A PREDICTIVE MODEL FOR THE
REPAYMENT OF STUDENT LOANS
IN COMMUNITY COLLEGES

BY

JAMES A. SCHMIDT

A DISSERTATION PRESENTED TO THE GRADUATE COUNCIL
OF THE UNIVERSITY OF FLORIDA IN
PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

UNIVERSITY OF FLORIDA

1983

ACKNOWLEDGMENTS

The writer wishes to acknowledge the assistance of the many persons who took an active interest in the preparation of this study.

The guidance and assistance provided throughout the last two years by Dr. James L. Wattenbarger, chairman of the writer's supervisory committee, are deeply appreciated. In addition, sincere thanks are also extended to the faculty of the Department of Educational Administration and Supervision and in particular to the members of the committee, Dr. John M. Nickens and Dr. Harold C. Riker.

For their assistance in collecting the data the writer is indebted to the Florida Student Financial Aid Commission. The technical assistance provided by Mr. Kenneth Goehle and Mrs. Betty Davis are also gratefully appreciated.

Finally, the writer wishes to acknowledge the support provided by his family. For their encouragement, assistance and emphasis on the value of an education, the writer is deeply indebted to his parents, Dr. and Mrs. Paul H. Schmidt. To his wife, Linda, and his sons, Daniel and Timothy, the writer wishes to express his deepest gratitude for their love, patience and understanding during the preparation of this study.

TABLE OF CONTENTS

	Page
ACKNOWLEDGMENTS	ii
LIST OF TABLES	v
ABSTRACT	vi
CHAPTER	
I. INTRODUCTION	1
The Role of Financial Aid	2
The Growth and Importance of Loans	10
The Problem of This Study	19
Justification for the Study	20
Delimitations & Limitations	21
Research Design and Procedures	22
II. REVIEW OF RELATED LITERATURE	26
Problems Inherent in Student Loan Programs	31
Institutional Responses to Student Loan Defaults	38
Professional Organization Action Regarding Student Loan Defaults	40
Governmental Action Regarding Student Loan Defaults	42
Responses to Student Loan Default Problem by Education Spokesmen	44
Antecedent Studies Relating to Student Loans and Demographic Characteristics	48
Summary	53
III. DEVELOPMENT OF THE MODEL	55
Analysis of Variables	60
Development of the Model	69
Results	73
Summary	77

	Page
IV. CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS	79
Conclusions	79
Implications	80
Recommendations	83
BIBLIOGRAPHY	86
BIOGRAPHICAL SKETCH	90

LIST OF TABLES

Table	Page
1. Philanthropical Support for Higher Education	27
2. Overview of Major Variables Selected by Previous Researchers	56
3. Chi-Square Analysis of Relationship Between Age and Loan Payback	62
4. Chi-Square Analysis of Relationship Between Marital Status and Loan Payback	63
5. Chi-Square Analysis of Relationship Between Sex and Loan Payback	63
6. Chi-Square Analysis of Relationship Between College Standing and Loan Payback	64
7. Chi-Square Analysis of Relationship Between Grade Point Average and Loan Payback	65
8. Chi-Square Analysis of Relationship Between Loan Total and Loan Payback	66
9. Interaction Effects Between the Variables	68

Abstract of Dissertation Presented to the Graduate Council
of the University of Florida in Partial Fulfilment of
the Requirements for the Degree of Doctor of Philosophy

A PREDICTIVE MODEL FOR THE
REPAYMENT OF STUDENT LOANS
IN COMMUNITY COLLEGES

By

James A. Schmidt

August, 1983

Chairman: James L. Wattenbarger

Major Department: Educational Administration and Supervision

The problem of this study was to determine the relationship between selected variables which characterize community college students and student loan defaults and to develop a model using these variables to predict student loan payback. Given the current economic crisis and the increasing reliance on the student loan programs to help students meet educational expenses, a study of the importance of selected student demographic characteristics and their relationships to the student loan default problem is of great importance to the future support of the student loan programs.

The literature provided a theoretical basis for this study including appropriate variables for study as predictors of student default. These variables included size of loan total, marital status, sex, grade point average, college standing, and age.

The data presented in this study were supplied by the Florida Student Financial Aid Commission, Tallahassee,

Florida, and represented a statewide sample of 76 community college students who have participated in the Guaranteed Student Loan program.

Of the six variables selected, only the size of the loan total and marital status distinguished significantly those who repaid their student loans from those who did not. In addition to these variables, sex, grade point average, college standing, and age were useful in developing a prediction model. Although the model did not provide an infallible formula for predicting those students who are most likely to repay their student loans, the model predicted group membership (defaulter of non-defaulter) for 70% of the sample cases. These findings underscore Pattillo and Wiant's conclusion that items reflecting financial rather than biographical data appear to be better predictors of loan delinquency.

Therefore, it appears that the inclusion of additional discriminating variables and a more detailed study design may be necessary in order to improve the identification of students who are likely to repay their student loans.

CHAPTER I

INTRODUCTION

From modest beginnings over three hundred years ago the role and impact of financial assistance to students in American colleges have changed dramatically. Like the gift presented by Lady Anne Mowlsen of London to the deserving Harvard student, most early student financial aid awards were granted with money given to colleges by private individuals to aid worthy, needy students. Therefore, the original purpose of providing student financial aid was to expand educational opportunities to those students whose incomes presented a barrier to higher education.

In fact, only during the period of time immediately following World War II was substantial aid awarded on the basis of merit alone. From the late 1940s through the early 1960s the Serviceman's Readjustment Act of 1944 (GI Bill) provided substantial amounts of money to returning servicemen for educational expenses regardless of individual financial need. Many colleges and universities found that the large amounts of scholarship funds, previously used to support needy students, were no longer needed and those institutions began to use the funds to attract and reward students

with academic or other special talents, with little or no regard for financial need.

Currently, the essential criterion of the major federal aid programs (Pell Grant, College Work Study, National Direct/Guaranteed Student Loan Programs) is the students' need for funds. Accordingly, the purpose of the principal financial aid programs of today is remarkably similar to the original intention of the early student aid programs. The return to a need-based student aid system has caused a great deal of consternation to financial aid administrators. Today it becomes increasingly difficult to reward students with merit-based aid when the available resources do not adequately take care of the needy students. In order to encourage both needy and worthy students, a balance between need-based and merit-based aid is critical to the development of an impartial and equitable student financial aid delivery system. However, most student financial aid administrators apparently feel that the current, primarily need-based, delivery system provides the best use of available resources for it attempts to extend the opportunity for higher education to as many worthy students as possible.

The Role of Financial Aid

Since 1972 there has been considerable discussion concerning the role of financial aid in American higher education. In nearly every deliberation much attention has been

devoted to the related issues of access and tuition charges because they are so intertwined with the role of financial aid.

As a nation, the United States has demonstrated its commitment to citizen access to postsecondary educational opportunities by instituting programs of assistance to needy students, establishing support programs for colleges and universities (i.e., Land Grant College Program) and developing a strong system of public colleges and universities.

According to Ostar (1978), 80% of all students attending higher educational institutions today are in programs at public institutions where the state partially subsidizes the institutional costs of the student. As a part of the public higher educational system, the public community college is an important factor in providing higher educational opportunities to American students. The impact of the community college system on the issue of access is highlighted in the state of Florida where more than 95% of the state population live within commuting distance of a community college program.

