternatives and allows me to focus on whether students choose public four-year, private four-year, or public two-year colleges relative to not enrolling in college.

Tables 11 and 12 display the results of the analyses of college choice by the type of college using multinomial logistic regression (no fixed effects and school district fixed effects, respectively). The school fixed-effects model was not produced because Stata software did not allow the inclusion of school fixed effects into the multinomial logistic regression; it appears that the multinomial logistic regression with school fixed effects exceeds the computational capacity of the current version of Stata. For this reason, the school district fixed-effects model, rather than the school fixed-effects model, is presented and explained below.

Table 12 reveals a distinct pattern across income groups. Whereas low-income students are less likely than middle-income students to enroll in public four-year and private four-year institutions as compared to not enrolling in any college (0.66 odds ratio and 0.56 odds ratio, respectively), high-income students are more likely than middle-income students to enroll in private four-year institutions relative to not enrolling (1.48 higher odds).

In terms of social capital measures, the odds of enrolling in private four-year colleges are 44% higher for students who live with their parents in the same household compared to students who do not live with their parents. A greater number of siblings and a greater number of changes in schools for 10^{th} graders tend to be negatively associated with choosing public four-year colleges. With regard to parent-student involvement, both the parent-student involvement factor in 10^{th} grade and an increase in parent-student involvement between 10^{th} and 12^{th} grade increase the probability of choosing public four-

year and private four-year colleges relative to non-enrollment. The increase in parent-involvement between 10^{th} and 12^{th} grade also increases the probability of choosing public two-year colleges relative to non-enrollment. Parent-parent involvement is positively associated with enrollment in public four-year colleges ($p<0.1$), private four-year colleges ($p<0.01$), and public two-year colleges ($p<0.05$). Peers' influence on college-going is also positively related to enrollment in public four-year colleges ($p<0.001$) and private four-year colleges ($p<0.001$).

With regard to measures for habitus, having high occupational expectations in both 10^{th} and 12^{th} grade increases the odds of enrolling in public four-year and private four-year colleges by 99.7% and 99.3%, respectively. A student's level of comfort is statistically significant in private four-year college enrollment, after taking school district fixed effects into account. This factor variable increases the odds of enrolling in private four-year institutions by 22% compared to non-enrollment.

Standardized test quartile and SAT and/or ACT participation reflect a similar pattern in how these features relate to choices in postsecondary education. Students whose test results placed them in a higher standardized test quartile and students who took the SAT and/or ACT are more likely to enroll in all types of postsecondary institutions than students who scored in lower quartiles in standardized tests and did not take these college preparatory exams.

Students who rated living at home while attending postsecondary institutions as an important consideration are less likely than students who rated living at home while attending postsecondary institutions as not important to enroll in public four-year and private four-year institutions than not enrolling in any college. There is also a positive

association between students' ratings of the importance of the postsecondary institution's academic reputation and enrollment in public four-year, private four-year, and public two-year institutions relative to not enrolling in a postsecondary institution. The expected amount of financial aid is positively associated with private four-year college enrollment.

Controlling for other factors, Asians are more likely than Whites to enroll in public four-year, private four-year, and public two-year institutions rather than not enrolling in any postsecondary education. In terms of a student's educational aspirations, students who aspired to a bachelor's degree or higher in both 10^{th} and 12^{th} grade are more likely than their counterparts who reported otherwise to enroll in public four-year, private four-year, and public two-year institutions compared to non-enrollment in any postsecondary institution. Higher levels of parental education are positively associated with enrollment in public four-year, private four-year, and public two-year institutions. Students whose mothers want their children to graduate from college or obtain advanced degrees are significantly more likely than students whose mothers have lower educational aspirations for the student to enroll in public four-year and private four-year institutions than not to enroll in college. The patterns in the interaction terms that are statistically significant are similar to those presented in the logistic regression models.

Ordinary Least Squares Estimation of School-Level Variables

Table 13 presents the ordinary least squares estimation of the school-level variables. I hypothesized that high schools' college-going norms (i.e., building collegiate culture in schools and promoting college going) are strongly positively associated with college enrollment patterns. However, the proxies for high schools' college-going norms are not found to have a strong association with enrollment patterns in general. Among the

proxies, the percentage of students attending meetings with college representatives is statistically significant in college enrollment ($p<0.1$). Also, the percentage of students attending programs about financial aid ($p<0.1$) and percentage of 2003 graduates who went to four-year colleges ($p<0.001$) are positively associated with four-year college enrollment.

Contrary to what one might expect, the percentage of minority students is positively associated with college enrollment. In four-year college enrollment, geographical region of schools and school urbanicity are statistically significant. Schools in the Midwest, South, and West are negatively associated with four-year college enrollment compared to schools in the Northeast. On the other hand, schools in urban areas are positively associated with four-year college enrollment relative to schools in suburban areas.

Although academic capital is not the main focus of interest in this study, the impact of proxies for academic capital that I used merits a brief discussion. As discussed in the section on the applicability of the concept of academic capital, the concept of academic capital is difficult to operationalize in such a way that scholars could reach a consensus about it. In college choice research, which focuses on the students' pre-collegiate settings, academic capital may be measured by the status of one's high school. The present study uses average SAT score as a proxy for academic capital to capture the academic quality of the high school in terms of academic preparatory commitment. It is interesting to observe that average SAT score either has no impact on college outcomes ($p<0.05$), or, in fact, has a negative impact on college enrollment ($p<0.1$). Along the same lines, the higher percentage of the student body enrolled in AP courses is actually

negatively associated with four-year college enrollment (p<0.05). One speculation about the reason for these findings is related to the possible value attached to average SAT scores or AP courses. Forms of capital is a means of creating distinctions among social groups, and a dominant group will adjust the quantity and quality of its capital as the distinction with a non-dominant group becomes blurred (Musoba & Baez, 2009). In terms of AP courses, for example, Oxtoby (2007) observes that when AP courses become more widespread in schools in low-income areas, some affluent schools, believing that AP courses no longer signal academic rigor, stop providing AP courses and try to design their own more innovative courses instead. If this is true, it is plausible that schools that provide more AP courses do not facilitate students' four-year college enrollment.

The reason why sample sizes differ across the three models may be worthy of explanation. Three models use fixed-effects estimates (regression coefficients) as the outcome variables, which were drawn from individual-level data analysis (college enrollment, four-year college enrollment, and highly-selective college enrollment, respectively). As described earlier, the fixed-effects model drops predictors that exhibit no variation in the outcome variable. The number of high schools was originally 750, and 130 schools, 40 schools, and 430 schools were dropped from the college enrollment model, four-year college enrollment model, and highly-selective college enrollment model, respectively.

Simulations

To better illustrate the results, Figures 2, 3, and 4 present changes in the predicted probabilities that each racial group will enroll any college, four-year colleges, and highly-selective colleges in the four categories of changes of occupational expectations. Figure 2

indicates that regardless of changes in financial aid amount and occupational expectations, the predicted probabilities of enrolling in colleges are the highest for Asian students. Figure 2 further indicates that students whose occupational expectations remained high (HH) have higher probabilities of enrolling in college compared to students whose occupational expectations remained low (LL), although the difference is not substantial. These patterns are similar in the four-year college enrollment and highly-selective college enrollment model simulations (Figures 3 and 4).

Figures 5, 6, and 7 present the predicted probabilities of college enrollment in general, four-year college enrollment, and highly-selective college enrollment by level of capital and habitus. "High capital" refers to students who have the highest value in all measures of economic, cultural, and social capital, and "low capital" refers to students who have the lowest value in all forms of capital. "High habitus" refers to students who continuously have higher occupational expectations in both 10^{th} and 12^{th} grade, while "low habitus" refers to students who continuously have lower occupational expectations in both 10^{th} and 12^{th} grade.

As evident in Figure 5, when students have the highest value in all measures of forms of capital, their predicted probabilities of enrolling in college are almost 100% under any given condition. In this case, then, there is no room for the habitus proxy to increase the predicted probabilities of enrolling in college. However, among students who possess lower levels of measured economic, cultural, and social capital, the predicted probabilities of college enrollment are greater for students who have a high level of occupational expectations compared to students who have a low level of occupational expectations.

Figure 6 also indicates that the predicted probabilities of enrolling in four-year colleges are in general greater for students who possess higher levels of the proxies for capital compared to students who possess lower levels of these proxies. Unlike the predicted probabilities of enrolling in any college (Figure 5), Figure 6 indicates that even among students who possess a high level of economic, cultural, and social capital, the predicted probabilities of enrolling in four-year colleges are greater for students who have a high level of occupational expectations compared to students who have a low level of occupational expectations.

Similar to Figures 5 and 6, Figure 7 illustrates that the predicted probabilities of enrolling in highly-selective institutions are greater for students who possess all forms of economic, cultural, and social capital proxies compared to students who possess a low level of these different forms of capital proxy. Also, like Figure 6, Figure 7 reveals that even among students who possess a high level of economic, cultural, and social capital, the predicted probabilities of enrolling in highly-selective colleges are greater for students who have a high level of occupational expectations compared to students who have a low level of occupational expectations.

In summary, the results indicate two distinct patterns regarding the impact of forms of capital and habitus in student college enrollment and college choice. First, students who possess a higher level of economic, cultural, and social capital are a markedly different group of students than those who possess a lower level of such capital. This is true because the former group of students have much higher predicted probabilities of enrolling in college in general, four-year colleges, and highly selective colleges. Second, when students are compared within a group in which each possesses

the same level of economic, cultural, and social capital, the results reveal that the habitus plays a significant role in college outcomes regardless of such variables.

The Robustness of the Results

The results presented above include a number of variables that are conceptually interrelated, and may have a potential multicollinearity issue. In fact, there exist possibilities that economically advantaged students are more likely to possess highly valued forms of cultural and social capital, and the analysis of the various components of a certain form of capital (e.g., social capital) may be captured by other components of that form or other form of capital. This study thus examines this possibility of collinearity by examining the correlation matrix of the predictors and checking the Variance Inflation Factor (VIF) after regressions (Faraway, 2005; Lewis-Beck, 1980; Schroeder, Sjoquist, & Stephan, 1986). When the correlations among variables are higher than 0.7, those variables are appropriately handled to reduce collinearity in the regression by constructing factor composites or by summing up the variables. When the VIF analysis is conducted, no variables have VIF values that are greater than 10 (UCLA: Academic Technology Services, 2010).

In addition, it is possible that the inclusion of the expected amount of financial aid variable in college enrollment regression models may produce biased standard errors because several predictors of financial aid are also used as predictors in the college enrollment model. In order to test this possibility, I intended to use a bootstrap which provides a way to perform statistical inference by re-sampling from the original sample (Cameron & Trivedi, 2009). However, the bootstrap does not work in models with school fixed effects or school district fixed effects. It appears that too many predictors (750

schools and 500 school districts) or too few observations per school or per school district may make this re-sampling process difficult in Stata. For this reason, this study only compares original standard errors with bootstrap standard errors in models with no fixed effects. The results indicate that original standard errors are not substantially different from the bootstrap standard errors (how the bootstrapping was conducted and the statistical Stata code that was used are provided in the appendix).

Also, this study examines whether the assumption of the *independence of irrelevant alternatives* (IIA) is met in my multinomial logit model, using the two most common tests of IIA: the Hausman-McFadden (HM) test and the Small-Hsiao (SH) test. While the HM results indicate that the IIA assumption is actually violated in one variation of the HM test (enrolling in public two-year colleges compared to non-enrollment), the SH test reveals that IIA has *not* been violated in my multinomial logit model. As demonstrated in these results and in general, the HM and SH tests often provide inconsistent results regarding whether IIA has been violated (Long & Freese, 2006). Additionally, these tests cannot be used with cluster options or in weighted data, which are included in my analysis to adjust for standard errors and to produce a more nationally representative sample, respectively. It appears that the tests do not provide strong evidence regarding whether the assumption of IIA is violated or not (Long & Freese, 2006). Further, it is very plausible that students will think that the alternative of enrolling in public two-year colleges and the alternative of non-enrollment are markedly different options. For these reasons, this study retains and reports the multinomial logit model, without further trying to fit other models (e.g., the multinomial probit model,

which does not assume IIA). Research generally confirms that the estimates from logit and probit provide similar results (Long & Freese, 2006).

Chapter 5

Conclusion and Implications

This chapter revisits the research questions of this study and summarizes the findings related to each question. I also discuss limitations of the study and how future research may overcome them. The chapter ends with a discussion of the implications for practice and a short conclusion.

Summary of Key Findings

The overarching research question of this study is how forms of capital and habitus relate to student college choice. As discussed in Chapter 1, this study is not truly testing the theories that frame it per se; instead, I am testing how proxies for the theoretical constructs are related to student college choice. Throughout this chapter, "forms of capital" ("economic capital," "cultural capital," or "social capital") and "habitus" should be understood to refer to these proxies rather than the theoretical constructs themselves. Three specific sub-questions addressed are: 1) How do different forms of capital and habitus influence whether or where to attend college?; 2) To what extent does one form of capital reinforce (or not) the activation of other forms of capital?; and 3) To what extent does the impact of forms of capital and habitus differ by a student's socioeconomic status in the college-choice process? The following section discusses key findings in relation to the three research questions described above.

How do different forms of capital and habitus influence whether or where to

attend college?

The results indicate that not all forms of capital and all proxies of habitus used in this study are associated with college enrollment and college choice in the same way. In terms of the role of economic capital, when measured by family income, economically advantaged students are more likely to enroll in four-year colleges and highly-selective colleges, whereas economically disadvantaged students are particularly underrepresented in four-year colleges. However, when economic capital is measured by family resources (i.e., whether families have a computer, access to the Internet, own more than 50 books, and students have their own room), this proxy for economic capital is not associated with college outcomes (i.e., college enrollment or college choice), holding other variables constant. It appears that the family resource measure used in this study does not provide enough variation in college enrollment or choice, after controlling for family income. In other words, it is plausible that the component of economic capital as measured by family resources does not have additional independent impact in college enrollment and choice, if the family income variable captures, for the most part, the impact of economic capital. At the same time, even after controlling for family income, statistically significant measures of economic capital in the analysis of college choice may exist. As some researchers (Conley, 2001; Orr, 2003) suggest, this type of approach in operationalizing economic capital deserves more analytic attention, and the component may need to reflect the cumulative nature of a family's economic condition rather than examining only discrete measures of annual income.

Although cultural capital measures (both student cultural participation and parental cultural capital) have no direct effects on college enrollment and choice,

measures of cultural capital do interact with measures of social capital and habitus to predict college outcomes, which will be addressed later in relation to the second research question.

Even though not all social capital proxies are significantly associated with college enrollment and college choice, some measures consistently and strongly predict college enrollment and choice. For example, parent-student involvement in 10^{th} grade and the increase in that involvement between 10^{th} and 12^{th} grade raise the odds of enrolling in (any) colleges and four-year colleges. This finding confirms the findings of previous research that parent involvement is positively associated with college enrollment (Perna & Titus, 2005; Plank & Jordan, 2001). In addition, this finding highlights the importance of sustained parent involvement on school matters as well as the importance of a high level of parent-student discussion in the early years of high school.

Peers' influence on college-going (as measured by whether most friends plan to attend four-year colleges) is also strongly associated with the probabilities of college enrollment and college choice in all models. This finding is consistent with previous research results that students with friends who planned to go four-year colleges are more likely to enroll in colleges (Choy, 2002; Choy, Horn, Nunez, & Chen, 2000; Horn, 1997; Hossler et al., 1999).

This study operationalizes individual habitus with two measures (i.e., occupational expectations and a student's comfort level at school) and organizational habitus with whether a high school has a college-going norm. When habitus is measured by occupational expectations, the findings generally support the theoretical hypothesis of this study: students who continuously aspired to upper-level white-collar jobs are more

likely to have comparative advantages in college enrollment and the college-choice process compared to students who had never held such aspirations. However, when habitus is measured by a student's comfort level at school, the findings are mixed. The only statistically significant result indicates that the odds of enrolling in a private four-year college (relative to non-enrollment) increase as a student's comfort level at school increases. In contrast, a student's comfort level at school does not have analogous benefits, in terms of increasing public four-year and public two-year enrollment. This finding may be interpreted in light of the ramifications of enrolling in private colleges. Considering that students who enroll in more expensive, prestigious colleges (i.e., private four-year colleges) are more likely to come from more-privileged backgrounds, less-privileged students may not even consider a prestigious university as a possible option due to possible discomfort and concerns of elitism. Although this finding has been well-documented in qualitative research (e.g., Mullen, 2009), there is virtually no prior quantitative research that examines the impact of a student's comfort level on college choice. As such, it remains to be seen if this finding will be confirmed by future quantitative research and be generalized across the nation.

With regard to organizational habitus measures, the results suggest that the overall association between various measures of organizational habitus and college enrollment patterns is not as strong as the theory predicts. However, there exist several predictors that increase the chances of entering higher education. The most powerful predictor is the percent of students who went to four-year colleges in the four-year college enrollment model. Students who attend high schools where a higher percentage of graduates enrolled in four-year colleges are more likely to enroll in four-year colleges. As is the case with

the impact of a student's comfort level at school, it is interesting to observe that qualitative and quantitative research reach different results regarding the impact of organizational habitus on college choice. Whereas qualitative studies (Horvat & Antonio, 1999; McDonough, 1997; Reay, 1998; Reay, David, & Ball, 2005) consistently emphasize the role of organizational habitus in student college choice, quantitative studies (Grodsky & Riegle-Crumb, 2010) including the present study do not provide strong evidence on the impact of organizational habitus.

