The Influence of Job Prospects on Student Debt Levels of Traditional and Adult Undergraduates

By Thomas A. Flint

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This study investigates academic, social, attitudinal, and behavioral influences on student borrowing. Special attention is paid to the role of labor market data in predicting student borrowing behavior. A student sample was drawn from the National Postsecondary Student Aid Study. Models were estimated on two outcome measures: willingness to borrow and levels of actual borrowing.

Results indicate that substantial differences exist between dependent and independent students in their attitudes toward loans and debt levels. The acceptability of loans hinges largely on whether students perceive that there is any other alternative to reduce their college costs, which implies that loans are generally viewed as a financing mechanism of last resort. Debt levels are much more difficult to predict since the model used here explains only about 20% of the variance in total borrowed.

To an unprecedented degree American college students mortgage their future careers. About half of all undergraduate and graduate students borrow through student loan programs to finance their studies. Since the passage of the Middle Income Student Assistance Act in 1978, borrowing volume in subsidized Stafford student loans (formerly Guaranteed Student Loans, or GSLs) has increased sevenfold, from less than $2 billion in 1978 to more than $14 billion in 1995. The 1992 Reauthorization of the Higher Education Act of 1965 spurred borrowing in unsubsidized student loans, which are not based on need. In one year alone lending volume jumped 178%—between 1993-94 and 1994-95 the number of borrowers of unsubsidized Stafford loans increased from 751,000 to over two million. Preliminary estimates for 1995-96 put total student borrowing in all federal loan programs at $27 billion with an additional $1.3 billion in non-federal notes, making loans more than half of all aid awards (College Entrance Examination Board, 1996; U.S. Department of Education, 1994).

The growing reliance on student loans is the intersection of several different public policy concerns. One issue relates to intergenerational equity, as the cost burden of higher education shifts from parents and taxpayers to the students themselves, with many troubling implications in tow (Baum, 1996b; Flint, 1997b; Gladieux and Hauptman, 1995; Hauptman and Roose, 1993; Kramer, 1993; McPherson and Skinner, 1986). A second issue concerns the effects of student loans upon access and choice in higher education. Evidence indicates that high-income families are more knowledgeable and more favorably disposed to educational loans than low-income or minority families (Mortenson, 1988, 1989; Olson and Rosenfeld, 1984; St. John, 1991a, 1991b). In addition, although loans have come to represent a relatively efficient means for the government to raise funds for college compared to gift aid (Mumper, 1996), the fiscal worry associated with student borrowing is the problem of high student loan default rates, whose associated costs run into billions of

dollars per year and whose institutional penalties are dire (Flint, 1997a; Hakim and Rashidian, 1995; U.S. Department of Education, 1994; Volkwein and Szelest, 1995; Zook, 1993). Finally, policy-makers and analysts have warned that the necessity to borrow may distort students' curricular choices, making the study of certain disciplines too costly in the face of principal and accumulated interest of long-term debt (Kramer and Van Dusen, 1986; Saunders, 1996; St. John, 1991a, 1993). One recent analysis suggests that undergraduate debt discourages graduate study (Weiler, 1994).

Despite the growing use of student loans and the ongoing policy debates about this trend's consequences, there is only a small research base on factors associated with students' willingness to borrow or factors associated with debt levels. Americans historically have viewed education loans favorably (Mortenson, 1988, 1989), so the need for such understanding has been minimal. However, the shifting cost burdens effect on access and choice, and the high cost of defaulted loans make a strong argument for more research on the factors that drive student decision-making about educational debt. Accordingly, this study focuses on students' disposition to borrow and variables associated with amounts of educational debt, with particular attention on the role of students' postcollege job prospects.

The Theory of Ability to Pay

Human capital theory postulates that the expected benefits from acquired knowledge and skills justify students' investment in higher education (Becker, 1993). Over a lifetime, an individual's increased productivity deriving from educational achievement is sufficient to exceed the direct and indirect costs of schooling, making the rate of return on education quite favorable (Baum, 1996a). The role of the government in subsidizing student loans reduces risks to both borrowers and lenders. This stimulates college enrollment since students who have sufficient talent but insufficient funds can go to college. Individuals benefit by virtue of higher productivity, while the public benefits from their higher net tax payments (Smart, 1988; St. John and Masten, 1990).

The theory of ability to pay underlies current policies for allocating the distribution of direct need-based financial aid using taxpayer subsidies. The theory in its present form derives from collaborative discussion and decisions in the 1950s among a small set of institutions, later reaching broad consensus among most colleges by the 1970s (College Scholarship Service, 1983). Ability-to-pay theory implies that the highest level of subsidy should go to students with the least financial resources. Accordingly, the theory sets the stage for certain students qualifying for grants or loans, bounded by statutory limits on those awards and by actual college costs, but the theory does not suggest the sequence or the incremental levels by which awards are actually offered.