Although the costs of attending a community college program may be lower because of public subsidies, the individuals attending the community college seem to have the greatest need for financial assistance. A 1972 American College Testing (ACT) Program Study indicated that the financial needs of community college students sharply

exceeded those of the majority of students enrolled in other colleges and universities. The ACT study estimated that financially disadvantaged students constituted 25% of the total student population at community colleges and cited the following factors as contributing to this high percentage:

- (1) 70% of the students depend on the automobile to reach campus,
- (2) the higher age distribution (average age of student is 29) indicates the average student has assumed adult responsibilities, and
- (3) 66% of the students come from families with (1974) incomes below \$10,000.
(Blocker, 1974, p. 126)

Therefore, it would also appear that the retention of low tuition policies is critical to maintain access to higher educational opportunities for a large number of students in the community college system. In fact, a University of Wisconsin study highlights the impact tuition policies have on the issue of access (Ostar, 1978). This study determined that for every 1% reduction in total cost of attending a University of Wisconsin Center participating in the study there was a corresponding 1.33% increase in enrollment. The study also attributed the increased enrollment to new students who were not enrolled in the University of Wisconsin system and concluded that many of these new students would not have been able to attend were it not for the lower tuition policy (Ostar, 1978).

Despite the establishment of the relationship between low tuition and access by this and other studies, much debate regarding federal aid centers on the strategy of providing individual student aid rather than institutional aid. It is feared that the reliance on the student-based aid delivery system may cause additional pressure on state governments and lead both public and private institutions to raise tuition fees (Ostar, 1978). Although the underlying assumption of raising tuition fees is that the truly needy student will be taken care of, a University of Tennessee study indicated that a \$100 increase in tuition would yield only a \$26 increase in an individual student's Pell Grant Award (Ostar, 1978). Truthfully, every tuition increase falls hardest on the \$13,000 - \$25,000 income family and yet this student is eligible for little federal aid in the form of grants or College Work Study (Ostar, 1978). In addition, Ostar maintains that an overemphasis on student-based aid leads to a growing number of charges involving fraud, waste, and abuse and leads to ever-tightening regulations and increased numbers of bureaucrats, investigators and bill collectors.

The previous discussion regarding access would indicate that the best approach regarding federal assistance may be the increasing of federal support to higher educational institutions enabling colleges and universities to retain lower tuition charges. However, because of economic and

political factors the financial aid delivery system is oriented toward individual student awards. Given this understanding two major questions must be addressed: what aid is available to students and how effective is the delivery system?

Student Aid Resources

Essentially student financial aid is available in the form of grants, work-study opportunities and loans. A grant is gift money that is offered to those most needy in order to prevent over-indebtedness through borrowing. Work-study is a self-help program which provides meaningful, college-related job experiences and earnings enabling the student to earn money and meet current expenses from bi-weekly wages. Loans constitute a program of borrowing whereby students must repay the loan with interest from future earnings after leaving college. The federal programs representing these categories of aid include Pell (BEOG) and Supplemental Educational Opportunity Grants, College Work-Study, and National Direct and Guaranteed Student Loan Programs.

Most of the federal programs have not seen substantial increases in federal money in recent years. However, the Pell Grant Program (BEOG) which was traditionally limited to low income students has been expanded to assist families from middle income levels. In addition, the amount of money expended and the numbers of students served through the

Guaranteed Student Loan Program (GSL) have risen dramatically.

During the 1982-83 fiscal year modest cuts were made in the financing of the campus-based programs (SEOG, CWSP and NDSL). Although support for the Pell Grant Program was retained at previous levels, eligibility and dollar delivery regulations were instituted to reduce fraud, abuse and errors. The combination of reduced support for some programs and increased regulation of the Pell Grant Program created a dilemma for student financial aid administrators who could stretch local and institutional funds only so far.

At the same time, colleges and universities are experiencing higher costs because of increases in major dollar operating items (i.e., salaries, energy, supplies) which seem to be severely affected by an inflationary economy. This increase in costs translates into higher tuition charges. Since the financial aid application requires the student's resources to be balanced with the expected expenses, many students are experiencing higher need figures as the expected expenses rise. Without corresponding increases in student aid to offset the rise in expenses, a "need gap" crisis occurs for the student. Although existing support for assistance programs is generally at the highest level ever recorded, the increasing cost factor is rising faster than increased federal support and therefore the number of "need gap" victims continues to grow.

The Student Aid Delivery System

Most of the blame for the "need gap" crisis must be put on increasing costs and expenses since the majority of the financial aid researchers conclude that the student aid delivery system appears to be quite effective (Deitch, 1978).

The financial aid delivery system in the United States is the mechanism used to provide individual students with the resources to attend postsecondary schools. Application for the Federal Pell Grant Program may be made separately on a free federal application; or, for a nominal charge, an in-depth assessment of need may be presented along with the eligibility report for the Pell Grant Program. Although there has been some recent discussion of the effectiveness and equity of the need-analysis system, previous studies indicate the system is in pretty good shape. According to a study presented at the Annual Meeting of the American Association for Higher Education in March of 1979 the following conclusions were presented:

- (1) The need based system of financial aid has gone far in removing a meaningful element of price competition from the buying and selling of higher education,
- (2) the structure of the aid system (mix of parental contribution, need-based grant and self help) is meeting the public's perception of how post-secondary education should be financed,
- (3) the major goal of providing access is quite clear, and correspondingly the programs have been successfully reaching toward the goal (i.e., the number of minorities has increased significantly),

- (4) federal, state and institutional funds seem sufficient to insure that any qualified student could afford to attend most of the nation's institutions, and
- (5) the problem is not with the different kinds of aid available but for more efficient and equitable distribution of the funds that are available. ("Premises of Federal," 1979)

According to Kenneth Dietch (1978), the current system of student financial aid is a thoroughly developed, pervasive and well-functioning system of price discrimination. However, he cites several problems which are likely to arise with the current system including

- (1) competitive pricing (by institutions),
- (2) lack of sensitivity to student costs,
- (3) loss of financial privacy of families of applicants,
- (4) efforts to depart from the need-based system to attract (non-needy, outstanding) students, and
- (5) need for fairness in the treatment of independent students. (Dietch, 1978)

Regardless of the potential problems with the financial aid delivery system, its current status seems to be that it is well respected among professionals and researchers. Financial aid administrators and federal program personnel have struggled to solve the problems of "need-gap" by working together to tighten requirements and enforce regulations through extensive validation procedures.

The Growth and Importance of Loans

As other political priorities become apparent in Washington and free student aid programs (grants) are retained at previous funding levels, most aid administrators have increasingly used the available loan programs to meet student aid needs. In fact, loan programs have been increased substantially while most of the other aid programs have been limited or decreased in size. Therefore, the importance of an equitable loan system has far greater implications today than it did previously as more and more students use the device to solve the "need gap" crisis.

General Definition and Philosophy of Student Loan Programs

As indicated previously, loans are awards of money granted with the prior requirement that they subsequently be repaid, in whole or in part, with or without interest. According to Davis and Van Dusen (1978), loans are the most attractive form of student aid to most policy-makers because they must be repaid and therefore are an investment rather than a direct expenditure of funds. Recent discussion of national student aid policies indicates that those in decision-making roles believe loan programs to be very effective. Therefore, the great increase in the use of the current loan programs and the addition of new loan programs are quite understandable.

The underlying philosophical premise of a loan program is that the person who derives the benefit from an education should pay for its costs, without denying low income students access to postsecondary education due to lack of current resources (Davis & Van Dusen, 1978). Not only has such a philosophy been utilized to develop loan programs but it has also led to arguments concerning how much of the cost of an education should be reflected in the tuition charge. For example, in 1973 the Committee for Economic Development recommended that tuition costs should be raised to 50% of the total educational cost within five years at colleges and universities and within 10 years at community colleges. Subsequently the issue was studied in detail by the Carnegie Commission. It suggested that tuition should be raised to 30% of the educational cost within 10 years at colleges and universities, but the Carnegie Commission exempted community colleges due to the historical concept of two years of free access to higher education. Many states have cited the Carnegie Commission report in introducing data supporting the raising of fees at low-cost public institutions.

