A Research Agenda for the Study of the Effects of Borrowing and the Prospects of Indebtedness on Students' College-Going Choices

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THE PROJECT ON STUDENT DEBT

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Abstract

Although student loans are a central feature of the financial aid system in the United States, there is little strong evidence of the magnitude, direction, and variation of the effects of borrowing and the prospects of indebtedness on students' college-going choices. Emerging research emphasizes the dynamic and highly interactive relationship between borrowing decisions and student enrollment and degree choices. A broad-based, multi-disciplinary research agenda is proposed to inform financial aid policies and student advising.

This report provides a review of research concerning the effects of loans and the prospects of indebtedness on students' college choices. Such a review is timely to inform national debates about the design of student financial aid programs. In recent months, legislative news has carried a great deal of the tension on Capital Hill surrounding cuts in the government student-loan programs (Burd, 2006; Chitty, 2006), complaints about the cumbersome and sometimes overly punitive design of aid programs (Field, 2006; Selingo, 2006), and worries about the effects of debt on students' college and career choices (Rainey, 2006; Walters, 2005a). These tensions reflect the importance of subsidized and unsubsidized federal loans, as well as private loans, in students' college financing strategies today (*Trends in student aid*, 2006).

An interdisciplinary research agenda employing diverse methods of data collection and analysis is emerging to inform public policy surrounding the use of loans as financial aid. New statistical techniques are emerging to disentangle complex relationships among the effects of different sources of aid on the whole continuum of students' college enrollment decisions, while ethnographic researchers are focusing on the ways a student's culture and family affluence shape access to information and guidance about financial aid. Building on these recent studies, the report presents a broad-based, multi-disciplinary research agenda for studying the effects of borrowing and the prospects of indebtedness on students' college-going choices. This agenda, by no means exhaustive, is designed to address neglected areas of research and to inform policymaking.

As discussed in the next section, although loans are clearly a central part of public and private higher education finance strategies, academic researchers have only been able to reach rather inconclusive and sometimes contradictory results concerning the effects of loans on students college-going behaviors (Dowd & Coury, 2006). In addition, little research has been conducted about the effects of the different forms of financial aid on students' awareness and understanding of the costs of college (Perna, 2004). While there was growing attention to the critical role of financial aid information in conveying the message of college opportunity to students (Kane, 1999; *Student Aid Gauntlet*, 2005), very little empirical research had been conducted to investigate the knowledge, attitudes, and behaviors of high school counselors in their role as financial aid advisors (McDonough, 2004; McDonough & Calderone, 2006) or the ways in which low-income students actually make sense of and act on the financial aid information they do receive (Luna De La Rosa, 2006; Pak, Bensimon, Malcom, Marquez, & Park, 2006; Tierney & Venegas, 2006; Venegas, 2006). As discussed in the second section below, this is beginning to change, but the overall dearth of research on student perceptions of financial aid and of the relationship of aid to the actual price of college is well documented in comprehensive literature reviews conducted by researchers for The Education Resources Institute (TERI).

In a summary of the findings from the TERI initiative, Mundel and Coles (2004, p. 8) sound a "cautionary note regarding the disappointing absence of research on these perceptual issues" surrounding college prices, student aid, and enrollment. The limited research findings that do exist suggest that students and their families, particularly low-income families, overestimate the costs of college and underestimate the potential benefits of aid, either due to poor understanding of different types of aid or uncertainty about eligibility. These perceptions "almost certainly limit the behavioral impact of federal student assistance programs," Mundel writes in an appendix to the report (p. 46).

In the study of students' responses to indebtedness, the deliberative, calculative thinking that has been the staple of the economist's "rational choice model" (Becker, 1976, 1993; Elster, 1986; Kaufman, 1999) is supplemented today by insights from a broad range of fields including education, sociology, psychology, and cultural studies (Bourdieu, 1986; McDonough & Calderone, 2006; St. John, 2003, 2006; St. John, Cabrera, Nora, & Asker, 2000; Tierney & Venegas, 2006; Trent, Lee, & Owens-Nicholson, 2006).

These fields shed light on the affective component of students' willingness to take loans and the effects of indebtedness on college enrollment decisions. In combination with economic studies, they suggest new avenues for research that will inform financial aid policies. The affective component includes satisfaction with one's ability to pay for college; it "embodies the student's perceptions regarding her/his financial circumstances" (Cabrera & et al., 1990; St. John et al., 2000, p. 37). From this perspective, when students receive financial aid but continue to have unmet financial need, the positive effects of the receipt of aid will be bundled with negative effects on college enrollment stemming from a student's dissatisfaction, stress, or uncertainty under those financial circumstances (Nora, Barlow, & Crisp, 2006). Unmet need—the amount missing from a student's college budget after grants, loans, work study aid and family financial contributions are accounted for—can be sizeable. A recent study by the State Public Interest Groups' Higher Education Project of national student aid data indicates that low-income students face unmet need between $3,000 and $4,600 annually (reported in Walters, 2005b).

The most recent educational scholarship on the effect of loans and other forms of financial aid on students' college choices argues for integrated approaches that recognize the interrelatedness among financial circumstances, academic experiences, student perceptions of their likelihood of program completion, work and family demands, and social support from significant others in the student's family and community (Beekhoven, De Jong, & Van Hout, 2002; Cabrera, Nora, & Castaneda, 1993; DesJardins, Ahlburg, & McCall, 2006; Nora, 2001-2002; St. John, 2003; St. John et al., 2000; Trent et al., 2006). In addition, students' grades in their initial college courses tell them about their chances for getting a degree and how much effort it will take. All these factors influence a student's sense of "fit" in the college environment and help determine their willingness to continue in college.

Statistical Research on the Effects of Loans on College-Going Behaviors

As summarized in Table 1, the effect of loans on students' college enrollment decisions is certainly multi-dimensional. On the positive side, loans remove what economists call “credit constraints” and what others know well as lack of cash. When interest rates are held low on government loans and inflation rises, loan dollars are an extremely valuable asset for college students. Unlike grants, loans are not “free money.” However, taking into account depreciation of the value of a dollar over time due to inflation and the likely future returns to a college degree, the money students receive in hand while enrolled in college has an estimated value roughly equivalent to fifty cents per dollar[1] (Asker, 2003; Linsenmeier, Rosen, & Rouse, 2001).

Table 1: Positive and Negative Effects of Loans on College Enrollment Decisions

Financial and affective components of indebtedness	**Effect of loans and indebtedness on college enrollment**
Aid dollars in the form of loans reduce the amount of money students need from savings, work, and family, enabling students to enroll in college.	Positive
At favorable interest rates, subsidized loans put dollars in the hands of students who invest them in their own education and realize investment gains through higher earnings after degree completion.	Positive
The chances of degree completion are low or uncertain for many students, who fear their future inability to repay loans.	Negative
The return on the educational investment may not be large enough to offset the loss of economic security and/or quality of life due to loan repayment burden.	Negative
Borrowing conflicts with cultural values of financial independence and self-reliance.	Negative
Borrowing from governmental sources brings unwanted intrusion into private family finances.	Negative

[1] The actual value depends on interest rates and varies over time.