If organizational habitus plays an important role in a student's college choice, qualitative research may better explain that role, which may be due to the strength of qualitative research in capturing the fuller extent and depth of complex constructs. Despite this distinct strength, qualitative studies suffer from the problem of generalizability, partly due to small sample sizes. Further, qualitative research cannot properly take into account unobservable school differences that are related to the outcome variable (e.g., college enrollment). Using a quantitative approach, the present study may provide more reliable results, by isolating unobservable characteristics of schools through estimations of school fixed effects. Since relatively few quantitative studies have been conducted, future research has the potential to solidify conclusions about the impact of organizational habitus.

To what extent does one form of capital reinforce the activation of other forms of capital?

Theory predicts that individuals with highly-valued forms of capital receive greater rewards for their investment in capital (Bourdieu & Passeron, 1979; Lamont & Lareau, 1988). Because resources are not automatically converted into educational

advantages, individuals define the value of capital investment, and individuals need to have skills to activate that capital (Lareau & Horvat, 1999). My second research question asks whether students with one valued form of capital have advantages in activating other forms of capital in the college-choice context.

To answer this question, this study examines interaction terms between cultural capital measures and social capital measures and finds that two distinctly different patterns emerge. First, unlike the findings one might have expected, for students with high cultural capital (as measured by involvement in arts), the impact of a social capital measure is actually weaker in college-choice outcomes. Specifically, for those students with cultural capital, the impact of having been to a teacher for college entrance information is actually weaker than for students who do not possess cultural capital. This result should be interpreted with caution, however, as capturing the complex notions of cultural capital and social capital with only one factor (even with one containing a number of variables) is extremely difficult. Furthermore, observing only one point in time may not fully capture cultural and social resources that are transmitted from generation to generation. Even after assuming that the variables captured at least some component of the cultural and social capital dimensions, the interaction term between the cultural capital measure and the social capital measure may obscure some of the true relationships. In fact, a higher percentage of students with cultural capital had gone to teachers for college entrance information ($p<0.001$, results not presented). This may itself indicate that culturally disadvantaged students may already opt out from seeking help, and, thus, those who go to a teacher for help are already a self-selected group of students. At the same time, it is also plausible that students who possess cultural capital may obtain

college information from their parents (or even private counselors) or may be savvy enough to navigate the college-choice process by themselves without help from school teachers.

The second pattern regarding the relationship among forms of capital indicates that one form of capital does reinforce the activation of other forms of capital. For instance, the results indicate that the impact of parent-school involvement is stronger for high-income students and for students who have inherited cultural capital from their parents than all other students. This finding may be interpreted as indicating that economic capital and cultural capital reinforce the activation of social capital in a student's transition from high school to college. Affluent and culturally advantaged families may differ from low-income and culturally disadvantaged families in how they shape relationships with institutional personnel; the style of parental involvement of parents from higher socio-economic classes may provide children with educational benefits such as academic excellence and the prospect of a college education.

To what extent does the impact of forms of capital and habitus differ by a student's socioeconomic status in the college-choice process?

Although I find little evidence of differential effects of habitus by socio-economic characteristics (e.g., family income and parents' education), the results indicate that the impact of habitus does differ by race/ethnicity. Contrary to what one might expect, occupational expectations (LH) has a negative impact on college enrollment for Black students. In other words, when Black students held expectations of getting a non-professional job in their 10th grade year but a professional job in their 12th grade year, they are less likely to enroll in colleges. This finding may be interpreted in light of the

concept of relegation, which describes situations in which individuals with less-valued forms of capital receive fewer rewards for their investment of capital (Bourdieu & Passeron, 1979; Lamont & Lareau, 1988). If Black students see relegation occurring to others around them, they may determine that higher education is not profitable for them in that it is too costly for them and the returns are too uncertain. Additionally, the finding may be interpreted in relation to Harding's (2010) discussion on cultural heterogeneity in frames and scripts. Given a community where multiple frames and scripts are readily available and receive equal social support, for Black students who changed their occupational expectations into ones for a professional job in 12th grade, their strategies to get a white-collar professional job may not involve going to college, and they may choose to start work right after high school to accumulate job experience. It is also possible that Black students who want to pursue higher education are frustrated about the fact that they know fewer people who successfully followed that path and that there exists only limited information about how to navigate the college enrollment process, which ultimately results in not enrolling in college.

It is also important to acknowledge the fact that this study examined students' college enrollment behavior only at one point in time, which qualifies the conclusions of this study, given that the college-going process is ongoing and not restricted to one time frame. How the change in underrepresented students' occupational expectations relates to their college-going behavior may be more fully understood if future research tracks students' enrollment behavior over time.

Implications for Future Research

This study suggests several fruitful areas for future research. As noted above, longitudinal research is one promising area of future research so that a broader perspective of the development of college-going views and behavior can be achieved. In addition, while the ELS is the most appropriate existing nationally representative data set for this study as it encompasses a rich set of variables related to the theoretical construct used in this study, additional research is needed to more fully capture the complex concepts explored here, when a newer data set is developed. For example, although this study measures cultural capital with students' and parents' involvement in arts in general, cultural capital (or upper-class cultural tastes) may differ by educational contexts; for example, the proxies of cultural capital in the study may be true for students studying liberal arts, but may not be true for students studying natural sciences. Furthermore, while I am able to capture the types and the amount of social capital, further research, using data that allow the operationalization of social capital to assess whether students actually received necessary support and guidance in their college-choice process (i.e., the qualities of social capital), is required. Future research should also take into account changing social contexts which may lead to different findings than those of this study. For example, geographical relocations, which I found to be detrimental due to the loss of social capital, may be viewed differently in the future, because of technological advances through which some relationships can be sustained online. In light of changing social contexts, continued research is needed in order to fully capture the complex constructs.

Ongoing questions about operationalization also remain for the concept of habitus. This study improves upon the limitations of previous research by gauging the concept of habitus in light of students' occupational expectations over time and their comfort level at

school. It nevertheless remains unclear whether the habitus measures consist of distinctly different dimensions and whether some dimensions are better proxies for habitus. Accordingly, further research is needed to develop a strong consensus on the effects of different components of habitus on one's life trajectory. Future research should also explore the ways in which the concepts of indirect exclusion (self-exclusion, over-selection, and relegation) as operations of habitus relate to how students navigate the college-choice process. Although these concepts are relevant to interpret the findings of this study (e.g., interpretations of the impact of a student's comfort level at school on private four-year college enrollment and the impact of occupational expectations (LH) on college enrollment for Black students), this study nevertheless did not directly examine the concepts, partly due to a lack of proper measures and the nature of the data structure of this study, which is not truly longitudinal. The investigation of these concepts in future research may benefit from longitudinal research designs. For example, the process of self-exclusion may occur from a student's early childhood, and may, therefore, be more fully addressed when researchers observe a student's pre-college perceptions and behaviors over an extended period of time reaching back to childhood. Further, given that the college-going process is ongoing and not restricted to one time frame, it would be helpful to track students' enrollment behavior over time.

Future research of the theoretical concepts explored here may also benefit from both quantitative and qualitative methods. At the same time, it is also true that regardless of the method employed, the empirical investigation of the concept of habitus is extremely difficult, especially when habitus is conceptualized as the unconscious or subconscious. Some scholars (e.g., Maton, 2008) argue that although researchers cannot

perceive habitus in itself, they can observe the effects of habitus on an individual's values and practices. However, to the extent that researchers' pre-assumptions and subjective interpretations in qualitative research may interfere with objective observation, findings regarding respondents' practices may reflect subjective perceptions on the part of investigators rather than the nature of the practices themselves, and this may limit the findings of qualitative research. In contrast, quantitative researchers may be able to better observe patterns of one's dispositions and actions objectively.

Nevertheless, quantitative research may have problems with respect to using variables (Winkle-Wagner, 2010). For example, most researchers tend to use dummy variables indicating whether a student possesses a certain form of capital. However, the reality may be much more complex than this either/or framework, and the tendency to use dummy variables may not capture gray areas in terms of possession of a form or even level of capital. At the same time, it should also be considered that while most of the proxy variables for forms of capital in existing data sets are ordinal variables, the scale of the variables may not be linearly related to the outcome variable (for example, the impact of attendance of the arts twice a week may not be double that of the impact of attendance of the arts once a week). All in all, researchers need to be more careful in their coding schemes and in their choices of proxy variables.

Although one extreme perspective from the qualitative side (e.g., Vryonides, 2007) contends that quantitative research is incapable of capturing the full extent and depth of complex constructs, scholars at the other end of the continuum (e.g., Manski, 1993, 2004) contends that the tendency toward verbal theorizing rather than mathematical formulation in qualitative research has resulted in ambiguous and inconsistent conceptualization and

analysis. Quite possibly, qualitative and quantitative researchers could both learn a great deal from each other's work by collaborating: qualitative research might be improved by seeking to develop a more consistent logic across studies; similar improvement in quantitative research might occur if those researchers were more willing to compile and utilize subjective data. In both research approaches, scholars need to clearly define the concept they are studying and use proxy variables that closely relate to that definition in order to be more precise in their operationalizations of theoretical constructs (Winkle-Wagner, 2010).

Although this study provides results that are generalizable across the nation, the theoretical constructs in relation to specific contexts or fields (e.g., regions and community) deserve analytic attention to deepen our understanding of how these constructs play a role in a student's college-choice process. Given that previous research on habitus has been done in European settings rather than American ones, and, furthermore, that most of such research within the United States (U.S.) has been conducted on the West Coast, further research is needed to explore how the effects of habitus on college choice may or may not be influenced by various specific settings within the U.S., and, more fundamentally, whether a concept that has been primarily studied in Europe requires modification or can be transplanted intact to the States.

Although my results identify college-choice processes that are differentiated by social status groups, continued research is needed to fully determine the extent of the variation by social groups and the reasons for it. In addition to inter-class variation, intra-class variation also needs to be examined more extensively. For example, older non-traditional student groups may differ in their perceptions about possession and activation

of capital, resulting in different college outcomes.

There is also a need to develop new nationally representative data. National data sets, including NELS and ELS, do not have sufficient numbers of students who enroll in certain types of institutions, such as private for-profit institutions. Thus, little is known about how forms of capital influence the students' choice of institutions. More research is needed to determine how different forms of capital and the concept of habitus operate in student college choice as related to specific types of institutions, including four-year vs. two-year, public vs. private, and selective vs. less-selective institutions.

Implications for Practice

The role of habitus, along with forms of capital, has implications for practice in order to better serve students in their college-choice process. In applying the concept of habitus to implement improvements to the college-choice process, several considerations should be taken into account.

First, it is critical to note the group of students who have already self-selected themselves away from the realm of higher education. Some researchers argue that financial reasons may operate to prevent college-prepared lower income students from choosing certain college-choice options (St. John, 2006b). This line of argument emphasizes that not only academic preparation but also financial resources should be highlighted in studies of college enrollment. Equally important is the population that does not have a chance to prepare itself academically and must, despite cultural disadvantages, compete with culturally advantaged students. According to Bourdieu (Bourdieu, 1977a; Bourdieu & Passeron, 1990), school success is defined by those who are already privileged, and so the lack of familiarity with the culture and school standards defined by

the privileged may result in academic ill-preparedness. After comparing the academic achievement of privileged students to that of underprivileged students, blaming the low academic achievement of the latter for non-enrollment or a less-selective institution may not help increase the college enrollment of low-status students or gear them toward more selective institutions than those that have open admission. A major implication of this study is that although academic standards are important, they should not exist in a vacuum; more understanding and support for students, taking into account the individual circumstances of certain students, is also necessary. In addition, in terms of direct practice implications, mentorship may be a particularly promising policy direction to provide help for low-income students who do not think about college options seriously and are surrounded by people who receive fewer rewards for their investment of capital. A further implication of this study is that when incorporating the concept of habitus into social capital theory, for low-income students in such circumstances, mentor relationships may be especially important, in particular with mentors who entered selective colleges despite being poor.

Second, there is a need to help students make better-informed decisions in reference to college choice. The findings of this study suggest that information may reduce the gap in college enrollment between culturally-privileged and culturally disadvantaged students. In addition, previous research has consistently found that information and awareness about college are helpful to students' choice processes (Dynarski & Scott-Clayton, 2008; Kelly & Schneider, 2011; Luna De La Rosa, 2006). The qualities of information are important; as Kelly and Schneider (2011) demonstrate, providing better information about college costs and quality (e.g., graduation rates) is an

influential factor in a student's college choice. At the same time, it is also important to address the access, availability, and usability of information, which differ among different social status groups (McDonough & Calderone, 2006).

Third, in order to have a practical influence on the students' college-choice process, timing is crucial. Many research studies emphasize that attempts to help students solely during the last stages of the college-choice process are not successful, because they occur too late to have a meaningful influence at a time when students' college aspirations are already formed and academic preparation nearly completed. Hossler and Gallagher's (1987) argument that students' tendencies to unnecessarily narrow their college-choice set in the search stage is, to a large extent, due to a lack of knowledge and information about the range of college options, suggests that the timing of assistance, even in the more minimal form of provision of information, is key. The effort to help students expand beyond initially perceived boundaries in the college-choice process is not only critical in itself for subsequent college choice, but also because it has more lasting influences on students' future careers.

Fourth, there is a need to rethink the impact of parent involvement in the college-choice process. Two decades ago, Hossler and colleagues (1989) concluded that, given the evidence from prior research on the importance of the role of parents in the predisposition stage, the attempts to influence students' college-choice process should focus on parents in addition to students. However, it is equally important to realize that, despite parents' high aspirations to help their children, a lack of knowledge and time may impede their ability to do so. In fact, this study revealed that the impact of parent-school involvement is stronger for high-income students and those who benefit from inherited

cultural capital from their parents compared to middle-income students and those who do not have inherited cultural capital from their parents, respectively. All of the facets of the role of parents – the important impact they have, their desire to help and the obstacles to doing so – suggest that the type of school outreach that only emphasizes parent involvement without consideration of parents' actual situations may in fact exacerbate inequalities in educational opportunities. In this context, being aware of habitus is especially important, because home-school relationships and school outreach cannot be successful unless there are dispositions and skills available to engage them.

Finally, this study's implication is not that there is a need to provide economic, cultural, and/or social capital to students. Forms of capital are valuable as long as they are a means of creating distinctions among social groups in a particular setting (field), and as non-dominant group capital becomes less distinguishable from dominant group capital, the dominant group will adjust their capital quantity and quality (Musoba & Baez, 2009). Partially due to this dominant group's adjustment to distinguish themselves from lower SES groups, according to Bourdieu's theory, it may not be sufficient to solve educational inequalities just by blaming those who lack capital and bestowing a certain form of cultural and social capital on minority and low-income students (Winkle-Wagner, 2010). There also should be an emphasis on the role of unequal access to resources among status groups or structural constraints (e.g., poverty and resource-lacking schools) that may obstruct the accumulating of valuable forms of capital (Dika & Singh, 2002; Lareau, 2001; Stanton-Salazar, 1997, 2001).

Conclusion

One of this study's contributions to the existing research is that it investigates

Bourdieu's full theoretical model by explicitly incorporating the concept of individual and organizational habitus in addition to forms of capital (i.e., economic, cultural, and social capital). The distinct strength of the present study in this regard is that it examines how forms of capital and habitus interplay in relation to a student's pivotal stage of transition from high school to college. Methodologically, this study examines a nationally representative sample, which permits the generalizability of research findings to the national level. Furthermore, through sophisticated quantitative approach (e.g., estimations of school fixed effects), the present study simultaneously investigates multiple contexts or fields (e.g., family and school) where students are situated.

Although I empirically demonstrated that habitus (as measured by occupational expectations) plays a significant role in student college enrollment and choice, I acknowledge that scant information regarding the role of educational policy in changing individual habitus may exist. Fully recognizing the role of habitus is, nevertheless, important for policy makers and practitioners as well as scholars. Habitus is structured by one's circumstances and shapes one's present and future practices; some groups of students may struggle with a lack of highly valued forms of capital due to their circumstances (e.g., social structure or socio-cultural status), which, in turn, shapes habitus that may sub-consciously or unconsciously limit their choices in life opportunities. Thus, my study results suggest that students' college-choice processes should be understood within their situated contexts, including the volume and types of capital they possess, and in conjunction with the role of the habitus that shapes their college-choice trajectories. A deeper understanding in this regard may help ameliorate the persisting educational stratification in college destinations.

