DOCUMENT RESUME

ED 402 843 HE 029 760

AUTHOR Flint, Thomas A.
TITLE Predicting Student Loan Defaults. ASHE Annual Meeting Paper.
PUB DATE 31 Oct 96
NOTE 59p.; Paper presented at the Annual Meeting of the Association for the Study of Higher Education (21st, Memphis, TN, October 31 - November 3, 1996).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Demography; Educational Finance; Federal Programs; Financial Aid Applicants; Higher Education; Legal Responsibility; *Loan Default; *Loan Repayment; Models; National Surveys; Paying for College; *Predictive Measurement; Predictive Validity; Predictor Variables; Student Characteristics; *Student Financial Aid; *Student Loan Programs; Student Responsibility
IDENTIFIERS *ASHE Annual Meeting; *National Postsecondary Student Aid Study

ABSTRACT

The failure of students to repay federally insured loans has led to an increased emphasis on default prevention and threatens institutions with high default rates with exclusion from federal student aid programs. Prior studies of default prevention using theoretical constructs based on economics, sociology, and psychology have yielded mixed results. This large-scale multi-college study based on the Student Loan Recipient Survey (SLRS) of the 1987 National Postsecondary Student Aid Study sought to analyze the many variables that might influence loan repayment behavior. Data on 1,117 borrowers from 510 institutions were analyzed. The model used for the study grouped variables into three blocks: precollege, college-related, and postcollege, and included student background, school choice, student academic achievement, loan counseling, exit counseling, and point-of-survey (postcollege) variables. The model correctly predicted repayment status of about 87 percent of all cases, with the strongest correlation being with student background. Overall, the study found that while economic factors played a modest role in repayment behavior, the most significant influences were psychological. Three tables summarize data, and include: record loss during sample selection; description of the variables included in the model; and a regression analysis of defaulted loans for the six groups of variables. (Contains approximately 135 references.) (CH)

Predicting Student Loan Defaults

Financing Higher Education (Session C5)

Association for the Study of Higher Education (ASHE)

Memphis, TN, October 31, 1996

Thomas A. Flint, Ph.D.

Vice President for Research

Robert Morris College

180 North LaSalle

Chicago, IL 60601

E-mail: TAFlint@aol.com

ASHE

ASSOCIATION
FOR THE
STUDY OF
HIGHER EDUCATION

Texas A&M University
Department of Educational
Administration
College Station, TX 77843
(409) 845-0393

This paper was presented at the annual meeting of the Association for the Study of Higher Education held in Memphis, Tennessee, October 31 - November 3, 1996. This paper was reviewed by ASHE and was judged to be of high quality and of interest to others concerned with higher education. It has therefore been selected to be included in the ERIC collection of ASHE conference papers.

Introduction

About one-fifth of all undergraduates borrow in the federally-insured Stafford student loan program, previously known as the Guaranteed Student Loan (GSL) Program [Korb et al, 1988]. Currently, qualified undergraduates may borrow up to $2625 as freshmen, $3500 as sophomores, and $5500 each year thereafter, without collateral or previous credit experience. Self-supporting students (whose parental data is not required on the federal financial aid application) may borrow an additional $4000 to $5000 each year in the Unsubsidized Stafford loan program. Banks, savings and loan associations, and credit unions provide funds insured by agencies of the federal government after participating postsecondary institutions certify student borrowers' financial need and academic eligibility. Student borrowers are usually not obligated to make payments upon principal or interest during periods of enrollment, while lenders are simultaneously guaranteed a revenue stream of interest payments by the government as well as insurance against later default [U.S. Department of Education, 1990a, 1990b].

Failures to repay student loans result in enormous costs to the federal government, which covers the losses to lenders. The American experience is severe; Johnstone [1987] observes that Sweden has a student loan default rate only one-fifth of that of the U.S. In the 1990's defaulted student loans will cost the federal government at least two to three billion dollars each year [U.S. Department of Education, no date]. These sums easily surpass the annual amounts spent on any of the divisions within the National Institutes of Health as well as virtually every initiative funded under the separate titles of the Higher Education Act, including graduate support and institutional assistance. In the early 1990's the problem was viewed as reaching crisis proportions, for at that time defaults were the fastest-growing line item in the budget of

the Department of Education [U.S. Department of Education, 1990b]. The growing cost of defaulted loans results in large part from the burgeoning use of student loans throughout higher education. In the decade of the 1980's, borrowing volume in federally-backed education loans grew forty percent in inflation-adjusted dollars, but from 1992-93 to 1994-95, federal loan program volume grew an astonishing 50 percent [College Entrance Examination Board, 1995]. Currently, more than half of all full-time recipients of student aid use student loans, and more than a third of all part-time recipients also do [Lee & Clery, 1995].

Default rates have tended to increase over time [Harrison, 1995]. Even if temporary declines occur, large increases in student borrowing mean that the federal government's costs to repay defaulted loans will increase in the future. Coincidental to the rapid growth in student borrowing is news in the business press that recent large increases in consumer credit use are being accompanied by surges in credit card delinquency rates and personal bankruptcy filings [Koretz, 1995]. Escalating student loan default costs have followed closely on the heels of the huge losses in government-backed savings and loan associations in the 1980's [Eichler, 1989; White, 1991] and of current policy debates about potential costs savings to achieve through student loan program restructuring [Burd, 1995].

In this context, the federal government places great emphasis on default prevention. Since the federal government can do relatively little to directly influence the repayment behavior of current and potential student borrowers, federal intervention is largely directed towards institutions, and to a lesser degree, lenders and loan insurance agencies. For institutions whose former students exhibit relatively high rates of default on their student loans, federal policy requires multi-faceted plans addressing issues of institutional marketing, quality, refunds,

graduate job placement, and borrower counseling [U.S. Department of Education, 1990b]. For institutions with unacceptably high default rates, federal policy requires the termination of institutions from federal student aid programs. Shortly after Congress reauthorized the federal student aid programs in 1992, reports began to appear about hundreds of institutions that were to lose eligibility for federal student aid programs due to the high default rates caused by their former students [Zook, 1993]. For institutions with relatively high default rates, the effects of exclusion from federal student financial aid programs can be devastating upon revenues and enrollments.

Theoretical Perspectives

Efforts to understand and to minimize student loan defaults have primarily drawn upon theoretical perspectives from three disciplines: economics, sociology, and psychology. Here begins a brief exploration of what each discipline has contributed.

Economic Perspectives

Two perspectives derive from the tradition of economics. *Human capital theory* posits that the student's investment in higher education is made with the expectation that the future financial returns from acquired skills and increased income will outweigh the current costs, both direct and indirect [Becker, 1993]. Public subsidies behind federal student loans reduce risks to both borrowers and lenders as a means of stimulating enrollments from students having sufficient academic ability but insufficient funds. The higher average incomes of college graduates compared to non-graduates may provide for servicing loan payments and higher net income tax revenues, thus benefitting both students and the public alike [Smart, 1988; St. John & Masten, 1990]. Yet, while human capital theory is a useful framework for understanding students'

decision to attend college with the decision to borrow as its corollary, it is less useful for understanding borrowers' decisions to repay or to default. The investment in college education is a major decision having substantial direct and indirect costs, and college graduation is a publicly acknowledged accomplishment. By contrast, while loan repayers build good credit histories and defaulters endure collections efforts, the repayment or default upon student loans is primarily a private event having nowhere near the public recognition or economic impact of the college experience itself.