On the other hand, unlike grants, loans are a form of tuition subsidy that can carry negative effects due to the psychological stress of future loan repayment (Nora et al., 2006). Risk aversion is likely to be heightened for students in colleges with low degree attainment rates, such as community colleges, or from families with no history of participation in higher education (Burdman, 2005). Hilmer (1998) has shown that students' decisions regarding community college or university enrollment depend on these expected chances of degree completion . If borrowing does not reduce student costs sufficiently to enable persistence and timely degree attainment, then students may be at risk of loan default.

Given the high rates of attrition in community colleges and open access four-year colleges, many students who take loans will never graduate and will not be in a position to realize educational investment returns (Gladieux & Perna, 2005). In these cases, loan repayment will be a financial burden. This implies that, all else equal, students at colleges with low degree completion rates who have borrowed will assess the net benefit of their educational investment more negatively than students who are funded through grants alone or who did not borrow. More generally, no borrower can completely forecast what "curves" life might throw at them that could make loan repayment onerous. However, Price (2004) has shown that among students who do earn bachelor's degrees, low-income, Black and Hispanic students are those most likely to face a high debt burden in the years following graduation.

Mixed Empirical Findings

Not surprisingly, given these complicated and sometimes conflicting aspects of indebtedness, empirical studies have arrived at inconsistent findings regarding the effect of borrowing on student educational outcomes, such as enrollment, re-enrollment (or "persistence"), and degree attainment. Generally the results indicate that loans do promote college enrollment (Dynarski, 2002b; Heller, 1997; St. John, 1990a) and also influence a student's choice of college among competing offers (Avery & Hoxby, 2004), but these positive effects appear to differ by income and racial-ethnic group (Dynarski, 2002a), as well as by immigrant status and nativity ("Caught in the financial aid divide," 2004; Pachon & Zarate, 2005; Tornatzky, Cutler, & Lee, 2002).

Perna (2000), for example, in a study of national data found that loans have a highly negative effect on the enrollment decisions of African-American students. Similarly, Jackson (1990, p. 542) reported that while African-American students are more responsive to financial aid than white students, grants have a positive effect on their enrollment and loans do not. Adding evidence to support the view that minority students respond differently to loans and grants as a form of financial aid and to a degree greater than white students, Linsenmeier, Rosen and Rouse (2001, p. 19) concluded that the replacement of loans with grant aid in the financial aid packages offered to students admitted to a prestigious Northeastern university had a greater effect on the enrollment of low-income minority students than of low-income students as a whole. The opportunity to study the effects of loans on the enrollment of Hispanic students of varying national origin and immigrant generational status has been limited by the under-representation of this group in the four-year sector and the nearly exclusive reliance on grants by Latinos enrolled in the two-year sector (Olivas, 1985, 1986; Santiago & Cunningham, 2005). In addition, the major federal financial aid surveys, the National Postsecondary Student Aid Study (NPSAS) and the Beginning Postsecondary Students (BPS), do not over-sample ethnic groups underrepresented in higher education.

The results of studies of the effects of loans on students' decisions to re-enroll beyond the first year of college have had even more mixed results. Researchers have studied re-enrollment, or "persistence," from the first fall to the first spring semester, persistence to the second or subsequent years, persistence to the degree (which is also referred to as degree attainment), and "drop out" at any time over a number of years. Researchers analyzing federal survey databases and focusing on student persistence in four-year colleges have shown positive effects of loans on re-enrollment to the second year (Dowd, 2004; St. John, 1990b, p. 393) and on reducing the chances of dropping out (Chen, 2005, p.15), but negative effects on persistence from the first to second semester, particularly in samples of low-income students (Paulsen & St. John, 2002, p. 214 ; St. John, Andrieu, Oescher, & Starkey, 1994, p. 468; St. John & Starkey, 1995, pp. 170-172).[2]

Researchers have also analyzed student persistence using institutional and state-level data. A study of students at one four-year institution found negative effects of loans (DesJardins, Ahlburg, & McCall, 2002), while another at a different institution found positive effects for loans that were government subsidized and an insignificant effect of those that were unsubsidized (Singell, 2002a). In contrast, Titus (2000, p. 21), studying data from the Maryland Higher Education Commission and the University System of Maryland, found that loans had no significant effect for high- or low-income students on persistence to the second year of college. Stampen and Cabrera (1988), studying University of Wisconsin System data, also found insignificant effects of loans, but noted that borrowers tended to be among the highest income students in their sample.

The results of four studies limited to community college samples also offer contradictory evidence of the effects of loans on college student persistence. Researchers analyzing federal data have obtained results indicating positive (Cofer & Somers, 1999), negative (Dowd & Coury, 2006), and insignificant effects (Hippensteel, St. John, & Starkey, 1996; St. John et al., 1994). Examining degree attainment in the more broadly defined sub-baccalaureate sector similarly leads to nuanced results, as Rogers finds analyzing the effects of borrowing in the first year of enrollment, which is positive, and in subsequent years, which is negative (2005, p. 17).

Statistical Challenges

Not only do these studies provide conflicting evidence about the role loans play in promoting college enrollment and degree attainment, the entire body of literature estimating the effects of loans on students college-going behaviors using the national NPSAS and BPS data sets and

[2] See St. John (2003), particularly Table 6.2, for a more in-depth summary of this literature.

many of the studies of institutional and state data are subject to a strong statistical critique that has gained widespread acceptance among economists. This critique argues that these data bases do not provide sufficient information about students to disentangle the effect of student characteristics that lead them to make certain kinds of college choices, such as what type of college to enroll in or how to finance college, from the effect of these same qualities on the likelihood of persistence and degree completion. This is especially true because, as DesJardins, Ahlburg, and McCall (2006) point out in arguing the need for richer statistical models, "financial aid packages are often tailored to the characteristics of applicants." Their study shows that the financial aid students expect to receive at different institutions influences their application and enrollment decisions. To interpret a student's receipt of a grant or loan as having an effect on the student's behavior independent of the student's own characteristics and choices is therefore quite problematic.

In addition, some characteristics that affect borrowing and a student's willingness to accept different types of financial aid packages are difficult to observe and absent from available data. For example, a student who borrows may well have a greater sense of self-efficacy than another student with otherwise similar academic and demographic characteristics who does not borrow. This sense of self-efficacy, which is measured poorly if at all in survey data, will have a positive effect on the student's educational success. Given that the student's borrowing is observed but her self-efficacy is not, the positive effect of strong self-efficacy will erroneously be attributed to the fact that the student borrowed. These statistical issues, which are known as "endogeneity" and "self-selection bias" (Heckman, 1979; Millimet, 2001), greatly diminish confidence in the conclusions from this body of research (Alon, 2005; Bettinger, 2004; DesJardins et al., 2006; Dynarski, 2002a; Linsenmeier et al., 2001; Titus, forthcoming).