Figure 1. Conceptual framework

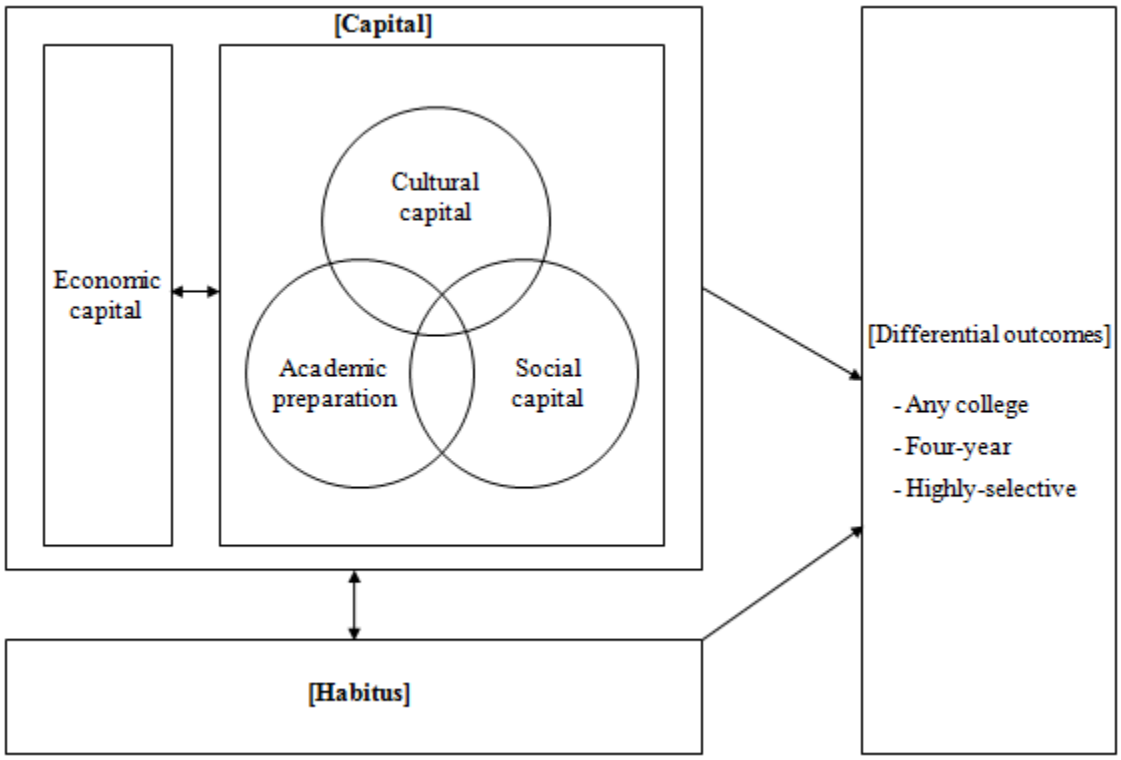


Table 1. List of Independent Variables

Variable		Definitions of Variables
Proxies for Economic capital	Low-income	1=Low-income (less than $35,000); 0=Middle-income
	High-income	1=High-income ($75,001 or more); 0=Middle-income
	Family resources	1=Family has the following: computer; access to the Internet; more than 50 books; and students' own room.
Proxies for Cultural capital	Student's cultural exposure	1=Student took music, art, and/or language classes outside of school.
	Parents' cultural capital	1=Parents attended concerts/plays/movies with the 10th grader.
Proxies for Social capital	Physical presence of parents	1=Student lives with both mother and father.
	No. of siblings 10th grader has	Continuous; 0-6
	No. of times 10th grader changed schools other than promotions	Continuous; 0-5
	Parent-student involvement (10th)	• Factor composite; -2.2-1.6 (alpha=0.85)
	Parent-student involvement (12th)	• Factor composite; -2.6-1.7 (alpha=0.84)
	Parent-school involvement	• A sum of the following: belong to parent-teacher organization; attend parent-teacher organization meetings; take part in parent-teach organization activities; act as a volunteer at the school; belong to other organization with parents from school.
	Parent-parent involvement	• Factor composite; -1.2-1.9 (alpha=0.75)
	Information sources (parent)	1=Has gone to parent for college entrance information
	Information sources (sibling)	1=Has gone to sibling for college entrance information
	Information sources (other relative)	1=Has gone to other relative for college entrance information
	Information sources (friend)	1=Has gone to friend for college entrance information
	Information sources (counselor)	1=Has gone to counselor for college entrance information
	Information sources (teacher)	1=Has gone to teacher for college entrance information
	Information sources (coach)	1=Has gone to coach for college entrance information
	Information sources (college reps.)	1=Has gone to college reps for college entrance information

	Peers' influence on college-going	1=Most friends plan to attend four-year college/university.
Proxies for Habitus	Occupational expectations	1= Occupational expectations (HH); 0=(LL) 1= Occupational expectations (LH); 0=(LL) 1= Occupational expectations (HL); 0=(LL)
	Student's comfort level at school	• Factor composite; -3.4-2.2 (alpha=0.71)
Academic preparation	Std composite test quartile	1=Quartile 2; 0=Quartile 1 Low 1=Quartile 3; 0=Quartile 1 Low 1=Quartile 4; 0=Quartile 1 Low
	SAT or ACT participation	1=Yes
Expected benefits/costs	Importance of living at home	1=Somewhat or very important; 0=Not important
	Importance of academic reputation	1=Somewhat or very important; 0=Not important
	Financial aid amount	Continuous; 0.1-14.4 (in 1,000 dollars)
Individual/family controls	Native American/Other Asian Black Hispanic	1=Native American/Other; 0=White 1=Asian; 0=White 1=Black; 0=White 1=Hispanic; 0=White
	Female	1=Female
	Educational aspirations	1=Aspired to a bachelor's degree or higher (HH)
	Parents' education	1=Parents have bachelor's degrees or higher
	Mother's expectations of the child's college-going	1=Mother wants the student to graduate from college; obtain a master's degree; or obtain a doctoral or other advanced degree.

Table 1 *(Continued).*

Variable (School characteristics)		Definitions of Variables
School's college-going norm	Teachers press students to achieve	1=very accurate
	Counselors/teachers encourage students to enroll in academic classes	1=very accurate
	% of 12th graders attending college application programs	1=50% or higher
	% of 12th graders attending programs on financial aid	1=50% or higher
	% of 12th graders attending school SAT/ACT courses	1=50% or higher
	% of 12th graders attending college fairs	1=50% or higher
	% of 12th graders attending meetings with college reps.	1=50% or higher
	% of 2003 graduates who went to four-year colleges	1=50% or higher
	% of student body in AP courses	Continuous; 0-81
Academic characteristics of schools	Average SAT score	Continuous; 684.4-1364.5
School controls	Catholic or other private	1=catholic or other private; 0=public
	School size	1=800 or more students
	% minority	1=25% or higher
	% 10th graders who receive free/reduced-price lunch	1=20% or higher
	Geographic region of school	1=Midwest; 0=Northeast
		1=South; 0=Northeast
		1=West; 0=Northeast
	School urbanicity	1=Urban; 0=Suburban
		1=Rural; 0=Suburban

Table 2. Descriptive Statistics for Individual-Level Variables After Multiple Imputation of Missing Values

	All students	Occupational expectations (HH)	Occupational expectations (LH)	Occupational expectations (HL)	Occupational expectations (LL)
Variable	%/Means	%/Means	%/Means	%/Means	%/Means
Low-income	29.2%	25.8%	27.0%	29.5%	32.5%
Middle-income	39.5%	38.7%	41.1%	39.7%	39.5%
High-income	31.3%	35.5%	31.9%	30.8%	28.0%
Family resources	58.1%	63.8%	56.8%	61.0%	52.9%
Student's cultural exposure	20.2%	24.4%	20.9%	21.9%	15.9%
Parent/child attendance of the arts	68.9%	72.3%	68.8%	69.8%	66.0%
Physical presence of parents	63.2%	66.0%	65.2%	62.0%	60.9%
# of siblings	2.22	2.12	2.18	2.22	2.32
# times 10^{th} grader changed schools	1.19	1.20	1.19	1.22	1.18
Parent-student involvement (10^{th})	-0.02	0.22	-0.01	0.04	-0.25
Parent-student involvement (12^{th}–10^{th})	0.01	-0.04	0.07	-0.02	0.04
Parent-school involvement	1.34	1.49	1.33	1.36	1.22
Parent-parent involvement	-0.05	-0.01	0.00	-0.07	-0.10
Information sources (parent)	53.4%	63.2%	52.7%	57.3%	44.2%
Information sources (sibling)	24.9%	26.8%	24.7%	27.4%	22.1%
Information sources (other relative)	25.1%	30.9%	23.7%	27.7%	19.9%
Information sources (friend)	38.4%	44.8%	36.4%	42.1%	32.4%
Information sources (counselor)	40.9%	48.2%	39.5%	45.7%	33.4%
Information sources (teacher)	29.2%	35.3%	28.7%	30.3%	24.3%
Information sources (coach)	8.8%	9.5%	9.1%	10.1%	7.5%
Information sources (college reps.)	14.2%	18.1%	13.3%	14.8%	11.2%
Peers' influence on college-going	60.4%	70.0%	64.6%	61.2%	51.0%
Occupational expectations (HH)	27.2%	-	-	-	-
Occupational expectations (LH)	15.5%	-	-	-	-

Occupational expectations (HL)	20.6%	-	-	-	-
Occupational expectations (LL)	36.6%	-	-	-	-
Student's comfort level at school	-0.01	0.13	0.00	0.00	-0.11
Std test quartile 1 Low	17.4%	9.2%	14.9%	14.2%	26.2%
Std test quartile 2	22.5%	20.1%	19.9%	25.0%	24.0%
Std test quartile 3	28.3%	30.6%	29.1%	30.1%	25.2%
Std test quartile 4 High	31.9%	40.2%	36.1%	30.6%	24.6%
SAT/ACT participation	86.9%	95.1%	91.5%	89.3%	77.4%
Importance of living at home	43.7%	36.7%	42.0%	45.5%	48.5%
Importance of academic reputation	87.0%	94.1%	91.1%	87.9%	79.5%
Financial aid amount	6.72	7.36	6.93	6.87	6.08
Native American	5.2%	5.1%	5.0%	5.6%	5.1%
Asian	9.5%	10.1%	9.8%	8.9%	9.3%
Black	11.6%	13.8%	10.6%	12.6%	9.7%
Hispanic	12.2%	10.8%	11.7%	11.7%	13.7%
White	58.1%	57.0%	58.4%	58.6%	58.6%
Female	52.2%	60.8%	53.5%	57.7%	42.1%
Educational aspirations (HH)	61.9%	79.8%	65.9%	64.3%	45.4%
Parents' education	44.9%	50.2%	47.9%	43.9%	40.3%
Mother's expectations	75.9%	85.7%	81.1%	75.7%	66.6%
Sample N	11,800	3,190	1,800	2,410	4,310

Table 3. Descriptive Statistics for School-Level Variables

Variable	%/Means
Teachers press students to achieve	25.9%
Counselors/teachers encourage students to enroll in academic classes	47.3%
% of 12th graders attending college application programs	53.3%
% of 12th graders attending programs on financial aid	46.7%
% of 12th graders attending school SAT/ACT courses	18.8%
% of 12th graders attending college fairs	53.0%
% of 12th graders attending meetings with college reps.	49.5%
% of 2003 graduates who went to four-year colleges	44.2%
% of student body in AP courses	13.6
Average SAT score	984.9
Catholic or other private	14.0%
School size	66.0%
% minority	52.1%
% 10th graders receiving free/reduced-price lunch	53.6%
(Northeast)	17.2%
Midwest	24.8%
South	37.8%
West	20.3%
(Suburban)	48.6%
Urban	30.5%
Rural	20.9%
Sample N	620

Table 4. Factor Scale of Parent-Student Involvement (10th)

Factor and Survey Items	Factor Loadings	Internal Consistency (alpha)
Parent-student involvement (10^{th})		0.853
How often discussed school courses with parents	0.706	
How often discussed school activities with parents	0.696	
How often discuss things studied in class with parents	0.729	
How often discussed grades with parents	0.637	
How often discussed prep for ACT/SAT with parents	0.597	
How often discussed going to college with parents	0.677	
How often discussed current events with parents	0.589	
How often discussed troubling things with parents	0.556	

Note: Each survey item has three scales: never, sometimes, often

Table 5. Factor Scale of Parent-Student Involvement (12th)

Factor and Survey Items	Factor Loadings	Internal Consistency (alpha)
Parent-student involvement (12^{th})		0.841
How often discussed school courses with parents	0.643	
How often discussed school activities with parents	0.616	
How often discuss things studied in class with parents	0.685	
How often discussed grades with parents	0.599	
How often discussed what jobs would like to have with parents	0.639	
How often discussed jobs to apply for after high school with parents	0.512	
How often discussed preparation for ACT/SAT with parents	0.558	
How often discussed going to college with parents	0.581	
How often discussed current events with parents	0.525	
How often discussed troubling things with parents	0.565	

Note: Each survey item has three scales: never, sometimes, often

Table 6. Factor Scale of Parent-Parent Involvement

Factor and Survey Items	Factor Loadings	Internal Consistency (alpha)
Parent-parent involvement		0.749
Friend's parent gave advice about teachers/courses	0.443	
Friend's parent did favor	0.871	
Friend's parent received favor	0.852	
Friend's parent supervised 10^{th} grader on field trip	0.395	

Note: Each survey item has four scales: none, once or twice, three or four times, more than four times

Table 7. Factor Scale of Student's Comfort Level at School

Factor and Survey Items	Factor Loadings	Internal Consistency (alpha)
Student's comfort level at school		0.711
Students get along well with teachers	0.474	
The teaching is good	0.638	
Teachers praise effort	0.542	
Classes are interesting and challenging	0.638	
Satisfied by doing what expected in class	0.597	

Note: Each survey item has four scales: strongly disagree, disagree, agree, strongly agree

Table 8. Logistic Regression Analysis of (Any) College Enrollment

	Model 1			Model 2			Model 3		
Variable	Odds ratio	Std. Err.		Odds ratio	Std. Err.		Odds ratio	Std. Err.	
Low-income	0.805	0.130	~	0.825	0.162		0.829	0.155	
(Middle-income)									
High-income	1.258	0.102	*	1.058	0.132		1.079	0.119	
Family resources	1.002	0.065		0.990	0.085		0.987	0.080	
Student's cultural exposure	1.162	0.156		1.140	0.206		1.114	0.189	
Parent/child attendance of the arts	1.098	0.136		1.114	0.162		1.124	0.155	
Physical presence of parents	1.256	0.071	**	1.253	0.082	**	1.232	0.073	**
# of siblings	0.895	0.036	**	0.898	0.043	*	0.897	0.043	*
# times 10^{th} grader changed schools	0.947	0.022	*	0.946	0.026	*	0.942	0.027	*
Parent-student involvement (10^{th})	1.120	0.060	~	1.184	0.068	*	1.170	0.069	*
Parent-student involvement (12^{th}–10^{th})	1.128	0.047	*	1.218	0.057	**	1.189	0.058	**
Parent-school involvement	0.959	0.056		0.915	0.070		0.929	0.066	
Parent-parent involvement	1.111	0.058	~	1.141	0.068	~	1.139	0.065	~
Information sources (parent)	1.256	0.105	*	1.269	0.124	~	1.300	0.124	*
Information sources (sibling)	1.193	0.108		1.167	0.129		1.155	0.123	
Information sources (other relative)	0.909	0.117		0.895	0.134		0.904	0.131	
Information sources (friend)	1.007	0.107		1.003	0.138		0.997	0.130	
Information sources (counselor)	1.145	0.089		1.032	0.108		1.039	0.108	
Information sources (teacher)	1.022	0.105		1.168	0.127		1.117	0.127	
Information sources (coach)	0.965	0.146		0.970	0.186		0.977	0.182	
Information sources (college reps.)	0.873	0.107		0.912	0.128		0.905	0.123	
Peers' influence on college-going	1.478	0.099	***	1.493	0.119	**	1.507	0.120	**
Occupational expectations (HH)	1.359	0.125	*	1.421	0.140	*	1.443	0.138	**
Occupational expectations (LH)	1.615	0.149	**	1.633	0.184	**	1.669	0.179	**
Occupational expectations (HL)	1.112	0.141		1.105	0.156		1.096	0.155	
(Occupational expectations (LL))									