An additional perspective from economics stems from the theory of *ability to pay*, which has implications for the processes of both making and collecting loans. First, ability to pay theory rationalizes the distribution of subsidies among all potential borrowers by targeting the greatest funding for students with the least available income. Consequently, students with the greatest financial need have traditionally been offered the largest loans. Next, ability to pay theory attempts to explain borrower behavior by prioritizing consumption categories. After college and during the loan repayment period, student borrowers who are unable to provide for themselves much beyond a minimal living level must either turn to family or friends for financial help or risk defaulting upon their loans. The theory thus posits that first priority is given to essential expenses related to subsistence, mandatory taxes, and medical expenses, leaving a residual 'discretionary income' for additional costs related to education, recreation, savings, or other financial obligations [College Scholarship Service, 1983a, 1983b]. During the proscribed loan repayment period, if borrowers lack the resources necessary to service the loan debt, then the likelihood of default is high. However, the limitations of this perspective become apparent not at low levels of income but at high levels. Borrowers who may readily repay their loans

nonetheless choose not to do so. Indeed, recurrent stories of wealthy physicians defaulting on their student loans have tarnished the integrity of government loan program operations for many years.

Sociological Perspectives

Both status attainment and social integration models have had great influence upon higher education research, particularly in the areas of educational attainment and of student departure. Status attainment models were introduced in the seminal work of Blau and Duncan [1967] to explain the role of educational experience in social mobility, and derivatives of these models figure prominently in college choice and matriculation research. Tinto [1975, 1987] adopted the sociological perspective of Durkheim's [1951] investigations of suicide in order to advance the understanding of the causes and cures for college student attrition.

The sociological tradition in higher education research has provided *student/institution fit* models stemming from college outcome studies and, in particular, from retention studies [Bean, 1980; Cabrera, Nora, & Casteneda, 1992]. Critical to student/institution fit models are measures of academic and social integration of students among their peers and the faculty. Student/institution fit models may be regarded as derivatives of person/environment interaction theories [Baird, 1988; Walsh, 1973] which posit that the physical and social characteristics of one's surroundings exert influence upon one's behavior. An important corollary to such theories is that when individual interests, values, and behaviors coincide with those manifest in surrounding contexts, those individuals show longer sustained interaction and experience greater satisfaction.

Another approach with sociological origins is the *structural/functional* theoretical

perspective. Institutional mission, size, and environmental factors may influence the values and behaviors of its members or inhabitants [Hall, 1991]. For example, campus crime is correlated with organizational dimensions [Volkwein, Szelest, & Lizotte, 1993].

Curiously, though the failures of a small segment of borrowers to repay their loans after making promises to do so (and despite frequent reminders and escalated warnings) are acts of deviance, no default research has drawn upon sociological *theories of deviance*. At least two other lines of inquiry in higher education suggest some potential value to this approach. Braxton [1993] has shown the utility of anomie (alienation) theory [Merton, 1968] in understanding scientific misconduct, while Michaels and Miethe [1989] find that sociologically-based theories of deterrence and of social bonding contribute to understanding student academic cheating.

Psychological Perspectives

The third discipline contributing theoretical perspectives is that of psychology. Since efforts to prevent defaults depend upon the degree to which the borrower's future behavior can be influenced, psychological *theories of attitude formation* and the effects of attitudes upon subsequent behavior become relevant here. Interventions to trigger attitude-behavior effects might also described as the counseling perspective. In the context of student borrowing and default prevention, the influence of informants to the financing process --- both friends and professionals --- is stressed insofar as they provide information about the availability of loans and their repayment requirements. As a normative peer group, they may shape borrowers' beliefs, feelings, and behavioral tendencies toward the loans. As in other decision-making contexts, credibility of informants and the extent of information are seminal influences upon subsequent attitudes and behaviors [Davidson et al, 1985; McGuire, 1985]. Because financing

is an integral part of the college experience [Cabrera, Nora, & Casteneda, 1992], attitudes toward student loans and later repayment behavior may be taken as representative of their satisfaction (or lack thereof) with the college experience after their departure. Attitudinal factors related to loan defaults remain a major area for further investigation, and at least one source predicts, "Willingness to repay is even more important that ability to repay" [Orr, 1987].

Nonetheless, purely psychological perspectives also have inherent limitations. Psychological constructs are notoriously slippery and the theories underlying them too often support circular reasoning. Few social or educational surveys include the complete battery of items needed to replicate previously standardized measures, thus resulting in numerous proxies for common constructs. Moreover, predispositions toward certain behaviors may be of little consequence when the person has neither resources nor the capability for action. In general, the efforts to empirically link broad personality traits and attitudes to specific behaviors have often resulted in failure, though multi-dimensional constructs show reasonably strong predictive validity upon subsequent behavior [Ajzen, 1988].

Federal Policy & Integrative Perspectives

Federal policies related to default prevention rely heavily upon the theoretical perspective of counseling and attitude change, because the federal policy holding institutions responsible for the repayment behavior of former students is fair and reasonable only if schools can effectively influence that behavior. These issues were clearly identified by the U.S. Secretary of Education when answering objections to its system of holding institutions accountable for loan defaults, even for those schools serving student populations with a high risk of default. Speaking of the need-based Perkins loan program, the Secretary answered the objections this way:

> The Secretary has observed widely differing default rates among similar types of institutions serving student populations with similar characteristics, and believes that institutional default rates, although related to income levels, are more related to other factors clearly within the control of the institution. The latter include not only the quality of the institution's collection activity, but also the manner and type of loan counseling given student borrowers and the degree of student satisfaction with the quality of the education provided by the school. (Federal Register, August 6, 1986, p. 21832).

Few of the recently published student loan default studies have attempted to integrate these multiple theoretical perspectives. In fact, most studies view loan default from a single perspective. Some empirical work includes only counseling-related variables but no background or institutional characteristics [Butler, 1993; Lein, Richards, & Webster, 1993], others include institutional variables with no student- or counseling-related characteristics [Harrison, 1995; Merisotis, 1988], and still others focus upon student variables to the exclusion of institutional or decision-related characteristics [Gray, 1985; Myers & Siera, 1980; Stockham & Hesseldenz, 1979]. A detailed survey of the student loan default literature is now in order.

Prior Research

There have been many descriptive studies of student repayment behavior since the inception of federal student lending programs [Beanblossom & Rodriguez, 1989; Cross & Olinsky, 1984; Lee, 1982; Pedalino et al, 1992]. While the descriptive studies compare repayment behaviors across many variables each considered independently, such studies do not provide a means for estimating the likelihood of future occurrences of repayment or default. By contrast, only a handful of studies have been published using inferential statistics for predicting student repayment. The goal of predictive studies is not only to establish equations to estimate probabilities, but also to consider the role of all predictor variables simultaneously so that their relative influences can also be estimated [Hauptman, 1977].

Some contrasting uses of terminology regarding "default" may be observed in earlier studies. Default in the Stafford/GSL loan program is defined by statute as the case in which a borrower has made no payment in more than 180 days for a loan which is billed monthly (or more than 240 days for loans billed quarterly). However, not all studies define default identically. Some studies redefine default as delinquency of twelve or more consecutive months during the repayment period [Hesseldenz & Stockham, 1982; Stockham & Hesseldenz, 1979]. Other studies have used stricter definitions; for example, Gray [1985] used a 120 day threshold for default.