A more fundamental conceptual challenge arises in interpreting the effects of greater or lesser loan amounts in relation to other forms of aid. For example, it is difficult to observe from available data whether student borrowing replaced or supplemented grant aid.[3] If loans replace grants, an observed negative effect of borrowing may be due to the negative effect of losing grant aid. When loans supplement grants, the additional funding may provide the extra dollars necessary to enable students to enroll in college full time, for example, or to select a higher priced (and potentially higher quality) institution. Researchers have explored the effects of loans relative to "unmet need" (St. John, 2003) and "thresholds" of need in public and private colleges (Kim, 2005). DesJardins, Ahlburg, and McCall (2006) concluded that students' responsiveness to financial aid is sensitive to the base level of aid from which the effect is calculated, but their study did not distinguish between loans, grants, or other aid or the interactions among the types of aid typically making up a financial aid package.

Further the sequential and recurring nature of enrollment decisions both prior to and during college as students formally and

[3] The author appreciates helpful feedback from Sandy Baum emphasizing this point in response to an earlier draft of this report.

informally assess their probabilities of academic success (Altonji, 1993; Beekhoven et al., 2002; Chen, 2005; DesJardins, Ahlburg et al., 2002; DesJardins et al., 2006; DesJardins, McCall, Ahlburg, & Moye, 2002; Hilmer, 1998) presents statistical challenges. These temporal dimensions of the effects of aid have been investigated through techniques known as "event history" (DesJardins, Ahlburg et al., 2002; DesJardins, McCall et al., 2002) and "two-stage" modeling (DesJardins et al., 2006), which show that student decision-making is both forward-looking and time dependent. Generally speaking, however, the available cross-sectional survey data has severely constrained investigations of the dynamic interactions among students' expectations of aid, actual aid amounts awarded, total college costs, and students' ability to pay.

Other statistical challenges abound. As noted above, the response to loans as a form of financial aid probably differs by the level of affluence of a student's family, but only recently have researchers begun to estimate the magnitude of those differences, either by using what are called "interaction terms" (Chen, 2005; Dowd & Coury, 2006; Kim, 2005) or by estimating the effects separately for different income groups (Avery & Hoxby, 2004; Paulsen & St. John, 2002; Titus, 2003). Potential differences in borrowing effects among students of Hispanic or Asian national origin are not at all addressed in the statistical literature, even though the economic, demographic, and cultural characteristics of Cuban- and Mexican-Americans are known to be quite different, and the same can be said for third generation Japanese-Americans in contrast to Cambodian immigrant groups, for example. National survey data, and most state and institutional data, simply do not have enough cases of students with these characteristics to enable such investigations.

Finally, other statistical issues include the poor availability of tools to assess how well statistical models are functioning to predict student behavior (Hosmer & Lemeshow, 2000; Long, 1997; Long & Freese, 2001b; Peng, So, Stage, & St. John, 2002), sometimes inaccurate use of strategies to determine which results are indeed significant (Thomas & Heck, 2001), and an overemphasis on results describing typical students "at the mean" rather than results for students with a variety of characteristics of interest to policy makers (Dowd, 2002; Peng et al., 2002).

It is clear that there are many challenges to statistically determining how students' enrollment and persistence decisions are influenced by borrowing and the prospects of indebtedness. These challenges, alongside the rather mixed empirical research findings to date, suggest that researchers in this area have a great deal more work to do before policymakers can draw on their studies with confidence to inform financial aid policies.

<u>Emerging Statistical Strategies and Developments</u>

To address the statistical issues discussed above, financial aid researchers have sought out new analytical techniques. Several emerging strategies are being employed to address the limitations of prior studies.

The two-stage modeling strategy mentioned above first estimates a student's likelihood of making a certain type of decision and then incorporates that estimate into the likelihood of applying to college, enrolling, and persisting (DesJardins et al., 2006; Singell, 2002a, 2002b, 2002c; Titus, forthcoming). However, Titus (forthcoming) reviewing recent articles in the econometric literature, argued that these types of models also face problems of misestimate due to the correlation of the estimated effects with unobserved factors not captured in the model. Therefore, greater emphasis today is being placed on other quasi-experimental techniques and on randomized experimental designs ("WWW Study Review Standards," 2006).

One quasi-experimental strategy (so called because students volunteer for participation in programs rather than being randomly assigned) exploits the ways in which financial aid eligibility criteria can create relatively large differences in the amounts of aid awarded to students with similar characteristics (Bettinger, 2004; Dynarski, 2002b, 2004; Linsenmeier et al., 2001). These "discontinuities" create "quasi" or natural experiments about the effects of aid on student college-going behaviors because the aid is awarded or not awarded at the margins or cut-points of eligibility thresholds based on very small differences in students' academic qualifications or financial need (Rossi, Lipsey, & Freeman, 2004). Changes in financial aid eligibility criteria from one year to the next create similar opportunities for study (see, for example, Dynarski, 2002b; Linsenmeier et al., 2001), because student groups do not change dramatically from one year to the next and the differences that do exist can be statistically controlled or identified by matching students with similar characteristics (Rossi et al, 2004).

Titus (forthcoming), in a study not of financial aid but of economic returns to masters degree completion, illustrated the way a statistical technique called propensity score matching can be used to analyze secondary data and observe not only average program effects on student outcomes, but also the average effects on the "treated" (program recipients) and the "untreated" (non-recipients). To counter self-selection bias, propensity score matching uses a "counterfactual framework" to infer the effects of a program on those who did not participate in it by matching individual characteristics between the "treated" and "untreated" groups and estimating the potential outcomes of the untreated group under the counterfactual assumption that they had participated in the program. Given Titus' finding that propensity score matching effectively disentangles program effects for those who do and do not opt into available educational programs, without conducting randomized experiments (which are often difficult due to ethical and logistical concerns), he recommends use of this technique in future research examining the effects of financial aid on college student choices and degree completion.

Quasi-experimental designs can also involve the actual "treatment" and observation of groups of students with similar or dissimilar academic or demographic characteristics. For example, Avery & Kane (2004) provided information and mentoring about financial aid, college costs, and application procedures to students in low-performing Boston schools and compared their college-going behaviors with a matched sample of students attending suburban schools that typically sent high proportions of their graduates to college.

St. John and Chung (2005) exploited ambiguities in the first-year of the review process for participation in the Gates Millenium Scholars program that created a quasi-random distribution for the 2000 academic year. Students in the award recipients and non-recipient groups both exceeded cognitive and non-cognitive selection criteria, creating comparison groups with only random differences in these traits. GMS awards cover students' financial need after other forms of grant and scholarship aid have been awarded. As "last dollar" grants, they are intended to eliminate the need for students to borrow or work extensive hours to pay college costs. Comparing recipient and non-recipient groups, they concluded GMS award recipients were more likely to enroll in private rather than public colleges, enroll in the four-year rather than the two-year sector, and to maintain continuous enrollment, providing evidence of a positive effect of "last dollar" grant aid that offsets the need to borrow.

Although true experiments with random assignment of students to treatment and control groups are considered the "gold standard" for evaluating program effects of all types (Rossi et al., 2004), there are few examples of this type of research in the study of financial aid or higher education more generally. One example of this type of study is provided by the Opening Doors project conducted by MDRC (Brock & Richburg-Hayes, 2006). Though the Opening Doors study, which randomly assigned students to receive additional grant aid and academic counseling, did not directly study the effects of loans on student behaviors, the design and implementation of the project demonstrates the feasibility of conducting financial aid experiments. Researchers are increasingly turning their attention to considering the potential value and appropriate design of experimental studies (St. John, 2004).