Student's comfort level at school	1.019	0.040		1.036	0.050		1.032	0.048	
(Std test quartile 1 Low)									
Std test quartile 2	1.566	0.093	***	1.736	0.098	***	1.767	0.098	***
Std test quartile 3	1.992	0.095	***	2.179	0.104	***	2.221	0.096	***
Std test quartile 4 High	2.744	0.125	***	2.991	0.138	***	3.058	0.139	***
SAT/ACT participation	1.624	0.152	**	1.984	0.185	***	1.958	0.179	***
Importance of living at home	0.777	0.080	**	0.749	0.100	**	0.747	0.093	**
Importance of academic reputation	1.983	0.120	***	2.138	0.147	***	2.107	0.144	***
Financial aid amount	1.050	0.031		1.049	0.040		1.047	0.038	
Native American	0.719	0.236		0.624	0.277	~	0.616	0.279	~
Asian	2.423	0.275	**	2.267	0.346	*	2.308	0.329	*
Black	1.187	0.150		1.016	0.180		1.040	0.166	
Hispanic	1.146	0.139		0.937	0.171		0.935	0.164	
(White)									
Female	1.293	0.062	***	1.377	0.083	***	1.364	0.079	***
Educational aspirations (HH)	2.672	0.088	***	3.124	0.095	***	2.995	0.087	***
Parents' education	1.657	0.083	***	1.677	0.102	***	1.676	0.101	***
Mother's expectations	1.218	0.074	**	1.149	0.084	~	1.185	0.078	*
Student's cultural exposure*Counselor	0.923	0.207		0.905	0.249		0.961	0.243	
Student's cultural exposure*Teacher	0.582	0.198	**	0.471	0.238	**	0.478	0.228	**
Student's cultural exposure*Occupational expectations (HH)	1.673	0.263	~	1.887	0.300	*	1.912	0.290	*
Student's cultural exposure*Occupational expectations (LH)	1.111	0.292		1.193	0.394		1.237	0.368	
Student's cultural exposure*Occupational expectations (HL)	0.871	0.244		1.049	0.313		1.047	0.288	
Parent/child attendance of the arts*Parent-school	1.079	0.061		1.133	0.070	~	1.116	0.066	
Low-income*Parent-school	0.996	0.061		0.987	0.077		0.985	0.077	
High-income*Parent-school	1.162	0.053	**	1.159	0.074	*	1.148	0.070	~
Native American*Occupational expectations (HH)	0.881	0.497		0.841	0.543		0.886	0.544	
Native American*Occupational expectations (LH)	0.522	0.610		0.321	0.723		0.348	0.719	
Native American*Occupational expectations (HL)	0.848	0.485		0.840	0.540		0.877	0.533	
Asian*Occupational expectations (HH)	0.861	0.392		0.733	0.471		0.671	0.424	
Asian*Occupational expectations (LH)	0.488	0.412	~	0.415	0.457	~	0.418	0.436	*

Asian*Occupational expectations (HL)	0.785	0.310		0.753	0.384		0.715	0.350	
Black*Occupational expectations (HH)	0.757	0.221		0.665	0.285		0.626	0.268	~
Black*Occupational expectations (LH)	0.419	0.272	**	0.455	0.308	*	0.411	0.294	**
Black*Occupational expectations (HL)	0.895	0.228		0.894	0.257		0.899	0.257	
Hispanic*Occupational expectations (HH)	0.769	0.324		0.823	0.330		0.797	0.337	
Hispanic*Occupational expectations (LH)	0.746	0.267		0.736	0.270		0.711	0.265	
Hispanic*Occupational expectations (HL)	1.162	0.279		1.200	0.325		1.178	0.315	
School fixed effects				Yes					
School district fixed effects							Yes		
Sample N	11,230			9,350			10,810		

Note: Odds ratios are presented with not enrolling in college as a reference group (1=enrolling in any college; 0=not enrolling in any college). Regressions are weighted by ELS sample weights and fitted including the cluster option (state of residence). When school district fixed effects are added in the model, Catholic and other private schools are assumed to belong to one "school district" and used as a reference category.
Sources: Analyses of ELS:02/04; NPSAS:04.
~p<0.1. *p<0.05. **p<0.01. ***p<0.001.

Table 9. Logistic Regression Analysis of Four-Year College Enrollment

	Model 1			Model 2			Model 3		
Variable	Odds ratio	Std. Err.		Odds ratio	Std. Err.		Odds ratio	Std. Err.	
Low-income	0.678	0.119	**	0.632	0.144	**	0.625	0.134	***
(Middle-income)									
High-income	1.346	0.095	**	1.332	0.130	*	1.340	0.120	*
Family resources	0.878	0.087		0.924	0.120		0.942	0.112	
Student's cultural exposure	1.033	0.192		1.099	0.244		1.032	0.227	
Parent/child attendance of the arts	0.911	0.088		0.950	0.124		0.925	0.117	
Physical presence of parents	1.166	0.105		1.269	0.129	~	1.234	0.128	
# of siblings	0.981	0.030		0.994	0.040		0.982	0.037	
# times 10^{th} grader changed schools	0.954	0.027	~	0.944	0.034	~	0.949	0.033	
Parent-student involvement (10^{th})	1.104	0.045	*	1.186	0.057	**	1.147	0.053	*
Parent-student involvement (12^{th}–10^{th})	1.069	0.038	~	1.126	0.051	*	1.084	0.051	
Parent-school involvement	0.928	0.056		0.970	0.067		0.928	0.070	
Parent-parent involvement	1.049	0.044		1.082	0.055		1.064	0.049	
Information sources (parent)	0.942	0.090		0.922	0.115		0.942	0.105	
Information sources (sibling)	1.131	0.092		1.097	0.112		1.109	0.105	
Information sources (other relative)	1.033	0.086		0.979	0.109		1.001	0.101	
Information sources (friend)	0.927	0.086		0.966	0.107		0.974	0.105	
Information sources (counselor)	1.150	0.085		1.137	0.084		1.105	0.081	
Information sources (teacher)	0.977	0.093		1.016	0.116		1.002	0.108	
Information sources (coach)	0.983	0.151		0.933	0.169		0.969	0.160	
Information sources (college reps.)	0.871	0.095		0.872	0.130		0.853	0.122	
Peers' influence on college-going	2.809	0.069	***	2.744	0.094	***	2.718	0.091	***
Occupational expectations (HH)	1.535	0.114	***	1.686	0.121	***	1.687	0.116	***
Occupational expectations (LH)	1.381	0.133	*	1.497	0.147	**	1.514	0.146	**
Occupational expectations (HL)	1.129	0.102		1.238	0.158		1.245	0.141	
(Occupational expectations (LL))									

Student's comfort level at school	1.077	0.042	~	1.079	0.059		1.080	0.055	
(Std test quartile 1 Low)									
Std test quartile 2	1.634	0.133	***	1.841	0.138	***	1.800	0.129	***
Std test quartile 3	2.475	0.098	***	3.085	0.110	***	2.934	0.097	***
Std test quartile 4 High	4.603	0.116	***	6.411	0.133	***	5.876	0.121	***
SAT/ACT participation	3.594	0.234	***	3.839	0.229	***	3.729	0.220	***
Importance of living at home	0.398	0.077	***	0.308	0.106	***	0.317	0.093	***
Importance of academic reputation	1.748	0.133	***	2.002	0.168	***	1.948	0.164	***
Financial aid amount	1.182	0.023	***	1.214	0.034	***	1.205	0.033	***
Native American	1.238	0.262		1.052	0.293		1.191	0.283	
Asian	1.744	0.159	**	1.914	0.173	***	1.929	0.161	***
Black	1.415	0.215		1.350	0.253		1.293	0.227	
Hispanic	0.800	0.248		0.637	0.223	*	0.661	0.192	*
(White)									
Female	0.978	0.078		1.056	0.094		1.009	0.091	
Educational aspirations (HH)	2.123	0.071	***	2.700	0.095	***	2.572	0.083	***
Parents' education	1.575	0.066	***	1.571	0.093	***	1.545	0.086	***
Mother's expectations	1.356	0.074	***	1.388	0.112	**	1.406	0.101	**
Student's cultural exposure*Counselor	0.727	0.162	~	0.698	0.184	~	0.737	0.174	~
Student's cultural exposure*Teacher	0.892	0.158		0.891	0.188		0.885	0.180	
Student's cultural exposure*Occupational expectations (HH)	1.201	0.235		1.125	0.294		1.126	0.279	
Student's cultural exposure*Occupational expectations (LH)	1.190	0.278		1.070	0.339		1.121	0.327	
Student's cultural exposure*Occupational expectations (HL)	1.272	0.231		1.127	0.303		1.164	0.274	
Parent/child attendance of the arts*Parent-school	1.136	0.056	*	1.142	0.063	*	1.180	0.071	*
Low-income*Parent-school	1.001	0.050		0.983	0.069		0.989	0.066	
High-income*Parent-school	1.064	0.048		1.004	0.069		1.009	0.065	
Native American*Occupational expectations (HH)	0.730	0.425		0.678	0.487		0.586	0.479	
Native American*Occupational expectations (LH)	0.588	0.498		0.845	0.603		0.640	0.576	
Native American*Occupational expectations (HL)	1.045	0.451		1.067	0.548		0.875	0.523	
Asian*Occupational expectations (HH)	0.605	0.257	~	0.606	0.293	~	0.576	0.305	~
Asian*Occupational expectations (LH)	1.063	0.213		1.159	0.234		1.025	0.245	

Asian*Occupational expectations (HL)	1.037	0.239		0.955	0.351	0.858	0.295
Black*Occupational expectations (HH)	0.820	0.229		0.670	0.312	0.659	0.293
Black*Occupational expectations (LH)	0.778	0.340		0.661	0.421	0.662	0.422
Black*Occupational expectations (HL)	0.772	0.263		0.647	0.329	0.644	0.304
Hispanic*Occupational expectations (HH)	1.335	0.324		1.526	0.299	1.482	0.276
Hispanic*Occupational expectations (LH)	1.264	0.304		1.183	0.310	1.166	0.343
Hispanic*Occupational expectations (HL)	1.733	0.310	~	1.764	0.358	1.647	0.328
School fixed effects				Yes			
School district fixed effects						Yes	
Sample N	11,230			10,740		11,120	

Note: Odds ratios are presented with not enrolling in a four-year college as a reference group (1=enrolling in a four-year college; 0=not enrolling in a four-year college). Regressions are weighted by ELS sample weights and fitted including the cluster option (state of residence). When school district fixed effects are added in the model, Catholic and other private schools are assumed to belong to one "school district" and used as a reference category.
Sources: Analyses of ELS:02/04; NPSAS:04.
~p<0.1. *p<0.05. **p<0.01. ***p<0.001.

Table 10. Logistic Regression Analysis of Highly-Selective College Enrollment

	Model 1			Model 2			Model 3		
Variable	Odds ratio	Std. Err.		Odds ratio	Std. Err.		Odds ratio	Std. Err.	
Low-income	0.855	0.271		0.625	0.391		0.691	0.413	
(Middle-income)									
High-income	2.341	0.191	***	2.114	0.208	***	2.340	0.196	***
Family resources	0.852	0.124		0.902	0.189		0.934	0.154	
Student's cultural exposure	1.061	0.287		1.141	0.356		1.129	0.292	
Parent/child attendance of the arts	0.866	0.185		0.983	0.223		0.929	0.203	
Physical presence of parents	1.370	0.237		1.599	0.237	~	1.535	0.239	~
# of siblings	0.938	0.063		0.931	0.073		0.924	0.068	
# times 10^{th} grader changed schools	1.063	0.038		1.053	0.041		1.058	0.034	~
Parent-student involvement (10^{th})	1.036	0.112		1.109	0.128		1.101	0.127	
Parent-student involvement (12^{th}–10^{th})	0.948	0.076		1.007	0.102		1.007	0.097	
Parent-school involvement	1.014	0.102		1.074	0.140		1.040	0.121	
Parent-parent involvement	1.026	0.064		1.044	0.082		1.045	0.067	
Information sources (parent)	0.862	0.159		0.912	0.176		0.904	0.170	
Information sources (sibling)	1.043	0.161		0.905	0.203		0.932	0.186	
Information sources (other relative)	0.819	0.138		0.767	0.182		0.794	0.170	
Information sources (friend)	1.189	0.136		1.015	0.181		1.026	0.146	
Information sources (counselor)	1.051	0.135		0.921	0.168		0.881	0.155	
Information sources (teacher)	0.913	0.202		1.027	0.236		1.073	0.224	
Information sources (coach)	1.080	0.135		1.101	0.190		1.176	0.173	
Information sources (college reps.)	1.077	0.193		0.916	0.244		0.924	0.229	
Peers' influence on college-going	2.356	0.125	***	2.453	0.228	***	2.472	0.201	***
Occupational expectations (HH)	1.565	0.190	*	1.884	0.274	*	1.689	0.258	*
Occupational expectations (LH)	1.427	0.250		1.713	0.340		1.496	0.319	
Occupational expectations (HL)	1.069	0.210		1.111	0.284		1.062	0.255	
(Occupational expectations (LL))									

Student's comfort level at school	1.060	0.084		1.013	0.093		1.051	0.085	
(Std test quartile 1 Low)									
Std test quartile 2	2.784	0.509	*	3.813	0.605	*	3.370	0.548	*
Std test quartile 3	3.704	0.461	**	4.767	0.633	*	4.122	0.543	**
Std test quartile 4 High	12.431	0.468	***	16.617	0.615	***	14.240	0.543	***
SAT/ACT participation	0.343	0.607	~	0.380	0.705		0.388	0.671	
Importance of living at home	0.293	0.224	***	0.225	0.290	***	0.233	0.260	***
Importance of academic reputation	2.461	0.374	*	2.224	0.456	~	2.103	0.441	~
Financial aid amount	1.455	0.030	***	1.547	0.037	***	1.526	0.037	***
Native American	1.284	0.642		0.649	1.002		0.996	0.926	
Asian	6.453	0.319	***	4.681	0.386	***	4.127	0.372	***
Black	1.053	0.601		0.979	0.725		0.954	0.715	
Hispanic	1.983	0.406	~	1.576	0.569		1.508	0.506	
(White)									
Female	0.806	0.123	~	0.689	0.119	**	0.739	0.118	*
Educational aspirations (HH)	0.654	0.266		0.721	0.289		0.702	0.270	
Parents' education	1.912	0.141	***	1.696	0.173	**	1.668	0.152	**
Mother's expectations	1.522	0.282		1.568	0.340		1.594	0.315	
Student's cultural exposure*Counselor	0.955	0.229		1.031	0.298		1.100	0.265	
Student's cultural exposure*Teacher	1.521	0.410		1.133	0.536		1.098	0.481	
Student's cultural exposure*Occupational expectations (HH)	0.801	0.263		0.962	0.327		0.897	0.269	
Student's cultural exposure*Occupational expectations (LH)	0.901	0.374		0.942	0.489		0.923	0.434	
Student's cultural exposure*Occupational expectations (HL)	0.894	0.448		1.011	0.596		0.873	0.544	
Parent/child attendance of the arts*Parent-school	1.104	0.077		0.970	0.115		1.022	0.100	
Low-income*Parent-school	0.881	0.147		1.036	0.155		0.983	0.146	
High-income*Parent-school	1.015	0.090		1.021	0.089		0.993	0.087	
Native American*Occupational expectations (HH)	0.872	0.736		1.966	1.075		1.230	1.021	
Native American*Occupational expectations (LH)	4.116	0.945		16.098	1.355	*	7.340	1.309	
Native American*Occupational expectations (HL)	1.289	0.901		2.434	1.338		1.531	1.139	
Asian*Occupational expectations (HH)	0.952	0.249		1.186	0.332		1.274	0.322	
Asian*Occupational expectations (LH)	0.829	0.490		0.732	0.699		0.826	0.640	

Asian*Occupational expectations (HL)	0.735	0.373		0.773	0.546		0.756	0.520	
Black*Occupational expectations (HH)	0.490	0.656		0.430	0.698		0.432	0.719	
Black*Occupational expectations (LH)	0.094	1.116	*	0.047	1.370	*	0.064	1.315	*
Black*Occupational expectations (HL)	0.837	0.803		1.453	0.959		1.291	0.931	
Hispanic*Occupational expectations (HH)	2.065	0.438	~	3.102	0.638	~	2.948	0.552	~
Hispanic*Occupational expectations (LH)	0.869	0.659		0.908	0.786		0.941	0.737	
Hispanic*Occupational expectations (HL)	1.913	0.804		2.371	0.849		2.755	0.852	
School fixed effects				Yes					
School district fixed effects							Yes		
Sample N	11,230			5,530			6,910		

Note: Odds ratios are presented with not enrolling in a highly-selective college as a reference group (1=enrolling in a highly-selective college; 0=not enrolling in a highly-selective college). Regressions are weighted by ELS sample weights and fitted including the cluster option (state of residence). When school district fixed effects are added in the model, Catholic and other private schools are assumed to belong to one "school district" and used as a reference category.
Sources: Analyses of ELS:02/04; NPSAS:04.
~p<0.1. *p<0.05. **p<0.01. ***p<0.001.