Besides providing a rationale for the allocation of public subsidies in the making of student loans, ability-to-pay theory may be used to explain the repayment or non-payment of student loans once the student leaves college. Analysts have indicated that student loan defaults primarily occur among students from low-income family backgrounds (Volkwein and Szelest, 1995; Wilms, Moore, and Bolus, 1987). However, because family income often

includes parental income, this explanation is weak unless it is shown that parents routinely agree to share the loan repayment burden with their dependent child. An alternative view sees family income as a proxy for the financial habits and attitudes the student learns from the parents, but strictly speaking, such a view derives more from psychology than economics. Rarely is any empirical evidence offered for either view on the effects of family income.

Elsewhere I have articulated how ability-to-pay theory might explain borrowers' postcollege expenditure patterns: priority is given to subsistence, taxes, and medical care, leaving a residual disposable income for other expenses such as loan payments (Flint, 1997a). Borrowers who barely support themselves must either turn to others for financial help or risk default on their loans. In this view, what matters most in the application of ability-to-pay theory to borrowing and repayment behavior is not students' precollege family incomes but rather their postcollege disposable incomes (Flint, 1997a; Griner, 1996; Hesseldenz and Stockham, 1982).

From a purely economic viewpoint in which students act rationally given perfect information, students will not assume cumulative debts greater than those amounts that can be serviced by their respective postcollege disposable incomes. Since with educational loans there is no physical property to repossess, the severity of collection efforts and penalties associated with delinquency and default on student loans are intended to ensure that students diligently make such estimations of their postcollege financial prospects. Vast numbers of students expect the college experience to boost their careers and incomes (Dey, Astin and Korn, 1991). Although others may be prepared to repay loans on students' behalf, I assume for purposes of this study that students themselves borrow in expectation of personally repaying their loans from jobs they obtain after graduation.

Prior Research

Voluminous descriptive data have been amassed about student borrowing in government-sponsored loan programs. The data summarized by the College Board (College Entrance Examination Board, 1996; Gillespie and Carlson, 1983) are particularly useful in that they span all funding sources (federal, state, and institutional) and all forms of assistance (grants, loan, and work) since 1963. Those data show that federal support for grant programs has been static for decades while loan volume has skyrocketed. Although such descriptive data chronicle how loan volume has grown in response to public policy stimuli, such data do not suggest which students proved most likely to borrow, nor do those data explain why individuals agree to take on a given level of debt.

Clear differences exist in postcollege income levels and debt burdens when comparing major fields of study and occupational choices (Greene, 1989). The only recent study to address factors influencing debt levels is that of Hira and Brinkman (1992). These researchers surveyed borrowers during their loan exit interviews to determine perceived and actual knowledge of their loans and to assess social background differences in such knowledge. Limitations of this study must include the fact that family income was not measured and that the sample is drawn from a single state university in Iowa. In addition,

the predictor variables explained only 15% of the variance in students' knowledge about their loan debt (Hira and Brinkman, 1992).

Most American families express a strong willingness to borrow money to pay for college expenses (Mortenson, 1988; Sallie Mae, 1996). However, among those less favorably inclined toward education loans must be counted women, the less educated, those from low-income families, and Hispanics (Mortenson, 1988). Ironically, these subgroups are also high in priority in efforts to expand access to higher education. Moreover, some evidence shows that while low-income families are more knowledgeable about grant programs, high-income families are more knowledgeable about the availability and structure of student loan programs (Olson and Rosenfeld, 1984).

Repeated stories appear about how choice of major is being influenced by student debt levels (Kelly, 1994; Kramer and Van Dusen, 1986; Zook, 1994). From the perspective of ability to pay, some students may switch majors leading from lower paying to higher-paying careers when faced with the necessity of borrowing for college costs. To date, only one study has systematically examined the available evidence using national surveys (St. John, 1994). In that study, analyses of student samples from High School and Beyond as well as the National Longitudinal Study, showed that, at least in the middle 1980s, debt burden did not significantly influence student choices of academic major.

Causality may operate in the opposite direction, however. Student curricular choices are known to affect alumni incomes (Seeborg, 1975), so students' curricular and career choices may influence their attitude toward borrowing and the amount of their debts. If it is the case that student curricular and career choices are sensitive to the need to borrow to finance a college education, then one plausible result may be that students who choose a major or career despite its relatively poor postcollege job prospects will attempt to minimize their debt in comparison to others. Alternatively, students pursuing career paths that are easily accessible or that have higher incomes may see little risk in borrowing more than they otherwise would, or more than peers with different career plans.

Purpose of the Current Study

The purpose of the current study is twofold. First, I investigate the influences on students' willingness to borrow as a dispositional trait, and second, I investigate influences on the level of student loan debt among the subset of actual borrowers. In each case, particular attention is given to the effect of information about job prospects, job availability, job growth, job socioeconomic status, and baccalaureate starting salaries—controlling for other academic, social, economic, and psychological influences simultaneously acting on students. Labor market indicators and typical starting salaries are taken to represent their expected postcollege job prospects. Comparatively high levels on the occupational indicators, signifying easy and/or increasing job availability, higher starting salaries, or higher occupational status, represent good job prospects, while low levels represent poor prospects. I hypothesize that the better the students' expected job prospects, the greater the willingness to borrow and the higher the debt levels, because the debt is warranted by comparatively lower risk of default.

