RUNNING HEAD: UNCONTROLLED DESTINIES

Uncontrolled Destinies:

Improving Opportunity for Academically Qualified, Low-Income Students

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Abstract

The purpose of this study is to examine resource allocation patterns and the predictive power of these resources in increasing the likelihood of four-year college enrollment among academically qualified, low-income students. Using data from the Educational Longitudinal Study, college choice decision-making is conceptualized in relation to an individual's habitus and capital deficiency theory. The results from this study reveal significant resource shortages among non-enrollees as well as the predictive power of various forms of capital in increasing the likelihood of four-year college attendance. The study concludes with implications for practitioners and policymakers interested in improving access for low-income students.

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Education predicts disparities in life chances, outcomes, life incomes, and the disparity has never been starker (Duncan, 2010).

One of the most pressing social justice issues of the twenty-first century is providing the opportunity for every American to pursue an education that could potentially unlock a life of reward and fulfillment. Achieving this goal, however, remains a formidable challenge, especially given the wide disparities in postsecondary access among Black, Hispanic, and low income students (Bozick & Lauff, 2007). These disparities in access fuel the reproduction of social inequality that has characterized American society for centuries, and the resultant talent loss translates into social and economic losses at both the individual and societal level. The talent loss is particularly disheartening when considering those students who are academically qualified and capable of succeeding in postsecondary educational environments: "Unless something is done, many more of America's brightest, lower income students will meet this same educational fate, robbing them of opportunity and our nation of a valuable resource" (Wyner, Bridgeland & Diiulio, 2007).

Adding needed visibility to the issue, President Obama has called for every American to "commit" to attending at least one year of postsecondary education (Obama, 2009), and more recently he declared in his 2010 State of the Union address that one of the best antipoverty programs is a world class education (Obama, 2010). Yet for many

Americans, postsecondary attainment remains an elusive goal that is circumscribed by an individual's access to economic, human, social, and cultural capital—resources that have been empirically linked to increases in two- and four-year postsecondary enrollment (Author, 2010a, 2010b). The effects of impoverishment are particularly detrimental for low income students of high academic ability: "These remarkable young people are hidden from public view and absent from public policy debates, with educators, policymakers, and the public assuming they can fend for themselves" (Wyner, et al., 2007).

In their report on low-income students in American higher education, Terenzini, Cabrera, and Bernal (2001) concluded that by the ninth grade, and possibly even the seventh, most students have developed occupational and educational expectations that are strongly related to socioeconomic status (SES). Research, for instance, has shown that lower income students are associated with lower expectations about educational attainment and take college entrance examinations less frequently compared to their high income counterparts (Fitzgerald, 2004). Low income students also enroll disproportionately at four-year private colleges compared to their affluent peers with similar credentials (Baum & Payea, 2004), and this finding remains true even among highly qualified students when examining more selective schools (Winston & Hill, 2005). Escalating costs to attend a college or university further contribute to the stratification of students by SES, and this redistribution appears to be particularly disadvantageous for students from the lowest end of the SES spectrum (Terenzini et al., 2001).

While more students today are completing advanced level academic coursework (Haycock, Lynch, & Engle, 2010), access and choice disparities remain for low-income

students, even when controlling for academic preparation (Fitzgerald & Delaney, 2002). Thus, the purpose of this study is to examine those factors that influence four-year college attendance among academically qualified, low-income students. We conceptualize college choice decision-making in relation to students' access to various forms of capital, and examine both resource differentials and the predictive power of these resources in increasing the likelihood of four-year college enrollment. The results from this study are intended to inform an understanding of why otherwise qualified low-income students often forego the opportunity to attend a postsecondary institution, and how, as a just society, we might prevent this erosion of lost talent and develop new policies and practices that facilitate opportunity for all students.

Conceptual Framework

In order to conceptualize differences in postsecondary attainment among academically qualified, low-income students, we relied on two overarching theoretical models designed to understand college-going behaviors. The first theoretical idea, posited by Laura Perna (2006) and based on the earlier work of McDonough (1997) and Bourdieu (1986), highlights the role of "individual habitus" in ascribing dispositions toward postsecondary educational attainment. Nested within a multi-faceted framework of organizations (i.e., secondary, postsecondary, and community) and policy environments, an "individual's habitus regarding college choice is expected to reflect an individual's demographic characteristics, particularly gender, race/ethnicity, and SES, as well as cultural and social capital" (Perna, 2006, p. 117). Perna also places human capital investments at the very center of her model, emphasizing the importance of academic

preparation and the availability of financial resources in calculating the cost-benefit analysis associated with college decision-making.

Complementing Perna's (2006) emphasis on individual habitus, Massey, Charles, Lundy, and Fischer (2003) posited a theory of capital deficiency to explain differences in racial/ethnic minority academic achievement in college. Borrowing ideas from a number of economic and sociological theories, the theory of capital deficiency highlights resource differences as essential determinants in understanding academic achievement, particularly resources related to financial, human, social, and cultural capital. The capital deficiency argument has been generally supported by a long-line of empirical research, particularly scholarship focused on the relationship between socioeconomic status and educational achievement (e.g., Coleman, 1966).

Taken together, these theoretical frameworks illuminate the importance of capturing student background and socioeconomic characteristics as well as students' exposure to various forms of capital during their formative schooling years. The literature review that follows examines the empirical evidence linking an individual's habitus and various forms of capital to college-going dispositions. Where relevant, we highlight those studies that are specific in documenting the college-choice process for low-income students.