Table 11. Multinomial Logistic Regression Analysis of College Choice (no fixed effects)

	Public four-year			Private four-year			Public two-year		
Variable	Odds ratio	Std. Err.		Odds ratio	Std. Err.		Odds ratio	Std. Err.	
Low-income	0.676	0.161	*	0.596	0.174	**	0.924	0.118	
(Middle-income)									
High-income	1.404	0.143	*	1.676	0.137	***	1.105	0.108	
Family resources	0.933	0.080		0.834	0.098	~	1.048	0.078	
Student's cultural exposure	1.169	0.230		1.088	0.285		1.177	0.148	
Parent/child attendance of the arts	0.955	0.131		1.121	0.186		1.144	0.103	
Physical presence of parents	1.236	0.107	*	1.387	0.139	*	1.162	0.081	~
# of siblings	0.888	0.042	**	0.885	0.052	*	0.887	0.032	***
# times 10^{th} grader changed schools	0.908	0.032	**	0.969	0.037		0.957	0.026	~
Parent-student involvement (10^{th})	1.152	0.062	*	1.229	0.080	*	1.086	0.064	
Parent-student involvement (12^{th}–10^{th})	1.148	0.053	**	1.192	0.071	*	1.127	0.053	*
Parent-school involvement	0.890	0.068	~	0.918	0.079		0.962	0.057	
Parent-parent involvement	1.109	0.057	~	1.215	0.068	**	1.118	0.053	*
Information sources (parent)	1.067	0.135		1.080	0.169		1.249	0.123	~
Information sources (sibling)	1.283	0.138	~	1.276	0.122	*	1.160	0.107	
Information sources (other relative)	1.012	0.117		0.846	0.130		0.900	0.117	
Information sources (friend)	0.937	0.140		0.923	0.147		1.027	0.118	
Information sources (counselor)	1.190	0.120		1.161	0.128		1.084	0.104	
Information sources (teacher)	0.995	0.153		0.911	0.162		1.020	0.150	
Information sources (coach)	0.805	0.216		1.289	0.225		0.923	0.153	
Information sources (college reps.)	0.819	0.121	~	0.901	0.143		0.965	0.124	
Peers' influence on college-going	2.611	0.095	***	3.518	0.103	***	1.000	0.087	
Occupational expectations (HH)	1.722	0.156	**	1.743	0.213	**	1.208	0.134	
Occupational expectations (LH)	1.801	0.160	***	2.134	0.193	***	1.450	0.165	*
Occupational expectations (HL)	1.245	0.163		1.202	0.221		1.105	0.159	
(Occupational expectations (LL))									

Student's comfort level at school	1.047	0.050		1.216	0.068	**	0.994	0.043	
(Std test quartile 1 Low)									
Std test quartile 2	2.112	0.150	***	1.798	0.261	*	1.439	0.082	***
Std test quartile 3	3.559	0.127	***	2.655	0.183	***	1.597	0.096	***
Std test quartile 4 High	5.870	0.159	***	5.443	0.214	***	1.460	0.148	*
SAT/ACT participation	6.109	0.261	***	2.516	0.345	**	1.639	0.165	**
Importance of living at home	0.496	0.090	***	0.302	0.119	***	1.166	0.084	~
Importance of academic reputation	2.493	0.172	***	2.494	0.197	***	1.772	0.120	***
Financial aid amount	1.096	0.039	*	1.307	0.035	***	0.961	0.033	
Native American	0.929	0.311		0.906	0.405		0.606	0.255	~
Asian	3.155	0.253	***	2.447	0.338	**	2.112	0.314	*
Black	1.612	0.220	*	1.415	0.286		1.131	0.177	
Hispanic	0.835	0.221		0.931	0.296		1.075	0.155	
(White)									
Female	1.202	0.088	*	1.184	0.100	~	1.323	0.060	***
Educational aspirations (HH)	3.646	0.095	***	3.174	0.134	***	2.113	0.097	***
Parents' education	1.926	0.096	***	2.243	0.107	***	1.422	0.082	***
Mother's expectations	1.480	0.105	***	1.476	0.123	**	1.141	0.078	~
Student's cultural exposure*Counselor	0.819	0.217		0.815	0.251		1.105	0.212	
Student's cultural exposure*Teacher	0.574	0.218	*	0.650	0.242	~	0.563	0.269	*
Student's cultural exposure*Occupational expectations (HH)	1.704	0.335		1.946	0.393	~	1.569	0.259	~
Student's cultural exposure*Occupational expectations (LH)	1.229	0.336		1.109	0.361		1.014	0.309	
Student's cultural exposure*Occupational expectations (HL)	0.978	0.280		1.142	0.333		0.746	0.279	
Parent/child attendance of the arts*Parent-school	1.188	0.069	*	1.164	0.080	~	1.047	0.062	
Low-income*Parent-school	1.007	0.074		0.991	0.090		1.010	0.059	
High-income*Parent-school	1.172	0.069	*	1.202	0.070	**	1.131	0.057	*
Native American*Occupational expectations (HH)	0.564	0.568		0.882	0.725		0.983	0.530	
Native American*Occupational expectations (LH)	0.520	0.645		0.556	1.048		0.732	0.706	
Native American*Occupational expectations (HL)	0.770	0.549		1.590	0.801		0.992	0.436	
Asian*Occupational expectations (HH)	0.644	0.398		0.877	0.492		1.029	0.495	
Asian*Occupational expectations (LH)	0.531	0.435		0.708	0.515		0.422	0.428	*

Asian*Occupational expectations (HL)	0.907	0.394		0.810	0.486		0.792	0.357	
Black*Occupational expectations (HH)	0.734	0.274		0.636	0.399		0.819	0.255	
Black*Occupational expectations (LH)	0.502	0.335	*	0.247	0.420	**	0.403	0.325	**
Black*Occupational expectations (HL)	0.860	0.287		0.542	0.411		0.996	0.312	
Hispanic*Occupational expectations (HH)	1.142	0.435		1.216	0.471		0.861	0.314	
Hispanic*Occupational expectations (LH)	1.176	0.409		0.736	0.423		0.862	0.312	
Hispanic*Occupational expectations (HL)	1.907	0.278	*	1.677	0.446		1.149	0.261	
Sample N	11,230								

Note: Odds ratios are presented with not enrolling in college as a reference group (1=non-enrollment; 2=enrolling in public four-year institutions; 3=enrolling in private four-year institutions; 4=enrolling in public two-year institutions). Regression is weighted by ELS sample weights and fitted including the cluster option (state of residence).
Sources: Analyses of ELS:02/04; NPSAS:04.
~$p<0.1$. *$p<0.05$. **$p<0.01$. ***$p<0.001$.

Table 12. Multinomial Logistic Regression Analysis of College Choice (school district fixed effects)

	Public four-year			Private four-year			Public two-year		
Variable	Odds ratio	Std. Err.		Odds ratio	Std. Err.		Odds ratio	Std. Err.	
Low-income	0.657	0.188	*	0.555	0.215	**	0.984	0.148	
(Middle-income)									
High-income	1.240	0.169		1.476	0.170	*	0.938	0.131	
Family resources	0.988	0.116		0.864	0.126		1.015	0.085	
Student's cultural exposure	1.109	0.288		1.024	0.334		1.100	0.182	
Parent/child attendance of the arts	0.974	0.169		1.174	0.204		1.171	0.123	
Physical presence of parents	1.266	0.128	~	1.443	0.156	*	1.115	0.086	
# of siblings	0.887	0.054	*	0.885	0.063	~	0.890	0.039	**
# times 10^{th} grader changed schools	0.888	0.041	**	0.999	0.044		0.948	0.029	~
Parent-student involvement (10^{th})	1.208	0.070	**	1.327	0.090	**	1.115	0.074	
Parent-student involvement (12^{th}–10^{th})	1.205	0.071	**	1.229	0.092	*	1.181	0.068	*
Parent-school involvement	0.865	0.085	~	0.870	0.094		0.920	0.069	
Parent-parent involvement	1.144	0.070	~	1.264	0.085	**	1.156	0.060	*
Information sources (parent)	1.082	0.164		1.071	0.194		1.330	0.148	~
Information sources (sibling)	1.255	0.165		1.177	0.160		1.108	0.119	
Information sources (other relative)	1.005	0.134		0.800	0.156		0.887	0.137	
Information sources (friend)	0.974	0.154		0.950	0.166		1.015	0.140	
Information sources (counselor)	1.079	0.129		1.017	0.144		0.984	0.128	
Information sources (teacher)	1.053	0.164		1.027	0.180		1.116	0.172	
Information sources (coach)	0.796	0.240		1.311	0.238		0.906	0.186	
Information sources (college reps.)	0.855	0.160		0.914	0.178		1.033	0.143	
Peers' influence on college-going	2.646	0.130	***	3.305	0.132	***	1.043	0.104	
Occupational expectations (HH)	1.997	0.168	***	1.993	0.231	**	1.252	0.169	
Occupational expectations (LH)	1.924	0.170	***	2.148	0.221	**	1.412	0.196	~
Occupational expectations (HL)	1.321	0.205		1.326	0.261		1.075	0.199	
(Occupational expectations (LL))									

Student's comfort level at school	1.054	0.063		1.220	0.076	**	1.001	0.051	
(Std test quartile 1 Low)									
Std test quartile 2	2.460	0.165	***	2.145	0.237	**	1.600	0.085	***
Std test quartile 3	4.331	0.143	***	3.291	0.169	***	1.715	0.098	***
Std test quartile 4 High	7.541	0.183	***	7.141	0.204	***	1.517	0.173	*
SAT/ACT participation	8.070	0.262	***	2.324	0.347	*	2.058	0.187	***
Importance of living at home	0.398	0.103	***	0.255	0.138	***	1.210	0.101	~
Importance of academic reputation	2.907	0.213	***	2.529	0.221	***	1.850	0.137	***
Financial aid amount	1.096	0.052	~	1.358	0.045	***	0.951	0.041	
Native American	0.766	0.371		0.840	0.434		0.524	0.335	~
Asian	3.105	0.312	***	2.722	0.342	**	1.863	0.352	~
Black	1.391	0.266		1.173	0.336		1.018	0.182	
Hispanic	0.600	0.216	*	0.763	0.371		0.923	0.160	
(White)									
Female	1.282	0.114	*	1.275	0.127	~	1.386	0.076	***
Educational aspirations (HH)	4.647	0.113	***	4.047	0.130	***	2.271	0.098	***
Parents' education	1.971	0.120	***	2.111	0.127	***	1.452	0.102	***
Mother's expectations	1.468	0.121	**	1.496	0.150	**	1.081	0.087	
Student's cultural exposure*Counselor	0.873	0.249		0.853	0.281		1.197	0.248	
Student's cultural exposure*Teacher	0.493	0.242	**	0.610	0.274	~	0.459	0.285	**
Student's cultural exposure*Occupational expectations (HH)	1.660	0.392		1.991	0.459		1.744	0.283	~
Student's cultural exposure*Occupational expectations (LH)	1.334	0.415		1.312	0.460		1.199	0.375	
Student's cultural exposure*Occupational expectations (HL)	1.055	0.350		1.220	0.414		0.940	0.348	
Parent/child attendance of the arts*Parent-school	1.253	0.079	**	1.274	0.090	*	1.079	0.069	
Low-income*Parent-school	0.990	0.099		1.009	0.116		1.002	0.072	
High-income*Parent-school	1.124	0.096		1.142	0.103		1.141	0.071	~
Native American*Occupational expectations (HH)	0.538	0.684		0.719	0.813		1.100	0.620	
Native American*Occupational expectations (LH)	0.435	0.672		0.471	1.100		0.497	0.837	
Native American*Occupational expectations (HL)	0.733	0.638		1.156	0.873		1.032	0.544	
Asian*Occupational expectations (HH)	0.508	0.422		0.722	0.520		0.831	0.566	
Asian*Occupational expectations (LH)	0.422	0.478	~	0.663	0.536		0.358	0.464	*

Asian*Occupational expectations (HL)	0.720	0.441		0.736	0.559		0.777	0.367	
Black*Occupational expectations (HH)	0.501	0.343	*	0.473	0.491		0.693	0.308	
Black*Occupational expectations (LH)	0.449	0.424	~	0.207	0.516	**	0.425	0.364	*
Black*Occupational expectations (HL)	0.766	0.341		0.484	0.462		1.052	0.349	
Hispanic*Occupational expectations (HH)	1.217	0.443		1.489	0.525		0.906	0.336	
Hispanic*Occupational expectations (LH)	1.184	0.460		0.726	0.430		0.865	0.322	
Hispanic*Occupational expectations (HL)	1.793	0.305	~	1.642	0.492		1.116	0.290	
Sample N	11,230								

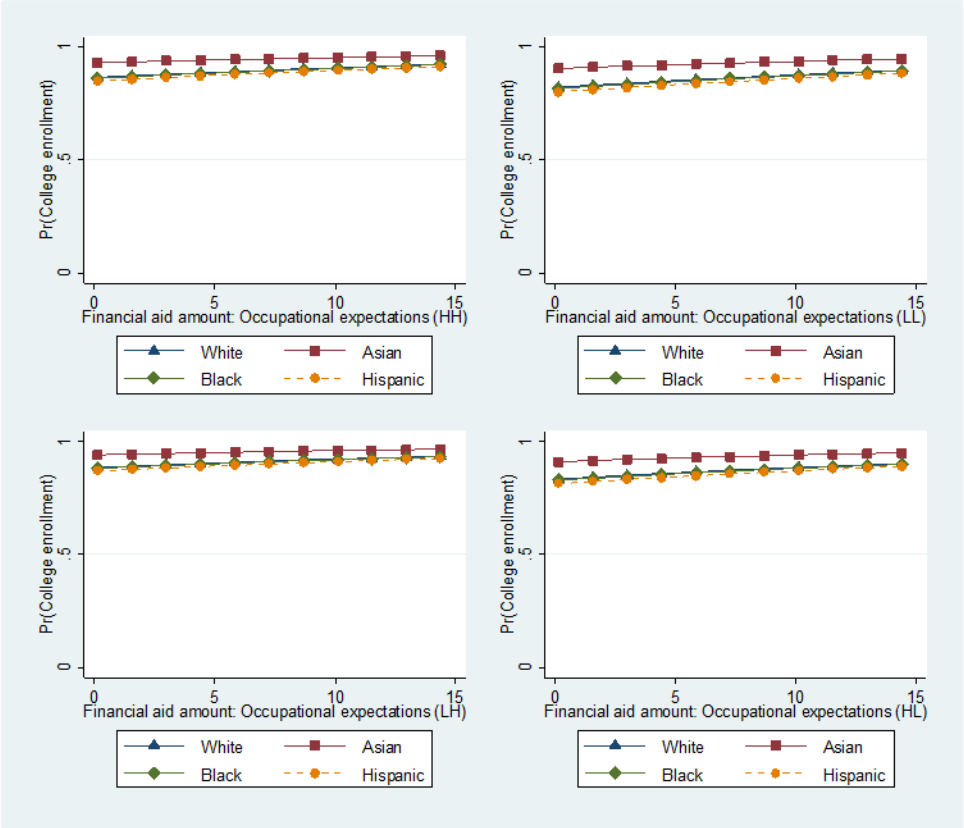
Note: Odds ratios are presented with not enrolling in college as a reference group (1=non-enrollment; 2=enrolling in public four-year institutions; 3=enrolling in private four-year institutions; 4=enrolling in public two-year institutions). Regression is weighted by ELS sample weights and fitted including the cluster option (state of residence). When school district fixed effects are added in the model, Catholic and other private schools are assumed to belong to one "school district" and used as a reference category.
Sources: Analyses of ELS:02/04; NPSAS:04.
~p<0.1. *p<0.05. **p<0.01. ***p<0.001.

Table 13. Ordinary Least Squares Estimation of School-Level Variables

	Enrolled in any college			Four-year			Highly-selective		
Variable	Coef.	Std. Err.		Coef.	Std. Err.		Coef.	Std. Err.	
Teachers press students to achieve	0.073	0.109		0.077	0.132		0.038	0.180	
Counselors encourage students to enroll in academic classes	-0.034	0.091		-0.111	0.107		-0.079	0.185	
% of 12th graders attend college application programs	-0.067	0.125		0.049	0.135		-0.115	0.198	
% of 12th graders attend programs on financial aid	0.125	0.114		0.260	0.142	~	-0.235	0.186	
% of 12th graders attend school SAT/ACT courses	0.123	0.122		0.084	0.127		0.131	0.183	
% of 12th graders attend college fairs	-0.031	0.109		0.065	0.120		-0.122	0.173	
% of 12th graders attend meetings with college reps.	0.195	0.099	~	-0.137	0.129		0.211	0.213	
% of 2003 graduates went to four-year colleges	0.116	0.103		0.420	0.119	***	-0.208	0.186	
% of student body in AP courses	0.002	0.004		-0.010	0.004	*	0.010	0.005	~
Average SAT score	-0.001	0.001	~	-0.001	0.001		0.000	0.001	
Catholic or other private	0.229	0.160		-0.103	0.159		-0.191	0.204	
School size	0.126	0.140		-0.027	0.120		-0.202	0.172	
% minority	0.196	0.099	*	0.021	0.114		0.220	0.175	
% 10th graders receive free/reduced-price lunch	0.023	0.103		-0.151	0.121		0.237	0.191	
(Northeast)									
Midwest	0.162	0.124		-0.285	0.142	*	0.135	0.203	
South	-0.178	0.122		-0.256	0.139	~	-0.154	0.204	
West	0.208	0.136		-0.412	0.159	*	0.190	0.235	
(Suburban)									
Urban	-0.158	0.099		0.549	0.111	***	-0.049	0.153	
Rural	0.072	0.110		-0.123	0.131		-0.190	0.203	
Sample N	620			710			320		

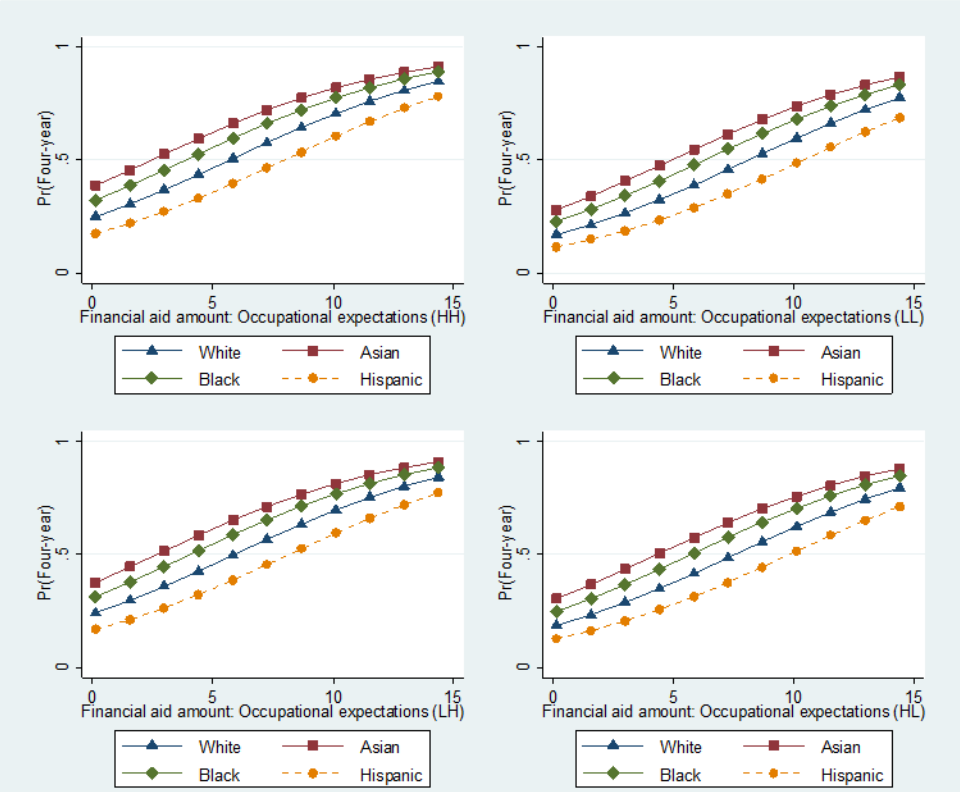
Sources: Analyses of ELS:02/04
~p<0.1. *p<0.05. **p<0.01. ***p<0.001.