Method: First-Time Students with B.A. Aspiration Studied

Sample Student records were obtained from the National Postsecondary Student Aid Study of 1990 (NPSAS: 90) of the U.S. Department of Education (National Center of Education Statistics, 1992). To match records to available data on starting salaries for college graduates, students whose degree aspiration is less than the bachelor's degree were excluded. After excluding records with missing data, the final sample was 2,818 students attending 793 different postsecondary educational institutions. Table 1 on pages 12 and 13 provides descriptive statistics on many of the variables used in this study.

Because a purpose of this study is to explore attitudinal and behavioral correlates of student borrowing, only those records that included the NPSAS longitudinal component were included. In NPSAS: 90, records with attitudinal measures are limited to students identified as first-time beginners; that is, no student record is included which represents a transfer from another institution or upper-class standing through cumulative work. Although these restrictions limit the generalizations that can be drawn from the study, they simultaneously remove significant conceptual difficulties that would otherwise affect the analysis.

No suitable analytic framework exists for partitioning different institutional effects for students having a history of transfer between colleges. Moreover, many students change majors and career plans during college (Astin, 1977), a situation which complicates any effort to gauge borrowing in relation to changing majors or careers.

Study Variables

Because the decision whether and how much to borrow is not likely to be purely a function of curricular choice, I have factored in three blocks of control variables. First, a block of student characteristics was entered to control for background influences; these included student gender, race, marital status, number of dependents, parental educational attainment, and family income. These background factors may influence borrowing attitudes and behaviors prior to students' college choices and enrollment-related behaviors.

Second, a block of characteristics was entered to control for financial and academic influences on borrowing, controlling for the influences of student background characteristics. These variables included institutional selectivity, distance from home, control (public, private, or proprietary), student GPA performance, family educational savings, tuition direct cost, and residual total cost.

The third block of variables focused on psychological and behavioral measures that may influence borrowing attitudes and behavior, net of the influences of all the preceding measures. These measures were of three kinds: attitudinal measures composed of a cost avoidance scale and a materialism scale; behavioral measures including academic integration, social integration, and congruence between the student's major and expected future occupation; and labor market measures including job market size, expected job growth, job socioeconomic status, and average starting salaries for college graduates by job function.

TABLE 1
Descriptive Characteristics of the Sample (N=2,818)

Variable	N=	Percent	Mean	Standard Deviation
Precollege Characteristics				
Gender:				
Males		1,185	42.1	
Females	1,633	57.9		
Race/Ethnicity:				
American Indian	14	.5		
Asian/Pacific Islander	134	4.8		
Black, Non-Hispanic	355	12.6		
Hispanic	215	7.6		
White, Non-Hispanic	2,100	74.5		
Parent Education (Scaled 1-11):	6.01	3.22		
1= < HS diploma	261	9.3		
2= GED	29	1.0		
3= HS graduate	892	31.7		
4= < 1 year trade	26	.9		
5= 1-2 years trade	55	2.0		
6= 2+ years trade	72	2.6		
7= < 2 years college	195	6.9		
8= 2+ years college	377	13.4		
9= Bachelor's	499	17.7		
10= Master's	274	9.7		
11= Ph.D, M.D.	138	4.9		
Marital Status:				
Unmarried	2,516	89.3		
Married	274	9.7		
Separated	28	1.0		
Number of Dependents:		.80	1.18	
Family Income:			$32,692	$26,442
Institutional, Academic & Financial Characteristics				
Selectivity in Admission:		2.32	1.07	
1= Non-competitive	948	33.6		
2= Minimal difficulty	315	11.2		
3= Moderate difficulty	1,340	47.6		
4= Very difficult	142	5.0		
5= Most difficult	73	2.6		
Distance from permanent home:		3.28	1.91	
1= 5 miles or less	419	14.9		
2= 6-10 miles	303	10.8		
3= 11-50 miles	953	33.8		
4= 51-100 miles	309	11.0		
5= 101-500 miles	618	21.9		
6= Over 500 miles	216	7.7		

(Continued on following page.)

TABLE 1
Descriptive Characteristics of the Sample (N=2,818) (cont.)

Variable	N=	Percent	Mean	Standard Deviation
Control:				
Public	1,079	38.3		
Private	1,211	43.0		
Proprietary	528	18.7		
Cumulative GPA (Categories):		3.02	1.48	
1= 3.50 to 4.00	549	19.5		
2= 3.00 to 3.49	591	21.0		
3= 2.50 to 2.99	629	22.3		
4= 2.00 to 2.49	496	17.6		
5= 1.00 to 1.99	410	14.5		
6= 0.00 to 0.99	143	5.1		
Savings for Education:			$ 551	$1,300
Tuition Direct Cost:			$4,795	$4,083
Residual Total Cost:			$3,791	$4,953
Other Characteristics				
Educational Aspiration:		6.26	1.56	
1= < 1 year trade	73	2.6		
2= 1-2 year trade	85	3.0		
3= >=2 year trade	83	2.9		
4= <2 year college	38	1.3		
5= 2+ year college	176	6.2		
6= Bachelor's	865	30.7		
7= Master's	1,067	37.9		
8= Ph.D./Professional	431	15.3		
Cost Avoidance Scale (0-8):		1.91	1.59	
Materialism Scale (2-9):		4.48	1.29	
Academic Integration Scale (4-13):		8.90	2.13	
Social Integration Scale (5-20):	11.48	3.70		
Major / Career Congruence (0-4):		2.43	1.07	
College Grad Starting Salary:			$22,021	$ 5,274
Job Growth Percent 1990-2005:		26.34%		10.77%
Job Numbers:			8,120	8,889
Job Socioeconomic Status (16.51-87.14):	61.04	15.19		