Other variations within default studies may be noted. Delinquency on payments precedes default, and some studies concern themselves only with degrees of delinquency [Bergen, Bergen & Miller, 1972], even as little as a single instance within a twelve month period [Butler, 1993]. Also, one finds several student repayment studies for the Federal Perkins student loan program (formerly, National Direct Student Loans, or NDSL), a precursor of Stafford/GSL loans [Bergen, Bergen & Miller, 1972; Butler, 1993; Emmert, 1978; Hesseldenz & Stockham, 1982; Stockham & Hesseldenz, 1979]. Gray's study [1985] used the Federal Insured Student Loan (FISL) Program, a school-based version of GSL. Given the relationship of delinquency to default and the structural similarity of borrowing provisions under Perkins/NDSL, FISL, and Stafford/GSL loans, all such studies are included below in this research review [U.S. Department of Education, 1990a].

Economic Evidence

Examining the results of prior research from the conceptual frameworks of economics has shown only modest usefulness. The weakness of the human capital and ability-to-pay theoretical

perspectives becomes evident in a number of studies in which borrower income and asset measures fail to add measurably to explained variance. Some multivariate studies show that postcollege incomes effect defaults [Ryan, 1993; Volkwein and Szelest, 1995] but others do not [Hesseldenz & Stockham, 1982; Spencer, 1974]. Although recent studies have not included variables to account for family wealth, early studies have all tended to show default to be unrelated to various forms of assets or liabilities such as home/auto ownership or debt, bank accounts, or other debts including education loans [Dyl & McGann, 1977; Gray, 1985; Spencer, 1974; Stockham & Hesseldenz, 1979].

Sociological Evidence

Every predictive study to date which includes family background variables has found one or more of them to be significant associated with student loan defaults. Effects are frequently observed for two social background variables: race and socioeconomic status. Seven studies [Butler, 1993; Dynarski, 1994; Flint, 1994; Gray, 1985; Knapp & Seaks, 1992; Volkwein & Szelest, 1995; Wilms, Moore & Bolus, 1987] which include race as a predictor find that blacks have a significantly higher probability of default, while one [Greene, 1989] found no significant effect from race. Volkwein and associates [1995] show that only small differences in default rates remain after disaggregating on race by marital status and number of dependents, which is important evidence for the view that the borrower's postcollege situation determines default. However, the general effects upon default from marital status and the number of dependents are mixed across other studies, sometimes being influential [Dynarksi, 1994; Myers & Siera, 1980], sometimes not [Gray, 1985; Spencer, 1992; Stockham & Hesseldenz, 1979].

Other common demographic variables also draw mixed results. Precollege total family

income (including parental income) has typically been used as a measure of the socioeconomic status of borrowers. Six studies [Dynarski, 1994; Gray, 1985; Knapp & Seaks, 1992; Myers & Siera, 1980; Pattillo & Wiant, 1977; Wilms, Moore & Bolus, 1987] find that lower levels of family income to be positively related to default, while three others [Flint, 1994; Greene, 1989; Volkwein & Szelest, 1995] find no such effect. Measures of parental educational and occupational status attainment are usually not influential. With few exceptions [Flint, 1994; Spencer, 1974] gender is not usually influential in predicting default [Knapp & Seaks, 1992; Myers & Siera, 1980; Volkwein & Szelest, 1995; Wilms, Moore & Bolus, 1987]. Depending upon the sample, age may be a factor [Pattillo & Wiant, 1977; Ryan, 1993] or not [Dyl & McGann, 1977; Knapp & Seaks, 1992; Spencer, 1974; Stockham & Hesseldenz, 1979].

Psychological Evidence

Empirical support for psychological perspectives upon default is strong, though most of the evidence indicates the relevance of individual differences rather than attitudinal variables. A large body of research indicates that variables related to individual achievement, identity, and personality are strong predictors of default. With one exception [Greene, 1989], borrowers' cumulative grade point average (GPA) is a reliable predictor of default, such that higher GPAs decrease the risk of default [Bergen, Bergen & Miller, 1972; Dyl & McGann, 1977; Flint, 1994; Gray, 1985; Myers & Siera, 1980; Stockham & Hesseldenz, 1979; Volkwein & Szelest, 1995]. Similarly, graduation bodes well for the likelihood of repayment [Dynarski, 1994; Greene, 1989; Knapp & Seaks, 1992; Pattillo & Wiant, 1972; Wilms, Moore & Bolus, 1987] though other studies discount this factor [Flint, 1994; Myers & Siera, 1980]. Also, some studies show that majoring in more academically rigorous disciplines related to science and technology (such as

engineering) decreases the probability of default [Dyl & McGann, 1977; Myers & Siera, 1980; Stockham & Hesseldenz, 1979; Volkwein & Szelest, 1995].

No multivariate study of default has developed stronger predictive results than that of Stockham and Hesseldenz [1979]. In that study, the authors found personality variables to be largely responsible for correctly predicting repayment (91.5%) and default (94.5%). Despite these results which the authors appropriately describe as astounding, no other study has yet replicated their findings, and few other studies exist in any of the social science literature which relate personality variables to credit use of any kind [Krause & Williams, 1971; Schaninger, 1976]. Also missing in the literature are studies which assess the effectiveness in preventing default by tailoring different types of loan counseling messages to personality types.

The research of Stockham and Hesseldenz [1979] has another distinct and valuable feature: it is the only published study to include an academic ability measure (ACT composite score) as well as an academic performance measure such as high school or college GPA. This routine but surprising omission among the many other published default studies to date indicates a serious limitation in nearly every default study to date, since it is widely recognized that academic ability makes a significant independent contribution to both college choice and college outcomes [Hearn, 1984, 1988; Pascarella & Terenzini, 1991; Zemsky & Oedel, 1983].

Multivariate, Multi-institutional Studies

The crucial policy question debated about defaults is the relative influence of student and institutional characteristics. A search through several annotated bibliographies on student financial aid research and policy [American College Testing Program, 1974; Davis & Van Dusen, 1978; NASFAA, 1987, 1988] and other sources reveals few studies of student loan

default which are both multi-institutional and multivariate in nature. A California study [Wilms, Moore, & Bolus, 1987] is limited to 3155 borrowers from 93 community colleges and 140 proprietary schools, all chosen because of their high institutional default rates. A Texas study [Lein, Richards & Webster, 1993] used a sample of 50 state technical institute students and 50 proprietary school students in an unspecified number of schools. Knapp and Seaks [1992] studied defaults among 1834 dependent borrowers at 26 public and private 2-year and 4-year colleges in Pennsylvania. By contrast, most other published predictive studies of student loan default typically involve borrowers from one campus within a single state system, such as the universities in Missouri [Gray, 1985], North Carolina [Greene, 1989], Kentucky [Hesseldenz & Stockham, 1982], and New Mexico [Myers & Siera, 1980], to name a few.

The most recent and comprehensive studies of student loan default use data from the Student Loan Recipient Survey (SLRS) of the National Postsecondary Student Aid Study of 1987 (NPSAS:87). Using the SLRS, Dynarski [1994] primarily studied individual characteristics useful to predicting default, including only sector type as an institutional variable, whereas Volkwein and Szelest [1995] expanded the model to include an array of institutional variables in his analysis. However, a number of limitations in those studies present conceptual difficulties for interpreting the effects reported. Furthermore, these SLRS studies also bypass intriguing questions about default and repayment behavior.

First, these SLRS studies include many students who transferred between undergraduate institutions. About 60 percent of the SLRS respondents listed more than one institution in their educational history and about 25 percent listed three or more schools [Knight et al, 1988]. No sound theoretical framework exists for partitioning by institution the effects of the undergraduate

experiences of students who, for example, might have transferred from trade schools or community colleges to four-year colleges or universities, or vice versa.