Economic and Human Capital

Economic or financial capital is easily understood as an individual's financial resources, including household income, savings accounts, and other assets that comprise a family's economic resources (Massey et al., 2003). Students from families of higher net worth are often "in a privileged position to purchase academic inputs of higher quality--

not simply good schooling, private tutoring, and extracurricular training, but comfortable housing, good nutrition, and access to intellectual stimuli" (Massey et al., 2003, p. 5). As it relates to postsecondary enrollment and access to higher education, economic capital focuses on the availability of financial resources necessary to meet the expenses associated with earning a college degree, including government grants that help diminish the financial challenges for students who are unable to afford the full cost of attendance (Kane, 1995, 1999; McPherson & Schapiro, 1991, 1997; St. John, 2003). For low-income students, however, acquiring the knowledge and understanding of the financial aid process can be a daunting process, creating a formidable barrier to postsecondary enrollment (Bell, Rowan-Kenyon & Perna, 2009; Luna DeLaRosa, 2006).

Alongside economic capital, researchers have documented the important role of human capital in improving the likelihood of postsecondary enrollment (Author, 2009, 2010a, 2010b). Human capital theory illuminates the college choice process by grounding the decision to attend college in the language of productivity-enhancement and investment returns (Becker, 1993; Paulsen, 2001). Within this theoretical framework, attending college is based on a rational decision in which the potential gains in productivity (and therefore improved earnings and other monetary or nonmonetary returns) are compared with the direct and indirect costs associated with acquiring a college education (Cohn & Geske, 1990).

The economic benefits of increased human capital, however, are often mitigated by other variables unique to each individual, namely socioeconomic status, academic preparedness, and access to college information (Paulsen, 2001). In attempting to operationalize human capital investments, researchers have relied on a number of

proxies, mainly academic in nature, including high school grade point average, course-taking patterns, AP examinations, and standardized tests (Adelman, 1999; Author, 2010a, 2010b; Cabrera & La Nasa, 2001; Hossler, Braxton, & Coopersmith, 1989; Perna, 2000, 2004; Perna & Titus, 2005; St. John, 1991). The current study examines academic preparation as a key mitigating factor in understanding college choice decisions as well as other forms of human capital investments, including the importance placed on career success and extracurricular investments that are highly valued in the college admissions process.

Cultural and Social Capital

Theories of class reproduction and status attainment apply a sociological perspective rooted in the concepts of social and cultural capital, emphasizing the influence of family, community, and social supports on the likelihood of attending a postsecondary institution (Bourdieu 1986; Coleman, 1988). Although cultural capital remains a somewhat elusive concept given its invisible nature, Bourdieu (1986) described cultural capital as a status-defining system of attributes—language, mannerisms, and knowledge—that are transmitted directly through one's family. Researchers have operationalized cultural capital in a number of different ways, emphasizing the importance of parent educational attainment (Ellwood & Kane, 2000; Hossler, Schmit, & Vesper, 1999; Perna & Titus, 2005), parent aspirations for their children (Author, 2010a, 2010b; Cabrera & La Nasa, 2001), involvement in culturally enriching activities (Author, 2010a, 2010b; Perna & Titus, 2005), and language acquisition (Author, 2010a; Perna & Titus, 2005). The current study emphasizes the important role of both educational

aspirations and cultural involvement in understanding the choice decisions among academically qualified, low-income students.

Although there is a fair amount of conceptual overlap among cultural and social capital, social capital has received considerable attention in the empirical literature and generally emphasizes the importance of networks of people and community resources that can be used to enhance productivity and facilitate coordination and cooperation for mutual benefit (Coleman, 1988; Lin, 2001; Putnam, 1995; Yosso, 2005). Research has highlighted the importance of different types of social networks in relation to postsecondary enrollment. Perna and Titus (2005), for instance, demonstrated the importance of different forms of parental involvement in relation to two- and four-year college enrollment decisions, highlighting the role of parent-parent, parent-student, and parent-school involvement in improving the likelihood of college attendance. In addition, several researchers have documented the importance of peer networks in understanding college choice behavior, particularly the ways in which one's immediate friendship group influences choice sets and enrollment destinations (Author, 2010a, 2010b; Perez & McDonough, 2008; Person & Rosenbaum, 2006). Finally, researchers, have demonstrated how college-linking networks, in which students are linked to different information resources and individuals pertaining to the college admissions process, are important determinants in increasing the likelihood of college attendance (Author, 2010a, 2010b; Cabrera & La Nasa, 2001; Hill, 2008; O'Connor, Hammack & Scott, 2010). O'Connor et al.'s study, for instance, showed that as the parents of Hispanic students gained more information about financial aid through different networks and information resources,

their children were more likely to attend a four-year institution versus a two-year institution.

Finally, the role social capital plays in creating human capital is noteworthy in the college selection process as it relates to the quality of information exchanged in different social networks. The choice to "purchase" postsecondary education is often unclear and the value of that decision is typically not seen until well after the purchase has been made (Winston, 1999), thus making the information available about that purchase crucial in the decision making process. In the current study, we operationalize three sets of social networks—parent, peer, and college-linking—in order to understand differences in enrollment decisions among academically qualified, low-income students.