Background Measures

The precollege student characteristics mentioned above were self-reported, though family income was obtained from the application for financial aid made to the institution attended. Family income for dependent filers was the sum of student and parental taxable and non-taxable income for the calendar year preceding the school year, while for independent filers parental financial resources were excluded. Parental education level was reported for that parent with the higher level obtained. Marital status refers to students' (not parents') status.

Institutional, Academic, and Financial Measures

Using an identifier encoded for each student record, each institution was coded with a measure of selectivity in admission, representing the overall difficulty faced by students in obtaining entry. Selectivity was self-reported by institutions based on percentage levels of admitted students' admission test score

levels (SAT or ACT) and on their class ranks within high school (Healy, Koether, and Lefferts, 1990). Control (i.e., public, private, non-profit, or proprietary) and sector (2-year, 4-year, etc.) were identified with NPSAS: 90 by the National Center for Education Statistics (National Center for Education Statistics, 1992). Cumulative GPA level was categorized from a standard 4.0 scale.

College costs obviously affect decisions about student debt. Three financial measures were used in this study to control for influences on borrowing other than the variables related to career. First, the amount reported by the family as college savings on behalf of the student was used, in the expectation that students from families that had saved prior to college had less need to commit to loans.

The second financial variable was direct tuition costs (not including on-campus room and board), which typically represents the largest budget item in annual college costs. Tuition is fixed and therefore the least amenable to cost-saving tactics compared with other cost components, such as books (which can be bought used) or personal expenses (some of which can be deferred or eliminated).

Residual total cost was the third financial variable constructed specifically for this study. Residual total cost was the estimated total annual college costs not covered by some financial resource available to the family. Thus, it represented the anticipated but unmet financial need for paying for college. Total cost refers to the sum of direct and indirect costs, encompassing not only tuition but also room, board, books, transportation, and miscellaneous expenses.

Because financial aid awards (including loans) are often applied directly to tuition expenses first, and because some students borrowed in excess of their unpaid tuition to cover other expenses, it is important to estimate how indirect expenses not paid from other sources might influence borrowing. Residual total cost was computed by subtracting from the NPSAS: 90 item for total student cost the sum of the following: total student grants, total work-study, total other aid, student work earnings during college, and amounts lent by parents to the student.

Other Measures

Labor Market Measures. The third and final block of measures estimated the influence of psychological and behavioral factors on borrowing. Direct measures of student beliefs about job prospects were not available within the data set; however, students were asked to name their expected future occupations. From the occupations identified, four measures of job information were matched to each occupation.

First, the total number of jobs as well as the estimated job growth between the years 1990-2005 as determined by the Bureau of Labor Statistics (1992) was used. Scarce jobs (such as astronaut) were assumed to represent greater risks in educational borrowing than common jobs (such as accountant), yet even an uncommon job having a high anticipated growth rate (such as radiologic technician) may offset the borrowing risk.

In addition, the average starting salaries by occupation for college graduates at the baccalaureate level were used. The salaries were those reported by the National Association of Colleges and Employers, formerly called the College Placement Council (hereafter abbreviated as CPC/NACE). Starting salaries for college graduates were used instead of typical occupational wages, to prevent the confounding of experience, skill, and educational level of job-holders in determining salary (College Placement Council, 1990). Moreover, the CPC/NACE statistics on starting salaries for college graduates have been given wide publicity over many years, and speak to immediate postcollege prospects.

Finally, a socioeconomic (SES) index of occupational status obtained from the revised scales of Featherman and Stevens (1982) was used. The scale was derived primarily from income and educational attainment data and is focused on mid-career, thus representing a measure of long range career prospects. The SES index is more immune to temporary labor market conditions or entry level salaries that might otherwise distort the job prospect picture for college graduates. For example, music majors are ascribed a higher entry level starting salary than journalism graduates, although the mid-career occupational status index of musicians is considerably below that of journalists.

Degree Aspiration. Job prospect information is unlikely to be the only influence on borrowing decisions. The research on the impact of college on students points to other social, psychological, and behavioral influences on such important outcomes as persistence and satisfaction. A body of research has shown that students' educational aspirations are an important influence on college choice, matriculation, persistence, and outcomes (Flint, 1993; Hossler, Braxton, and Coopersmith, 1989; Pascarella and Terenzini, 1991).

Major/Career Congruence

While it seems only natural to assume that students would pursue degrees in academic majors directly related to their expected careers, it sometimes happens that they do not or cannot do so. This study used a measure of congruence between academic major and expected occupation, developed by Smart (1989), based on the theory developed by Holland (1985). Students working in jobs related to their career interests have shown higher levels of perceived self-motivation in their career decision-making (Luzzo, McWhirter, and Hutchinson, 1997), and career incongruence has been shown to relate to increased loan default risks (Flint, 1997a).