Socio-Cultural Research on Financial Aid Knowledge and College Aspirations

Emerging case studies of the socio-cultural aspects of financial aid knowledge and attitudes reinforce the notion that low tuition is the only sure signal of affordability for first-generation and low-income students. Learning and acting on financial aid knowledge presents an especially complex challenge for low-income and first-generation college students. In his widely cited text *The Price of Admission*, Kane (1999) described the difficulties of complicated aid application processes and their negative impact on those who most need financial assistance. His work is borne out by the long list of aid simplification proposals recently issued by the Advisory Committee on Student Financial Aid (*Student Aid Gauntlet*, 2005). A recent analysis by the American Council on Education of federal data for the academic year 2003-2004 estimated that 1.5 million students who had not completed the Free Application for Federal Student Aid (FAFSA) might have been eligible for Pell Grants had they applied (King, 2006). This stark finding underscores the challenges students face in accessing aid of all kinds.

<u>Information and Identity</u>

Case study research is showing that knowledge of the availability of financial aid is not enough in itself to help students obtain aid (Luna De La Rosa, 2006). Students' perceptions of themselves as potential college-goers matter (Tierney & Venegas, 2006), as do counselors' views of their charges' college potential (McDonough & Calderone, 2006). Knowledge is acquired in particular social and cultural contexts that shape its meaning. The new socio-cultural studies of financial aid expand understanding of what have been called "information barriers" to college and begin to demonstrate the cultural and psychological contexts of students who must grapple with the intricacies of financial aid in order to even think about going to college. Tierney and Venegas (2006), for example, suggest that high school students serving as peer college counselors become a group of "fictive kin" whose connections stem from their shared college aspirations. This work indicates the need for further research to determine not only how to communicate the relatively complicated ways that loans and other financial aid reduce college costs, but how to effectively instill such knowledge as part of youthful identity development as a "college student."

In a study of Internet use by high school students in low-income urban high schools, Venegas (2006) found that though extensive Web access to admissions and financial aid information was once expected to equalize access to college, students who were able to obtain aid information were still likely to flounder without the guidance of a trusted and knowledgeable advisor. Despite abundant information on the Web at government, institutional and private scholarship sites, guidance from a knowledgeable counselor emerged as a key and essential resource for students to navigate complicated forms and deadlines. While students knew, for example, that completing the Free Application for Federal Student Aid (FAFSA) was a necessary first step to getting aid, many lacked broader knowledge of the admissions and financial aid context to navigate the entire process, resulting in missteps and missed deadlines. In the context of these findings, McDonough's (2004) review of estimates of student-to-counselor ratios at the largest metropolitan area high schools of 740:1, in comparison to a national average of 284:1 and an optimal ratio of 100:1 recommended by the American School Counselor Association, provides considerable cause for alarm that a key ingredient of an equitable financial aid system is sorely lacking.

Psychological perspectives recognizing identity development as a factor in college-going decisions may shed light on puzzling findings obtained by Avery and Kane (2004), who studied the effects of the COACH program, which was designed to provide information about aid and college application processes to students in Boston Public Schools (BPS) with relatively low college enrollment rates. Though students in the COACH program, who attended information and advising sessions with Harvard graduate students to learn about college application processes, reported aspirations for college enrollment equal to that of suburban counterparts selected as a control group, over 25 percent of those with high grades and more than half with low grades completed the SAT but did not apply to college. In part, the authors note, these results can be attributed to concerns about college financing, particularly because the students overestimated public college tuition charges, assessing them at two to three times the cost of colleges in their area. However, this conclusion was somewhat undermined by results from the same analysis showing little correlation between a students' accurate perception of tuition at a college and their assessment of their ability to pay to attend that college.

From a psychological perspective, factors such as motivation, self-efficacy, and identity may provide a missing link to explain the students' behaviors. Avery and Kane, who are economists, draw on Kane's earlier work to focus on the information barriers to college application and enrollment. However, they don't specify the social context of the interactions between the Harvard graduate students who serve as coaches and the BPS students. Hoxby (2004), introducing this work in her edited text, assumes the Harvard students are the ideal tutors, but this assumption deserves more scrutiny. Can the Harvard students effectively play the role of "fictive kin" (Tierney & Venegas, 2006) in the same ways as peer counselors, for example. Or, can they promote the students' sense of themselves as college-bound material? Potentially, yes, but the coaching, mentoring, and advising roles must be better elaborated to understand the circumstances under which they would indeed promote college enrollment.

McDonough and Calderone (2006) explore the "sociocultural understandings of money" by considering how class status influences consumer choices, including decisions about going to and paying for college. This is particularly relevant to the counseling relationship between middle- or upper-class counselors and low-income students. Through interviews and focus groups with secondary school guidance counselors, the researchers assessed counselor knowledge of financial aid as well as their perceptions of their students' and parents' financial needs and college affordability concerns.

In addition to finding sizeable variation in the ways in which the public, private, and Catholic schools in their sample of Southern California high schools conveyed financial aid knowledge to students, McDonough and Calderone (2006) observed counselors' assumptions about their students' collegiate aspirations and potential based on family wealth and ethnic group. The authors concluded that the counselors, most of whom were working in schools where more than half the students were Latino or African American, "did not have big college dreams for their students" (p. 1712). Counselors perceived that students and their families didn't understand the different types of aid available and could not necessarily distinguish grants from loans. Those who were familiar with loans as a form of aid tended to "equate loans with 'huge' and often insurmountable debt" (p. 1714). As a consequence, it seemed that students from poor families were often steered toward community colleges as the most affordable option. Counselors at private schools provided an exception. Because low-income students and their families received aid to attend private high schools, their counselors' were predisposed to assume those families would be willing to seek aid to attend more expensive colleges.

Socio-cultural differences in perceptions of financial aid offers are also illustrated by the findings of a study conducted by Avery and Hoxby (2004), in which they analyzed how college applicants who were academically successful in high school were influenced in their college choice decision by a variety of factors, including the components of the financial aid package offered. A surprising finding within the context of the study, which was designed to test the economic perspective that students will act as rational human capital investors in their college-going decisions, indicates that these high ability students and their families did not distinguish appropriately between the value of grants and loans. Though grants have a greater economic benefit than loans, students responded to them as though they had equivalent value, which the researchers attributed to a lack of sophistication in assessing the value of competing aid offers.

In addition, the results indicated that students seemingly assigned greater value to grants that were called “scholarships,” favoring them over competing offers where the money was awarded as generic institutional aid. Though lack of sophistication in understanding various forms of aid may also explain these findings, from a psychological perspective it is also possible that the students offered “scholarships” received a valuable boost in their self-esteem and felt validated in their identity as “high ability” students. Noting these and other aberrations from expected behaviors, the authors write: “All these behaviors are deviations from the expected behavior of a rational investor in human capital” (p. 289). Perhaps revealing what McDonough and Calderone (2006) termed the “sociocultural understandings of money,” these seemingly irrational responses were not observed among students whose parents had high incomes or who had attended very selective colleges. These students and families may have always had firm collegiate aspirations and identities and, therefore, placed lesser value on the receipt of scholarships whose names conveyed a special welcome into college.