Research Questions

The current study is organized around two central research questions designed to understand four-year college enrollment propensities among academically qualified, low-income students. Using a conceptual framework rooted in the theoretical ideas of individual habitus and capital deficiency theory, the study address the following research questions:

Question 1

Do resource allocation patterns among academically qualified, low-income students differ by those who attend and do not attend a four-year institution?

Question 2

Which aspects of an individual's habitus increase the likelihood of four-year college attendance among academically qualified, low-income students?

Methods

Data Sample

Data for this study were drawn from the Educational Longitudinal Study (ELS) of 2002, a federally funded, nationally representative study of high school sophomores. The ELS is particularly well-suited to examine questions involving the transition from high school to postsecondary education as students were followed and surveyed again during their senior year of high school in 2004 and again two years later in 2006. The ELS study also includes information from multiple respondent pools, including parents, teachers, administrators, and librarians, providing a rich and multi-faceted perspective on factors influencing students' transitions to college.

The ELS employed a multi-stage sampling frame in which high schools were first selected based on 24 strata followed by random sampling of approximately 26 students within each high school, with some oversampling of Asian students. While the initial respondent pool included over 15,000 students from 750 schools, data for the current study focuses on a specific population of low-income, academically qualified students during their senior year of high school (G12COHRT=1) who completed the second follow-up of the ELS survey in 2006 (F2F1WT=1). The final weighted analytic sample included 188,520 students representing approximately 15,000 high schools (see "Variables in the Study" for a complete description of the sample segmentation procedures).

Variables in the Study

Academic and Income Segmentation. In order to define a group of "academically qualified" students, we first examined a number of academic measures,

including the total number of AP courses taken, high school grade point average (derived from the actual high school transcript), standardized test scores on the SAT and ACT, and the standardized scores on the math and English exams administered specifically for the ELS study (see Ingels, Pratt, Rogers, Siegel, & Stutts, 2004 for more information on the standardized ELS tests). We then percentile-ranked each of these measures and developed a mean raw score based on the number of components available for each of the respondents in the ELS dataset. Finally, we created academic quintiles and examined each of the components to ensure the validity of the index (see Table 1). In determining an appropriate cutoff for "academically qualified" students, we relied on the earlier research by Berkner and Chavez (1997), who developed a "College Classification Index" based on students who successfully entered into a four-year postsecondary institution. By focusing on those students in the top three academic quintiles (i.e., 3, 4, and 5), our cutoff is similar to the minimally-qualified cutoff used in the Berkner and Chavez study.

<<INSERT TABLE 1 HERE>>

While there are a number of ways to operationalize low-income students (see Cabrera & La Nasa, 2001), we relied on the low-income cutoff employed in the Berkner and Chavez (1997) study and focused on students with family incomes equal to or below $25,000. Table 2 depicts a matrix of four-year college going rates for students based on the income and academic profile bands developed for this study. Based on the overall disparities in access to four-year institutions for low-income students, and the rather stark differences in college-going rates between low- and high-income students, particularly among academically qualified students, the analytic sample for this study is focused on understanding the factors that influence four-year college participation for low-income

students (income less than or equal to $25,000) who are academically qualified (academic rank of three or above).

<<INSERT TABLE 2 HERE>>

Demographic and Socioeconomic Covariates. In order to control for the effects of students' background characteristics, we included covariates for gender, race, and socioeconomic status. We dummy coded both gender and race, using males and White students as referent groups. Additionally, we employed the imputed, standardized socioeconomic index constructed by ELS researchers (see Ingels et al., 2004 for more information on the imputation procedures used to construct the SES index), which included information on family income, parent educational attainment, and parent occupational attainment. In doing so, we controlled for the variation in socioeconomic status among low-income students included in the analytic model.

Human Capital Variables. We included three different measures of students' human capital investments based on prior research and the conceptual framework used in the study. First, we included the previously mentioned academic profile index to examine variations in academic performance among the academically qualified students in the study. Next, we included a five-item factor that measured the importance students placed on obtaining a good job/education and being successful in their careers (α=.714). Finally, we included a continuous measure that captured the number of hours a student spent per week on extracurricular activities, ranging from no hours to 25 or more hours. We believe these human capital investments capture the importance of academics, the value one places on education and career, and the importance of co-curricular activities in both student learning and the college admissions process.

Cultural Capital Variables. In addition to human capital investments, the conceptual framework emphasizes the importance of cultural capital in terms of the transmission of educational aspirations as well as opportunities for involvement in cultural activities that enrich and supplement students' formalized educational experiences. Thus, the first scale included in the study is a composite index that measures the number of proximal (i.e., close friends and relatives) and familiar (i.e., parents) influences for the student to attend college, ranging from zero to four. The second measure is a five-item scale that examines the frequency in which parents are involved in cultural activities with their child (e.g., concerts, plays, hobbies; α=.811).

Social Capital Variables. In order to assess the extent to which students gain information and resources from various social networks, we examined constructs related to parent involvement, peer influences, and college-linking informational resources. In terms of parent involvement, we examined two different constructs: the first construct measured the percentage of school activities a parent was involved in across five different opportunities, including parent-teacher organizations and other school-based organizations (α=.723). The second construct examined parent-to-parent contact by measuring the extent to which a parent knew the parents of their child's three closest friends (α=.751).

