

A Multi-level Analysis of Economic and Social Influences on College Access

Purpose and Significance of Project

The American system of higher education is comprised of approximately 15 million students who attend a vast collection of institutions that differ by cost, selectivity, social prestige, and programs of study. As the number of individuals entering the higher education system has increased, so too has the socioeconomic and demographic diversity of the college going population (Baker & Velez, 1996; Goldrick-Rab, 2006). However, considerable research has demonstrated that increased higher education participation and attainment do not necessarily lessen inequalities at the societal level (Corcoran, 1995; Lucas, 2001). Simply put, the American higher education system increasingly reflects the differentiated and stratified American society (Labaree 1990), and there is a need to better understand what factors influence students' pathways into college, as well as how these pathways may serve to eradicate or reproduce inequalities in our society.

Thus, the central purpose of this research project is to better understand the process by which students travel from secondary to post-secondary education. Such a process involves a variety of sequential decisions beginning with forming educational aspirations and ending with students' decisions to enroll in college (e.g., Cruce, 2004; DesJardins, Ahlburg, & McCall, 2006; St. John, Asker, & Hu, 2001). At every stage of this process, the success of any given student is confounded by a disparate array of economic, social, and cultural resources. Using these resources as a conceptual base, this project endeavors to construct a series of statistical models to understand how the college choice process unfolds for students of differing racial/ethnic backgrounds who are located within diverse secondary school environments. In doing so, this project offers a unique glimpse into the college choice process and adds significantly to the extant knowledge base by disaggregating effects at both the student and institutional level.

To date, very few college choice studies have examined how the structural aspects of high schools influence students' access to various forms of human, social, and cultural capital. In focusing more holistically on the educational pipeline, this project carries the promise of bridging our understanding of the college choice process from the vantage point of both secondary and postsecondary institutions while highlighting practices and policies that are most conducive in promoting college access for all students.

Theoretical Perspectives on College Choice

The college choice process has been aptly described as a tripartite model that includes an initial predisposition stage, in which students develop educational aspirations, a search stage, in which students search for information about colleges and determine their choice set, and a choice stage, in which students make decisions about enrolling at a particular college or university (Hossler & Gallagher, 1987). While a number of theories have been proposed to understand these stages, the prevailing theories on college choice and access are relegated to economic models of human capital and sociological models of status attainment (see Hossler, Braxton, & Coopersmith, 1989; Paulsen, 1990; Perna, 2006).

Human Capital Perspectives

Human capital theory lends itself to our understanding of the college choice process by grounding the decision to attend college in the language of productivity-enhancement and investment returns (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 non-monetary returns) are compared to the direct and indirect costs associated with acquiring a college education (Cohn & Geske, 1990). While this framework accounts for some of the observed differences in college choice patterns, researchers interested in modeling college choice need to take into account additional factors such as access to financial resources (e.g., student financial aid, current loan limits; see Paulsen, 2001) and the overall demand for human capital (Catsiapis, 1987). Furthermore, students' decisions about college are predicated on access to information and an understanding of the college choice process. Differential access may potentially disadvantage first-generation students (NCES, 2004) and may partially explain disparities in college enrollment among low-income, Black, and Hispanic students (Perna, 2006). However, a number of researchers (e.g., Avery & Kane, 2004; Paulsen, 2001) contest the explanatory power of inaccurate information and suggest that students are reasonably informed about the earnings potential and expected benefits of a college degree.

One of the strongest human capital predictors of college enrollment is academic preparation (Perna, 2004), although researchers have operationalized this concept using a number of different constructs ranging from enrollment in college preparatory tracks (e.g., Perna, 2000) to the highest level of mathematics coursework completed (e.g., Perna & Titus, 2005). More direct measures of academic preparation or achievement, such as standardized test scores (e.g., Perna & Titus, 2005, Perna, 2000) and high school grade point averages (e.g., Ellwood & Kane, 2000), demonstrate a strong relationship with enrollment in postsecondary education (Perna, 2000).