Behavioral Measures

Both academic and social integration have been shown to be important influences on persistence and outcomes (Pascarella and Terenzini, 1991). In this study the academic integration scale was the sum of the frequency that students reported doing the following: talking with faculty about academic matters outside of class time, meeting with advisors concerning academic plans, participating in study groups with other students outside of the classroom, and having formal or informal contacts with faculty or advisors outside of classrooms or offices. Social integration was the sum of frequency that students reported doing the following:

- going places with school friends such as to concerts, movies, restaurants, or sporting events;
- participating in one or more student assistance centers or programs (e.g., counseling programs, learning skills center, minority student services, health services);
- participating in school clubs (e.g., student government, religious clubs, service activities);
- attending career-related lectures, conventions or field trips with friends; and,
- participating in and practicing with others for intramural or intercollegiate sports, music, drama, or choir.

Personal Values

Two scales were used in this study to indicate student values that may influence borrowing decisions. First, a materialism scale was based on that developed by Sanford (1980). This was a composite of three items in which students reported the personal importance of: being able to find steady work, being successful in their line of work, and becoming successful in a business of one's own. The hypothesis here was that students with higher values on this scale might be more likely to borrow. Second, a cost avoidance scale indicated students' disposition toward actions which reduced the need to borrow, in which they reported readiness to: work or take an additional job, ask parents for money or more money, reduce course load, cut expenses, withdraw from school, transfer to another school, move back home, or take some other action to help with expenses.

Dependent Measures

Two dependent measures were used in this study. First, the measure indicating students' willingness to borrow was derived from the NPSAS:90 item that asked, "Have you done any of the following because your school expenses were greater than the money you have available?"..."I applied for a loan or an additional loan." Students' answers are coded 1 for Yes and 0 for No. A second dependent measure categorized the amount of debt borrowers incurred from any source; however, since the prediction of an exact amount borrowed was of less interest than the general level of borrowing, the loan total was represented on a scale in which 1 indicated amounts up to $1,000, values 2 through 9 indicated successive increments of $500 from $1,000 to $5,000, and 10 indicated total borrowing over $5,000.

Analysis

Analysis of the data proceeded in two parts. First, model building was based on willingness to borrow as indicated for all students in the sample. Second, for that subset of students who had actually borrowed, a model was based on the level of borrowing actually observed. For the dichotomous outcome (Yes/No) on the willingness variable, logistic regression was used to estimate the model, while on the continuous variable representing level of actual borrowing (scaled 1 to 10), multiple regression was used.

Federal policy distinguishes between those unmarried students, typically under age 24, who usually enter college full-time soon after graduating from

high school, and who depend substantially on their parents for support, and those students over age 24 who may be married, have dependent children of their own, or may (for whatever reason) not expect financial support from their parents. Besides the differences in treatment of dependent and independent students in ability-to-pay formulae used to determine eligibility for student aid award programs, the life circumstances of these two kinds of students may be further distinguished in terms of mobility, residency, involvement in campus life, and the expected time that will elapse before realizing the benefits of a college education. Accordingly, separate analyses were made of each group.

Results

Study 1: Willingness to Borrow. Results reported in this section pertain to student answers to the question of applying for or increasing education loans when school expenses exceeded available resources. Table 2 on pages 18 and 19 presents the results of the logistic regressions separately for the dependent and independent students in the sample. Step 1 shows performance of the model with only student precollege characteristics used; Step 2 shows effects of the addition of institutional academic and financial characteristics; and Step 3 shows the effect of the full model including the attitudinal, behavioral, psychological, and labor market measures. Because of the large size of the pooled subgroups and the multiple analyses taken in this section, levels of significance above the .01 level are shown in the tables but are interpreted as marginal due to the potential for Type I error.

The patterns of effects on willingness to borrow differ between the dependent and independent student groups. Among the precollege measures, only for dependent students does family income show a statistically significant effect ($p<.001$), such that higher income families are less likely to borrow, controlling for the other variables in the study. Additional analyses by the author revealed that the effect of family income on willingness to borrow is somewhat curvilinear: lower-income families (below $30,000) showed expected levels of willingness, middle-income families (between $30,000 - $70,000) showed greater than expected levels, and higher-income families (above $70,000) showed lower than expected levels of willingness to borrow. Contrary to hypothesis, savings for education by families of dependents was positively associated with willingness to borrow ($p<.001$), even after controlling for income level. Those dependents ready to borrow had saved on average about $200 more than those indicating otherwise.