In terms of peer influence, we examined two continuous variables that measured how many of the student's friends had plans to attend a two-year or four-year postsecondary institution. Finally, in order to capture a number of college-linking network-based resources, we included a set of ten variables that measured whether or not a student used a particular influence to learn about the college admissions process. The

influences included both familiar and institutional influences (e.g., parents, friends, counselors, teachers, college representatives) as well as resources gleaned from publications, websites, and school libraries.

Analytic Process

We employed a number of different analytic techniques in order to answer the study's research questions. First, in order to minimize data loss in the multivariate analysis, we used a multiple imputation technique for missing data based on a fully conditional specification procedure that utilizes the Markov chain Monte Carlo (MCMC) iterative method (see Li, Raghunathan, & Rubin, 1991; Schafer, 1997). We also compared our results across the imputed and non-imputed samples to determine potential discrepancies based on the imputation procedures. Second, in order to create the scales used in the analyses, we employed principal axis factoring with a Varimax rotation. All loadings were above .35 and Cronbach's Alpha reliabilities were above .70 (Note: factor loadings and item wording are available upon request).

Next, we ran descriptives to understand differences among academically qualified, low-income students who chose to attend and not attend a postsecondary institution. We also ran t-tests to determine whether there were significant mean differences among these two groups of students. This stage of the analysis provided an important backdrop in interpreting the multivariate results. The final analytic stage involved testing a logistic regression model to determine which of the conceptual factors in the model influenced the likelihood of attending a four-year college. We first tested a hierarchical general linear model to determine whether multi-level modeling was warranted in the study. The fully unconditional model suggested that the level-two

variance was insignificant and did not provide additional explanatory power in understanding the likelihood of four-year college attendance. Therefore, we proceeded to focus on the level-one model for the purposes of the current study. Further, in order to account for the lack of simple random sampling used in the ELS study, we employed the complex survey samples module contained in SPSS v. 18. This procedure accounts for the stratified and clustered nature of the sampling frame and adjusts the standard errors to account for the lack of simple random sampling. We also included the design effect and square root of the design effect to examine the sample variance; standard guidelines suggest that for a well-designed study, the design effect should be less than three (Shackman, 2001).

Limitations

There are several limitations to the present study that suggest caution in interpreting the results and making broad generalizations. First, like most longitudinal studies that employ a complex, multi-stage sampling frame, there are inherent issues related to non-response bias. While the ELS provides complete data on the salient background characteristics used in this study, many of the variables intended to capture the complexity of the college-choice process are prone to missing data issues. Although we incorporated sophisticated statistical techniques to impute missing data and present results for both the imputed and non-imputed models, the findings from this study are still susceptible to non-response biases.

Second, while multi-leveling modeling was not warranted in the current study, the lack of school-level contextual variables provides only a partial understanding of the college access dilemma—a process that is multi-faceted in nature and includes individual,

organizational, and state and federal policy-based influences. We do believe, however, that the individual habitus remains an important area of discovery and many of the findings from this study are malleable and open to policy considerations.

Finally, although we based our understanding of college access on the confluence of human, cultural, and social capital, we recognize that there are a number of additional individual-level influences that were not explicitly tested in this study. Several economic considerations, such as savings for college, were intentionally left out of the model due to unusually high levels of missing data. The absence of such variables, therefore, should not be construed as inconsequential to the college choice process; rather, additional studies (or studies using the ELS that focus specifically on college-going populations) are needed, particularly those that take into account the rising costs of a college education.

Results

Descriptive Results

As a precursor the multivariate stage of the study, we began our analyses by addressing descriptive differences among those academically qualified, low-income students who chose to attend or not attend a four-year institution. Despite segmenting the population to only include academically qualified, low-income students, approximately 45% of these students did not attend a four-institution. In examining salient background characteristics, we noted that females were associated with significantly higher four-year college going rates compared to the non-enrollment group; the opposite trend was found for males. Similarly, in examining racial categories, Asian students were represented by significantly higher levels of four-year enrollment whereas the opposite finding occurred among Hispanic students. Finally, in examining SES among the two groups, four-year

enrollees had a significantly higher mean SES that was almost two-tenths of a standard deviation above non-enrollees.

<<INSERT TABLE 3>>

Across the various human capital measures, four-year enrollees demonstrated significantly higher levels of human capital investments compared to non-enrollees. Four-year enrollees, for instance, demonstrated a ten point advantage in their academic profile scores as well as greater overall involvement in extracurricular activities compared to non-enrollees. Despite higher levels of human capital investment, the patterns were less consistent when examining cultural resources. While four-year enrollees were represented by a significantly larger number of aspirational influences, their levels of parent involvement in cultural activities were smaller when compared to non-enrollees, although the differences did not reach statistical significance.

Finally, when examining different social networks through which students acquire additional capital and information pertaining to college, we uncovered a number of descriptive differences. First, while the average level of parent involvement in school-based organizations was significantly higher among four-year enrollees, there was no significant difference in parent-to-parent contact. Second, peer influences, as represented by the number of the students' closest friends attending a two- or four-year college, demonstrated that four-year enrollees were associated with a significantly higher number of friends with similar college plans and a lower number of friends with two-year college plans.