While human capital theory postulates that education increases productivity net a variety of background characteristics, enrollment in postsecondary institutions is also a function of family income and other economic resources (Ellwood & Kane, 2000). Researchers, for instance, have shown that the enrollment decisions of students from lower-income families are more sensitive to changes in college costs (Avery & Hoxby, 2004). Research also demonstrates a clear link between financial aid offered to students and their likelihood of enrolling in postsecondary education (Catsiapis, 1987; Avery & Hoxby, 2004). Heller's (1997) review of state grant expenditures and tuition pricing, for instance, found that changes in both of these components had stronger impacts on enrollment outcomes for Asians, Blacks, and Hispanics when compared to White students. Massey, Charles, Lundy, and Fischer's (2003) research also demonstrates that minority students attending selective colleges have greater exposure to economic risks, requiring them to rely relatively more on financial aid to both access and persist in college.

Sociological and Cultural Perspectives

From a sociological perspective, researchers have addressed the importance of students' background characteristics and socioeconomic status in their college decision making process. Status attainment models, for instance, have been employed to understand how students' ascribed (SES, race, gender) or achieved (academic preparation and performance) characteristics influence educational aspirations which in turn predict educational attainment (Perna, 2006).

Over the last twenty years, research has shed more light on our understanding of racial differences in the college choice process, yet our understanding of college choice outcomes across racial groups remains unclear. Hurtado, Inkelas, Briggs, and Rhee (1997) demonstrated that Blacks were less likely to attend their first choice institution compared to White students, although other studies suggest that Black students are more likely to enroll in college than White students (Perna, 2000; Plank & Jordan, 2001). Similar discrepancies are also evident among studies examining Hispanic students (cf. Perna, 2000; Plank & Jordan, 2001).

The sociological constructs of cultural and social capital have also been useful in explaining the influence of the social context (e.g., family, community, and social supports) on the likelihood of attending a postsecondary institution. Bourdieuan notions of cultural capital, for instance, have been used to explain how an individual's habitus, defined as an internalized system of thoughts, beliefs, and perceptions typically acquired through one's parents or immediate community, can shape student college choice (McDonough, 1997; Perna & Titus, 2005). Social capital theory has stressed the role of social networks in enabling students to gain access to other forms of capital (i.e., human and cultural) and institutional supports that facilitate college enrollment (Morrow, 1999). Furthermore, extending concepts of "choice-within-constraints" and "context-bound rationality" from a new institutionalism perspective suggests that networks of social and economic relationships are important factors in shaping students' incentives, expectations, and behaviors (Brinton & Nee, 1998).

Bourdieuan notions of social capital are particularly relevant to this project as they emphasize the presence of structural barriers that can pose differential access to institutional resources, especially across different racial and ethnic groups (Dika & Singh, 2002, Lin, 2001). McDonough (1997), for instance, demonstrated that in addition to academic and socioeconomic characteristics, secondary school characteristics are also important factors to consider in the college choice process. While McDonough's study focused primarily on the role of guidance counseling, Perna & Titus's (2005) study examined the structural context of the high school by analyzing the amount of resources accessible to parents through social networks at the school. Operationalizing the volume of resources available to students (including the average levels of parental involvement, family income, parental education, and parental educational expectations), a strong relationship was found between resource availability and likelihood of attending a postsecondary institution. Noting several important differences across racial groups, Perna and Titus concluded that "Blacks and Hispanics not only possess fewer types of capital that promote college enrollment but also attend schools with fewer of the resources that promote college enrollment" (p. 509).

More recent research on structural barriers has emphasized the role of the quality of the high school and the historical relationships that have existed between a particular high school and college. Wolniak and Engberg (2007), for instance, found that students attending better quality high schools (as measured by average college going rates, standardized test scores, and incidence of AP test-taking) were less likely to attend a particular college. Their study also demonstrated the potential for students to have a larger set of college alternatives based on the overall quality of their secondary institution. Similarly, Espenshade, Hale, and Chung (2005) found that as two different indicators of high school quality increased (i.e., average SAT I scores and per capita senior AP test-taking), the likelihood of gaining admissions at an elite college decreased.