In the bottom half of Table 2, none of the precollege measures for independent students showed significant effects on willingness to borrow within the final model. Significant effects by race/ethnicity are evident in Step 1 but diminish and disappear by Step 3, suggesting that myriad influences from the other spheres (institutional, academic, financial, attitudinal, behavioral) mediate racial or ethnic predispositions towards borrowing. Controlling for other measures in the model and consistent with the hypothesized effect, greater academic integration was associated with greater willingness to borrow ($p<.01$). While academic performance (CGPA) was not significantly associated with willingness to borrow in Step 2 prior to attitudinal and behavioral measures, this variable was inversely associated with academic success such

TABLE 2
Willingness to Borrow Shown with Logistic Regression❖ (1=Yes)

Dependent Students

(B weights, N=2,133)	Step 1	Step 2	Step 3
Precollege Characteristics			
Gender (1=Male)	-.039	-.072	-.117
Race:			
American Indian (=1)	1.007*	1.162*	1.227
Asian/Pacific Islander (=1)	-.118	-.245	-.203
Black non-Hispanic (=1)	-.305	-.290	-.496
Hispanic (=1)	-.421*	-.415	-.463
Parent Education Level	.003	-.010	-.008
Married (=1)	-.307	-.144	4.724
Number of Dependents	.184*	.147	.353
Family Income	-.000***	-.000***	-.000***
Institutional, Academic & Financial Characteristics			
Admission Selectivity		.055	.070
Distance from Home		.063*	.171*
Sector:			
Non-profit (=1)		.052	-.035
Proprietary (=1)		.025	-.083
Cumulative GPA Category		-.002	.001
Savings for Education		.000**	.000**
Tuition Direct Cost		.000	.000
Residual Total Cost		-.000	.000
Other Characteristics			
Degree Aspiration			.102
Cost Avoidance			-13.412
Materialism			.039
Academic Integration			.049
Social Integration			.005
Major/Career Congruence			.034
Starting Salary			.000
Job Growth Percent			.008
Job Market Size			.000
Job Socioeconomic Status			.001
Constant	-1.494***	-2.037***	-1.773
G squared	2382.41	2348.03	338.34
degrees of freedom	2122	2114	2104
% correctly predicted	74.68%	74.73%	96.77%
chi square	26.88**	34.38**	1959.68***
degrees of freedom	10	8	10

* = p<.05, ** = p<.01, *** = p<.001

(Continued on following page.)

TABLE 2
Willingness to Borrow Shown with Logistic Regression❖ (1=Yes) (cont.)

Independent Students

(B weights, N=685)	Step 1	Step 2	Step 3
Precollege Characteristics			
Gender (1=Male)	.107	.096	.098
Race:			
American Indian (=1)	2.376**	2.430*	6.772
Asian/Pacific Islander (=1)	-.993	-1.018	-2.939
Black non-Hispanic (=1)	-.853**	-.883*	-1.846
Hispanic (=1)	-.437	-.417	-1.301
Parent Education Level	.044	.040	.026
Married (=1)	.216	.158	.900
Number of Dependents	.054	.034	-.170
Family Income	-.000	-.000	-.000
Institutional, Academic & Financial Characteristics			
Admission Selectivity		.021	.038
Distance from Home		.069	.184
Sector:			
Non-profit (=1)		-.122	-.502
Proprietary (=1)		.048	.767*
Cumulative GPA Category		.043	.389**
Savings for Education		.000	.000
Tuition Direct Cost		.000	.000
Residual Total Cost		-.000	.000
Other Characteristics			
Degree Aspiration			.290*
Cost Avoidance			-13.927
Materialism			.226
Academic Integration			.248**
Social Integration			.004
Major/Career Congruence			.342*
Starting Salary			.000
Job Growth Percent			.035
Job Market Size			.000
Job Socioeconomic Status			.005
Constant	-.937	-1.519	-7.625
G squared	726.854	720.025	186.540
degrees of freedom	674	668	658
% correctly predicted	76.64%	76.35%	93.87%
chi square	22.54*	6.82	533.48***
degrees of freedom	10	8	10

* = $p<.05$, ** = $p<.01$, *** = $p<.001$

❖ Step 1 shows performance of the model with only student precollege characteristics used; Step 2 shows effects of the addition of institutional academic and financial characteristics; and Step 3 shows the effect of the full model including the attitudinal, behavioral, psychological, and labor market measures. Levels of significance above .01 are marginal.

that high levels of CGPA were associated with less willingness to borrow ($p<.01$). This change between Steps 2 and 3 again suggests that the effect of CGPA on willingness to borrow is mediated by one or more of the variables added to the model in the last step.

For both the dependent and independent student groups, the four measures pertaining to job prospects failed to show any statistical significance with willingness to borrow. Furthermore, apart from these interpretive results, the predictive success of the final model was phenomenal. With the addition of variables in the third step, 99% of those willing to borrow and 95% of those who were not, were correctly predicted.

Further investigation by the author revealed that a single measure—the cost avoidance scale—accounted for all of the increase in predictive success. In fact, the knowledge of any single one of the eight actions constituting the cost avoidance scale (reducing course load, cutting expenses, working or taking an additional job, moving home, and others) can be used to predict accurately that student's reluctance to borrow. Conversely, students who were willing to borrow were precisely those who refused to endorse any cost reduction strategies, indicating that they viewed borrowing as a last resort. This finding confirms the importance of students' values in their approach to student loans, a dimension rarely recognized when academic, financial, or social variables are the focus of the research.

"Clear differences exist in postcollege income levels and debt burdens when comparing major field of study and occupational choices."

Study 2: Debt Levels. This section reports results of model estimation pertaining to levels of actual student debt. Table 3 on pages 22 and 23 shows results of the multiple regression estimates on 1,082 actual borrowers out of the sample of 2,818, separated by dependent and independent student types.