The college-linking influences and resources also revealed several important differences in terms of overall usage. Four-year enrollees, for instance, used counselors

and coaches at a significantly higher rate than non-enrollees; the largest differences were found among counselor usage (89% of enrollees versus 70% of non-enrollees). Non-enrollees, however, had a greater reliance on siblings in gaining information about college admissions, although the differences did not reach statistical significance. Finally, in terms of using both college representatives and college publications/websites, four-year enrollees demonstrated a significantly higher usage rate (approximately 20 points on both measures) compared to non-enrollees.

Logistic Regression Results

The final analytic stage involved regressing the four-year enrollment outcome on the variables in the conceptual model. Tables 4 and 5 present the logistic regression models for both the imputed and listwise deletion samples. We focus the results primarily on the imputed model, but highlight salient differences between the two models. In examining the pseudo r-square statistics available in the complex survey module, both the Cox and Snell (.323) and the Nagelkerke (.432) indicators were relatively strong, suggesting the conceptual model explained a significant portion of the variance in four-year enrollment. Likewise, the classification index suggested that the conceptual model correctly classified respondents approximately 75% of the time.

In examining different demographic coefficients, both females and Black students were almost two times more likely to enroll in a four-year institution compared to their male and White counterparts. Despite segmenting the sample to only include low-income students, the SES variable still plays a significant role in increasing the odds of four-year enrollment, although these effects did not reach significance when examining the listwise deletion model.

<<INSERT TABLE 4 and TABLE 5 HERE>>

Similar to the SES findings, academic profile continued to play an important role in increasing the likelihood of attending a four-year institution among the academic qualified respondent pool. Further, as students placed greater importance on obtaining a good education and career, they were associated with stronger likelihoods of attending a four-year college. In fact, the imputed model suggested that students were 2.5 times more likely to attend a four-year institution as they increased their level of importance. Interestingly, we also uncovered a significant effect related to the hours spent on extracurricular activities, with greater involvement associated with higher odds of attending a four-year college. It should be noted, however, that both of these latter effects were diminished in the listwise deletion model as the standard errors were considerably higher in this model.

In terms of the cultural capital variables in the model, we uncovered significant effects in relation to the number of influences that had aspirations for the student to attend college. As more proximal and familiar influences were perceived as desiring the student to attend college, there was a greater likelihood of attending a four-year institution. No effect, however, was uncovered in relation to parent-student involvement in cultural activities, which is not surprising given the descriptive differences noted above.

While no parental involvement effects were uncovered in the imputed model, there was a small, positive effect for parental involvement in school activities in the listwise deletion model. The peer effects, however, were consistent across both models, with stronger likelihoods of four-year attendance associated with friendship groups that

incorporated larger numbers of friends with four-year college plans; the opposite effect, albeit less significant, was uncovered in relation to the number of friends planning to attend two-year colleges.

Finally, in examining the college-linking networks and resources, we uncovered a number of significant effects. The strongest effects among these influences were related to counselors, college representatives, and college publications/websites. Students who used these individuals/resources to gain information about the college admissions process were almost two times more likely to enroll in a four-year institution compared to those who did not use these resources. These individuals/resources remain important conduits from which students acquire necessary information about the college choice process. The effects of parents, while significant in the imputed model, did not reach significance in the listwise deletion model, which suggests that while parents are important resources, more research is necessary in uncovering the ways in which this information is gained and transmitted to students.

Discussion

While access to a four-year postsecondary institution has increased over the last several decades, rather stark differences in attendance rates still persist among students from the lowest and highest income groups (29.2% versus 70.5%). Even when controlling for academic qualifications, differences ranging from 10 to 20 percent remain for low-income students. The result is a tremendous loss of talent that continues to perpetuate and reproduce social inequality in American society. In an effort to address this pressing social justice issue, the current study sought to better understand why academically qualified, low income students often forego the opportunity to attend a

four-year postsecondary institution, and how the distribution of resources (i.e., human, cultural, and social capital) might explain differences in their likelihood of four-college enrollment. In revealing these potential effects, the results from this study provide evidence to inform educational practice and policy concentrated on improving access and opportunity for low-income students.

In order to conceptualize the current study, we relied on two theoretical ideas considered important in understanding enrollment proclivities. First, we relied on Laura Perna's (2006) impressive review of the college access literature and her specific emphasis of an individual's habitus in understanding college choice decision. Borrowing from the work of Bourdieu (1986) and McDonough (1997), Perna suggested that the confluence of individual background characteristics (i.e., demographics and socioeconomics) and the acquisition of different forms of capital (i.e., cultural and social) were essential in understanding patterns of human capital investment that led to college enrollment decisions. Second, Massey et al. (2003) posited a theory of capital deficiency in understanding differences in academic achievement among racial/ethnic minority groups. The theory suggests that resource deficiencies or shortages lead to lower achievement patterns for Black and Latino students, especially resources related to various forms of financial, human, cultural, and social capital. Taken together, we developed a conceptual framework that highlights both individual background characteristics and resource allocation patterns among academically qualified, low-income students who attended and did not attend a four-year institution.