However, Howard Bowen (cited in Balderston, 1970) effectively argues that an investment in higher education is really an investment in the society. It is an investment in the nation's human capital leading to increased individual productivity and societal benefits (i.e., a more informed electorate, increased national productivity, lower

unemployment rates, a populace more adaptable to technology, increased social consciousness). Mr. Bowen concludes that typical students already bear 75 to 80% of the cost of their education in the form of tuition, books and foregone earnings. Many studies conclude that the heavy reliance on loan financing has the effect of shifting the eventual burden of payment for the cost of higher education toward students and their future income (Balderston, 1970). According to Mr. Bowen, the increased availability of loans is not an appropriate solution to the need gap crisis since students already bear such a large portion of the cost of their education. Mr. Bowen argues that since society receives significant benefits from educating students, it should bear an increasing portion of the cost of educating them.

Those who support the argument that students should bear the cost of their education also favor the increasing use of loans to help students finance the increasing costs. However, the desirability of increasing the burden of cost on students by raising fees and then assisting the needy students through loan programs is an issue that will remain unresolved as both pro and con advocates have many arguments of merit. However, the current federal administration favors the use of loans to help needy students bear the increasing costs of higher education and therefore it has instituted new loan programs to help relieve the "need gap" crisis.

Types of Loan Programs

Among the original loan programs are the National Direct Student Loan (NDSL) Program (formerly the National Defense Student Loan Program) and the Guaranteed Student Loan (GSL) Program. The NDSL is a low-cost deferred repayment loan administered by the educational institution and funded 90% with federal monies and 10% with institutional monies. Under the NDSL Program there are no security or endorsement requirements and its distinctive feature is that in addition to a deferment of three years for public service, the student may arrange for cancellation of the loan based on military service in an area of hostility, full-time teaching service in selected schools (for five years) or full-time staff service in a head start program (for seven years).

The Guaranteed Student Loan Program is available in nearly all states where a state level guarantee agency has been developed. In the remaining states students may apply for a Federally Insured Student Loan (FISL). Administratively, private parties and non-federal agencies loan their own capital to students in both programs. In the GSL program there is a central monitoring agency. While the federal government insures the loan and helps pay the interest, the agency acts as intermediary, overseer and collections processor. However, in the FISL program the

lenders rely directly on the U. S. Department of Education for an interest supplement, insurance against default and a collection mechanism. Repayment regulations for both the GSL and FISL programs are similar to the NDSL; however, deferments of up to three years are only available for service in the armed forces, Action or the Peace Corps, and there are no provisions for cancellation.

The Increasing Use of Loans

The growth of both of these programs is indicative of the current emphasis on the issuance of loans to solve the student aid crisis. In 1977, Ernest L. Boyer (cited in Hauptman, 1978), then Commissioner of Education, estimated that between 1965 and 1977 six million students borrowed \$11.1 billion. Commissioner Boyer stated that in 1975-76 alone \$2.6 billion were loaned to students and that the national increase rate in the number of loans processed was averaging 5% each year. Mr. Boyer concluded that thousands of students have been served by the loan programs including many students who otherwise may have been denied a postsecondary education. In addition, Sanford (1980), in his research of the impact of loans on graduate education, found that graduates with loans are slightly more likely to attend graduate or professional school than those without loans. Therefore, it appears that there is substantial value in supplying loans beyond merely providing access to undergraduate degree programs. The most

recent data indicate a total of 2.75 million loans were processed through the GSL system alone during the 1981-82 academic year representing an investment of \$6.1 billion (The Chronicle of Higher Education, 1983).

Accordingly, the success of the federal loan programs seems to be the impetus for the development of new programs. For example, the Federal Government announced the creation of the PLUS/ALAS Loan program in 1980. This program is similar in administrative details to the other federal loan programs. The major difference between these programs and the original loan programs appears to be the lack of deferment and cancellation provisions and higher interest rates. It also should be noted that, in addition to the federal loan programs, many institutions, states and private foundations provide loan funds to students. Many of these programs pre-date the federal efforts, but the importance and reliance on loan programs are a result of the widespread application of the loan principles effected through the federal programs.

Of the federal loan programs the GSL/FISL program is the most widespread. The reason is that the NDSL is institutionally administered and many institutions choose not to participate in the program. Other institutions have been restricted from participating in the NDSL program due to their high student default rates. Therefore, due to the universality of the GSL/FISL program, much of the data and research presented in the remainder of this study will focus on the GSL/FISL program.

Program Problems and the Default Rate

The federal loan programs have several disadvantages. According to Tate (1979), abuses in loan programs occur at each of the three stages through which any student loan passes: (1) eligibility; (2) disbursement; and (3) collection. Both institutions and students are responsible for abuses apparent in the loan programs of today. Institutional abuses range from mismanagement to halfhearted collection efforts and student abuses include outright fraud in supplying eligibility data to shrewd bankruptcy declarations in order to discharge outstanding debts. The most obvious abuse regarding the loan system is the default or lack of repayment by student borrowers.

By statute a default is defined as an overdue loan payment of 120 days (20 U.S.C. & 1080 (c), 1976). However, the Department of Education does not recognize a default until the lender's obligation is suspended and the subrogation by the Federal Court takes effect.

Regardless of the procedural issue concerning the commencement of the default status, the American public is constantly reminded of the thousands of students who have participated in the federal loan programs and who have decided not to repay their loan obligations. Headlines in papers consistently highlight the default rate and recent efforts to initiate novel collection methods such as impounding automobiles have received national television attention.

The "default rate" is computed as a ratio of the cumulative amount of delinquent funds to total receivables and can be measured by the following formula:

$$\frac{\text{cumulative claims paid to lenders}}{\text{all loans having entered repayment status.}}$$

Current researchers estimate the overall default rate to be around 12%; however, the rate is slightly lower in the GSL program because the financial institutions exercise more selective lending practices and the guarantee agencies exercise more administrative vigilance.

There is much debate concerning the reliability of data regarding the default rate. Arthur Hauptman (1978) argues that loan default rates are not consistent due to several factors:

- (1) the measurement standards changed and the data prior to 1973 are not consistent with the data collected after 1974;
- (2) the default rate is conceptually flawed since it (a) uses only the federal expenditures in the numerator (federal expenditures are only 80% of the costs) and (b) includes death and disability defaults; and
- (3) the default rate is cumulative; therefore, data for each year's statistics are not sorted out (not everyone defaults in the first year of repayment). (Hauptman, 1978, p. 160)

Hauptman concludes that a single measure of default is inadequate to explain levels and trends in the behavior of

students who default because default activity differs by the type of guarantee (FISL or GSL), the type of educational institution the borrower attends, the type of lender and the demographic characteristics of the borrowers.

In addition to the internal problem concerning the reliability of the default rate statistics, there is much concern about the use of the default rate as a performance indicator regarding the success of the student loan programs. As cited by Hauptman, an Office of Education Report (1979) illustrates the three major weaknesses of this argument:

- (1) too many variables beyond the control of the Guarantee Agency have a significant impact on default rates (i.e., depression/recession, high unemployment rates, etc.);
- (2) loan default rates may only reflect the availability of loans (higher rate may be due to significantly more loans arranged); and
- (3) cumulative default rates are historical and may not reflect current management philosophies. (Hauptman, 1978, p. 162)

In effect, two conclusions can be reached based on the previous discussion:

- (1) the tendency to default may have increased over the last several years but it may not be as high as it has been reported, and
- (2) a large number of variables which are external to the guarantee agency and the financial lender affect the default rate.

The Problem of This Study

Regardless of the elusiveness of concrete reliable statistics, the public perceives the default rate as too high. The federal government's determination to stem the default rate must include research on the socio-economic characteristics of student borrowers and defaulters in addition to data concerning administrative procedures. Accordingly this study has attempted to provide data concerning some of the variables that may be related to the student default rate.

In addition, these variables may be useful in formulating a prediction model to determine who will repay their student loans. Such a model would be of valuable assistance to the student aid administrator in reducing the default rate because it would distinguish the characteristics of defaulters and non-defaulters. The aid administrator could then award and approve loans for only those students with the greatest likelihood of repayment. Since loan money may not be as readily available in the future as it is today, a model that could provide assistance in selecting the "best" student loan risk may be critical in maintaining the integrity of the loan programs and in replenishing the source of funds for future loans.