Are Latinos Risk Averse?

Based on prior research (Baker & Velez, 1996; Monaghan, 2001; Nora & Horvath, 1989; Olivas, 1985, 1986), there is a general sense in the literature that students of different racial and ethnic groups vary in their attitudes towards borrowing (McDonough, 2004; Perna, 2004). While Latinos are thought to be the most risk averse, the extent to which low rates of borrowing stem from cultural values or from economic, social, and geographic circumstances still needs to be disentangled. Results from surveys conducted by the Tomás Rivera Policy Institute (TRPI) over the past several years show the intersections of Hispanic national origin with a student’s immigrant generation and family socioeconomic status. Their results are valuable to counterbalance potentially harmful assumptions that Latinos as a whole do not or will not borrow. Such assumptions may contribute to poor advising for Latino groups concerning the risks and benefits of borrowing and contribute to their overrepresentation in community colleges in comparison to four-year colleges.

The TRPI surveys have characterized perceptions of college costs and financial aid among Latinos nationally ("Caught in the financial aid divide," 2004) and in California (Zarate & Pachon, 2006). The results indicate that it is quite common for Latino parents and young adults to be unfamiliar with college student aid. The TRPI’s national survey of Latinos in seven metropolitan areas found that over half of the parents and 43 percent of the young adults responding could not “name a single source of financial aid” ("Caught in the financial aid divide," 2004). Asked to identify forms of aid, 81 percent of parents and 77 percent of young adults did not mention loans. The figures for those who did not mention grants were similarly high. This was despite nearly unanimous agreement among respondents about the importance of obtaining a college degree. Distinguishing among Latinos by immigrant generation and national origin, the findings illustrate the dangers of treating Latinos as a monolithic group in regard to willingness to borrow. Third generation respondents had much greater familiarity with aid than first generation respondents, while the knowledge gap between those Latino national groups most familiar with aid (Dominicans, with 71 percent somewhat or very familiar) and least familiar (Mexicans, at 55 percent) was quite sizeable at a difference of 16 percentage points.

These findings echoed earlier results indicating that "college knowledge" in general was low among Latinos. The majority of respondents surveyed in the Los Angeles, New York, and Chicago metropolitan areas scored very poorly on a simple "mini-test" of knowledge about the college preparatory curriculum, types of colleges, application processes, and college costs (Tornatzky et al., 2002). Differences in college knowledge were observed by socio-economic status and immigrant generation, with higher SES and later-generation families having greater knowledge. A key finding was the lack of college information available in Spanish. Consistent with Venegas' (2006) observations of students' Internet use, counselors and teachers were the two most important sources of college information.

Table 2: Borrowing for College among Mexican/Chicano Ancestry Undergraduates

	(1)	(2)	(3)	(4)
Sector	Percentage* of Mexican or Chicano ancestry students in this sector	Percentage who borrowed (average total loan amount borrowed, 2003-04)	Percentage who received grants (average total grant aid received, 2003-04)	Percentage who received any aid (average amount of total aid, 2003-04)
Two-year public	53.7%	6.6% ($3,294)	36.9% ($2,114)	41.6% ($2,701)
Four-year public	19.6%	47.4% ($5,272)	59.4% ($4,500)	74.9% ($7,300)
Four-year private not-for-profit	6.6%	65.5% ($6,826)	73.6% ($7,607)	85.6% ($12,214)
Private for profit	11.3%	74% ($6,994)	70.3% ($3,097)	90.7% ($8,455)

Source: Excerpt reproduced from *How Latino Students Pay for College* (August, 2005) by Deborah Santiago, Excelencia in Education, and Alisa Cunningham, Institute for Higher Education Policy (Table A2, p. 32 and Table A4, p. 34)

Data: National Postsecondary Student Aid Study, 2003-04.

*The column does not sum to 100% because the 8.8% enrolled in a sector categorized as "other" or who were enrolled in more than one sector are excluded from this summary.

Among respondents to the survey in California, 75 percent of those who had not attended college cited lack of financial aid as a barrier to enrollment and less than 20 percent knew the cost of attendance in the University of California or California State University systems, with most providing an overestimate (Zarate & Pachon, 2006). When asked if they would take loans for college if they qualified, two of five student respondents said they would, while one of three thought their parents would also be willing to borrow. Among those who attended college, two of three reported that financial aid influenced their choice of college.

The results from the TRPI survey in California indicate a willingness among Latinos to borrow. This point is also supported by analyses of federal student financial aid data from the NPSAS survey presented in *How Latino Students Pay for College* (Santiago & Cunningham, 2005). Table 2 reproduces findings from Santiago and Cunningham's report, excerpting only the information pertaining to students of Mexican or Chicano descent.

In community colleges, where more than half of Mexican/Chicano ancestry students are enrolled, college costs are relatively low, borrowing is uncommon, and the average amount borrowed is the lowest of any sector. Only 6.6 percent of Mexican/Chicano students borrowed in 2003-04, which, at an average of $3,294, was by far the lowest of any sector. Among the 20 percent of Mexican/Chicano ancestry students enrolled in the public four-year sector, however, nearly half borrowed, at amounts averaging $5,272. They also received over twice the amount of annual grant aid as their counterparts in the two-year sector ($4,500 versus $2,114). If loans provided the extra funds necessary for these students to enroll in the four-year sector,[4] then they also leveraged students' receipt of higher levels of public subsidies in the form of grant aid.

Another comparison from Table 2 suggests that institutional context influences the type of aid package a student receives. In the more expensive private sector, almost all students received some aid in 2003-04 and the majority took loans. In the not-for-profit four-year colleges, Mexican/Chicano students who borrowed (66 percent) had annual loan values slightly below that of grants ($6,800 versus $7,600). In contrast, those who enrolled in for-profit colleges borrowed at nearly the same level ($7,000), but received less than half that amount in grants (nearly $3,100). It is clear that students enrolled in different institutional sectors face very different aid options and adopt quite different financing strategies. The enrollment choice also determines the amount of public benefit a student receives, with students in the public sector receiving greater benefits through grant aid and through the low-tuition subsidy[5]. In addition, the sector influences a student's debt burden, which for some students becomes unmanageable. Historically, proprietary schools have had the highest student loan default rates (Archibald, 2003) and concerns about unscrupulous admissions

[4] However, for empirical results showing loans do not influence the type of college Hispanic students attend, see Arbona, C. and Nora, A (2005), "Predicting college attainment of Hispanic students: Individual, institutional, and environmental factors," presented at the annual meeting of the Association for Institutional Research (cited in Nora et al, 2006).
[5] Sandy Baum helpfully highlighted this point in response to the previous draft.

and financial aid practices in this sector have recently surfaced in the news (Hebel, 2006).

These descriptive comparisons illustrate that a “finance gulf” between the world of students in community colleges and those in other sectors where borrowing is the norm. Borrowing also emerges as a key that unlocks the door to additional public subsidies in the form of grants and the higher levels of educational resources found in the four-year sector.