Second, these studies includes both graduate and undergraduate degree-holders. Approximately 17 percent of SLRS respondents claimed to hold a master's, doctoral, or professional degree [Knight et al, 1988]. While borrowing levels and default rates among graduate and professional school students are important areas, inter-institutional comparisons are difficult to interpret when mixing both undergraduate and graduate educational experiences in the same analysis. Additionally, while it has been noted that about 17 percent of SLRS respondents claimed to have completed graduate-level work, less than two percent of the SLRS data records have multiple academic transcripts. Thus, care must be taken to insure than the transcript data is matched to the appropriate institution and level for students having both a graduate and undergraduate history. Given the differences in difficulty and scope of the academic work between these levels, the use of grade point averages (GPA) taken from a mixture of graduate and undergraduate transcripts is of questionable utility as a predictive variable.

Finally, the large number of cases in the SLRS in which data are missing raises vexing problems for analysis. More than one-third of all SLRS respondents were unable or unwilling to estimate their parents' total yearly gross income at the time the student entered postsecondary education. While this kind of background variable is frequently included in default studies and is alleged to influence disposition to repay [Gray, 1985; Myers & Siera, 1980; Patillo & Wiant, 1972; Wilms, Moore, & Bolus, 1987], large proportions of missing data introduce uncertainty into the interpretation of the data and the results of its analysis. Some analysts have attempted

to remedy this problem by imputing data [Volkwein & Szelest, 1995].

Purpose of the Current Study

Due to its large scale, its multi-college sample, and its extensive inquiry into students' background, academic experiences, work histories, and borrowing data, the SLRS provides a unique data source for multivariate explorations of the many potential influences upon loan repayment behavior. In particular, it provides an opportunity to assess the impact of loan counseling through its accumulation of answers by students to questions about the sources from which students first learned about their loans and the timing and sources of information by which repayment information was received. The kinds of questions such an analysis might answer include: Does personal advice (from friends, relatives, high school counselors) favorably influence repayment compared to institutional contact (lenders, schools, or the media)? Does counseling at the time of loan origination have greater impact than that done just prior to repayment? Is repayment counseling more effective when provided by schools than by banks? Is the experience of having multiple lenders an indicator of potential program complexity which might cause borrower confusion leading to default?

The explosive growth of student borrowing and the job pressures upon young graduates has also fueled speculation that large debts distort curricular choices and early career decisions. Except for a study by St. John [1994], most of the evidence in this area remains anecdotal [Kramer & Van Dusen, 1986; Marchese, 1986; Zook, 1994]. To date only one small study has investigated whether instances of mismatches between students' undergraduate major and their postgraduate jobs constitute a factor influencing repayment behavior [Lein, Richards & Webster, 1993]. In the SLRS about a quarter of those students reporting having been in default on their

first loan claimed that dissatisfaction with the education program for which the loan was obtained was an important reason the student defaulted [U.S. Department of Education, 1990a].

The current study attempt to replicate and extend the findings of the earlier SLRS studies by addressing some of the aforementioned limitations. Similar to Volkwein and Szelest [1995], this study uses measures representing several theoretical perspectives from multiple disciplines. In particular, this research further investigates the default problem by incorporating variables related to a counseling perspective, such as the timing and sources of repayment information, as well as a measure indicating the congruence between students' undergraduate majors and postgraduate jobs [Holland, 1985; Smart, 1989].

Method

Sample

The Student Loan Recipient Survey (SLRS) of the 1987 National Postsecondary Study Aid Study (NPSAS:87) was used in this study. The SLRS was performed from November, 1987 to April, 1988, and first made available to data analysts in 1989. This portion of NPSAS:87 is sometimes referred to as the "out-of-school" component of NPSAS, to distinguish it from the study of enrolled students and their parents. The SLRS surveyed 11,847 former students of 1,412 postsecondary institutions who left school between 1976 and 1985. All of these sampled students had borrowed in the GSL loan program. With a response rate just below 80 percent, completed student questionnaires were obtained for 8,223 borrowers. Additionally, well over 14,000 academic transcripts were requested from the attended institutions so that detailed academic information could be encoded into record files and linked to the former student borrowers [Knight et al, 1988, 1989].

Table 1 shows the steps by which records were selected based on SLRS variable names. SLRS records were thoroughly scanned to insure that only undergraduate records were obtained from students whose list of institutions might include graduate schools attended. Each institution was coded into the SLRS not by name but by federal institutional code numbers. Since many institutions have (or had) multiple federal code numbers, multiple listings were recoded to a single number per institution so that code mismatching between student survey data and academic transcript data would be eliminated. Federal institutional code number mismatches were also identified and recoded so that successful matching could be performed to the 1990-91 Institutional Characteristics (IC) data collected by the National Center for Education Statistics (NCES) through its Integrated Postsecondary Education Data Survey (IPEDS).

The final sample is comprised of 1,117 borrowers from 510 institutions, of which 296 are public, 170 are private non-profit, and 44 are proprietary. Of these institutions, about 53 percent are of average selectivity in admission, while 37 percent are minimally- or non-competitive and the remaining 10 percent are highly competitive. Table 2 provides further descriptive information about the borrowers and the institutions attended.

Variables

The model(s) developed assume that repayment behavior is the cumulative result of experiences before, during, and after college enrollment. The variables of interest will be grouped together into blocks representing precollege variables, college-related variables, and postcollege variables. Such groupings are standard practice in most college impact studies [Astin, 1977, 1992; Pascarella & Terenzini, 1991]. Within the broad category of college-related effects, this study investigates the role of institutional characteristics, student academic variables,

and loan origination and aid packaging variables. Table 2 provides descriptive characteristics based on the study's variables.

The operative assumption in stage- or step-based models is that the effects of variables may only act forward in time and cannot retroactively affect the past. For example, one's choice of academic major in college may influence subsequent postcollege earnings, but not vice versa. Additionally, step-based models permit interpretations of the net effects of adding variables to models when the effects of earlier variables are already known. For example, loan exit interviews may appear significant in isolation but less so when controlling for the effects of the backgrounds of the borrowers and the kinds of institutions which they attend. A final benefit from step-based models is that different predictive equations can be developed for different points in time. The most useful points of prediction of repayment behavior may be at loan origination and during the post-enrollment grace period, whenever contact with the borrower is likely to be highest. However, predictive equations for earlier or later points of time may have important implications for loan policy and practice.

Student background characteristics

The first block of variables entered into the model are student background characteristics. These variables are the borrowers' precollege characteristics, in that they represent the variety of personal and social circumstances students present upon entry to college and are therefore not amenable to institutional control. The variables used in this analysis include those which have been common in the default research cited above and for which reported findings show the variable to be a statistically significant predictor: gender [Flint, 1994; Spencer, 1971]; race [Butler, 1993; Dynarski, 1994; Flint, 1994; Gray, 1985; Knapp & Seaks, 1992; Myers & Siera,

1980; Volkwein & Szelest, 1995; Volkwein et al, 1995; Wilms, Moore & Bolus, 1987]; age [Pattillo & Wiant, 1972; Ryan, 1993]; parental educational attainment [Ryan, 1993]; and family income [Dynarski, 1994; Gray, 1985; Knapp & Seaks, 1992; Myers & Siera, 1980; Pattillo & Wiant, 1972; Wilms, Moore & Bolus, 1987]. Since the SLRS obtained parental occupation data as well, this data was encoded into an index for socioeconomic status of each parent's occupation [Featherman & Stevens, 1982]. The rationale for controlling for parental occupation is that the occupational standing of parents may further influence the values and behavior acquired by the student, independent of the effects from other family background measures.