Statement of the Problem

The problem of this study was to determine the relative influence of selected variables which characterize community college students who are most likely to repay student loans.

Questions

Specifically, a primary question of this study was to determine the usefulness of the model derived from the data presented in this study to predict those students likely to repay student loans from those students who are not likely to repay student loans.

Therefore, the following supplemental question was addressed: will the selected variables be useful in discriminating between students who will repay student loans and students who will not repay student loans?

Justification for the Study

As indicated previously, throughout the last few years concern regarding student loan default rates has risen tremendously. The issue has become the source of critical educational fiscal management decisions and delicate political debates. During the period from September, 1982, through February, 1983, The Chronicle of Higher Education reported on 17 articles relating to recent developments concerning student loans. Thus, the selection of this issue is

justified on its standing as a practical problem facing higher education administrators today. Discussion relative to some of the many student variables contributing to the default rate is imperative. This study analyzes six variables (age, marital status, sex, college standing, grade point average and loan total) identified in the previous research of Dyl and McGann (1977), Myers and Siera (1980), Emmert (1978) and other researchers for the impact these variables have on the student default rate.

Delimitations and Limitations

Since there are several procedural issues impacting the results of this study, the following delimitations and limitations are applicable.

Delimitations

- (1) This study was confined to students who have received a loan through a program administered by a Florida public community college.
- (2) Only data made available to the researcher by the Student Financial Assistance Commission of the State of Florida were utilized in this study.
- (3) A sample approximating 31% of the total population was selected by a systematic random process for both categories of students identified in the analysis (i.e., students who repay student loans and students who do not repay student loans).
- (4) The analysis of data was confined to the discriminant analysis procedure utilized by the computer

techniques of the Statistical Analysis System (SAS), which produced a set of equations from which a predictor model could be evolved.

Limitations

- (1) This study was limited to those variables identified in the research design, specifically: college standing, age, marital status, sex, grade point average, and loan total.

Research Design and Procedures

This study was designed as an ex post facto research study in which several continuous and discrete independent variables obtained from data collected on loan application forms were observed. From these variables, the dependent variable of loan repayment was predicted.

According to Ary, Jacobs and Razavich (1979), ex post facto research can supply much information of value in educational decision making even though its design differs significantly from pure experimental research. In an ex post facto research design an experimenter can study two groups that are different in some respect in order to discover the reasons for the difference. Such is the case with this study. The design format as suggested by Ary et al. is as follows:

Group	Independent Variable(s)	Dependent Variable
E	(X) (variable)	Y_1 (Repaid Loan)
C	-	Y_2 (Did Not Repay Loan)

The supposed effect of treatment occurs in the experimental group. Therefore, according to Ary et al. (1979), the researcher attempts to relate the dependent variable Y_1 to a previously occurring independent variable, a nonmanipulable variable indicated by (X) which occurred in the experimental group but not in the control group.

The purpose of utilizing the ex post facto research design was to illustrate the significant data to be utilized in a model that could be useful in predicting the repayment rate probability of students requesting loans for educational use at community colleges. Such a model would be helpful to financial aid personnel in determining what student characteristics are representative of those students who have repaid their student loans.

Sample

The data for this study were selected randomly from the total population of students in each of the following two categories:

- (1) students who are repaying their student loans and/or are not

identified as defaulting on
their student loan commitment,
and

- (2) students who are not repaying
their student loans and have
been identified as defaulting
on their student loan commit-
ment.

These categories were determined based on the data collection and storage procedures established by the Florida Student Financial Assistance Commission (FSFAC) in Tallahassee, Florida. The FSFAC is the central storage/retrieval center regarding GSL repayment data for all institutions in Florida. The sample size (76) represents approximately 31% of the total population in each category involving loans made to community college students in Florida.

Data Collection

Data on each student included in this study were supplied by the FSFAC to the researcher in June, 1982. During this session files were randomly selected by FSFAC personnel for review by the researcher.

The appropriate data were then extracted from the files for those students who were identified as community college students. Since there are two separate files maintained by the FSFAC (i.e., those who have not defaulted, those who have defaulted) the researcher obtained a sample for each category representing 31% of the total population.

The sample size (38 in each category) meets the required minimum (30) sample size suggested by Ary et al. (1979) and the 31% sample size exceeds the 10 to 20% sample size suggested by Art et al. for descriptive research.

The following variables were extracted from the data files based on their availability and their identification in previous research studies by Dyl and McGann (1977), Myers and Siera (1980), and Emmert (1978):

- (1) Age,
- (2) Marital Status,
- (3) Sex,
- (4) College Standing,
- (5) Grade Point Average, and
- (6) Loan Total.

A full discussion of the selection of these variables and the results of previous studies utilizing these variables appears at the beginning of Chapter III.

CHAPTER II

REVIEW OF RELATED LITERATURE

The financial pressures exerted on colleges and universities have had a direct effect on the expansion of loan programs. As a result the loan programs are experiencing some unique problems. An analysis of the responses to the problems surfacing in the student loan programs and a review of the research regarding student loan default and student demographics provide an overview of the issues surrounding the problem presented in this study.

Fiscal Pressures and the Demand For Expanded Student Loan Programs

Higher education is a social institution that depends on tuition and service charges, philanthropy, and governmental support in order to balance its budget. The heavy reliance on these sources of support has created a dilemma concerning the funding of higher education during weak economic times. The current fiscal crisis can be readily confirmed by reviewing the funding sources and relative support for higher education since 1950.

In terms of tuition and service charges, there has been a percentage decline in these fees as a source of income

from 1950 to 1974 (Change Magazine, 1976). This decline has been attributed to the larger percentage of students attending public colleges in 1974 (76%) compared to 1950 (50%) and the corresponding lower tuition charges at these public institutions (Change Magazine, 1976). In addition, colleges and universities have found themselves in competition with local facilities for the student dollar regarding auxiliary charges including food, housing and books. Therefore, there has been a decline in income from this revenue source as well.

Although all service charges such as room and board accounted for approximately 40% of the total income in colleges and universities in 1974, Kelly (1983) estimated that tuition charges in 1977 accounted for only 11% of the total income for colleges and universities. As a result of present trends on college campuses, Kelly (1983) estimates that this percentage will increase to 20% by 1988. Based on this estimate it appears that students will be forced to bear an increased percentage of the cost of their education in the form of increased tuition charges. Correspondingly there is likely to be additional pressure on the student aid delivery system to compensate for this increased cost. However, many colleges and universities are fearful of an increased dependency on student fees. These colleges and universities are justifiably concerned that the resultant increased fees will add a new pressure to

the university budget--declining enrollments and the loss of dollar income from student charges based on underenrollment.

In terms of philanthropical support, higher education has been the beneficiary of increased dollar support from 1950 (\$200 million) until 1974 (\$2.4 billion) (Change Magazine, 1976). As indicated in Table 1, due to the tremendous rise in the cost of higher education, this increased dollar support represents an actual percentage decline from 1950 (8%) to 1974 (5%) in terms of total income for colleges and universities (Change Magazine, 1976).

Table 1
Philanthropical Support
for Higher Education

Year	Total Dollar Support	Percent of Income for Colleges & Universities
1950	\$200 million	8%
1974	\$2.4 billion	5%

Since the dollar increase is not consistent with the needed percentage increase for institutional philanthropical support, more of the cost of higher education will have to be absorbed elsewhere.

In the recent past, the government (federal, state, and local) has provided this increased support for higher

education. In 1974 it was estimated that the government provided 54% of the total income to colleges and universities (Change Magazine, 1976). This increase in total income represents additional support for both private and public institutions as it includes research monies, building assistance, and student aid dollars. However today, governments whose support figures so largely in the financing of higher education are concentrating on other major concerns and priorities. Therefore, there has been a decline in the rate of income growth to higher education from the governments. For example, the federal government is under contrary pressures to hold down expenditures in student aid (which has risen 600% from 1967 to 1977) on the one hand and to respond to the continuing demands of middle income parents for selective relief (i.e., additional aid, tuition tax credits) on the other. In addition, many concerns outside of higher education are uppermost in the minds of our legislators. For example, state legislators are highly conscious of the "Proposition Thirteen" sentiments in their districts.