While the institutional, academic, and financial measures from Step 2 bore little relationship to willingness to borrow reported in Study 1, these measures were statistically significant predictors of level of borrowing for dependent students actually using loans. Direct tuition costs were significantly associated ($p<.001$) with high loan levels, as were residual total costs ($p<.01$), but college savings amounts showed no significant relationship. Moreover, while controlling for tuition and residual costs, institutional type simultaneously affected levels of borrowing. Larger loans were associated with non-profit ($p<.001$) and proprietary schools ($p<.01$). The distance of the school from the student's permanent home also had a statistically significant effect ($p<.001$). Larger loans accompanied attendance at more distant institutions.

Controlling the institutional effects just mentioned, the addition of other measures to the model added little to the overall interpretation for dependent students. Among the four labor market measures, only job socioeconomic status was significantly associated with debt level. Larger loans coincided with higher status jobs chosen by students. However, contemporaneous labor market measures (including job market size, expected job growth, and average baccalaureate starting salary) showed no such effects. Marginal effects ($p<.05$) occurred for levels of degree aspiration and major/career congruence, such that higher aspirations and greater congruence were associated with larger debts.

Unlike dependent borrowers, family income has a strong influence on debt level for independent students, in that higher income was associated with more

debt ($p<.001$). Additional analyses by the author revealed that the effect was most pronounced at the extremes of the income scale, depressing debt levels at incomes below $5,000 and augmenting them at levels above $30,000. Similarly, direct tuition cost had positive effects on borrowing ($p<.01$). Marginal effects ($p<.05$) on debt level were found for residual total cost and for number of dependents. Higher residual costs and smaller numbers of dependents were associated with increased debt levels.

Overall, the performance of the model in predicting debt level is much less impressive than the results in Study 1. About 20% of the variance in debt level is accounted for by the model based on its R-squared statistic; clearly most of the variance is explained by measures beyond those used here.

Limitations

Although both the CPC/NACE data on college graduate starting salaries and the BLS data on job outlooks are widely published and discussed, NPSAS:90 data contain no verification that the students sampled for this study either knew of this job information or permitted it to influence their decisions about borrowing. Thus, the job prospect variables used here were at best proxies for student expectations about their postcollege labor market success. Moreover, with respect to salary and status, the model assumes every student's expectations within any given occupation to be the same, differing in degree only by comparison to other occupations. In reality, students with similar occupational choices will vary in their estimates of their future employability and salaries.

The restriction of the sample to first-time beginners in NPSAS:90 limits the generalizations that can be made from the results. On the other hand, any study of this topic, representing all levels of student postsecondary experience, must identify and control for potentially confounding effects from student changes of academic major or expected occupation during their undergraduate careers. Very large percentages of undergraduates change their majors (Astin, 1977), and at present there is no sound theoretical framework for partitioning by academic majors the cumulative debt to be attributed to high- versus low-income majors.

Conclusion

In general this study found that for this sample, measures of students' postcollege job prospects had no significant influence on either their willingness to use loans or the amounts actually borrowed in college. Baccalaureates' starting salaries by occupation, job market size, and expected job growth by occupation played no significant role in determining students' willingness to borrow or the amount of debt actually taken. The study found that debt level is sensitive only to an occupational status index, solely for dependent borrowers who typically are unmarried, under 24 years, with no children. Taken together, these results indicated little support for the human capital or ability to pay perspectives on willingness to borrow or debt levels in education loan programs. However, it should be cautioned that such a conclusion is limited to the applicability of these theoretical perspectives on student loans, not to the original decision to invest in a college education regardless of how those costs are covered.

TABLE 3
Level of Loan Debt Shown with Multiple Regression❖

Dependent Students

(B weights, N=815)	Step 1	Step 2	Step 3
Precollege Characteristics			
Gender (1=Male)	.173	.068	.014
Race: Black (=1)	-.457	-.542*	-.592*
Parent Education Level	.043	.021	.013
Married (=1)	-.567	-.605	-.326
Number of Dependents	-.101	-.111	-.124
Family Income	-.000	-.000*	-.000*
Institutional, Academic & Financial Characteristics			
Admission Selectivity		-.116	-.102
Distance from Home		.228***	.191***
Sector:			
Non-profit (=1)		.913***	.871***
Proprietary (=1)		.890**	.978**
Cumulative GPA Category		.033	.038
Savings for Education		-.000	-.000
Tuition Direct Cost		.000***	.000***
Residual Total Cost		.000**	.000**
Other Characteristics			
Degree Aspiration			.143*
Cost Avoidance			-.098*
Materialism			-.023
Academic Integration			-.068
Social Integration			.045
Major/Career Congruence			.098*
Starting Salary			.000
Job Growth Percent			-.007
Job Market Size			.000
Job Socioeconomic Status			.015**
Constant	4.511***	2.670***	2.543**
R-squared	.012	.164	.189

* = $p<.05$, ** = $p<.01$, *** = $p<.001$

Many policy analysts are cognizant of problems narrowly defining borrowers as borrowers-of-record. Substantial yet unknown numbers of students borrow with the expectation or agreement that their parents will repay their student loans. Conversely, some students who receive parental "contributions" understand that such cash transfers are in fact loans repayable to the parents. In the same vein, student contributions are often not so much personal savings

TABLE 3
Level of Loan Debt Shown with Multiple Regression❖ (cont.)