The research findings described above indicate we need to know much more about the effects of loans and the prospects of indebtedness on the educational opportunities and outcomes for different types of students. In addition, the findings of the emerging case study literature regarding the socio-cultural dimensions of college costs and aid provide strong evidence that many students lack the information or the cultural context to make well informed decisions about borrowing. Yet it appears that borrowing is necessary to lay claim to greater levels of public subsidies for higher education, as more resources are provided to those who enroll in the four-year sector in comparison to those enrolled at community colleges. For these reasons, the effects of loans on college student enrollment and students’ understanding of their borrowing options deserve much greater empirical testing using a broader range of methods.

A Multidisciplinary Research Agenda

Building on the existing economic, socio-cultural, and educational policy studies of college costs and loans as a form of financial aid, this section proposes a research agenda to address gaps in our current knowledge and to inform higher education finance policy. This emerging research agenda has two primary goals. The first goal is to develop a richer understanding of the effects of loans and the prospects of indebtedness on students’ collegiate aspirations, choice, and enrollment through to degree completion than can be achieved through statistical analysis of secondary survey data alone. To achieve this goal, a variety of ethnographic, interpretive, and deductive case studies are proposed in combination with experimental tests and statistical studies of program effectiveness. Case study research is also essential to inform policy by contextualizing statistical estimates of the average effects of loans on student behaviors with evidence documenting student experiences.

The second goal is to develop the study of “practice” and practitioner knowledge in the area of financial aid advising (Polkinghorne, 2004). The purpose is to understand the knowledge, beliefs, attitudes, values, and resources practitioners require to provide sound advice to those in their charge, in this case to act knowledgeably to minimize the perceived and actual burdens of indebtedness while at the same time informing students of the potential benefits of various financial aid options. The methods proposed to achieve this goal involve researchers, practitioners, and students in the development and use of assessment tools that will inform practitioner knowledge about the circumstances in which students are well advised to borrow and those in which they are not. This kind of research, which aims to generate what has been called “useable knowledge” (Lagemann, 2002), informs policy through the beliefs and values of practitioners. As advisors become more knowledgeable about student perceptions and experiences with borrowing they can become stronger advocates for student loan policies and program designs that are responsive to students' needs.

Specific proposals and ideas for studies are presented below to illustrate an emerging interdisciplinary higher education finance and financial aid research agenda, with a particular focus on the effects of borrowing and the prospects of indebtedness. The proposals, which are not at all exhaustive, are intended to address gaps in knowledge generated by the most prevalent research strategies, which have relied heavily on statistical analysis of large-scale secondary data. The purpose of presenting this agenda, which draws on multiple methods of data collection and analysis, is to inspire increased focus and dialogue on the potential for useful research in this area.

The proposals are organized in three sections according to the following topics:

1. Studies of the effects of the prospects of indebtedness on collegiate knowledge, aspirations, choices, identity, and sense of fit;
2. Studies of the role of high school and college financial aid counselors in informing student knowledge, attitudes, and behavior regarding financial aid;
3. Studies of the effects of loans and other forms of aid on college-going choices.

Studies of the Effects of the Prospects of Indebtedness on Collegiate Knowledge, Aspirations, and Identity

Building on the prior research of scholars who have applied socio-cultural perspectives to examine the financial aid knowledge of high school students and their counselors (Luna De La Rosa, 2006; McDonough, 2004; McDonough & Calderone, 2006; Pak et al., 2006; Tierney & Venegas, 2006; Venegas, 2006) research in this area will focus on developing understanding of the ways in which high school students, prospective college students, and college students acquire knowledge about loans and the attitudes of these students towards borrowing. The study of knowledge and attitudes will be contextualized by studies of individual identity development as a college-going student and the development of college-going cultures in high schools and of transfer cultures in community colleges.

The focus on student identity development and aspirations is important because simply providing information to students about financial aid is not sufficient to motivate them to seek out optimal levels of financial aid or to raise aspirations. The development of a sense of self-efficacy located in an identity as an aspiring college student may be the critical intermediate step between the time a student receives financial aid information and acts on it.

Following from these types of questions, research in this area will include a variety of studies:

1. Replications of previously conducted surveys of financial aid knowledge ("Caught in the financial aid divide," 2004; Luna De La Rosa, 2006; Pachon & Zarate, 2005) among students of diverse ethnic identities and national origin, with national sampling in a broad range of urban and non-urban areas. Studies of African Americans, Asian ethnic-national groups with immigrant and refugee histories, and American Indians, and older-aged non-traditional students are needed to extend the existing results, which

have been concentrated in urban areas and in California. Though financial aid information is abundantly available on the Internet, through college advising offices, and in some high school counseling offices, the varying degrees to which students of different backgrounds are able to access and make sense of this information needs to be better understood. The work in this area will also entail ongoing development of the surveys and "mini-tests" employed in previous research, with attention to content validity, item and question design, measurement scales of the response units, and reliability.

2. Extensions of previous studies (McDonough & Calderone, 2006; Tierney & Venegas, 2006; Venegas, 2006) using focus groups, interviews, and ethnographic observation of students, financial aid counselors, and the interactions between students and counselors to characterize the context and cultures in which students form collegiate aspirations and the effects of the prospects of indebtedness on those aspirations.

3. The development of unobtrusive observational measures to assess the ways in which students of varying characteristics navigate different types of financial aid information on the Internet. For example, with the informed consent of research participants, studies of student use of computers in the advising offices of schools and colleges or at college access information centers, such as those supported by The Education Resources Institute (TERI) in the Boston area, could track the Internet "click" records of students to determine how deeply students will navigate different types of web sites about loans and what kind of information creates stopping points in the search. These observational data would usefully be supplemented by interviews debriefing students about what they learned during their Internet session and follow-up telephone calls to determine subsequent college and aid application decisions.

4. Such observational studies would also yield valuable information to design experimental or quasi-experimental research to characterize the magnitude and significance of the effects of providing financial aid and loan information in different forms and contexts (Raudenbush, 2005; Rossi et al., 2004). One potential design, for example, would compare the provision of computers, printed materials, and peer tutors at certain schools with a matched sample receiving the same resources in addition to a knowledgeable professional financial aid counselor. Not only are the effects of the different types of "treatments" of financial aid information of interest, but the interactions between students' use of different forms of resources matter as well.[6] For this reason, the experimental design component should be paired with

[6] See also St. John (2004) for a discussion of the design of experimental treatments involving variation in the levels of information and aid provided to students.

ethnographic interviewing and observations in order to characterize the salient aspects of the treatment in ways that enable their adoption by practitioners in other settings.

5. Financial aid policy scholars have recently proposed several ways to redesign college lending programs to make repayment contingent on future income and, by doing so, reduce the risks of borrowing for students who may not receive positive returns on their educational investment (Baum & Schwartz, 2005; Kane, 2005). Focus groups of students conducted using ethnographic and market research techniques would valuably inform understanding of the capacity of students to comprehend the differences in risks associated with borrowing under lending programs with various designs.