The study's first research question addressed resource allocation patterns across the two enrollment classifications. We noted several important patterns that may

potentially account for differences in the decision to attend a four-year institution. Four-year enrollees, for instance, were associated with significantly higher levels of human capital (i.e., academic preparation, importance placed on career/education, and involvement in extracurricular activities), cultural capital (i.e., proximal and familiar aspirations for college attendance), and social capital in the form of parent networks (i.e., parent involvement in school activities) and peer networks (i.e., friendships groups with four-year college plans). Further, when examining social capital particular to the college admissions process, four-year enrollees were associated with statistically higher usage of counselor, coaches, college representatives, and college publications/websites. As Massey et al. (2003) state, "Students in general perform poorly in college when the circumstances of their upbringing have denied them access to some form of capital—human, social, cultural, psychic, or financial—that is important in producing success in higher education" (pp. 205-206). While the present study was focused on four-year enrollment decisions, the resource shortages among non-enrollees may partially explain why otherwise academically qualified students chose not to attend a four-year institution.

The second research question focused on the larger individual habitus and sought to understand how background characteristics and resource allocation patterns influenced the likelihood of attending a four-year institution. Even among a group of students with family incomes at or below $25,000, individual SES continues to play an important role in explaining enrollment propensities. These findings resonate with a long-line of research, beginning with the pioneering work of James Coleman (1966), that has recognized the lasting influence of family SES on education decision-making. Additionally, within a group of students who met the minimal qualifications for four-year

college entrance (see Berkner and Chavez, 1997), academic preparation continues to be of great importance in increasing one's chance of attending a four-year institution. Such a finding reinforces many of the policy initiatives with a specific academic focus outlined in the current blueprint for educational reform (U.S. Department of Education, 2010).

In addition to academic preparation, two other human capital investments were associated with stronger likelihoods of four-year enrollment: importance placed on career/education and hours spent on extracurricular activities. We understand the importance students place on career/education as an appropriate proxy in determining the cost/benefit analysis associated with college attendance. Thus, this finding resonates with the theory posited by both Becker (1993) and Paulsen (2001), who noted that differences in productivity are closely aligned with differences in educational investments, and certainly the importance one places on those investments. We also noted that students who spent more time performing extracurricular activities were more likely to enroll in a four-year institution. Given the value higher education has placed on student learning outside of the classroom (see Kuh, Schuh, Whitt, & Associates, 1991), this finding raises important questions related to secondary school policy and suggest more intentionality is necessary in creating holistic learning environment in which students are provided opportunities to learn inside and outside of the classroom.

In examining cultural capital factors, we found that as students were surrounded by greater numbers of familiar and proximal influences who endorsed postsecondary attainment, they were nearly 1.5 times more likely to attend a four-year institution. This finding supports previous research (Author, 2010a, 2010b; Cabrera & La Nasa, 2001) that highlights the importance of students receiving strong messages of encouragement to

attend college from their immediate family and peer groups. The finding was further supported when examining peer networks, which revealed a similar effect in relation to the number of one's immediate friends with plans to attend a four-year institution. A number of recent publications focused on Latino students (see Perez & McDonough, 2008; Person & Rosenbaum, 2006) have demonstrated the importance of peer networks and chain migration theory in the college choice process, and the results from this study suggest that peers are also quite influential when examining low-income students.

Finally, we noted important findings in relation to students' usage of various influences and resources in learning about the college admissions process. For example, students who utilized counselors, college representatives, college publications, and websites enrolled in four-year institutions at nearly twice the rate of those students who did not take advantage of these resources. Of particular note are the effects related to counselors and college representatives as both of these resources have been shown to be lacking in schools consisting of primarily low-income students (see Author, 2007; McDonough, 1997). In addition, these findings are consistent with the previous work of Cabrera and La Nasa (2001), who found that students from the lowest socioeconomic quartiles who relied on high school counselors and college representatives for financial aid information were more likely to apply to a four-year institution.

Implications

There are a number of important implications that extend from the results of this study. First, the results highlight the important role of colleges and universities in dismantling the continued cycle of social inequality that marks the American educational system. Particularly among those institutions with an access or social justice mission

(e.g., public flagships, Jesuit institutions, and other private schools that highlight access and diversity in their mission statements), there is a greater need to develop recruitment strategies and policies that work closely with secondary schools with high numbers of students in the lowest socioeconomic strata. As such, enrollment managers need to encourage their admission counselors to deepen their market territories with new and emerging high schools that may typically be overlooked when developing annual recruitment targets. Low-income students are much more likely to attend a four-institution if they make contact with college admission representatives, yet research suggests that too often admissions counselors favor existing feeder schools embedded within more affluent communities (Author, 2007). Thus, a greater degree of intentionality is needed among enrollment officials in deciding upon which high schools to visit, which will require a reprioritization of resources within markets that may be less developed and potentially less productive in the short-term. Feeder networks, however, once established, can lead to enhanced enrollment productivity and greater socioeconomic diversity on a college campus.

In addition to market development opportunities, the results from this study highlight the importance of college publications and websites in increasing the four-enrollment propensities of academically qualified, low-income students. As such, colleges should be mindful that their websites and publications move beyond institutional branding, and incorporate accurate and detailed information that appeals to students from a variety of backgrounds with varying levels of human, social, and cultural capital. While federal requirements, such as the net cost calculator, implore colleges to be more transparent about college costs, colleges would be wise to use this extrinsic motivation to

further invest in their websites and publications to encourage greater knowledge and understanding about their institutions. Along these same lines, using these media as conduits to connect potential applicants to current students—a relatively inexpensive resource—may help assuage the anxieties experienced by many low-income students, especially the vast majority who are first generation students. Such a practice is certainly in line with the many of the new discoveries related to peer influences uncovered in this and more recent studies (Perez & McDonough, 2008; Person & Rosenbaum, 2006).