Figure 2. Predicted probabilities that each racial group will enroll in colleges in four categories of changes of occupational expectations (HH; LL; LH; HL)



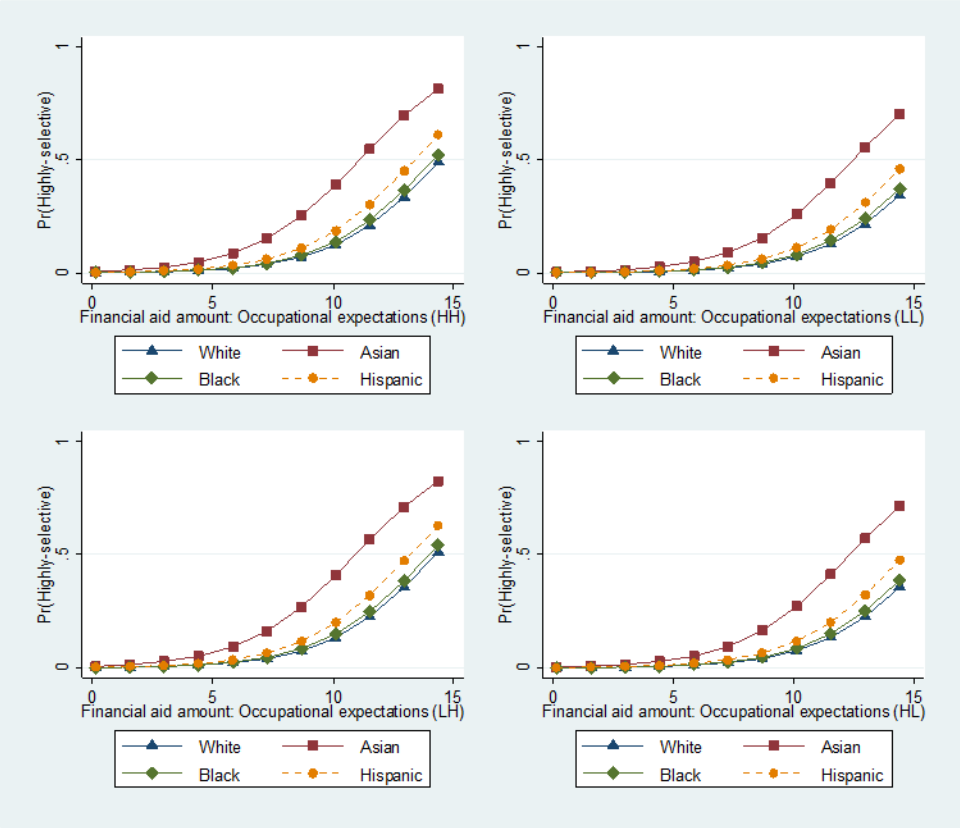
Note: All other regressors hold constant at their respective means.

Figure 3. Predicted probabilities that each racial group will enroll in four-year colleges in four categories of changes of occupational expectations (HH; LL; LH; HL)



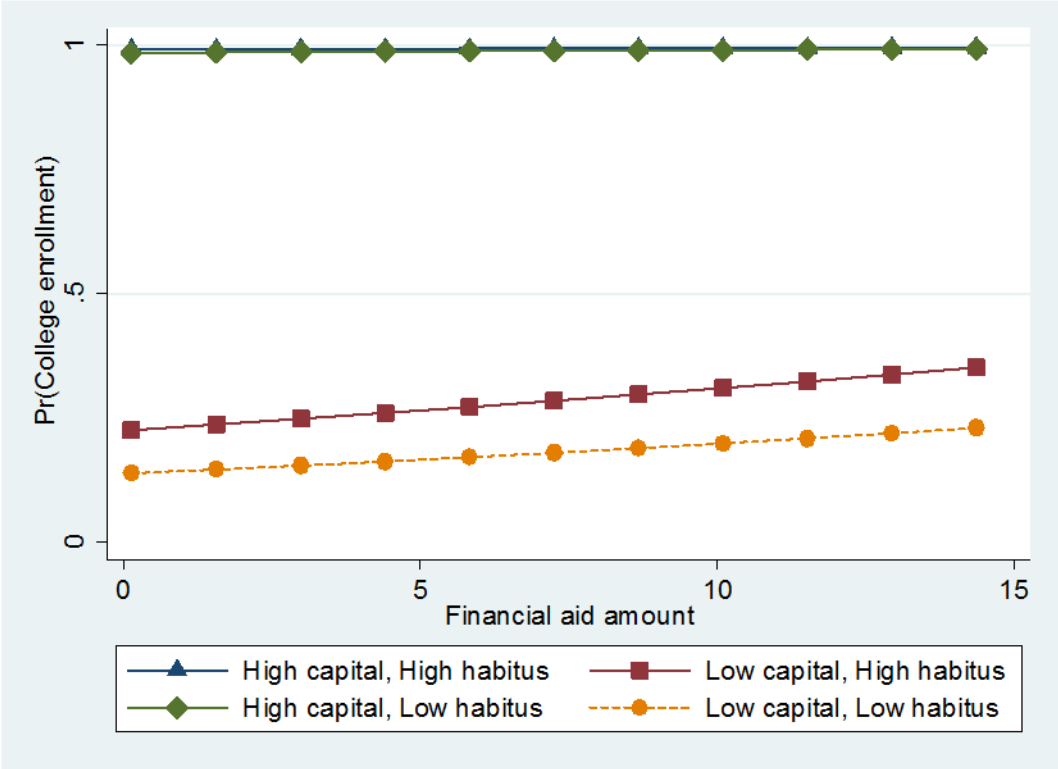
Note: All other regressors hold constant at their respective means.

Figure 4. Predicted probabilities that each racial group will enroll in highly-selective colleges in four categories of changes of occupational expectations (HH; LL; LH; HL)



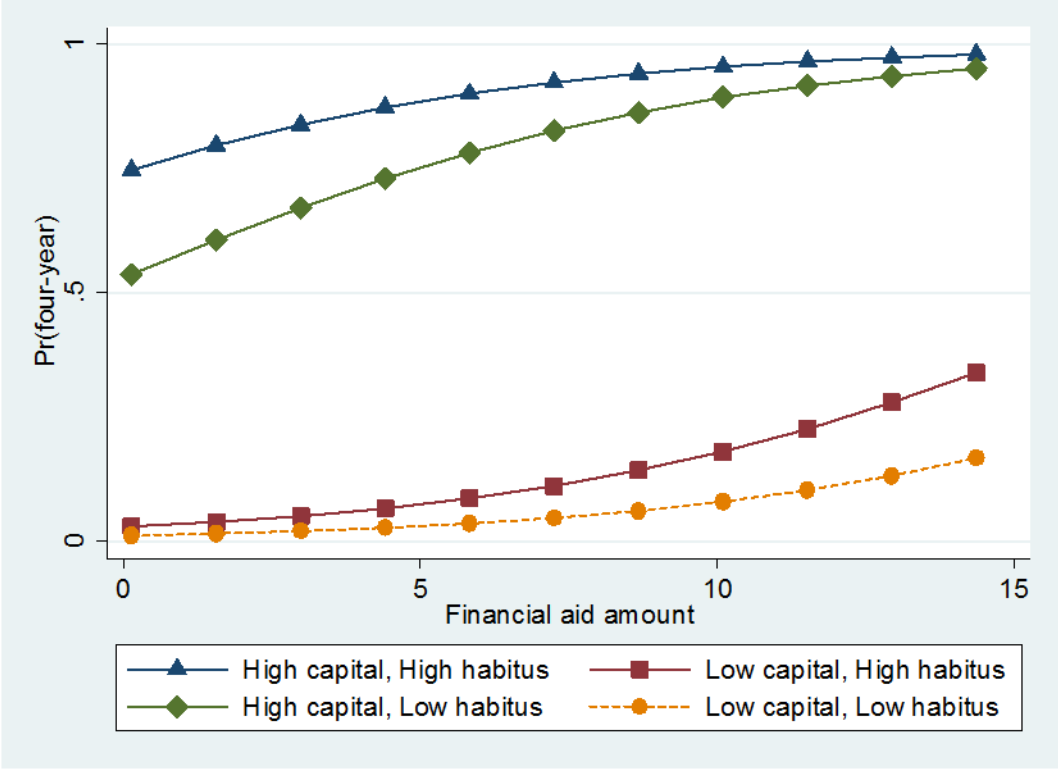
Note: All other regressors hold constant at their respective means.

Figure 5. Predicted probabilities of college enrollment by level of capital and habitus



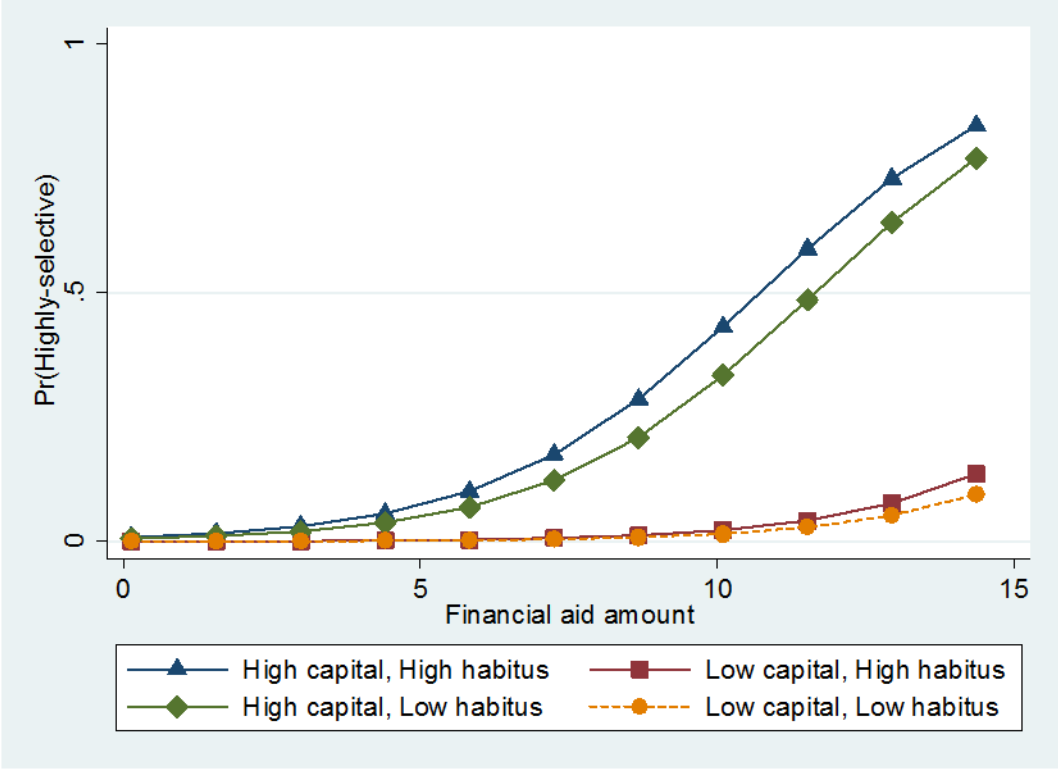
Note: "High capital" refers to students who have the highest value in all measures of economic, cultural, and social capital, and "low capital" refers to students who have the lowest value in all forms of capital. "High habitus" refers to students who continuously have higher occupational expectations in both 10th and 12th grade, while "low habitus" refers to students who continuously have lower occupational expectations in both 10th and 12th grade.

Figure 6. Predicted probabilities of four-year college enrollment by level of capital and habitus



Note: "High capital" refers to students who have the highest value in all measures of economic, cultural, and social capital, and "low capital" refers to students who have the lowest value in all forms of capital. "High habitus" refers to students who continuously have higher occupational expectations in both 10th and 12th grade, while "low habitus" refers to students who continuously have lower occupational expectations in both 10th and 12th grade.

Figure 7. Predicted probabilities of highly-selective college enrollment by level of capital and habitus



Note: "High capital" refers to students who have the highest value in all measures of economic, cultural, and social capital, and "low capital" refers to students who have the lowest value in all forms of capital. "High habitus" refers to students who continuously have higher occupational expectations in both 10th and 12th grade, while "low habitus" refers to students who continuously have lower occupational expectations in both 10th and 12th grade.

APPENDICES

Table A 1. The procedure to comprise the effective sample

Procedure	Number of observations
Initial ELS sample	16,200
1. Restrict to students who earned a high school diploma or GED	1,570 observations deleted
2. Exclude students for whom there is no information about college enrollment	1,370 observations deleted
3. Exclude students who enrolled in colleges that are not the focus of the study (e.g., private for-profit institutions)	580 observations deleted
4. Exclude students identified as "survey component legitimate skip" in BY and F1 (e.g., 2004 early graduates)	880 observations deleted
Effective sample used in the study	11,800

Table A 2. Probability of Financial Aid Receipt

Variable	Odds Ratio	Std. Err.	P>z
Low-income	4.230	0.887	***
(Middle-income)			
High-income	0.359	0.085	***
Parents' education	0.903	0.055	~
Black	1.719	0.198	***
Hispanic	0.771	0.079	*
Asian	0.637	0.075	***
Native American	0.832	0.101	
(White)			
Female	1.275	0.071	***
SAT/ACT participation	2.726	0.318	***
Took AP course(s)	2.010	0.238	***
Importance of academic reputation	1.677	0.095	***
Importance of low expenses	0.850	0.080	~
Parent's marital status (1=married)	1.030	0.113	
English is the primary language	1.107	0.120	
Low-income*SAT/ACT participation	0.851	0.157	
High-income*SAT/ACT participation	1.234	0.243	
Low-income*Took AP course(s)	0.693	0.158	
High-income*Took AP course(s)	0.687	0.102	*
Low-income*Importance of low expenses	0.741	0.123	~
High-income*Importance of low expenses	1.066	0.132	
Low-income*Parent's marital status	0.617	0.108	**
High-income*Parent's marital status	1.579	0.261	**
Number of Observations	14,920		
Log pseudolikelihood	-8644.24		
Wald chi-square (22)	591.42		
Prob > chi-square	0.000		
Pseudo R-square	0.091		

Note: Odds ratios are presented with not receiving financial aid as a reference group (1=receiving financial aid; 0=not receiving financial aid). Regression is weighted by NPSAS sample weights.
Sources: Analyses of NPSAS:04.
~p<0.1. *p<0.05. **p<0.01. ***p<0.001.

Table A 3. Ordinary Least Squares Estimation of Financial Aid Amount Given Aid Receipt

Variable	Coeff.	Std. Err.	P>t
Low-income	-0.779	0.513	
(Middle-income)			
High-income	-0.415	0.873	
Parents' education	0.288	0.198	
Black	0.448	0.269	~
Hispanic	-0.289	0.315	
Asian	0.342	0.415	
Native American	0.504	0.439	
(White)			
Female	0.021	0.178	
SAT/ACT participation	4.133	0.316	***
Took AP course(s)	1.151	0.370	**
Importance of academic reputation	3.098	0.178	***
Importance of low expenses	-4.788	0.333	***
Parent's marital status (1=married)	-0.972	0.334	**
English is the primary language	-0.184	0.327	
Low-income*SAT/ACT participation	-0.215	0.416	
High-income*SAT/ACT participation	-1.438	0.724	*
Low-income*Took AP course(s)	0.144	0.559	
High-income*Took AP course(s)	-0.479	0.524	
Low-income*Importance of low expenses	2.024	0.445	***
High-income*Importance of low expenses	1.601	0.486	**
Low-income*Parent's marital status	-0.044	0.442	
High-income*Parent's marital status	0.654	0.604	
Number of Observations	11,410		
F(20, 11380)	53.18		
Prob > F	0.000		
R-squared	0.119		

Note: Regression is weighted by NPSAS sample weights.
Sources: Analyses of NPSAS:04.
~p<0.1. *p<0.05. **p<0.01. ***p<0.001.