Wolniak and Engberg (2007) also uncovered the positive impact that historical relationships between a high school and college can have on the likelihood of matriculating at a particular college. This study raised questions of structure versus agency in the college choice process, and revealed that established institutional networks were found primarily among higher quality high schools, White students, and in wealthier communities. In a similar vein, Person and Rosenbaum (2006) introduced the concept of chain enrollment to help explain the college choice decisions among immigrant students, who often apply to and enroll at postsecondary institutions attended by other students within their social network. Their findings among Latino/a students suggest that established networks of social contacts are particularly important in obtaining information about college and may be important determinants of matriculating at any given college.

Theoretical Framework

Building on Hossler, Braxton, and Coopersmith's (1989) classic model of college choice, researchers have generally turned to the major tenets of human, social, and cultural capital theories to understand various aspects of the college choice process. Researchers have used these theoretical understandings to build models that focus primarily on the effects of students' background characteristics (including preferences and attitudes related to education attainment as well as a particular college), socioeconomic characteristics of families, contextual characteristics (e.g., factors related to peers, neighborhoods, and high schools), and characteristics of institutions (e.g., cost of attendance, academic profile as a proxy for academic selectivity and social prestige, and programmatic offerings; see Heller, 1997; Paulsen, 1990). This project proposes a similar model of college choice that employs a confluence of variables related to human, social, and cultural capital to understand college choice decisions across different racial groups at both the student and school level (Perna, 2000).

Research Questions

Based on the above literature, this project seeks answers to questions related to the college choice process and the mechanisms by which distinct populations navigate pathways to college. The project's primary aim is to identify significant factors, at both the student and institutional level, that influence the likelihood of attending a

postsecondary institution. Through careful and rigorous analysis, the project endeavors to answer the following questions:

- (1) What is the relationship between human, social, and cultural capital variables measured at the student-level on the likelihood that a student enrolls in a postsecondary institution after controlling for other student-level predictors of college enrollment and school-level characteristics?
- (2) What is the relationship between human, social, and cultural capital variables measured at the school-level on the likelihood that a student enrolls in a postsecondary institution after controlling for other student-level predictors of college enrollment and school-level characteristics?
- (3) How does the relationship between different types of human, social, and cultural capital and the likelihood of enrolling in a postsecondary institution vary across racial/ethnic groups after controlling for other student-level and school-level variables?

Methods

Data

This project will rely on data collected through the Education Longitudinal Study of 2002, a survey research project funded through the Institute of Education Sciences on behalf of the National Center for Education Statistics, a division of the U.S. Department of Education. The ELS study is designed to measure students' transitions from secondary school into postsecondary education and/or the workforce. The ELS study is both longitudinal, surveying the same group of students over time, and multi-level, collecting information from multiple respondent pools that include students, parents, teachers, librarians, and schools. The longitudinal nature of the ELS allows researchers to understand factors that influence students' decisions to attend or not attend college, especially those factors related to their earlier achievements, aspirations, and experiences. In particular, data collected from this study allows researchers to understand the effectiveness of different high schools and whether their effectiveness varies by different structural characteristics such as size, organization, climate, curriculum, or ethos.

Questionnaires were administered in 2002 to students during their sophomore year and again in 2004 during their senior year. Questionnaires were also administered to teachers (i.e., mathematics and English), parents, administrators (i.e., principals), and librarians. The sample includes 750 high schools that were selected first, and approximately 15,000 students who were randomly selected from within each school. Students from less numerous population groups (e.g. Asian Americans) were selected at higher rates as were certain types of non-public schools (i.e., Catholics and other private schools).