Therefore, the new depression in higher education is generally not based upon declining support, but it is due instead to a decrease in the rate of increase of support for higher education. Nowhere is this more evident than in the dollar support for student aid during the last two fiscal years. Colleges and universities have received essentially the same amount of support in total dollars from the

government, but as the rate of increase has dropped, increased pressure to raise fees and start fund raising activities has surfaced. Because the slowdown has not been uniform, some states and individual institutions have had to contend with declining income.

As a solution to the pressure added by increased fees, the Carnegie Council on Policy Studies in Higher Education (1979) has recommended expanding explicit self-help components (work-study and loan opportunities) of the student aid delivery system and revising the loan system to make loans more easily attained and widely available with less risk of default (i.e., longer payback terms, loan consolidation procedures).

It appears that the Reagan administration has seriously considered the Carnegie recommendations since they have proposed a 60% increase in College Work-Study funds, a "self-help" requirement for Pell Grant eligibility and changes in the Needs Test for the Guaranteed Student Loan Program for fiscal 1984. In addition, Mr. Reagan has proposed continuing dollar support for the federal grant programs at the same level as the past two fiscal years. However, under his proposal, eligibility qualifications for individual students have been substantially altered. Therefore, it is safe to assume that as fees increase, endowment expansion decreases and federal grant money remains the same, an increasing number of students will seek to participate in the student loan program.

A potential problem arising from the decision to rely on the student loan programs for the increased dollar support to higher education is that the private lenders simply may not have funds they want to lend to students (as other loans may be more financially advantageous) or there may not be enough loan money to meet recognized need. Further, the loan programs in effect today have many problems. Therefore, before considering an expanding role for student loans in the financing of higher education, it appears the government should consider the weaknesses of the current loan system.

Problems Inherent in Student Loan Programs

A closer examination of the student loan default problem reveals several contributing factors. Therefore, nearly all researchers agree that the student should shoulder only a part of the blame for the escalating default ratio.

Foremost among the factors to consider is the history of incompetent management of loan programs. For years neither the lender nor the government was making any noticeable effort to collect many of the outstanding loans (Jenkins, 1978). In addition, Jenkins noted that the Office of Education could not afford to install a computerized collection system until 1978 (Jenkins, 1978). Although governmental investments in the area of administrative strategies have resulted in much improvement in collection procedures, the previous administrative procedures account for a

substantial part of the default problem attributed to the historically impacted default rate (Jenkins, 1978).

A second factor to consider is the nature of student loans. Kendis (1978) states that even though student loans are not the same as consumer loans, the lack of rules concerning asset and income analysis, borrowing limits and collection procedures are "diametrically opposed" to methodologies long since proved successful in consumer credit (Kendis, 1978). Although Kendis feels that the rules should be somewhat different from the rules utilized in consumer credit situations, he states that the result is an "attitude problem" surrounding student loans. This "attitude problem" affects not only students but lenders and legislators as well.

Students borrowing as a part of their investment in their own human capital are forced into a decision process to attend or not to attend a college or university, wherein the negative consequences of increasing costs, and debt, are minimized by the ability to borrow funds. Lenders continue to lend greater volumes of funds leading to a greater median debt loan (with increasing financial concern) in the interest of assuring access and individual collegiate choice. And finally, the Government in its effort to assume capital availability guarantees loans by merely increasing existing programs while disregarding the long-term costs and the social consequences of the program. Any one of the conditions highlighted previously would have

significant impact on the student loan problem; however, in combination there is no doubt that the "attitude problem" suggested by Klendis is a very real factor affecting student loan defaults.

A third major factor affecting the student loan problem is the mechanism for repayment. Balderston (1970) notes in an analysis of incomes between those students choosing to go to college and those choosing not to go to college that the former will not "catch up to" the latter in real dollars realized until very late in the working life of the individual primarily due to the foregone earnings (lack of income during college years) of the college student (Balderston, 1970). In fact, in some instances the college-going student may never catch up to the non-college student whether the dollars are discounted for inflation or not. Therefore, any student researching the wisdom of the investment of a college education from a purely financial perspective may decide it is not worthwhile to attend college based on the market payoff (Balderston, 1970).

Beyond the decision the student must make regarding the wisdom of attending college, if a loan is utilized, then the repayment mechanism that currently operates which seeks to concentrate the repayment in the early years of one's working life (10 years) may have some deterrent effect upon college attendance. If loan financing is heavily relied upon, the effect may be substantial. Balterston's

conclusion is that short repayment periods lead to fewer students opting to attend college if loans must be utilized because they impose too heavy a burden of cash outflow on the student. He also notes the effect is stronger on students who do not finish programs or finish programs with less optimistic forecasts of projected future incomes (i.e., humanities, home economics) because these students do not have the advantage of cashing in on a completed or marketable degree and the loan payment constitutes a higher percentage of their total income than it does for students with higher incomes.

The solution proposed by Balderston is to make long term loans and to tie the repayment mechanism into the income tax system or set up a similar system which reduces administrative costs (Balderston, 1970). Although there is much debate as to the wisdom of Balderston's proposal, especially as it relates to the use of the income tax system, there appears to be little doubt that the repayment system for current loans is a component of the overall problem regarding loan defaults.

Many other factors are cited in the literature as contributing to the student loan problem. For example, Jenkins notes that there is such a "smorgasbord" of student assistance programs that it is possible for one student to be eligible for eight different loan programs, sponsored by eight different banks or lending institutions to pay eight

different terms with eight different sets of conditions for forgiveness and eight different groups to deal with (Jenkins, 1978). Some consolidation appears to be necessary.

Another factor involves the apparent lack of sensitivity to issues of student loans from student financial aid administrators. For example, the student aid packaging process usually relegates the discussion of the terms of a student loan to the exit interview. Certainly this factor is within the control of the student aid offices. Hopefully, these offices will incorporate the suggestions made in the National Association of College and University Business Officers (NACUBO) manual in order to manage better the loan programs.

Finally, a legal process has been cited as a major factor contributing to the student loan problem. The availability of a bankruptcy action to discharge a student loan debt has become increasingly apparent to many student borrowers. The use of a bankruptcy action, its effect on the system of student aid and the governmental response to its use are important considerations in student loan research because they demonstrate an area where judicial and legislative cooperation has assisted in reducing the number of the student loan bankruptcies and encouraging more students to repay their student loans.

Bankruptcy Actions

Bankruptcy is the mechanism by which insolvent debtors may be released from the obligation to repay their debts. The proceedings are handled by a federal bankruptcy court and conducted under laws enacted by Congress. In the mid-1970s the problem of student loan bankruptcies received significant attention from Congress, colleges and universities, professional organizations and the courts and governmental agencies. This attention was not unwarranted as the problem became quite prominent. During the five fiscal years from 1966 through 1970 only 348 bankruptcies were discharged on NDSL and GSL loans totaling \$400,000. However, in the fiscal year 1975 alone, a total of 4,559 bankruptcies were discharged on loans totaling \$6,800,000 (Leonard, 1980).

The effect of the tremendous rise in the use of bankruptcy actions to discharge student loan debts resulted in a great deal of negative publicity for all student aid programs. Prior to the disclosures regarding the use of bankruptcy actions, support for all federal aid programs was exceedingly strong and resulted in the passage of the BEOG (Pell Grant) Program. After considerable press exposure (i.e., New York Times) public resentment led to a hearing by the House Subcommittee on Postsecondary Education in October, 1975. The resentment was specifically aimed at a very few of the 12 to 15% defaulting student borrowers, since very few

students default through bankruptcy. Most defaulting students choose not to provide forwarding addresses and thus are "lost." According to some researchers, the small number of students abusing the bankruptcy process solely to escape federal educational debts is not a serious threat to the loan programs. However, the anger surfacing at the October committee hearing appeared to be generated by the apparent misuse of a constitutionally sanctioned remedy to escape a moral obligation (Tate, 1979).