Institutional choice characteristics

The second block of variables entered into the model are some institutional characteristics common to many research models from the student college choice literature [Hossler, Braxton & Coopersmith, 1989; Litten, 1991; Paulsen, 1990]. The variables in this study include the highest degree level offered at the attended institution [Volkwein & Szelest, 1995] and institutional sector [Dynarski, 1994; Volkwein & Szelest, 1995; Wilms, Moore & Bolus, 1987].

Consistent with the person/environment interactionism, other institutional characteristics might also influence repayment behavior. Institutional religious affiliation has been shown to influence student destinations [Maguire & Lay, 1981; Welki & Navratil, 1987]. Sectarian colleges are generally populated by students with a conservative orientation and may be more likely to emphasize students' moral obligations [Astin, 1977]. Ryan [1993] found that avoidance of default is positively associated with borrowers who claim to follow a religion, so an institutional variable is entered which controls for students who may have chosen a church-related college. Also, institutional size may have negative influences on various measures of

student satisfaction as well as important student development outcomes such as grade point average and degree aspirations [Astin, 1992]; because student satisfaction may influence default, total institutional enrollment will be entered within this block of variables. Finally, institutional selectivity (the degree of difficulty undergraduates face in obtaining admission) has significant positive effects on many measures of student satisfaction [Astin, 1992], so a selectivity index for each college was entered using data reported in Healy, Koether, and Lefferts [1990].

Student academic characteristics

The third block of variables comprise indicators of the student's academic experiences at the undergraduate level. While the block of institutional choice variables describe the chosen contexts for the students' experiences, the block of student academic variables captures some aspects of their individual performances within those contexts. Again, predictors were chosen which previously empirical research has shown to influence defaults: the socioeconomic status of students' chosen program or major field [Dyl & McGann, 1977; Myers & Siera, 1980]; the number of academic terms completed [Butler, 1993; Gray, 1985; Myers & Siera, 1980; Spencer, 1992]; cumulative grade point average [Bergen, Bergen & Miller, 1972; Dyl & McGann, 1977; Flint, 1994; Myers & Siera, 1980; Stockham & Hesseldenz, 1979; Volkwein & Szelest, 1995]; and whether or not the student earned an academic credential [Greene, 1989; Knapp & Seaks, 1992; Wilms, Moore & Bolus, 1987].

Loan origination, counseling and award packaging variables

The fourth block of variables comprise indicators which signify the timing, types and sources of information about GSL loans. Loans are not obtained in isolation from other awards. Aid administrators combine grants, work, and loan awards into 'packages', and increasingly college

aid administrators are concerned that a correct combination of award types work to reinforce rather than negate the policy goals of access, choice, and persistence [Klein et al, 1995]. Thus, variables are included in this model which signify the number of times other grants, loans, work, or miscellaneous awards were simultaneously awarded with the GSL loans obtained. The numbers of separate GSL loans and the total borrowed are included to assess the effects of the size of students' repayment burdens. Furthermore, the counseling perspective upon student borrowing emphasizes the role of information providers upon subsequent behavior and advocates full disclosure at the outset of borrowing through loan 'entrance' interviews [Dennis, 1983; McDougal, 1983; Popik et al, 1986]. Empirical research provides a basis for including such variables. Sources of information about loans has been shown to influence the likelihood of default [Lein, Richards & Webster, 1993], as have the kinds of awards within the financial aid package [Greene, 1989; Ryan, 1993], the number of loans and total amount borrowed [Dyl & McGann, 1977; Gray, 1985; Myers & Siera, 1980; Spencer, 1974].

About 10 percent of all SLRS respondents claimed to have two or more lenders for their GSL loans. Problems related to default have frequently been attributed to the complexity inherent in the GSL program, including the burden on students who may or may not have combined multiple loans originated by several lenders backed by any one of dozens of loan insurance agencies [Eglin, 1993]. When serviced separately, loans made by two separate lenders effectively doubles the minimum monthly payment required of borrowers during repayment, increasing the economic burden and potentially increasing the risk of default. More than a third of the students who reported defaulting on their first GSL claimed that confusion about the repayment process was an important reason for the default [U.S. Department of Education,

1990b]. For these reasons, the numbers of separate lenders used by borrowers over the course of their academic careers is included in the analysis.

Exit counseling and end-of-grace period variables

Since student borrowers typically do not make payments on their loans while still enrolled, the federal government places great emphasis upon loan 'exit' counseling provided by schools to remind departing students of their imminent financial obligations under the terms of the promissory notes. In addition, lenders themselves are required by federal rules to exercise due diligence in the collection of student loans, including several contacts with student borrowers just prior to the onset of repayment. The fifth block of variables in this study assesses whether the sources and timing of loan repayment information --- from schools or lenders, before, during, or after enrollment --- influence repayments, net of other factors. Additionally, the study includes variables for the number of other persons whom the student expected to receive help repaying the loan and the percent of the total borrowed they were expected to repay.

Previous research at single institutions demonstrates the relevance of counseling variables in predicting repayment behavior. Loan repayment is positively associated with borrowers' understanding of loan obligations, knowing a borrower's rights and responsibilities under the terms of the loan, and avoidance of default status by use of deferment provisions [Ryan, 1993]. Default is positively associated with lack of awareness of deferment provisions [Lein, Richards & Webster, 1993]. The inability of the institution to perform an exit interview is positively associated with having at least one delinquent loan payment within the first year after leaving college [Butler, 1993].

Researchers have frequently speculated that family wealth may be an unmeasured influence

upon proper student loan repayment [Knapp & Seaks, 1992; Volkwein & Szelest, 1995; Wilms, Moore & Bolus, 1987]. Some evidence does in fact indicate that whether or not families have bank or savings accounts does influence default [Pattillo & Wiant, 1972]. Although the SLRS survey does not inquire directly about family wealth or parental assets, a variable is included based upon an item borrowers completed indicating the number of persons and the percent of help from others that the student expected to have in repaying the loan.

Point-of-survey variables

The final block of variables in this model include contemporaneous circumstances which may influence repayment or default status, as measured at the time of the SLRS survey. They include measures of students' disposable incomes [Ryan, 1993; Spencer, 1974], congruence between students' undergraduate academic major and the latest job held [Lein, Richards & Webster, 1993], marital status and number of dependents [Myers & Siera, 1980; Volkwein & Szelest, 1995]. Because student degree aspirations are powerful influences upon subsequent enrollment [St. John, 1991], it was hypothesized that borrowers who had additional enrollment plans at the time of the survey had reason to stay in repayment and avoid default to not jeopardize their future eligibility for additional loans. Therefore, the students' aspirations declared at the time of the SLRS survey was included to assess its relationship to repayment behavior.

Analysis

The prediction of default status involves a dichotomous outcome (default or repayment). The proper analytic tool for such prediction is logistic regression [Cabrera, 1994]. Data were analyzed using the Statistical Package for the Social Sciences (SPSS) [Norusis, 1990]. Due to

the relatively large sample size, statistical probabilities above the .01 level are not interpreted.