Table A 4. Descriptive Statistics for Individual-Level Variables Before Multiple Imputation of Missing Values

	All students	Occupational expectations (HH)	Occupational expectations (LH)	Occupational expectations (HL)	Occupational expectations (LL)
Variable	%/Means	%/Means	%/Means	%/Means	%/Means
Low-income	29.2%	24.3%	25.6%	27.9%	30.2%
Middle-income	39.5%	39.3%	42.0%	40.2%	40.4%
High-income	31.3%	36.4%	32.4%	31.9%	29.5%
Family resources	58.1%	68.2%	63.0%	65.4%	58.9%
Student's cultural exposure	20.2%	26.8%	23.6%	23.9%	17.8%
Parent/child attendance of the arts	70.8%	74.9%	71.1%	72.4%	68.6%
Physical presence of parents	63.4%	67.2%	66.9%	63.6%	62.8%
# of siblings	2.20	2.09	2.13	2.17	2.25
# times 10^{th} grader changed schools	1.16	1.13	1.13	1.14	1.10
Parent-student involvement (10^{th})	0.02	0.25	0.02	0.08	-0.21
Parent-student involvement (12^{th}–10^{th})	-0.02	-0.06	0.04	-0.03	0.02
Parent-school involvement	1.34	1.56	1.41	1.44	1.30
Parent-parent involvement	0.00	0.05	0.07	0.00	-0.04
Information sources (parent)	54.2%	64.3%	54.6%	58.7%	46.5%
Information sources (sibling)	25.4%	27.5%	26.1%	28.4%	23.3%
Information sources (other relative)	25.5%	31.4%	24.1%	28.2%	20.9%
Information sources (friend)	39.2%	45.9%	37.8%	43.3%	34.6%
Information sources (counselor)	42.5%	49.7%	42.5%	47.4%	35.7%
Information sources (teacher)	30.0%	36.1%	29.7%	31.0%	25.7%
Information sources (coach)	9.1%	9.7%	9.7%	10.3%	7.9%
Information sources (college reps.)	14.6%	18.9%	14.0%	15.4%	11.9%
Peers' influence on college-going	61.1%	70.9%	66.2%	62.2%	52.2%
Occupational expectations (HH)	23.0%	-	-	-	-
Occupational expectations (LH)	12.5%	-	-	-	-

Occupational expectations (HL)	17.1%	-	-	-	-
Occupational expectations (LL)	29.0%	-	-	-	-
Student's comfort level at school	0.00	0.15	0.01	0.02	-0.11
Std test quartile 1 Low	17.4%	8.4%	12.8%	13.1%	23.4%
Std test quartile 2	22.5%	18.9%	18.5%	24.2%	23.6%
Std test quartile 3	28.3%	30.2%	29.1%	30.3%	25.5%
Std test quartile 4 High	31.9%	42.4%	39.6%	32.4%	27.6%
SAT/ACT participation	87.3%	95.5%	92.1%	90.4%	79.2%
Importance of living at home	43.2%	35.2%	39.5%	44.3%	46.8%
Importance of academic reputation	87.5%	94.3%	91.2%	88.4%	80.2%
Financial aid amount	6.79	7.41	7.00	6.95	6.13
Native American	5.2%	5.0%	4.9%	5.4%	5.1%
Asian	9.5%	10.4%	9.9%	9.2%	9.9%
Black	11.6%	13.6%	10.0%	12.0%	8.8%
Hispanic	12.2%	10.6%	11.7%	11.4%	13.3%
White	58.1%	60.4%	63.4%	62.1%	63.0%
Female	52.4%	61.5%	55.4%	58.7%	43.4%
Educational aspirations (HH)	61.9%	86.5%	73.3%	70.9%	52.0%
Parents' education	45.2%	51.1%	48.7%	45.0%	42.1%
Mother's expectations	76.5%	86.2%	81.6%	76.7%	68.2%
Sample N	11,800	2,710	1,480	2,020	3,430

Table A 5. Percent of Missing Values

Variable	% Missing
Parent/child attendance of the arts	18.6
Physical presence of parents	3.4
# of siblings	18.5
# times 10th grader changed schools	18.3
Parent-student involvement (10th)	22.0
Parent-student involvement (12th)	7.9
Parent-parent involvement	21.8
Information sources	11.1
Peers' influence on college-going	6.4
Occupational expectations (10th)	12.9
Occupational expectations (12th)	6.6
Student's comfort level at school	12.2
SAT/ACT participation	6.0
Importance of living at home	6.3
Importance of academic reputation	6.6
Female	3.4
Educational aspirations (10th)	3.4
Educational aspirations (12th)	4.9
Parents' education	3.4
Mother's expectations	7.6

Table A 6. Logistic Regression Analysis of (Any) College Enrollment

	Model 1			Model 2			Model 3		
Variable	Odds ratio	Std. Err.		Odds ratio	Std. Err.		Odds ratio	Std. Err.	
Low-income	0.694	0.210	~	0.583	0.339		0.635	0.339	
(Middle-income)									
High-income	0.924	0.184		0.908	0.266		0.931	0.239	
Family resources	1.007	0.110		0.937	0.159		0.979	0.147	
Student's cultural exposure	1.472	0.239		1.876	0.368	~	1.658	0.351	
Parent/child attendance of the arts	1.200	0.128		1.167	0.167		1.182	0.154	
Physical presence of parents	1.170	0.091	~	1.116	0.149		1.165	0.136	
# of siblings	0.897	0.049	*	0.906	0.072		0.916	0.070	
# times 10^{th} grader changed schools	0.953	0.032		0.944	0.047		0.949	0.045	
Parent-student involvement (10^{th})	1.217	0.075	**	1.322	0.116	*	1.299	0.110	*
Parent-student involvement (12^{th}–10^{th})	1.115	0.058	~	1.233	0.101	*	1.161	0.093	
Parent-school involvement	0.953	0.079		0.998	0.124		1.038	0.114	
Parent-parent involvement	1.069	0.060		1.107	0.087		1.102	0.077	
Information sources (parent)	1.200	0.125		1.284	0.163		1.218	0.151	
Information sources (sibling)	1.087	0.152		1.062	0.230		1.056	0.228	
Information sources (other relative)	0.933	0.145		0.644	0.206	*	0.729	0.193	
Information sources (friend)	1.260	0.171		1.351	0.247		1.320	0.231	
Information sources (counselor)	1.279	0.138	~	1.346	0.189		1.336	0.172	~
Information sources (teacher)	1.088	0.136		1.311	0.166		1.188	0.168	
Information sources (coach)	0.825	0.254		0.841	0.361		0.823	0.355	
Information sources (college reps.)	0.741	0.140	*	0.650	0.176	*	0.659	0.158	**
Peers' influence on college-going	1.342	0.119	*	1.499	0.176	*	1.469	0.166	*
Occupational expectations (HH)	1.099	0.174		1.246	0.237		1.337	0.225	
Occupational expectations (LH)	1.938	0.186	***	2.444	0.346	*	2.360	0.324	**
Occupational expectations (HL)	1.292	0.188		1.330	0.279		1.326	0.261	
(Occupational expectations (LL))									

Student's comfort level at school	0.991	0.061		0.972	0.086		0.968	0.086	
(Std test quartile 1 Low)									
Std test quartile 2	1.241	0.117	~	1.490	0.181	*	1.429	0.165	*
Std test quartile 3	2.234	0.149	***	3.134	0.197	***	2.924	0.192	***
Std test quartile 4 High	2.376	0.179	***	3.362	0.235	***	3.087	0.215	***
SAT/ACT participation	1.984	0.210	**	2.451	0.311	**	2.318	0.301	**
Importance of living at home	0.667	0.136	**	0.636	0.172	**	0.639	0.162	**
Importance of academic reputation	2.587	0.207	***	2.828	0.290	***	2.781	0.273	***
Financial aid amount	0.994	0.045		1.010	0.060		1.014	0.056	
Native American	0.623	0.280	~	0.500	0.425		0.514	0.406	
Asian	1.902	0.410		2.505	0.533	~	3.006	0.515	*
Black	1.111	0.244		0.647	0.363		0.819	0.316	
Hispanic	1.483	0.235	~	0.933	0.300		1.067	0.248	
(White)									
Female	1.331	0.132	*	1.814	0.192	**	1.747	0.184	**
Educational aspirations (HH)	3.057	0.170	***	4.489	0.213	***	4.102	0.194	***
Parents' education	2.047	0.115	***	2.208	0.157	***	2.159	0.133	***
Mother's expectations	1.238	0.107	*	1.238	0.172		1.261	0.154	
Student's cultural exposure*Counselor	0.791	0.305		0.574	0.395		0.654	0.382	
Student's cultural exposure*Teacher	0.502	0.292	*	0.369	0.372	**	0.392	0.339	**
Student's cultural exposure*Occupational expectations (HH)	1.317	0.323		1.204	0.472		1.248	0.447	
Student's cultural exposure*Occupational expectations (LH)	0.715	0.356		0.670	0.542		0.822	0.512	
Student's cultural exposure*Occupational expectations (HL)	0.738	0.373		0.718	0.522		0.808	0.492	
Parent/child attendance of the arts*Parent-school	1.036	0.083		1.029	0.108		0.971	0.094	
Low-income*Parent-school	1.119	0.089		1.147	0.148		1.129	0.147	
High-income*Parent-school	1.251	0.087	*	1.216	0.142		1.184	0.134	
Native American*Occupational expectations (HH)	1.383	0.667		2.248	1.022		2.103	0.922	
Native American*Occupational expectations (LH)	0.194	0.559	**	0.055	0.648	***	0.064	0.664	***
Native American*Occupational expectations (HL)	2.238	0.537		2.289	0.803		2.271	0.777	
Asian*Occupational expectations (HH)	3.200	0.728		2.759	0.663		1.402	0.743	
Asian*Occupational expectations (LH)	0.493	0.682		0.316	0.864		0.255	0.793	~

Asian*Occupational expectations (HL)	1.005	0.579		1.114	0.933		0.843	0.879	
Black*Occupational expectations (HH)	1.076	0.331		1.025	0.387		0.867	0.444	
Black*Occupational expectations (LH)	0.350	0.446	*	0.421	0.713		0.369	0.629	
Black*Occupational expectations (HL)	0.752	0.377		0.612	0.526		0.627	0.451	
Hispanic*Occupational expectations (HH)	0.830	0.313		0.976	0.416		0.971	0.390	
Hispanic*Occupational expectations (LH)	0.358	0.332	**	0.155	0.465	***	0.207	0.435	***
Hispanic*Occupational expectations (HL)	0.708	0.327		0.945	0.462		0.915	0.414	
School fixed effects				Yes					
School district fixed effects							Yes		
Sample N	5,630			3,650			4,740		

Note: This result is produced using the listwise deletion method as a way of dealing with missing data, and may be comparable with the result presented in Table 8 which is based on multiply imputed data. Odds ratios are presented with not enrolling in college as a reference group (1=enrolling in any college; 0=not enrolling in any college). Regressions are weighted by ELS sample weights and fitted including the cluster option (state of residence). When school district fixed effects are added in the model, Catholic and other private schools are assumed to belong to one "school district" and used as a reference category.

Sources: Analyses of ELS:02/04; NPSAS:04.

~p<0.1. *p<0.05. **p<0.01. ***p<0.001.

Table A 7. Logistic Regression Analysis of Four-Year College Enrollment

	Model 1			Model 2			Model 3		
Variable	Odds ratio	Std. Err.		Odds ratio	Std. Err.		Odds ratio	Std. Err.	
Low-income	0.485	0.203	***	0.421	0.234	***	0.405	0.228	***
(Middle-income)									
High-income	1.250	0.132	~	1.492	0.232	~	1.424	0.215	
Family resources	0.876	0.130		0.997	0.183		1.007	0.173	
Student's cultural exposure	1.034	0.243		1.032	0.339		0.962	0.304	
Parent/child attendance of the arts	0.893	0.158		0.946	0.212		0.886	0.204	
Physical presence of parents	1.289	0.135	~	1.310	0.201		1.263	0.201	
# of siblings	1.002	0.040		1.012	0.071		0.995	0.062	
# times 10^{th} grader changed schools	1.015	0.034		0.972	0.045		0.975	0.040	
Parent-student involvement (10^{th})	1.169	0.053	**	1.347	0.094	**	1.300	0.080	**
Parent-student involvement (12^{th}–10^{th})	1.087	0.054		1.104	0.090		1.085	0.086	
Parent-school involvement	0.965	0.069		1.080	0.101		1.033	0.090	
Parent-parent involvement	1.072	0.055		1.135	0.084		1.093	0.076	
Information sources (parent)	0.839	0.117		0.776	0.221		0.763	0.201	
Information sources (sibling)	1.161	0.119		1.079	0.192		1.101	0.173	
Information sources (other relative)	1.140	0.109		1.141	0.131		1.096	0.116	
Information sources (friend)	1.041	0.123		1.121	0.220		1.163	0.191	
Information sources (counselor)	1.246	0.143		1.142	0.173		1.129	0.165	
Information sources (teacher)	0.871	0.116		0.852	0.181		0.863	0.175	
Information sources (coach)	1.258	0.171		1.275	0.243		1.367	0.225	
Information sources (college reps.)	0.710	0.112	**	0.611	0.195	*	0.648	0.173	*
Peers' influence on college-going	2.406	0.110	***	2.521	0.169	***	2.319	0.172	***
Occupational expectations (HH)	1.142	0.150		1.321	0.228		1.276	0.201	
Occupational expectations (LH)	1.317	0.224		1.635	0.336		1.564	0.314	
Occupational expectations (HL)	1.175	0.131		1.403	0.221		1.314	0.184	
(Occupational expectations (LL))									

Student's comfort level at school	1.167	0.051	**	1.210	0.068	**	1.223	0.064	**
(Std test quartile 1 Low)									
Std test quartile 2	1.852	0.177	**	2.179	0.269	**	2.003	0.231	**
Std test quartile 3	2.457	0.176	***	4.094	0.267	***	3.307	0.199	***
Std test quartile 4 High	4.968	0.169	***	9.050	0.283	***	6.904	0.216	***
SAT/ACT participation	3.545	0.369	**	4.752	0.448	**	4.638	0.395	***
Importance of living at home	0.321	0.097	***	0.200	0.148	***	0.224	0.133	***
Importance of academic reputation	1.983	0.168	***	2.710	0.268	***	2.435	0.234	***
Financial aid amount	1.194	0.042	***	1.235	0.072	**	1.223	0.066	**
Native American	1.463	0.434		2.041	0.573		2.385	0.544	
Asian	2.244	0.230	***	3.581	0.421	**	2.930	0.347	**
Black	1.126	0.233		1.275	0.398		1.127	0.346	
Hispanic	1.002	0.283		1.038	0.277		1.020	0.244	
(White)									
Female	1.116	0.107		1.382	0.143	*	1.250	0.134	~
Educational aspirations (HH)	2.649	0.114	***	3.941	0.206	***	3.706	0.181	***
Parents' education	1.570	0.081	***	1.809	0.122	***	1.704	0.108	***
Mother's expectations	1.297	0.093	**	1.211	0.176		1.276	0.158	
Student's cultural exposure*Counselor	0.664	0.189	*	0.725	0.224		0.757	0.214	
Student's cultural exposure*Teacher	0.975	0.211		0.993	0.308		0.956	0.305	
Student's cultural exposure*Occupational expectations (HH)	1.474	0.302		1.264	0.375		1.211	0.362	
Student's cultural exposure*Occupational expectations (LH)	1.069	0.441		0.874	0.540		0.902	0.526	
Student's cultural exposure*Occupational expectations (HL)	1.055	0.291		0.904	0.416		0.974	0.362	
Parent/child attendance of the arts*Parent-school	1.107	0.062		1.100	0.084		1.119	0.077	
Low-income*Parent-school	1.048	0.065		0.939	0.087		0.988	0.081	
High-income*Parent-school	1.080	0.054		0.923	0.095		0.951	0.088	
Native American*Occupational expectations (HH)	0.798	0.604		0.595	0.964		0.472	0.924	
Native American*Occupational expectations (LH)	0.305	0.566	*	0.355	0.804		0.193	0.780	*
Native American*Occupational expectations (HL)	1.275	0.607		0.395	0.632		0.374	0.652	
Asian*Occupational expectations (HH)	0.671	0.338		0.458	0.617		0.569	0.547	
Asian*Occupational expectations (LH)	1.163	0.598		1.306	0.723		1.711	0.679	

Asian*Occupational expectations (HL)	0.709	0.453	0.430	0.627	0.509	0.668
Black*Occupational expectations (HH)	1.237	0.297	0.978	0.563	1.001	0.473
Black*Occupational expectations (LH)	1.032	0.402	0.587	0.621	0.779	0.607
Black*Occupational expectations (HL)	1.371	0.382	0.815	0.606	0.927	0.549
Hispanic*Occupational expectations (HH)	1.328	0.261	1.045	0.296	1.303	0.278
Hispanic*Occupational expectations (LH)	0.885	0.430	0.567	0.556	0.847	0.582
Hispanic*Occupational expectations (HL)	1.403	0.261	1.224	0.411	1.278	0.375
School fixed effects			Yes			
School district fixed effects					Yes	
Sample N	5,630		4,950		5,350	

Note: This result is produced using the listwise deletion method as a way of dealing with missing data, and may be comparable with the result presented in Table 9 which is based on multiply imputed data. Odds ratios are presented with not enrolling in a four-year college as a reference group (1=enrolling in a four-year college; 0=not enrolling in a four-year college). Regressions are weighted by ELS sample weights and fitted including the cluster option (state of residence). When school district fixed effects are added in the model, Catholic and other private schools are assumed to belong to one "school district" and used as a reference category.
Sources: Analyses of ELS:02/04; NPSAS:04.
~p<0.1. *p<0.05. **p<0.01. ***p<0.001.