6. Life histories of low-income students engaged in the college search process at key transition points such as high school to college, community college to four-year institutions, and baccalaureate institutions to graduate and professional schools should be conducted to characterize the lived experience (Denzin, 1989) of searching for ways to finance one's educational aspirations. The role of professional counselors and teachers as institutional agents (Pak et al., 2006; Stanton-Salazar, 1997) informing collegiate identities and aspirations, as well as the influence of student peers in creating "fictive" college-going kinship groups (Tierney & Venegas, 2006) should be explored. Life history research will provide narratives of individuals and families that are needed to illustrate the economic context, family responsibilities, point of view, and cultural values of diverse students as they are making decisions about borrowing. A sample of qualified college aspirants living in poverty would be particularly valuable to investigate the effects of the prospects of borrowing on educational decisions. In addition, the effects of loss of wages should be explored. Interviews, accompanying students on visits to counseling centers, or "shadowing," and content analysis of student journals of their college and financial aid search are appropriate methods to characterize what the costs of higher education mean to students. In addition these strategies provide a way to focus specifically on loans as part of a much broader financial context.

7. Focus groups with students of various income backgrounds and their parents to examine how students and families respond to and comprehend the marketing materials, application procedures, and repayment provisions of different types of loans would be useful to inform understanding of how prospective students assess the risk of borrowing for college. Exploration of the features of community-based lending, micro-lending, asset development programs, and lending practices in other countries may offer insight into different approaches to sharing the risk of borrowing between

individuals and communities. An examination of the principles and characteristics of responsible lending in use in formal and informal lending systems in other cultures may be informative to designing innovative loan programs in the United States.

8. A review of evaluations of previously existing federal loan forgiveness programs designed to support entry into socially beneficial occupational roles, such as teaching and scientific research, to characterize the effects such programs have had on student choice of major and graduate degree attainment. The effectiveness, benefits, and limitations of such strategies are of interest, because they may offer opportunities to reduce the risk of borrowing for risk-averse students while promoting investments in areas of critical occupational and community needs.
9. Of similar value would be an examination of cooperative learning models where students earn college credits for working and the potential of involving employers in sharing the loan default risk with students. This study would be complemented well by a survey of human resource directors in the private sector to assess the potential role of employers as members of the community who could play a role in reducing the risk of individual students who borrow.

Studies of the Role of High School and College Financial Aid Counselors in Informing Student Knowledge, Attitudes, and Behavior

The results of statistical analyses provide information about which groups of students are likely to benefit or suffer a disadvantage from borrowing for college, but at the individual level students themselves, along with their parents and other family members, in consultation with guidance counselors, teachers, and other trusted guardians, will decide whether or not to borrow. As the socio-cultural research described above shows, the way in which students receive information about college prices and aid matters.

Providing information to students is not the same as making it meaningful. In addition, college aspirations are "socially constructed" (McDonough, 2004; McDonough & Calderone, 2006), which means that students' expectations of themselves, their sense of fit in academic environments, the way they see their future, are all molded by the way their parents, teachers, advisors and peers see and interact with them.[7] Adult mentors, guides and counselors who help students navigate bureaucracies and advocate for their future success, whom Stanton-Salazar calls "institutional agents" (1997), play a key role in helping students establish that sense of self-efficacy (Pak et al., 2006).

McDonough and Calderone (2006) have argued that while research supports the key role of high school counselors in supporting

[7] Ken Redd points out that a number of non-profit organizations, such as Lumina Foundation for Education and Sallie Mae Fund, are sponsoring research and activities to inform students about college costs and financing, with program's such as Lumina's College Goal Sunday, for example.

students' collegiate aspirations, little evidence documents counselors' knowledge of aid, loans in particular, or their willingness to counsel students about borrowing and other forms of college financing. In addition, their study raised questions but did not specifically collect data regarding the effect of a student's family wealth, ethnicity, immigrant status, or national origin on counselors' perceptions of the appropriate advice to offer students about borrowing or other forms of financial aid. McDonough and Calderone's (2006) study of high school counselors, their students, and the social construction of the "meaning of money" establishes the foundation of a new line of research conceptualizing student attitudes' towards college finance options and the ways in which advisors' understanding of students' attitudes is shaped through interactions with them.

Recognizing that collegiate aspirations and "the meaning of money" (McDonough & Calderone, 2006) are "socially constructed," or influenced by the expectations, attitudes, and behaviors of those around us, brings attention to the ways that counselors can unconsciously make assumptions about the appropriateness of various college financing options based on their impressions of the affluence, national origin, age, or race and ethnicity of their students.

The research agenda in this area focuses on the interactions between students and those who advise them as they make college decisions, with studies that:

1. Replicate McDonough and Calderone's studies of high school counselors in areas outside Southern California, broadening the focus to include college aid counselors, including those at community colleges who must advise students across the "finance gap" if they are to help them effectively determine financing strategies for transfer to four-year institutions (Gabbard et al., 2006; Pak et al., 2006). Use of case study methods involves interviewing counselors in purposefully sampled schools to gain a sense of their attitudes about their role in counseling students about financial aid. The sample should intentionally include variation of institutional type by sector and for-profit status in order to examine how the institutional context influences counselors' interactions with students.
2. Involve practitioners as researchers (Bensimon, Polkinghorne, Bauman, & Vallejo, 2004) in order for them to learn about students' knowledge and attitudes as well as to become aware and reflective about institutional policies and practices that shape students' opportunities. For example, practitioners could productively become involved in the development and validation of "mini-tests" and surveys of student knowledge, not only to contribute to the creation of such instruments for more general use but to structure interactions in which they can test their assumptions about their students' knowledge, attitudes, and goals. These activities would create experiential learning opportunities in which counselors can increase the practical knowledge of financial aid that informs their counseling decisions.

A number of assessment

instruments could be developed for this purpose using practitioner research methods. Examples include a "$$$ Dollars to Scholars Quiz $$$," to consider what information is critical to students for well informed decision making; an "advising checklist" that would provide a roster of questions that students at different kinds of educational institutions—high school, community college, private colleges, proprietary colleges—should ask counselors at their institution as they reach decision points about pursuing further education.[8] A content analysis and review of communication styles of the existing entrance and exit surveys of students who borrow, which are required of colleges administering loans to students, would provide a starting point for appropriate content of these instruments.[9] The task of coordinating the involvement of counselors at multiple institutions in the development of such interactive assessment tools could be supported by professional organizations such as the National Association of Student Financial Aid Administrators (NASFAA) and the National Association for College Admission Counseling (NACAC), which could subsequently play a role in their dissemination. In their initial development, studies involving practitioners as researchers could be designed as pilot tests or demonstration projects to test the value of the instruments and development process to contribute to organizational learning.