Results

The overall model correctly predicts repayment status in about 87 percent of all cases. While student background characteristics are strongly related to default, very little additional predictive success is contributed by any of the blocks of variables entered after student background characteristics (Table 3). The probability of default increases with the indicators for being male, black, and with increased years of age ($p < .001$). These effects persist across successive steps of the model during which additional variables are added. Stated in terms of changes in probability represented by the *delta-p* statistic [Cabrera, 1994], being male increases default probability 5.8 percent, being black by 11.7 percent, and each year of age beyond 21 by 3.0 percent.

Within the block of student academic characteristics, only cumulative grade point average is related to repayment, such that higher GPA's are associated with avoidance of default ($p < .001$). Regarding loan origination variables, learning of student loans from lenders is related to avoidance of default ($p < .001$), while having multiple lenders increases the risk of default ($p < .01$). The *delta-p* statistics on these lender-related variables are 10.5 and 11.2 percents, respectively.

The postcollege circumstances of borrowers include two variables related to default. Lower disposable incomes and greater incongruence between undergraduate major and current employment are risk factors for defaulted loans. Two blocks of variables make no significant contribution to the performance of the model: institutional choice and exit counseling characteristics. Thus, none of the variables within those blocks --- including institutional sector,

selectivity, enrollment, exit counseling sources and timing, or repayment support from others -- contributes to the prediction of these default cases.

Limitations

Although the SLRS questionnaire is an especially rich source of data, many potentially important influences remain unmeasured. The first general category of limitations relates to excluded cases and missing data. Since this sample is limited to students listing a single undergraduate institution, no controls were possible for influences upon borrowers who experienced problems relating to transfers between schools. Additionally, no controls were available for potentially important student variables such as personality factors and academic ability. While relevant school variables are present, other institutional measures are missing, including the quality of the collection activity performed by the lenders and the state loan insurance agencies. These kinds of issues have formed part of the argument on behalf of the recent Federal Direct Loan Program [Eglin, 1993].

The second category of limitations springs from those influences which may fluctuate uniquely over extended periods of time. The federal policy environment in the period from 1976 to 1985 saw many regulatory changes to student loans, some of which must have influenced repayment behavior. Apart from effects from the era, many direct influences upon borrowers' repayment abilities remain unknown, including the frequency with which borrowers changed addresses during the repayment period, fluctuating borrower assets, local economic environmental factors, peer influences, and changes in attitudes towards the institution, the lender, and the loan itself.

Discussion

The titles of at least two published journal articles have posed the question, "Whose fault is default?" [McCormick, 1987; Wilms, Moore & Bolus, 1987]. The form of the question shows that few assume that only delinquent borrowers are to blame. Implicit in the question is a further assumption that something can be done to reduce defaults, once the symptoms are understood and suitable remedies applied. Research results show that the diagnosis is anything but simple and the prognosis is guarded.

In this as in earlier studies, the evidence suggests that economics plays a modest role in repayment behavior. Parental income levels, numbers of friends and relatives willing to assist in making loan payments, the types of financial support during college in terms of other financial aid, the number of loans and total borrowed, and the degree of postcollege financial support show no significant association with default status. On the other hand, the borrowers' own disposable incomes do significantly influence default, such that low incomes (logically) increase risk of default. Yet, while it is true that one must have a source of income to make loan payments, if matters were that simple, borrowers with the ability to repay would usually do so. However, many of those having the apparent ability to repay their loans choose not to do so. Thus, it seems that having an adequate disposable income is a necessary but not sufficient condition for honoring the terms of a student loan. Within this sample, 691 borrowers had disposable incomes (after taxes, room, board, and other loan payments) which for 1986 were greater than the total amounts borrowed in GSL, yet 80 (11.6 percent) nonetheless had defaulted. On the other hand, of 864 borrowers whose annual disposable incomes were less than the total amounts borrowed, 717 (or 83 percent) were in repayment at the time of the survey.

Given the weakness of the economic perspective upon this problem, do other approaches fare any better? The evidence from this study suggests that the sociological perspective is not much better than economics for understanding default. Family status indices for parental educational and occupational levels, institutional status indices for selectivity, degree levels, and sector, and student status indices ranging from academic majors to postcollege marital status all show no significant association with repayment/default. If it were the case that social institutions (such as families or colleges) helped shape repayment behavior, then one could reasonably expect the aforementioned kinds of variables to show larger effects than they do.

What emerges from this study is a portrait of psychological processes influencing repayment behavior. However, the ascendancy of individual influences over institutional ones is apparently not so much related to the counseling perspective as it is to other psychological processes. From the fifth block of variables in this study, measures which indicated counseling source by timing of counseling failed to show any significant association with repayment. Possibly, the absence of effects may stem from a restricted range of variability for these indicators. As interpreted, though, one would conclude that controlling for student background, school choice, academic and other characteristics, no apparent differences in repayment can be related to whether loan counseling was done before, during, or after enrollment by either the schools or the lenders. To view this finding in context, is should be noted that most of the borrowers in this study obtained their GSL loans under federal policies which may be characterized as ideal from a counseling perspective. In the period between 1976 and 1985, many loan insurance agencies required prospective borrowers to individually obtain loan applications from lenders and to do in-person loan counseling sessions in the lenders' offices. Under these circumstances, the

solemnity of borrowing was readily conveyed, with the attendant implication that default upon a student loan could not be viewed separately from the borrower's other financial transactions. In this setting confusion about the fact of borrowing was virtually impossible. (Perhaps for this reason, borrowers in this sample who reported hearing about GSL loans from lenders as opposed to schools or family had a significantly less likelihood of default, controlling for other influences). Only in the late 1980's, under pressure from aggressive national lenders and loan insurance agencies, did state agencies begin to relax loan origination requirements. Eventually, colleges and universities themselves distributed loan applications and conducted counseling sessions, often via the mail, making many lenders nearly invisible in their role as providers of funds. These changes certainly simplified loan origination, but also opened the door for some borrowers to deny the fact of borrowing due to the volume of documents handled between themselves and their schools. No one knows how much effectiveness may have been lost in preventing default by impressing borrowers within the offices of their lenders with the seriousness of their obligations, but the evidence here suggests that such impact may be small.

Thus, only a modest degree of evidence suggests that loan counseling makes a difference. This is not to deny that for particular borrowers or within particular colleges, the effects of loan counseling may be found to be very large and beneficial [Lein, Richards & Webster, 1993; Ryan, 1993]. This and other multivariate studies using large samples and diverse institutions have tended to find few significant effects from counseling-related variables [Dynarksi, 1994; Wilms, Moore & Bolus, 1987]. The general efficacy of loan counseling in preventing defaults has yet to be proven, though testimonials to its importance are certain to continue.

If not counseling, then what psychological perspective better explains default? The salient

personal characteristics related to repayment behavior in this study are gender, race, age, cumulative grade point average, disposable income, and congruence between academic major and latest job held. This collection of measures suggests that issues of personal identity and achievement figure prominently in predicting repayment or default. Given the direction of effects associated with these variables, one interpretation of this evidence is the hypothesis that expectations or feelings of personal success in life influence repayment. Lower college grades, lower disposable incomes, and less congruence between one's academic major and actual career all indicate less-successful outcomes from the college experience, all of which could make borrowers less inclined to endure the burden of loan repayment despite their promises to do so. The finding on academic major may be an especially subtle but telling indicator of the importance of psychological processes in loan repayment. By itself, the status of the academic major bears no significant relationship to repayment or default, yet the measure of congruence between the major and the last job held is significant ($p < .001$).