Table A 8. Logistic Regression Analysis of Highly-Selective College Enrollment

	Model 1			Model 2			Model 3		
Variable	Odds ratio	Std. Err.		Odds ratio	Std. Err.		Odds ratio	Std. Err.	
Low-income	0.842	0.481		0.618	0.771		0.667	0.667	
(Middle-income)									
High-income	2.183	0.314	*	3.498	0.525	*	3.064	0.453	*
Family resources	1.145	0.202		1.167	0.384		1.223	0.240	
Student's cultural exposure	0.803	0.376		1.195	0.456		1.020	0.334	
Parent/child attendance of the arts	0.879	0.226		1.538	0.325		1.374	0.320	
Physical presence of parents	1.988	0.218	**	3.216	0.315	***	2.869	0.292	***
# of siblings	0.936	0.075		0.984	0.128		0.968	0.123	
# times 10^{th} grader changed schools	1.061	0.052		1.019	0.097		1.038	0.068	
Parent-student involvement (10^{th})	1.000	0.118		1.120	0.143		1.061	0.142	
Parent-student involvement (12^{th}–10^{th})	1.005	0.100		1.164	0.174		1.147	0.146	
Parent-school involvement	0.975	0.153		1.301	0.217		1.162	0.192	
Parent-parent involvement	0.990	0.084		1.017	0.092		0.979	0.083	
Information sources (parent)	0.900	0.202		0.915	0.264		0.856	0.225	
Information sources (sibling)	0.978	0.196		0.885	0.282		0.939	0.238	
Information sources (other relative)	0.872	0.160		0.766	0.263		0.766	0.216	
Information sources (friend)	1.076	0.131		0.751	0.227		0.792	0.164	
Information sources (counselor)	1.200	0.165		1.152	0.195		1.077	0.210	
Information sources (teacher)	0.855	0.214		0.876	0.386		0.964	0.332	
Information sources (coach)	1.478	0.196	*	2.024	0.371	~	2.030	0.298	*
Information sources (college reps.)	0.856	0.266		0.569	0.409		0.637	0.376	
Peers' influence on college-going	2.075	0.197	***	3.092	0.245	***	2.634	0.226	***
Occupational expectations (HH)	1.301	0.266		1.582	0.460		1.496	0.391	
Occupational expectations (LH)	1.023	0.283		1.187	0.512		1.116	0.485	
Occupational expectations (HL)	0.967	0.336		1.013	0.475		1.036	0.405	
(Occupational expectations (LL))									

Student's comfort level at school	1.068	0.114		1.029	0.142		1.093	0.121	
(Std test quartile 1 Low)									
Std test quartile 2	0.993	0.600		3.634	0.796		2.226	0.662	
Std test quartile 3	0.886	0.522		2.587	0.812		1.484	0.641	
Std test quartile 4 High	3.928	0.528	*	14.839	0.901	**	8.401	0.705	**
SAT/ACT participation	0.189	0.520	**	0.148	0.516	***	0.181	0.551	**
Importance of living at home	0.236	0.305	***	0.130	0.434	***	0.159	0.360	***
Importance of academic reputation	1.583	0.518		0.708	0.867		0.815	0.723	
Financial aid amount	1.521	0.039	***	1.839	0.061	***	1.752	0.055	***
Native American	2.743	0.596	~	3.209	0.904		3.150	0.936	
Asian	7.556	0.421	***	9.106	0.747	**	7.759	0.664	**
Black	0.588	0.524		0.309	0.595	*	0.356	0.581	~
Hispanic	1.261	0.559		1.306	1.056		0.974	0.808	
(White)									
Female	0.744	0.142	*	0.666	0.221	~	0.684	0.203	~
Educational aspirations (HH)	0.925	0.287		1.073	0.484		0.856	0.398	
Parents' education	1.892	0.139	***	1.407	0.143	*	1.354	0.133	*
Mother's expectations	1.058	0.288		0.877	0.455		0.958	0.396	
Student's cultural exposure*Counselor	0.915	0.297		0.926	0.439		1.002	0.419	
Student's cultural exposure*Teacher	1.761	0.400		1.423	0.658		1.419	0.589	
Student's cultural exposure*Occupational expectations (HH)	0.774	0.313		0.575	0.536		0.696	0.416	
Student's cultural exposure*Occupational expectations (LH)	2.007	0.475		2.127	0.818		1.908	0.709	
Student's cultural exposure*Occupational expectations (HL)	0.682	0.541		0.551	0.715		0.542	0.529	
Parent/child attendance of the arts*Parent-school	1.163	0.089	~	0.872	0.169		0.948	0.148	
Low-income*Parent-school	0.904	0.238		0.944	0.335		0.979	0.283	
High-income*Parent-school	1.016	0.157		0.877	0.197		0.937	0.189	
Native American*Occupational expectations (HH)	0.826	0.827		0.825	1.091		0.794	1.164	
Native American*Occupational expectations (LH)	0.437	1.004		0.040	2.944		0.053	1.941	
Native American*Occupational expectations (HL)	1.055	0.962		1.307	1.397		0.903	1.414	
Asian*Occupational expectations (HH)	1.116	0.365		1.813	0.640		1.462	0.554	
Asian*Occupational expectations (LH)	1.131	0.536		0.957	0.822		0.965	0.759	

Asian*Occupational expectations (HL)	1.050	0.483		1.413	0.761		1.288	0.599	
Black*Occupational expectations (HH)	1.000	0.609		1.619	0.678		0.831	0.579	
Black*Occupational expectations (LH)	-	-		-	-		-	-	
Black*Occupational expectations (HL)	1.185	0.836		7.280	0.851	*	2.222	0.965	
Hispanic*Occupational expectations (HH)	5.199	0.637	*	6.429	1.073	~	6.816	0.840	*
Hispanic*Occupational expectations (LH)	0.833	0.830		0.387	1.274		0.856	1.178	
Hispanic*Occupational expectations (HL)	2.110	0.848		1.953	1.117		2.353	0.920	
School fixed effects				Yes					
School district fixed effects							Yes		
Sample N	5,570			2,340			3,080		

Note: This result is produced using the listwise deletion method as a way of dealing with missing data, and may be comparable with the result presented in Table 10 which is based on multiply imputed data. Odds ratios are presented with not enrolling in a highly-selective college as a reference group (1=enrolling in a highly-selective college; 0=not enrolling in a highly-selective college). Regressions are weighted by ELS sample weights and fitted including the cluster option (state of residence). When school district fixed effects are added in the model, Catholic and other private schools are assumed to belong to one "school district" and used as a reference category.
Sources: Analyses of ELS:02/04; NPSAS:04.
~p<0.1. *p<0.05. **p<0.01. ***p<0.001.

Table A 9. Multinomial Logistic Regression Analysis of College Choice (no fixed effects)

	Public four-year			Private four-year			Public two-year		
Variable	Odds ratio	Std. Err.		Odds ratio	Std. Err.		Odds ratio	Std. Err.	
Low-income	0.475	0.246	**	0.367	0.236	***	0.890	0.224	
(Middle-income)									
High-income	1.015	0.206		1.278	0.217		0.809	0.202	
Family resources	0.937	0.156		0.833	0.189		1.065	0.099	
Student's cultural exposure	1.477	0.305		1.201	0.389		1.534	0.220	~
Parent/child attendance of the arts	1.036	0.162		1.301	0.212		1.321	0.140	*
Physical presence of parents	1.312	0.130	*	1.321	0.193		1.029	0.101	
# of siblings	0.907	0.059	~	0.950	0.074		0.886	0.046	**
# times 10^{th} grader changed schools	0.959	0.036		1.026	0.048		0.949	0.037	
Parent-student involvement (10^{th})	1.267	0.072	**	1.401	0.090	***	1.153	0.086	~
Parent-student involvement (12^{th}–10^{th})	1.125	0.070	~	1.238	0.080	**	1.081	0.064	
Parent-school involvement	0.932	0.105		0.972	0.114		0.969	0.081	
Parent-parent involvement	1.089	0.070		1.177	0.073	*	1.051	0.068	
Information sources (parent)	1.004	0.147		1.050	0.174		1.302	0.135	~
Information sources (sibling)	1.142	0.202		1.258	0.171		1.016	0.148	
Information sources (other relative)	1.110	0.160		0.849	0.195		0.882	0.144	
Information sources (friend)	1.212	0.218		1.279	0.222		1.246	0.156	
Information sources (counselor)	1.452	0.187	*	1.440	0.194	~	1.212	0.139	
Information sources (teacher)	0.997	0.164		0.883	0.139		1.150	0.150	
Information sources (coach)	0.868	0.306		1.459	0.326		0.731	0.256	
Information sources (college reps.)	0.601	0.144	***	0.667	0.185	*	0.842	0.149	
Peers' influence on college-going	2.154	0.150	***	2.687	0.165	***	0.921	0.099	
Occupational expectations (HH)	1.160	0.202		1.152	0.228		1.028	0.202	
Occupational expectations (LH)	1.974	0.251	**	2.515	0.298	**	1.850	0.214	**
Occupational expectations (HL)	1.384	0.202		1.524	0.261		1.280	0.194	
(Occupational expectations (LL))									

Student's comfort level at school	1.079	0.066		1.237	0.085	*	0.939	0.060	
(Std test quartile 1 Low)									
Std test quartile 2	2.034	0.215	**	1.581	0.320		1.078	0.111	
Std test quartile 3	4.195	0.226	***	3.016	0.276	***	1.880	0.144	***
Std test quartile 4 High	5.821	0.237	***	5.090	0.312	***	1.239	0.201	
SAT/ACT participation	9.086	0.431	***	2.031	0.551		2.194	0.223	***
Importance of living at home	0.390	0.153	***	0.225	0.181	***	1.100	0.139	
Importance of academic reputation	3.546	0.270	***	2.779	0.321	**	2.237	0.201	***
Financial aid amount	1.051	0.054		1.268	0.059	***	0.893	0.050	*
Native American	1.031	0.510		0.914	0.525		0.526	0.327	~
Asian	3.020	0.420	**	3.264	0.553	*	1.553	0.429	
Black	1.368	0.297		0.891	0.379		1.155	0.232	
Hispanic	1.140	0.342		1.511	0.478		1.303	0.219	
(White)									
Female	1.387	0.173	~	1.264	0.198		1.311	0.124	*
Educational aspirations (HH)	4.667	0.182	***	4.635	0.201	***	2.255	0.197	***
Parents' education	2.289	0.109	***	2.638	0.168	***	1.719	0.123	***
Mother's expectations	1.414	0.135	*	1.586	0.194	*	1.172	0.108	
Student's cultural exposure*Counselor	0.644	0.359		0.677	0.338		0.948	0.317	
Student's cultural exposure*Teacher	0.528	0.341	~	0.614	0.308		0.473	0.320	*
Student's cultural exposure*Occupational expectations (HH)	1.551	0.398		2.191	0.415	~	1.148	0.345	
Student's cultural exposure*Occupational expectations (LH)	0.822	0.492		0.688	0.501		0.644	0.417	
Student's cultural exposure*Occupational expectations (HL)	0.782	0.408		0.818	0.532		0.671	0.397	
Parent/child attendance of the arts*Parent-school	1.093	0.094		1.081	0.117		0.977	0.088	
Low-income*Parent-school	1.172	0.093	~	1.108	0.110		1.144	0.095	
High-income*Parent-school	1.272	0.096	*	1.265	0.099	*	1.226	0.103	*
Native American*Occupational expectations (HH)	0.917	0.934		1.269	1.019		1.526	0.613	
Native American*Occupational expectations (LH)	0.122	0.620	**	0.076	1.085	*	0.238	0.842	~
Native American*Occupational expectations (HL)	1.466	0.718		4.578	0.942		2.290	0.555	
Asian*Occupational expectations (HH)	2.009	0.751		2.733	0.824		3.433	0.768	
Asian*Occupational expectations (LH)	0.600	0.854		0.475	0.999		0.377	0.716	

Asian*Occupational expectations (HL)	0.827	0.659		0.651	0.733		1.100	0.560	
Black*Occupational expectations (HH)	1.293	0.397		1.198	0.549		1.027	0.354	
Black*Occupational expectations (LH)	0.434	0.449	~	0.451	0.717		0.276	0.579	*
Black*Occupational expectations (HL)	1.135	0.474		0.537	0.796		0.626	0.334	
Hispanic*Occupational expectations (HH)	1.270	0.421		1.191	0.404		0.933	0.301	
Hispanic*Occupational expectations (LH)	0.550	0.503		0.234	0.552	**	0.433	0.328	*
Hispanic*Occupational expectations (HL)	1.096	0.407		1.275	0.452		0.765	0.347	
Sample N	5,630								

Note: This result is produced using the listwise deletion method as a way of dealing with missing data, and may be comparable with the result presented in Table 11 which is based on multiply imputed data. Odds ratios are presented with not enrolling in college as a reference group (1=non-enrollment; 2=enrolling in public four-year institutions; 3=enrolling in private four-year institutions; 4=enrolling in public two-year institutions). Regression is weighted by ELS sample weights and fitted including the cluster option (state of residence).
Sources: Analyses of ELS:02/04; NPSAS:04.
~p<0.1. *p<0.05. **p<0.01. ***p<0.001.

A 10. Bootstrapping strategy employed in this study

Although Stata has a bootstrap prefix command that can be easily incorporated with other estimation or non-estimation commands, there are cases where the bootstrap prefix alone does not work. In this case, researchers need to their own bootstrap programs, and the specific procedure to write a bootstrap program includes four steps. The following explanations on this matter are primarily based on the explanation, "*How do I write my own bootstrap program*" (UCLA: Academic Technology Services, 2011).

The first step of writing a bootstrap program is to obtain initial estimates and store the results in a **matrix**. Second is to write a bootstrap program called "b_enroll." This step starts by preserving the data with the **preserve** command, and then draws random samples with replacement from the original dataset with the **bsample** command. From the bootstrap sample, regression models are estimated and produce the statistic of interest with the **return scalar** command. This step concludes with the **restore** command, which returns the data to the original state prior to the bootstrapped sample. Third, the **simulate** prefix command is used along with "b_enroll," which collects the statistic from the bootstrapped sample. At this step, the seed and number of replications are specified. Finally, the **bstat** command is used in order to summarize the bootstrap results. This study resampled from the initial single multiply imputed data set 500 times and repeated the original analysis on each of these replicated samples. This full process was repeated for the five multiply imputed datasets, thereby resulting in resampling of 2,500 times in total.

The Stata code for the bootstrap program used in this study

```
*** Append two data sets (ELS+NPSAS) before writing the bootstrap program.
use ELS, clear
append using NPSAS

*** Distinguish between the two data sets.
gen data=1
replace data=0 if stucul34==.
label var data "1=ELS; 0=NPSAS"

/***Bootstrap syntax***/

***Step 1: Obtain initial estimates and store the results in a matrix.

logit aidreceipt $xvar1a [pweight=WTA00] if DEPEND==1 & data==0, or
predict double paidreceipt if data==1, xb
reg totaid $xvar1a [pweight=WTA00] if DEPEND==1 & aidreceipt==1 & data==0
predict double ptotaid if data==1, xb
gen pr_aid=paidreceipt*ptotaid if data==1
logit enroll $xvar1b [pweight=WEIGHT] if data==1, cluster(STUSTATE1)
matrix observe = e(b)
drop paidreceipt ptotaid pr_aid

***Step 2: Write the bootstrap program called "b_enroll"

program define b_enroll, rclass
  preserve
    bsample
          logit aidreceipt $xvar1a [pweight=WTA00] if DEPEND==1 & data==0, or
          predict double paidreceipt if data==1, xb
          reg totaid $xvar1a [pweight=WTA00] if DEPEND==1 & aidreceipt==1 &
data==0
          predict double ptotaid if data==1, xb
          gen pr_aid=paidreceipt*ptotaid if data==1
          return scalar N = r(N)
          logit enroll $xvar1b [pweight=WEIGHT] if data==1, cluster(STUSTATE1)
  restore
end

***Step 3: Simulate
simulate _b, reps(500) seed(12345): b_enroll

***Step 4: Use the bstat command to summarize the results
bstat, stat(observe) n(11230)
```

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