The results from this study also suggest renewed efforts are needed in developing better alignment and partnerships among secondary and postsecondary schools. While the results of this and other studies (Cabrera & La Nasa, 2001) have documented the importance of high school counselors, too often low-income students are found in high schools with extremely high counselor-to-student ratios (see McDonough, 1997) and "a limited organizational commitment to facilitating access to available resources among students and families" (Hill, 2008, p. 60). Hill describes such environments as incorporating "traditional" college-linking strategies that are primarily concerned with helping students enter the labor market. With the unlikelihood of increasing counselor-student ratios in the near future due to resource shortages, perhaps high schools can partner with local colleges and universities, who in turn can offer service-learning opportunities to current students that involve working directly with students in impoverished school districts. As this study has shown, increasing the aspirations of students to attend college has a contagious effect that is experienced in one's most immediate friendship groups. Additionally, given the movement in higher education to extend student learning beyond the classroom and into the cocurricular realm, more

conversations are needed that align such educational philosophies across the K-16 divide. The same could certainly be said in relation to the requisite academic skills that students will need to be successful upon matriculating at a particular college or university. Thus, there are a number of opportunities for higher education leaders to work collaboratively with their secondary school colleagues to consider how the values of curricular and co-curricular programming ingrained at the postsecondary level can be engaged at the secondary level.

If the dividing line in our country is around educational opportunity (Duncan, 2010), it would seem that higher education leaders have a pivotal role to play in ensuring that opportunity is made available to a population of academically qualified students who are too often marginalized or left out of the higher education equation due to family income. This study identifies several malleable factors within the control of higher and secondary education leaders that may be enhanced to encourage greater educational access and opportunity for low-income students. Given that only 55% of academically qualified, low-income students attend a four-year institution, more efforts are needed to prevent the further erosion of loss talent and curtail the enduring cycle of social inequality that has characterized American society for centuries.

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Table 1. Breakdown of Academic Profile Component Scores

Academic Profile Rank	Total AP Courses	High School GPA	SAT Composite	ACT Composite	ELS Math/English Composite
1	0.00	1.76	710.82	14.43	39.88
2	0.07	2.34	840.51	17.16	46.97
3	0.25	2.75	953.86	19.53	52.73
4	0.94	3.18	1063.95	22.39	57.28
5	3.25	3.56	1247.12	26.89	63.42

Source: ELS Restricted Data File

Table 2. Four-Year College Going Rates by Academic Profile and Income

Academic Profile Rank	Income Group			
	<=25,000	25,000 to 75,000	>75,000	Total
1	11.8%	16.0%	22.5%	15.4%
2	22.2%	27.2%	39.9%	28.5%
3	40.1%	45.4%	63.8%	49.8%
4	63.2%	67.1%	81.7%	72.0%
5	88.5%	86.9%	95.8%	91.4%
Total	29.2%	44.9%	70.5%	49.1%

Source: ELS Restricted Data File

Table 3. Descriptive Results by Four-Year College Participation for Academically Qualified Low-Income Students (Weighted N=188,520)

			Did Not Attend Four-Year College (N=84,529)		Attended Four-Year College (N=103,991)	
	Min	Max	Mean	Std. Error	Mean	Std. Error
DEMOGRAPHICS						
Male	.00	1.00	0.478***	0.032	0.340	0.026
Female	.00	1.00	0.522***	0.032	0.660	0.026
Black	.00	1.00	0.095	0.018	0.129	0.020
Hispanic	.00	1.00	0.275***	0.033	0.176	0.024
Asian	.00	1.00	0.058***	0.010	0.114	0.015
White	.00	1.00	0.511	0.034	0.520	0.031
Other Race	.00	1.00	0.061	0.016	0.061	0.015
SES	-1.97	1.87	-0.673***	0.036	-0.499	0.028
HUMAN CAPITAL						
Academic profile score	37.99	99.66	50.207***	0.649	60.559	0.868
Importance placed on career/education	1.00	3.00	2.817***	0.018	2.902	0.009
Hours spent on extracurricular activities	.00	11.00	2.754***	0.130	3.456	0.114
CULTURAL CAPITAL						
College aspirations of parents, relatives, and friends	.00	4.00	2.146***	0.087	2.890	0.074
Parent-student involvement in cultural activities	1.00	4.00	2.706	0.054	2.679	0.051
SOCIAL CAPITAL: PARENT NEWORKS						
Parent-to-school involvement	.00	1.00	0.193*	0.019	0.231	0.015
Parent-to-parent involvement	.00	1.00	0.668	0.026	0.680	0.020
SOCIAL CAPITAL: PEER NETWORKS						
# of friends 2yr plans	1.00	5.00	2.860***	0.053	2.526	0.057
# of friends 4yr plans	1.00	5.00	3.017***	0.060	3.595	0.055
SOCIAL CAPITAL: COLLEGE-LINKING RESOURCES						
Counselor	.00	1.00	0.695***	0.035	0.890	0.019
Teacher	.00	1.00	0.541	0.036	0.553	0.031
Coach	.00	1.00	0.075*	0.018	0.116	0.020
Parent	.00	1.00	0.447	0.035	0.501	0.031
Sibling	.00	1.00	0.279	0.038	0.239	0.026
Relative	.00	1.00	0.310	0.035	0.333	0.032
Friend	.00	1.00	0.556	0.037	0.602	0.032
College representative	.00	1.00	0.510***	0.040	0.715	0.026
College publications/websites	.00	1.00	0.566***	0.036	0.787	0.024
School library	.00	1.00	0.179	0.028	0.192	0.024