Consequently, in 1976, Congress passed the Education Amendments of 1976 which changed the procedures utilized to discharge student loan debts by setting out specific restrictions. The primary restriction was a mandatory five-year delay from the commencement of the repayment period in the filing of a bankruptcy action. Although a subprovision allows for actions based on undue hardship, the purpose of the amendment is to enforce a moratorium on all but the most necessary bankruptcy discharges until sufficient time has passed for a loan holder to either pay off the debt or have enough at stake to make bankruptcy a genuine last resort effort (Tate, 1979). This provision has since been incorporated into the Bankruptcy Reform Act of 1978.

The Congressional action highlighted above indicates that student loan problems can be adequately addressed and resolved. However, some writers feel that the most potent weapon against bankruptcy abuse and student loan defaults

may rest in the college registrar's office. Therefore, actions taken by institutions as well as professional organizations, the government and professional educators are worth researching as possible weapons in combatting the high student loan default rate.

Institutional Responses to Student Loan Defaults

Nearly every college has a statement in its catalog indicating that the college reserves the right to withhold grades, degrees, statements of honorable dismissal or a transcript of credits until satisfactory settlement of college fees and other financial obligations has been made. This strategy has worked well for many years at several institutions and is probably partly responsible for keeping the default rate within its current level.

The appropriateness and legality of utilizing this strategy have been questioned in several court cases; however, the courts have not provided a definitive response to guide colleges and universities especially if the student has discharged the debt by bankruptcy action. It appears that in situations where the debt was discharged prior to October 1, 1979, the court will require state institutions to release the transcript (*Handsome v. Rutgers University*, 445 F. Supp. 1362). However, private institutions may have the authority to withhold transcripts of students whose debts were discharged prior to October 1, 1979 (*Girardier v.*

Webster College, 563 F. 2d 1267). Due to the change in the bankruptcy code, students are not now likely to have their educational debts discharged, but if they do, it seems that the college cannot take any action (including withholding transcripts) to collect the debt.

The Handsome and Girardier cases point out that even if the debt to the college has been discharged by a bankruptcy decree there are other legal obstacles to the practice of withholding transcripts. A future court may decree that the student has sufficient property interest in the transcript to require the college to provide adequate notice prior to withholding the transcript. Or a court may determine that there exists between the student and the college a contract and that the college must demonstrate that the contract was entered into with adequate notice regarding the withholding of the transcript. In either case, additional responsibility may be placed upon the colleges utilizing this strategy to compel students to pay their educational debts.

In addition, courts have indicated that an unpaid debt must be one that is sufficiently related to the student's acquiring an education to justify retention of the transcript. This decision presents several new issues. For example, is a student's unpaid bookstore bill or a student parking fine "sufficiently related" to permit the college to withhold the student's transcript?

A final consideration regarding the withholding of transcripts rests with the Family Educational Rights and Privacy Act (Public Law 93-380). This act requires an educational institution to allow the inspection of a transcript. Although this act does not require a college to release an official transcript, a court may rule in the future that the institution must release an unofficial copy of a transcript.

Obviously the strategy of withholding transcripts has been viable throughout the years, but educational institutions should consider the legal ramifications of their policies in light of the recent court decisions and the questions presented in the court dicta.

Professional Organization Action
Regarding Student Loan Defaults

Beyond the strategies utilized by colleges and universities to encourage student borrowers to repay their educational loans, a few professions have begun policing their members regarding loan defaults. The most notable example is the case of the Florida Board of Bar Examiners re G.W.L. (364 So 2d 454, Fla. 1978). In this case the Florida Supreme Court refused admission to the state bar to the petitioner, who had discharged his student loans in bankruptcy, on the premise that the petitioner's financial

status and apparent motivation at the time of filing reflected a sufficient lack of the proper moral character and requisite values to practice law in the State of Florida (Martin, 1980). Since the court never questioned the act of filing for bankruptcy but rather based its decision on the student's conduct and the apparent breach of the Florida Character Standards for bar admission (which were established to protect the public interest), the decision did not conflict with federal bankruptcy law regarding unlawful penalties imposed on bankruptcy petitioners.

This court decision was the first to link discharge in bankruptcy to moral turpitude and it has been cited in cases in other states with similar provisions for professional licensing. The purpose of the standards as stated by the Minnesota Supreme Court is not to punish the attorney but to guard the administration of justice and to protect the general public (in re Peterson, 274 N.W. 2d 922, 925, Minn. 1979). Therefore, the legal profession has set a precedent by refusing bar admission to those who have utilized the student loan system and irresponsibly neglect their debt obligation. Since this strategy appears to be useful for professional student bankruptcy actions and defaults, other professional organizations, for example the AMA or ADA, should institute and enforce similar provisions for licensing. This action is particularly relevant since the

pursuit of higher education is valued so greatly by the American public in whose interest the professional serves and any interference with the financial aid system supporting the program of higher education in America should not be treated lightly.

Governmental Action Regarding
Student Loan Defaults

Many governmental organizations and agencies have demonstrated concern for the student loan default problem and have initiated reports and actions to help remedy the problem. In addition, the U. S. Congress has been involved with legislation designed to curtail the default rate among federal employees and in providing a forum in which to discuss possible solutions for the loan default problem.

The General Accounting Office (GAO) has published several reports concerning the student loan system. Some of the suggestions listed in its 1977 report included the following:

- (1) require financial statements of all debtors,
- (2) refer all defaults immediately to legal action,
- (3) set up guidelines for compromise settlements,
- (4) institute a payroll deduction system for all federal employees, and
- (5) require any contractor for collection service to document unsuccessful efforts. (U.S. General Accounting Office, 1977)

Although these suggestions seem realistic, they have met resistance from several sources. For example, in 1979 the U. S. Department of Health, Education and Welfare (now the U. S. Department of Education) argued successfully that only it should negotiate settlements of compromise. In a subsequent (1981) report the United States Comptroller General indicated that many schools visited by the GAO made inadequate efforts to collect defaulted loans, that the schools needed to adopt a tougher attitude toward collecting defaulted loans and that the Department of Education should take stronger actions against those institutions that failed to do so. Consequently, in April of 1982, the Department of Education notified colleges with a poor record of loan collection that they would not receive any new federal loan money appropriated for the 1982-83 year. Although these actions referred specifically to the NDSL program, they sufficiently demonstrate the interest in Washington regarding the student loan problem.

During the Oversight Hearing before the Subcommittee on Postsecondary Education of the Committee on Education and Labor (House of Representatives) the following methods were suggested as appropriate to cut down the GSL default rate:

- (1) discharging federal employees
who default,
- (2) extending deferments to one year
for those who are unemployed,

- (3) permitting lower rates of repayment for those with low incomes, and
- (4) prohibiting defaulters from obtaining other federal loans.
(U. S. Congress, 1977)

In response to item number one above, Education Secretary Terrence Bell and Senator Charles Percy (R-Ill.) sponsored legislation in 1982 enabling the government to garnishee the wages of federal employees who have defaulted on their student loans. Recently, the Department of Education sent letters to federal employees notifying them of the Debt Collection Act of 1982 and indicating they must make arrangements for the repayment of their loan by February 1, 1983, or risk the garnishment of their wages. Therefore, it is apparent that both the Executive and Legislative branches of the U. S. Government have also taken actions to assist in the solution of the loan problem.