While part of this project is designed to develop appropriate constructs that illuminate the conceptual framework, I list below some of the possibilities that exist within the ELS database to operationalize key constructs:

- **Human Capital Variables:** Academic preparation (measured at the student level by highest math achievement or frequency of course-taking); family income (measured at both the student and school levels)
- **Social Capital:** Parental involvement (measured by frequencies of parental involvement in student-level activities and school-level activities); Structural characteristics (measured by the percentage of minority students and average levels of parent involvement and resources available for parent involvement)
- **Cultural Capital:** Parent's education (measured at both the student and school levels); Parents' expectations for student's educational attainment (measured at both the student and school levels)

Analytical Design

In addition to using various descriptive (e.g., ANOVA) and data reduction techniques (e.g., Factor Analysis), hierarchical linear modeling (HLM) will be the primary analytic medium to address the project's main research questions. HLM is an appropriate analytic technique to test hypotheses about the relationship between variables at two different levels (Bryk & Raudenbush, 1992). HLM, for instance, allows one to partition the variance components among student-level and school-level factors, thereby isolating how facets of both the individual and the school environment contribute to our understanding of the likelihood of attending college. While that relationship has not been tested by any researchers to date using the ELS data, Perna and Titus (2005) demonstrated that a one-way ANOVA of an unconditional model explained 13 percent of the variance in college enrollment based on data collected through the NELS 88 dataset. HLM is particularly useful in understanding school-level effects, especially in determining whether structural characteristics and aggregated student characteristics influence pathways to college. Finally, HLM corrects for common failures that occur when researchers treat multi-level effects in a non-nested manner; such a process can lead to aggregation bias, miscalculation of standard errors, and heterogeneity of regression (Bryk & Raudenbush, 1992). The ELS dataset, in particular, employed a sampling frame that first sampled schools and then sampled students within schools.

Implications

Even with the lessons learned from previous research, federal, state, and local educational policies have been unable to provide equal educational opportunity to all students from all backgrounds (Borman, Cookson, Sadovnik, & Spade, 1996). Quite simply, the nation's schools reflect the complex problems embedded within a democratic

and capitalistic society (Labaree, 1990), and are severely constrained in their ability to affectively address these problems. Hopefully, the results and empirical models from this project will provide new insight on the college choice process while taking into account the unique pathways to college for students of differing race/ethnic group memberships.

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Dissemination

The proposed project directly conforms with my current and ongoing research interests pertaining to college access and opportunity within the American educational system. Having worked with more limited datasets in the past, I have been very eager to begin work on the latest ELS dataset, which has perhaps the richest and most current source of data to understand the barriers to access for underserved populations.

First and foremost, I plan on using this project as a vehicle to apply for an IES grant that would be due toward the end of next summer (July 26, 2008). Goal One of the current grant competition asks for proposals that “identify existing programs, practices, and policies that may have an impact on student outcomes and the factors that may mediate or moderate the effects of these programs, practices, and policies” using secondary data analysis. I plan on using the results of this project to better conceptualize my current theoretical framework, to demonstrate my analytic ability, and to provide strong evidence of my ability to satisfy the requirements of Goal One. In addition, I plan on applying for a smaller research grant through the *American Educational Research Association* based on their requirements for proposals that specifically utilize a NCES or NSF dataset.

In addition to applying for a federal grant, I plan on submitting at least two proposals for upcoming conferences. In particular, I plan on submitting proposals to the Association for the Study of Higher Education (ASHE) and the American Educational Research Association (AERA). The first proposal will be geared toward understanding a general model of college access as presented in my first two research questions. The second proposal will extend the general model and examine whether it remains a valid conceptual framework for students of differing racial group memberships. A third proposal could potentially extend the general model to understand whether there are differences among students who chose to attend two-year versus four-year colleges.

As evidenced my curriculum vitae, I have consistently pushed myself to turn conference papers into publication manuscripts. For each of the proposed studies, I plan on submitting the completed manuscript to a peer-reviewed journal in my field. Possible journals for consideration include the *American Educational Research Journal*, *American Sociological Review*, *Review of Higher Education*, *Journal of Higher Education*, and *Research in Higher Education*.