Source: ELS Restricted Data File; Asterisks indicate significant mean differences between students who did and not attend a four-year college; *p<.05; **p<.01; ***p<.001

Table 4. Imputed Logistic Regression Results Predicting Four-Year College Attendance Among Academically Qualified Low-Income Students (Weighted N=188,520)

Parameter	B	Std. Error	Exp(B)	Design Effect	Square Root Design Effect
DEMOGRAPHICS					
Female	.604	.213	1.830**	1.366	1.169
Black (White)	.660	.316	1.935*	1.204	1.097
Hispanic (White)	-.136	.287	0.873	1.516	1.231
Asian (White)	.458	.315	1.581	0.679	0.824
Other Race (White)	-.148	.539	0.863	1.384	1.176
SES	.495	.203	1.640*	1.246	1.116
HUMAN CAPITAL					
Academic profile score	.058	.009	1.059***	1.411	1.188
Importance placed on career/education	.919	.420	2.506*	1.036	1.018
Hours spent on extracurricular activities	.143	.060	1.153*	1.457	1.207
CULTURAL CAPITAL					
College aspirations of parents, relatives, and friends	.286	.085	1.331***	1.557	1.248
Parent-student involvement in cultural activities	-.238	.154	0.788	1.280	1.131
SOCIAL CAPITAL: PARENT NEWORKS					
Parent-to-school involvement	.525	.347	1.690	1.008	1.004
Parent-to-parent involvement	.167	.333	1.181	1.126	1.061
SOCIAL CAPITAL: PEER NETWORKS					
# of friends 2yr plans	-.280	.114	0.755*	1.372	1.171
# of friends 4yr plans	.426	.105	1.532***	1.234	1.111
SOCIAL CAPITAL: COLLEGE-LINKING NETWORKS/RESOURCES					
Counselor	.565	.259	1.760*	1.386	1.177
Teacher	-.261	.213	0.770	1.223	1.106
Coach	-.008	.269	0.992	0.980	0.990
Parent	.496	.231	1.642*	1.333	1.155
Sibling	-.191	.230	0.826	1.383	1.176
Relative	.045	.220	1.046	1.144	1.069
Friend	-.436	.267	0.647	1.394	1.181
College representative	.650	.216	1.915**	1.381	1.175
College publications/websites	.607	.223	1.835**	1.337	1.156
School library	-.029	.224	0.972	1.234	1.111
PSUEDO R-SQUARE					
Cox and Snell	.323				
Nagelkerke	.432				

Source: ELS Restricted Data File
*p < .05; **p < .01; p < .001

Table 5. Listwise Logistic Regression Results Predicting Four-Year College Attendance Among Academically Qualified Low-Income Students (Weighted N=99,399)

Parameter	B	Std. Error	Exp(B)	Design Effect	Square Root Design Effect
DEMOGRAPHICS					
Female	.821	.298	2.272**	1.314	1.146
Black (White)	1.238	.551	3.449*	1.394	1.181
Hispanic (White)	-.199	.364	.820	1.309	1.144
Asian (White)	.611	.472	1.843	.523	.723
Other Race (White)	-.645	.522	.525	1.009	1.004
SES	.458	.301	1.581	1.194	1.093
HUMAN CAPITAL					
Academic profile score	.050	.010	1.051***	1.228	1.108
Importance placed on career/education	.319	.620	1.376	1.028	1.014
Hours spent on extracurricular activities	.089	.066	1.093	.980	.990
CULTURAL CAPITAL					
College aspirations of parents, relatives, and friends	.347	.114	1.415**	1.218	1.104
Parent-student involvement in cultural activities	-.212	.203	.809	1.274	1.129
SOCIAL CAPITAL: PARENT NEWORKS					
Parent involvement in school activities	1.245	.560	3.474*	1.040	1.020
Parent-to-parent involvement	.024	.407	1.024	1.178	1.085
SOCIAL CAPITAL: PEER NETWORKS					
Number of friends planning on attending two-year college	-.345	.157	.708*	1.155	1.075
Number of friends planning on attending four-year college	.393	.146	1.481**	1.099	1.048
SOCIAL CAPITAL: COLLEGE-LINKING NETWORKS/RESOURCES					
Counselor	.878	.364	2.407*	1.153	1.074
Teacher	-.402	.314	.669	1.188	1.090
Coach	.692	.592	1.998	1.287	1.134
Parent	.328	.309	1.388	1.306	1.143
Sibling	-.287	.366	.751	1.439	1.199
Relative	-.052	.344	.949	1.304	1.142
Friend	-.375	.330	.687	1.132	1.064
College representative	.898	.336	2.454**	1.646	1.283
College publications/websites	.727	.308	2.069*	1.322	1.150
School library	.265	.367	1.304	1.186	1.089
PSUEDO R-SQUARE					
Cox and Snell	.322				
Nagelkerke	.437				

Source: ELS Restricted Data File
*p < .05; **p < .01; p < .001