Clearly gender, race, and age are matters of identity more than achievement. Plausible hypotheses have yet to be generated to explain why these characteristics should be related to default. The accumulated evidence does not support current explanations very well; for example, some analysts take an economic perspective to relate the higher likelihood of black borrowers to default to smaller average incomes and assets [Greene, 1989; Wilms, Moore, & Bolus, 1987]. However, in multivariate studies which control for income, the effect persists [Dynarski, 1994; Volkwein and Szelest, 1995]. Alternatively, psychologically-oriented theories of identity or achievement offer some potential in this regard, since blacks typically experience greater alienation from the dominant culture regardless of socioeconomic status [Jaynes and

Williams, 1989].

The age and gender effects found in this study are atypical for default research. Compelling psychological reasons why males and older borrowers constitute a greater risk for default are not readily apparent. In this connection, though, it is worth noting that shifts in enrollments by age and gender as well as by race are issues commanding the attention of college executives and policymakers at the highest levels [Levine, 1989; Wingspread Group, 1993]. As higher education officials explore the ramifications of shifting enrollment demographics, they will do well to consider not only the expected educational and financing needs of future students but also their potential vulnerability to default.

If primarily individual differences explain default, then the policy implications from such a conclusion are difficult to manage, to say the least. To exclude potential borrowers on the basis of their personal histories and dispositions would be anathema to most Americans. Since it is generally viewed that identity and personality characteristics are relatively unchanging in adulthood, denying access to a federal financial program on the basis of individual differences conflicts not only with notions of fair play but also with the American belief in the college experience as potentially life-transforming. Nonetheless, if personal predispositions are key to understanding default, then ignoring this evidence and attributing responsibility elsewhere simply redirects attention to areas where explanations prove weak and remedies ineffective.

One direct approach to the problem which focuses upon the behavior at issue is the screening of borrowers based upon credit histories. Spencer [1992] advocates use of credit history in determining loan eligibility and rebuts typical objections to their use. Because student loan programs were deliberately structured to make loan accessible to persons without prior credit

histories, very few institutions have reported upon the practice of credit screening and few would likely admit to its use. Moreover, American colleges still receive vast numbers of freshmen who matriculate in their late teens and who have no substantive credit experience to be judged. Thus, credit history screening becomes potentially useful only for the adult student segment of higher education, a segment for which many institutions wish to remove barriers to access, not to create new ones.

A current policy issue before the federal government is whether proprietary schools deserve separate regulatory oversight, due in part to the large percentage of default loans attributed to former students enrolled in that sector of higher education [U.S. Department of Education, 1990c]. What this and other analyses show is that once one statistically controls for the kinds of students who choose proprietary schools, that effect almost completely vanishes [Knapp & Seaks, 1992; Volkwein & Szelest, 1995; Wilms, Moore & Bolus, 1987]. The search for institutional correlates of default behavior has yielded very little. College quality, measured in various ways related to resources and internal processes, seems to have little direct impact upon postcollege repayments. Nonetheless, the issues of creation of postsecondary educational opportunity for high-risk students by the proprietary sector and the chances for success for vocational educational graduates are prominent within the national debate on college affordability and student loan default [Grubb, 1993; St. John et al, 1995].

College choices are quite stratified along the dimensions of academic ability and socioeconomic background [Zemsky & Oedel, 1983]. Most of the differences in loan repayment results by institutional type and control are related to the kinds of students choosing to attend those institutions, not to the institutions themselves. Large numbers of low-income and minority

students enroll in proprietary schools [Apling, 1993]. Thus, the federal government's punitive measures against colleges with high default rates will tend to impact the kinds of schools which high-risk students are likely to choose, thereby indirectly penalizing those students. Volkwein and Szelest [1995] warn that federal pressure upon institutions to reduce their default rates may result in less postsecondary access to these at-risk groups which many institutions are trying to encourage to enroll.

Systemic and structural features of the student loan default problem will certainly merit more attention from researchers and policymakers in the future. Frequent sales of loan paper between lenders and secondary markets now characterize the Stafford/GSL program, and the new Federal Direct Loan Program is promoted as being far simpler to operate, with fewer opportunities for loans to enter default due to the confusions resulting from transfers. Some empirical support for this claim is suggested by the results of this study, since borrowers with multiple GSL lenders are more likely to enter default, controlling for other factors ($p < .01$). Indeed, some reduction of student loan defaults has occurred by regulatory re-definition during the recent federal 'amnesty' program for defaulted borrowers, provided as a means of converting their defaulted Stafford loans into non-defaulted Federal Direct Consolidation Loans. As researchers continue to probe the roots of repayment behavior, they will do well to include those kinds of psychological measures so often omitted, such as academic ability, personality, and attitudinal survey items. The treatment of this topic in the research literature is ready not only for new variables but also for more sophisticated models tracing direct, indirect, and conditional effects upon loan repayment behavior.

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Table 1

Record Loss During Sample Selection

Total Borrower Surveys in the SLRS	8,223
Undergraduate transcript	-4,364
Not currently attending	- 182
Parental Income reported	-1,355
Father's Education reported	- 66
Mother's Education reported	- 11
Father's Occupation reported	- 46
Mother's Occupation reported	- 37
Age, Race, Gender reported	- 14
Reports valid # dependents	- 3
Reports # lenders	- 41
Institutional data matched	- 138
Missing student major	- 238
Missing student grade point average	- 438
Total Borrowers Sampled from the SLRS	=1,117

Table 2

Descriptive Characteristics (N=1,117)

Independent Variable	Frequency	Percent	Mean	S.D.
STUDENT BACKGROUND CHARACTERISTICS				
Gender:				
Males	583	52.2		
Females	534	47.8		
Race/Ethnicity:				
Black	79	7.1		
Other Non-White	37	3.3		
White	1001	89.6		
Age			29.30	5.22
Father's Education (Scaled 1-11):			5.41	3.28
1=Less than HS diploma	178	15.9		
2=GED	22	2.0		
3=High school graduate	314	28.1		
4=Less than 1 yr vocational	33	3.0		
5=1 yr but < 2 yrs vocational	36	3.2		
6=2 yrs or more vocational	42	3.8		
7=Less than 2 yrs college	113	10.1		
8=2 or more yrs of college	56	5.0		
9=Completed college	191	17.1		
10=Master's degree/equivalent	85	7.6		
11=Ph.D, M.D.	47	4.2		
Mother's Education (Scaled 1-11):			4.95	2.83
1=Less than HS diploma	114	10.2		
2=GED	16	1.4		
3=High school grad	468	41.9		
4=Less than 1 yr vocational	29	2.6		
5=1 yr but < 2 yrs vocational	37	3.3		
6=2 yrs or more vocational	41	3.7		

7=Less than 2 yrs college	117	10.5		
8=2 or more yrs of college	98	8.8		
9=Completed college	142	12.7		
10=Master's degree/equivalent	51	4.6		
11=Ph.D, M.D.	4	.4		
Father's Occupational Index (Note 1)			42.43	17.55
Mother's Occupational Index (Note 1)			40.39	8.98
Family (Parental) Income (Scaled 1-6):			3.92	1.52
1=$10,999 or less	110	9.8		
2=$11,000 to $16,999	124	11.1		
3=$17,000 to $22,999	156	14.0		
4=$23,000 to $29,999	225	20.1		
5=$30,000 to $49,999	355	31.8		
6=$50,000 or more	147	13.2		
INSTITUTIONAL CHOICE CHARACTERISTICS (Note 2)				
Highest Degree Offered (Scaled 1-9):			7.05	2.01
1=Certificate < 1yr	6	.5		
2=Certificate >1 but <2 yrs	5	.4		
3=Associate degree	114	10.2		
4=Certificate >2 but <4 yrs	94	8.4		
5=Bachelors degree	102	9.0		
6=Post BS BA certificate	3	.3		
7=Masters degree	213	19.1		
8=Post masters	96	8.6		
9=Doctoral degree	485	43.4		
Sector:				
Non-profit	299	26.8		
For-profit	71	6.4		
Public	747	66.9		
Denominational Affiliation:				
Non-affiliated	979	87.6		