Responses to the Student Loan
Default Problem by Education Spokesmen

Professional educators have also addressed the problem of student loans and are often quoted in the literature of higher education. For example, Robert Hartman identifies several factors that impinge on the effectiveness of the current student loan system including the variety of loan programs and regulations, the use of bankruptcy actions to discharge debts and the differences among students and

their respective needs. He recommends several restrictions to the current loan program. Among his suggestions are:

- (1) the development of a single loan instrument,
- (2) curtailing the use of bankruptcy actions (at least for the first 10 years rather than the five years provided in the Education Amendments of 1976), and
- (3) a provision allowing different loan amounts for students of different needs, and extended payment and variable repayment options. (Hartman, 1978, p. 96)

Hartman argues that his suggestions would increase the cost effectiveness of the loan program (items one and two), increase the manageability of loan repayment procedures (items one and three), widen student accessibility (items one and three), and reduce defaults and delinquency (items one and three). Essentially he is suggesting that the loans be conformed to fit the student, that the loan programs be supported identically by each of the fifty states and that the performance requirements and benefits of the loan programs be identical regardless of the program utilized. Hartman's suggested actions seem to be consistent with the goals of the student aid delivery system and show great insight concerning the many elements constituting the student loan problem.

Several other plans have been suggested by professional educators regarding the student loan program. A panel of

advisors during the Kennedy Administration developed the idea of an Educational Opportunity Bank. The proposal would have allowed students to borrow money to cover their expenses at whichever college they decided to attend. The loan would be paid back over the next 30 to 40 years and an interest rate of 1% of the students' gross income would be applied. Although this program would have allowed students to pay their own college expenses, Duke University and Yale University encountered several problems when instituting similar programs including administrative and collection difficulties.

D. Bruce Johnstone, in his proposal of the National Student Loan Bank, recommends that one new major governmental agency should assume the responsibility for all student loans (Johnstone, 1978). In addition, Johnstone suggests that the colleges and universities (rather than the lending institutions) should originate all loans and that the repayment of interest should be tax deductible necessitating a tie-in to the Internal Revenue Service. This radical plan appears to be quite practical; however, it tends to come into conflict with many existing offices, agencies and banks as it would drastically change and/or perhaps eliminate their participation in the student loan system. Therefore, support for this proposal has never materialized.

Most attention today regarding changes in the student loan programs has focused on John Silber's Tuition Advance

Fund (TAF) proposal. The proposal incorporates several key factors including

- (1) loans would only be negotiated for successful students (after their freshman year),
- (2) individual student TAF accounts would have to be established with the respective college business office,
- (3) involvement of the Internal Revenue Service would be required in the transaction and repayment procedures, and
- (4) indefinite repayment periods would be instituted since the repayment provisions require students to repay their loan at the rate of 2% of their annual gross income each year until they have paid back 150% of their loan. (Silber, 1978, p. 7)

To its credit the TAF proposal provides some novel ideas such as treating loan payments as tax obligations and pooling the income of married couples with loans for the purpose of calculating their taxable income. However, the plan has come under negative scrutiny as many have argued that the proposal assumes that the burden of paying for an education should rest with the student. Beyond the previous arguments concerning who should bear the cost of an education, many professionals fear this approach may lead parents, private donors and the taxpayer to abandon their support for higher education which would force an even greater burden on the student.

In addition, although research studies show that a long repayment period provides the best opportunity for a reasonable return incentive for investing in higher education, many bankers indicate that the TAF could never be self-sustaining based on the proposed 2% interest rate over an estimated 30 year repayment period. Other arguments against the TAF include the feeling that any plan that provides for the paying of higher education through long term student debts will result in limiting equal access and opportunity for higher education. Further, the tuition and enrollment controls suggested to distribute TAF funds to institutions would cause widespread disruptions in the higher education system. For example, the expanded eligibility requirements for private college and university students would enable them to be eligible for a larger proportionate share of the available money. Regardless of one's point of view, the TAF represents a proposal which has provided healthy discussions of the student loan system and the options available to solve the problems.

Antecedent Studies Relating to Student Loans and Demographic Characteristics

It is apparent that all the participants in the student aid delivery system are concerned about the student default rate on educational loans. The changes implemented thus far in the student loan system have been instrumental in improving administrative procedures. For example, new and better

resources for collecting loans and monitoring repayment progress have been devised. A second approach to solving the student loan problem should consist of researchers studying the demographic characteristics of student borrowers in order to distinguish those students who are likely to repay student loans from those students who are not likely to repay student loans. Thus far only a few researchers have explored the characteristics of student borrowers in the last five years.

In 1977, Dyl and McGann applied a multivariate discriminant analysis to the problem of identifying defaulting and non-defaulting student borrowers at the University of Wyoming. They analyzed 33 different variables including class standing, college attended, grade point average, amount of the loan, academic major, marital status, living quarters, total amount of university loans, and size of the monthly payments. Four of the significant discriminators displayed direct positive relationships with actual loan repayment behavior. The students who were more likely to repay their student loans included those students who

- (1) had higher grade point averages,
- (2) were married,
- (3) were engineering majors, and
- (4) chose high monthly payments.

Dyl and McGann also discovered three factors which were negatively associated with repayment of student loans including

the (large) size of the loan, the residence of the student in an apartment and the total amount of indebtedness to the university (including previous loans). As cited by Davis and Van Dusen (1978), this study, in concert with the earlier studies of Pattillo and Wiant (1972) and Spencer (1974), was instrumental in identifying for other researchers the factors most worthy of analysis and providing a format in which to research the characteristics of student borrowers.

Hauptman, in his 1978 study for the College Scholarship Service, explored many of the same characteristics for students participating in the GSL/FISL programs. One of the most interesting findings of his study was that the following groups of students had a higher percentage of defaults than would be expected:

- (1) students with low family incomes,
- (2) female students,
- (3) married students,
- (4) black students, and
- (5) junior college students.

Hauptman discovered that students attending public schools had a lower default rate than those attending either private or proprietary schools and that college and university students had a lower default rate than junior college students or vocational students. Although the results of this study did not duplicate the results presented by Dyl and

McGann (1977), it is equally important because it researched a variety of institutions and concentrated its data on one loan program.

Also in 1978, Emmert studied the characteristics of students defaulting on their NDSL loans and concluded that the demographic make-up of student populations has an equal or greater impact upon default rates than do internal administrative factors. He suggested that schools with higher default rates are not necessarily administering their programs any less effectively. Instead he argued that they may have students from substantially different backgrounds that account for the different default rate. Emmert also cited all the previous researchers in synthesizing the crucial variables selected in his study. Among the variables selected were:

- (1) age,
- (2) marital status,
- (3) sex,
- (4) college standing,
- (5) grade point average,
- (6) loan total, and
- (7) employment status.

Like the Hauptman study (1978), the differing results Emmert discovered seem to suggest that student demographic characteristics should be weighted in order to establish variable default rates for the different postsecondary institutions.

In 1979 the Office of Education completed its first study of student borrower characteristics. Although the data collection was restricted to eight proprietary institutions, the study singled out several variables that may impact the default rate. Essentially this study underscores the necessity of establishing statistical validity by researching individual types of institutions independently since the results vary for the separate types of institutions studied. Therefore, because of the unique demographic characteristics of the proprietary student, this study concluded that the higher default rate among proprietary institutions discovered in the Hauptman study is understandable.

Finally, a study completed by Myers and Siera in 1980 concentrated on data available from the New Mexico Student Loan Program for the New Mexico State University. Using the Statistical Package for the Social Sciences (SPSS) Discriminant Program, Myers and Siera attempted to develop a prediction model to discern defaulters from non-defaulters. The results indicated that the variables selected did not lead to an accurate prediction of the likelihood of a student defaulting on a loan. What prediction was possible was not substantially different from what one might expect to accomplish based on chance alone. Although the study did not present an acceptable prediction model, the work of Myers and Siera was instrumental in pointing out the need

to explore and refine the application of predictive models to the student loan problem.

Summary

All of the personnel, institutions, organizations and governmental agencies involved with student loan programs have provided input and taken selective action to reduce the student loan default rate. A majority of the strategies implemented thus far have been concerned with the administrative or judicial (bankruptcy) aspects of the problem. In order to deal effectively with the problem of defaults the studies cited demonstrate the necessity of identifying the characteristics of defaultees and non-defaultees.