Independent Students

(B weights, N=277)	Step 1	Step 2	Step 3
Precollege Characteristics			
Gender (1=Male)	.335	.384	.396
Race: Black (=1)	-.140	-.184	-.135
Parent Education Level	.064	.067	.079
Married (=1)	.373	.161	.058
Number of Dependents	-.295*	-.315*	-.293*
Family Income	.000***	.000***	.000***
Institutional, Academic & Financial Characteristics			
Admission Selectivity		.301	.256
Distance from Home		.013	.007
Sector:			
Non-profit (=1)		.393	.382
Proprietary (=1)		.958	.912
Cumulative GPA Category		-.028	-.049
Savings for Education		-.000	-.000
Tuition Direct Cost		.000**	.000**
Residual Total Cost		.000**	.000*
Other Characteristics			
Degree Aspiration			.083
Cost Avoidance			-.128
Materialism			-.105
Academic Integration			.005
Social Integration			-.019
Major/Career Congruence			-.217
Starting Salary			-.000
Job Growth Percent			-.005
Job Market Size			.000
Job Socioeconomic Status			-.017
Constant	4.931***	2.999***	5.378**
R-squared	.087	.178	.206

* = $p<.05$, ** = $p<.01$, *** = $p<.001$

❖ Step 1 shows performance of the model with only student precollege characteristics used; Step 2 shows effects of the addition of institutional academic and financial characteristics; and Step 3 shows the effect of the full model including the attitudinal, behavioral, psychological, and labor market measures. Levels of significance above .01 are marginal.

as interfamilial gifts from parents, grandparents, or other generous relatives. Some parents borrow in programs such as Parent Loans for Undergraduate Students (PLUS loans), similarly expecting that their children, the student beneficiaries, will repay the note, legal obligations notwithstanding. The boundaries between parent and student responsibilities, and between gifts and loans, are clearly more fluid than is readily apparent.

This study tested for direct linear effects from measures taken to reflect a variety of theoretical domains, including familial, academic, financial, attitudinal, behavioral, and occupational. However, the actual determinants of willingness to borrow and debt levels may necessitate testing for indirect effects or for interactions between variables, resulting in far more complex models and analyses than used here. Indeed, some results obtained do suggest that the influence of certain measures is mediated by others. Assuming borrowing behavior is not random, further understanding of loan-taking awaits more sophisticated approaches.

"Substantial yet unknown numbers of students borrow with the expectation or agreement that their parents will repay their student loans."

A number of intriguing questions remain about other influences on borrowing attitudes and behavior which of necessity were untapped by this study. Among unmeasured influences worth further investigation are local economic conditions, personality, parents, and institutional financial aid packaging policies.

Because of its focus on individual borrowers surveyed within a single year, this study is unable to account for economic or business conditions that may influence borrowing behavior. Some evidence suggests that general economic conditions may contribute to understanding student loan default rates, over and above individual borrower variables and institutional practices (Hakim and Rashidian, 1995). Ideally, a study that integrates economic conditions with individual financial decision-making will measure over time the waxing and waning of both occupations and industries within the regions where student borrowers reside.

The use of personality inventories is relatively uncommon in higher education research (Pascarella and Terenzini, 1991). Nevertheless, personality traits have been linked to student choice of academic majors (Hu, 1996) and to student loan repayment behavior (Stockham and Hesseldenz, 1979). Certainly, hypotheses are easy to generate about different approaches toward education loans based on whether individual students are thrifty, persistent, materialistic, impulsive, idealistic, or nonconforming, to name but a few traits.

The growing interest in parental influences on college student behavior is seen in more frequent references to intergenerational effects (Baum, 1996b; Behrman, Pollak and Taubman, 1995; Flint, 1997b; Gold, 1995; Gruca, Ethington, and Pascarella, 1988). Parental influence is clearly an issue in the case of first-year students if not categorically for all dependent students. Some research suggests that parents of different racial/ethnic backgrounds place different degrees of responsibility for college financing on their children (Steelman and Powell, 1993). Because of the high cost of college compared to young adults' financial resources, any such burden not assumed by the parents is far more likely to result in student borrowing and employment to finance their education.

Institutional aid packaging strategies will certainly influence borrowing. Institutional policies that mandate a student self-help financing threshold before awarding gift aid put more pressure on students to borrow than do policies that assume students deserve a minimum level of gift aid to reduce costs. As colleges implement gift aid strategies beyond pure financial need in order to leverage scholarship dollars for additional enrollments, these packages also have an impact on borrowing (Wesley and Sanders, 1996).

No one can predict with certainty if or when student borrowing volume will eventually level off. The constraints on borrowing must be either external (such as regulations, appropriations, or college costs) or internal (such as attitudes, values, or expectations). The evidence here suggests that students borrow with little regard for labor market variations and only because other alternatives for college financing are less desirable.

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