Church-affiliated	138	12.4		
Selectivity in Admission (Note 3):			2.62	.96
1=Non-competitive	220	19.7		
2=Minimally competitive	130	11.6		
3=Moderately competitive	627	56.1		
4=Very difficult	126	11.3		
5=Most difficult	14	1.3		
Enrollment (Fall, 1990)			12702.80	12523.78
STUDENT ACADEMIC CHARACTERISTICS				
Status of Student Major (Note 1):			60.95	16.84
Cumulative Grade Point Average			2.79	.67
Total Terms Enrolled			9.44	4.52
Earned Credential:				
Yes	981	87.8		
No	136	12.2		
LOAN COUNSELING AND AWARD PACKAGING CHARACTERISTICS				
Source of Loan Data:				
Lender (1=Yes)			.31	.46
Institution (1=Yes)			.47	.49
Family Relative (1=Yes)			.26	.43
Aid Packages Contained:				
Grants (1=Yes)			.70	1.20
Loans (1=Yes)			.29	.87
Work-Study (1=Yes)			.41	.98
Other Jobs (1=Yes)			1.31	1.39
Other Awards (1=Yes)			1.01	1.32
Amount Borrowed			4690.57	3296.54
Number of Loans			2.10	1.21
EXIT COUNSELING CHARACTERISTICS				
Counseling Source by Timing:				
None received (1=Yes)			.03	.17

Before/School (1=Yes)			.21	.41
Before/Lender (1=Yes)			.53	.49
While Enrolled (1=Yes)			.10	.30
After/School (1=Yes)			.08	.27
After/Lender (1=Yes)			.30	.46
Extent Paid by Others			5.50	1.37
Number of Others			.15	.37
Number of Lenders				
POINT-OF-SURVEY VARIABLES				
Disposable Income (Note 4)			3922.7	13136.34
Congruence (Note 5)			2.83	1.13
Future Aspiration (Scaled 0 - 6)			3.53	1.12
0=No credential	30	2.7		
1=Certificate < 2 yr.	85	7.6		
2=Diploma, 2 < 4 yr.	43	3.8		
3=Associate's degree	143	12.8		
4=Bachelor's degree	747	66.9		
5=Master's degree	59	5.3		
6=Doctoral / professional	10	.9		
Marital Status:				
Married	530	47.4		
Separated	21	1.9		
Divorced	62	5.6		
Widowed	3	.3		
Single	501	44.9		
Number of Dependents				
0	641	57.4		
1	211	18.9		
2	115	10.3		
3	90	8.1		
4	41	3.7		

5 or more	19	1.7

NOTES:

1) From SLRS data file both father's and mother's occupational listings were encoded into a numerical status index developed by Featherman and Stevens (1982).

2) Similar to Volkwein and Szelest (1995), the 1990-91 Institutional Characteristics data file of IPEDS was used for matching to school codes. This data file is the earliest available to the year of the SLRS study.

3) Selectivity categories and ratings assigned are found in Healy, Koether, and Lefferts (1990).

4) Disposable income was calculated from SLRS reported income and expenditures as follows: student (and spouse, if any) 1986 taxable and non-taxable income, minus calculated 1986 federal income tax based upon reported marital status and number of dependents, minus annualized housing costs, minus annualized living costs, minus annualized payments on other (non-GSL) loans.

5) Congruence between the borrower's undergraduate major and most recently reported job was based on the theory of personality and careers of Holland (1985) using the technique reported in Smart (1989), where 1=least congruence and 4=most congruence.

Table 3

Logistic Regression on Defaulted Loans (N=1117)

	Student Background Variables	School Choice Variables	Student Academic Variables	Loan Counseling Packaging	Exit Counseling Variables	Point of Survey Variables
STUDENT BACKGROUND CHARACTERISTICS						
Gender (1=Male)	.578***	.584***	.484***	.467***	.462***	.449***
Race: Black (=1)	.851***	.852***	.780***	.716***	.767***	.795***
Other Non-white (=1)	.166	.148	.154	.110	.122	.118
Age	1.184***	1.266***	1.480***	1.535***	1.583***	1.629***
Father's Education	.658	-.563	-.441	-.269	-.228	-.349
Mother's Education	.456	.412	.429	.314	.256	.267
Father's SEI	.026	-.047	-.052	-.131	-.105	-.078
Mother's SEI	-.233	-.239	-.223	-.110	-.239	-.212
Family Income	-.453	-.303	-.345	-.135	-.060	-.093
INSTITUTIONAL CHOICE CHARACTERISTICS						
Highest Degree		-.340	.060	.220	.072	.061
Sector: Non-profit (=1)		.178	.219	.307	.351	.406
Proprietary (=1)		.141	.262	.275	.283	.346
Church-Related (=1)		-.043	-.028	-.088	-.105	-.184
Admission Selectivity		-.561	-.564	-.690	-.703	-.805
Enrollment (Fall '90)		.041	.029	.033	.029	.022

STUDENT ACADEMIC CHARACTERISTICS				
Status Index of Major	.035	-.025	.000	-.262
Cumulative GPA	-1.215***	-1.340***	-1.272***	-1.296***
Total Terms Enrolled	-.220	-.184	.158	-.253
Earned Credential (1=Yes)	-.253	-.295	-.313	-.253
LOAN COUNSELING AND AWARD PACKAGING CHARACTERISTICS				
Source of Loan Data: Lender (1=Yes)		-.835***	-.784***	-.730***
Institution (1=Yes)		.179	.206	.209
Family Relative (1=Yes)		-334	-.258	-.272
Aid Packages Contained: Grants (1=Yes)		.351	.340	.362
Loans (1=Yes)		-.537	-.438	-.387
Work Study (1=Yes)		.000	.002	.362
Other Jobs (1=Yes)		-.032	-.045	-.010
Other Awards (1=Yes)		.305	.623	.658
Amount Borrowed		-.059	-.076	-.096
Number of Loans		-.021	.122	.052
Number of Lenders		.787**	.762**	.769**
EXIT COUNSELING CHARACTERISTICS				
Counseling Source By Timing:				
None received (=1)			.116	.150
Before/School (=1)			-.021	.010
Before/Lender (=1)			.336	.351

While Enrolled (=1)					-.130	-.108
After/School (=1)					.618**	.607*
After/Lender (=1)					.135	.138
Extent Paid by Others					-.882	-1.265
Number of Others					-1.482	-1.963
POINT OF SURVEY CHARACTERISTICS						
Disposable Income						-.094**
Congruence						-1.037***
Future Aspiration						.528
Married						.111
Number of Dependents						-.103
Constant	-2.388**	-1.746	-.592	-2.135	-1.412	.006
G squared	1094.98	1086.17	1068.32	651.44	634.98	612.13
degrees of freedom	1107	1101	1097	1086	1078	1073
P.C.P.	88.27%	87.82%	88.45%	88.90%	89.17%	88.99%
Chi square	126.33***	6.99	30.41***	39.56***	16.45	22.85***
degrees of freedom	9	6	4	11	8	5

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

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