3. Examine the level of resources available for counseling in different types of educational institutions, the extent of professional training and development among counselors for advising students about college financing, and the resources needed for counselors to advise students about college financial planning at the highest levels of expertise.
4. Convene a working group of counselors in high schools and colleges who have responsibility for advising students about financial aid. This group would be charged with benchmarking "best practices" by describing what they view as optimal advising strategies. The work of this group would valuably be supported by a survey of current advising practices in schools and colleges collecting data on the number of college financial aid counselors, their "case load" in terms of the number of students they are expected to serve, and the professional training and development activities in which they participate. This estimation of best practices should include not only those advising activities conducted separately in schools and colleges, but those that may bring counselors together, such as at college fairs and college orientation days. Having benchmarked best practices for advising, a demonstration program could be established to measure the costs of

[8] The author appreciates the contribution of Thara Fuller in suggesting this strategy.
[9] Helpful conversation with Mari Rosa de la Luna and Kristan Venegas inspired this strategy.

this optimal level of advising. The "ingredients method" is a well accepted method of cost estimation (Levin & McEwan, 2001) that could provide the basis of the estimates. The benchmarking of best practices and of costs of funding those practices would enable schools and colleges to assess their own efforts and adequacy of resources to provide financial aid advising.

5. Conduct a study of the educational background, years of work experience, and compensation of financial aid and student counselors in different sectors through secondary data analysis of existing human resource data, such as that collected by the College and University Personnel Association and the National Association of Student Financial Aid Advisors.
6. Complement this study of preparation and compensation with focus groups of counselors to determine the extent and variation in investments in professional development and training for counselors to gain in-depth knowledge of financial aid and loan programs. This study will contribute to benchmarking the necessary resources for best practices and to identifying resource inequities among institutions.

Studies of the Effects of Loans and Prospects of Indebtedness on College-Going Choices

As discussed above, statistical and data constraints have weakened research findings concerning the effect of loans on student enrollment behaviors. The effects of borrowing—or not borrowing—are dynamically intertwined with other characteristics of the financial aid package and its unclear when loans act to supplement or replace grants. Another complication stems from the correlation of student characteristics with the elements of the aid package, including those elements students opt into (e.g. borrowing private market loans) and those that are offered to them by institutional financial aid offices. Financial aid researchers are tackling these inter-relationships with innovative applications of a variety of statistical analysis strategies and new data bases.

One approach is to investigate the effects of "natural experiments" or aid award discontinuities such as those created by changes in public policies (see, for example, Dynarski, 2002, who studied the effects of changes in the federal financial aid formula brought about by the Higher Education Amendments of 1992), in institutional award criteria (see, for example, Linsenmeier et al, 2001, who studied a "no loans" for low-income students policy adopted at a research university), or by non-academic award criteria for scholarships from philanthropic foundations (see, for example, St. John's (2006) study of Gates Millenium Scholarship awards) [10]. Since the time Linsenmeier, Rosen, and Rouse (2001) studied the effects of a Northeastern research university's policy of awarding sufficient grant aid to low-income students to create a "no loans" policy, many other

[10] Steve DesJardins and Edward St. John both emphasized the value of new techniques developed through study of the Gates Millennium Scholars (GMS) program. See volume 20 of *Readings on Equal Education*, which is devoted to studies of the GMS.

prestigious institutions have adopted similar policies, creating similar opportunities for study. Further, local and national philanthropic groups at times award scholarship aid according to geographic or residential criteria unrelated to academic preparation or motivation. These criteria create groups of aid and unaided students equivalent in their demographic and educational characteristics and provide the opportunity to study the educational and borrowing choices of students in matched or quasi-random samples.

For example, a new college scholarship program for residents of Kalamazoo, Michigan called the Kalamazoo Promise awards scholarships based on length of residency in the city. Award receipt is contingent on a student's enrollment in the Kalamazoo Public Schools for at least four years and the amount varies from 65 percent to 100 percent of tuition at any Michigan public college or university in increments of 5 percent for each year spent in the school system, with the full benefit awarded to those with twelve years of continuous enrollment (*College dollars for KPS students*, 2006; *The Kalamazoo Promise*, 2006).

Due to fact the award was implemented immediately upon its announcement and the eligibility criteria create discontinuities in funding for students with equivalent academic characteristics, it creates a natural experiment and provides an opportunity to study the effects of college pricing and financial aid on college-going behavior. The ways in which students with different socio-economic and racial-ethnic characteristics respond to the scholarship incentive are of particular interest in a research agenda focused on the role and burden of loans in the financial aid system. For example, do students pair the tuition benefit with borrowing to finance more costly educational opportunities (e.g. a state university rather than a community college) or take advantage of it to lower their overall costs? And, to what extent do these choices depend on family affluence or parental education?

In the emerging research agenda, statistical data analyses and researchers will have several focal points, which will seek to:

1. Identify discontinuities in the award and eligibility criteria of federal, state, institutional, and private aid programs and examine students' borrowing behavior in the presence and absence of grant aid for students of varying racial-ethnic and socio-economic characteristics. Match aid-eligible students and students with varying levels of loan debt, using statistical matching procedures to compare students on an individual or group (e.g. cohort or community) level, to examine the effects of grants and loans on the full continuum of college-going choices, such as application, type of institution attended, major field of study, graduate and professional education, and career field.
2. Obtain longitudinal data with detailed information about the dollar amounts of different forms of aid along with transcript information that will enable event history analysis, propensity score matching, and other types of studies of the varying effects of borrowing and increasing indebtedness over time.[11] More

[11] Both Stephen DesJardins and Marvin Titus emphasized limitations of data quality, particularly at

comprehensive data will enable studies of the recurring and ongoing longitudinal nature of enrollment decisions both prior to and during college as students formally and informally assess their probabilities of academic success (Altonji, 1993; Beekhoven et al., 2002; DesJardins, Ahlburg et al., 2002; DesJardins, McCall et al., 2002; Hilmer, 1998).

3. Address issues concerning:
    a. The potentially different magnitudes or even direction of the effects of loans on students of different characteristics (Chen, 2005; Kim, 2005) , which are known as "interaction effects," and the specialized analytical techniques that are required to analyze those interactions (for an application to the study of loans, see Dowd & Coury, 2006; Long & Freese, 2001a, 2001b).
    b. Difficulty in assessing the goodness of fit of statistical models analyzing federal databases due to limited availability of appropriate goodness-of-fit statistics for complex survey data (Hosmer & Lemeshow, 2000; Long, 1997; Long & Freese, 2001a; Thomas & Heck, 2001).
    c. The often difficult to observe correlation between a student's characteristics and her college enrollment decisions, which are issues known as "endogeneity" and "self-selection bias" (Alon, 2005; Dynarski, 2002a; Heckman, 1979);
    d. The advantages and disadvantages of narrowing analyses to particular sub-samples of the college-going population, for example by sector, institutional control, and student characteristics such as age.
    e. Reporting results in ways, such as graphs and tables, to provide portraits of the effects of borrowing on students with different characteristics, rather than only reporting the effects of loans on students with "average" characteristics (Dowd, 2002; Dowd & Coury, 2006).
4. Convene consortia of institutional researchers to compare borrowing practices, financial aid packages, and racial-ethnic and socio-economic characteristics of students enrolled in various sectors of higher education. Aggregating state- and institutional-level data with the National Student Clearinghouse Data, for example, would enable analysis by peer groups of colleges of minority group students who are underrepresented in large data bases, such as Native Americans and various ethnic groups aggregated in the Asian American category.

the federal level, on statistical advances in this area of research.

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