Several of the studies presented emphasized the crucial demographic characteristics worth researching. Other studies demonstrate the necessity of restricting the population researched due to the inherent differences among the students choosing to attend the different institutions of higher education. Therefore, this study has restricted its data base to community college students in the state of Florida and researched the available data that corresponded to the variables highlighted in the previous studies.

The student loan problem is not the creation of a single causality but rather it is the result of the

attitudes, procedures, economics and actions of all of the participants (students, lenders, aid administrators) in the program. Certainly, additional study needs to be performed regarding the administrative problems within the student loan program. However, research regarding the students who partake in the program has long been relegated to a subsidiary status. It appears crucial that additional research needs to be conducted to identify those variables which are effective in predicting the likelihood of a student default, because the student is indeed the major factor contributing to the student loan default problem.

CHAPTER III

DEVELOPMENT OF THE MODEL

The research reviewed in Chapter II provided an overview of the demographic variables to consider in the formation of a prediction model for student loan repayment. Names of the major contributors to the literature and the primary variables they studied are shown in Table 2. As presented in Chapter II many of these studies provided relevant findings concerning relationships between demographic characteristics of student borrowers and loan default. These relationships will be reviewed as a basis for developing the prediction model.

In one of the first studies researching demographics and student loans, Pattillo and Wiant (1972) as cited by Davis and Van Dusen (1978), discovered that students who borrowed late in their academic years, who had previous loans, or who came from large families were more likely to be delinquent in their student loan payments (Davis & Van Dusen, 1978). In addition, Pattillo and Wiant concluded that items reflecting financial rather than biographical data appeared to be better predictors of loan delinquency (Davis & Van Dusen, 1978).

Spencer completed a study of the relationship between demographics and student loan default in 1974. In this study,

Table 2
Overview of Major Variables
Selected by Previous Researchers

	(1972) Pattillo & Wiant	(1974) Spencer	(1977) Dyl & McGann	(1978) Hauptman	(1978) Emmert	(1979) Office of Education	(1980) Myers & Siera	Total
Age		X	X		X	X	X	5
Marital Status		X	X	X	X	X	X	6
Sex		X	X	X	X	X	X	6
College Standing	X	X	X		X		X	5
Grade Point Average			X		X		X	3
Loan Total	X	X	X		X		X	5
Family Income			X	X			X	3
Student Aid Received			X				X	2
Cost of Attendance							X	1
College Major			X				X	2
Type of College				X				1
Ethnic Background				X		X	X	3
Employment Status		X			X			2
Academic Load							X	1
Degree Earned							X	1
Type of Residence			X		X			2
Dependents (Number)			X			X		2
Age of Automobile		X			X			2
Family Size	X							1
Telephone		X			X			2

according to Emmert (1978), Spencer described the worst possible student loan risk as an unmarried, unemployed male student, in his last semester, with an old car, without a phone, and with a large outstanding loan debt (Emmert, 1978).

The results that Dyl and McGann obtained in 1977 indicated that the following factors related positively to the repayment of student loans: college major (engineering), marital status (married), grade point average (high), and the size of loan payments (low). Dyl and McGann (1977) also found the following three factors to be negatively associated with repayment: residence type (apartment), total university indebtedness, and loan indebtedness (high loan totals). In this study Dyl and McGann also presented the results of a discriminant analysis of their data, and they were able to correctly classify 84% of the cases in their study. However, as pointed out by Myers and Siera (1980), Dyl and McGann did not test their model with any new cases. Therefore, the reliability of the model presented by Dyl and McGann is, as yet, untested.

Essentially these three studies presented the basis upon which most of the research in this area has concentrated. These researchers have not only provided insight concerning the appropriate variables to research but they also have suggested the appropriate statistical designs for future studies. However, the conclusion originally presented by Pattillo and Wiant (1972) regarding the inappropriate use

of biographical data for predictive purposes has not been heeded. Many researchers have continued to search for student demographic characteristics which would distinguish student loan defaulters from non-defaulters.

For example, in 1978 Hauptman studied five demographic variables and reported that the worst risk student loan participant was a married, Black, female student from a low family income who attended a proprietary vocational school. In another study presented in 1978, Emmert summarized the previous studies reported in the literature. In this article Emmert reported the variables that have been studied and the conclusions that have been presented concerning the effect these variables have had on the student loan default problem. Emmert also noted the different default rates among postsecondary institutions and suggested that the demographic make-up of a given student population may place an institution in a high risk category for student loan defaults. In conclusion, Emmert suggested that the demographic factors should be weighted in order to establish variable default rates for differing types of institutions.

A 1979 study prepared by the Office of Education also reported student demographic data in relation to the problem of student loan defaults. Although the study primarily was designed to research the administrative procedures utilized by selected proprietary institutions, it did show that many

but not all of the same variables selected by other researchers were important variables concerning the student loan default problem in proprietary institutions. The findings presented in this study demonstrate the necessity of studying individually the different types of postsecondary institutions.

The most recent study in this area of financial aid research was carried out in 1980 by Myers and Siera. Through t-test analysis, Myers and Siera found the following variables to be highly associated with the repayment or non-repayment of student loans: college standing, loan total, amount of loan requested, grade point average, and degree completion. Myers and Siera also attempted to replicate the study design presented by Dyl and McGann (1977); and, although they were able to formulate a promising prediction model, when this model was tested using new cases only 42.5% of the new cases were correctly predicted. The validity problem experienced by Myers and Siera in their prediction model illustrates the difficulty researchers have encountered in their search for an accurate, useful prediction model for student loan defaults.

It is apparent from the above discussion that although the conclusions of the previous studies differ considerably, there does appear to be some consensus regarding the importance of researching student demographics and which demographics should be studied. In selecting which variables

to use in this study, the researcher selected the variables which had been most frequently used by previous researchers (see Table 2). Although ethnic status and family income were studied by several researchers, these variables were not included in this study because of the difficulty in collecting and verifying these variables. The remaining six variables were available in the data bank of the Florida Student Financial Aid Commission in Tallahassee, Florida. As a result, the following six variables were selected for the prediction model presented in this study:

- (1) age,
- (2) marital status,
- (3) sex,
- (4) college standing,
- (5) grade point average, and
- (6) loan total.

Analysis of Variables

As indicated in Chapter I, this ex post facto study was designed to determine the usefulness of a model to distinguish those students likely to repay student loans from those students who are not likely to repay student loans. Prior to developing any model, there was one major issue to address: were the selected variables useful in discriminating between students who will repay student loans and students who will not repay student loans?

In order to determine the usefulness of the variables in discriminating those students who will repay student loans from those students who will not, data representing each of the six variables were collected for both defaulting and non-defaulting students in the sample. Since three of the variables were nominal in nature, the t-test statistic utilized by previous researchers to determine significant differences between defaulters and non-defaulters was not applicable to the data. Therefore, a chi-square analysis was performed on the data collected for each of the variables in this study to determine if the differences between the proportions of subjects that fell into the two different categories (defaulters and non-defaulters) were significant.

Since this study represents exploratory research and any model developed from the data will need to be validated with new data, the researcher selected a .10 significance level. Essentially the chi-square analysis determines if the difference between the expected and observed frequencies for each of the classifications within each variable is greater than the difference one would expect to find based on chance alone. The results of the chi-square analyses showing the relationship of each of the six variables to student loan default are presented in Table 3 through Table 9.

Table 3
Chi-Square Analysis of the
Relationship Between Age and Student Loan Default

Age		Defaulters	Non-Defaulters
18-20	Number	8	10
	% of total frequency	10.53	13.16
21-24	Number	10	9
	% of total frequency	13.16	11.84
25-27	Number	8	6
	% of total frequency	10.53	7.89
Over 27	Number	12	13
	% of total frequency	15.79	17.11
Chi-Square = 0.6010		DF = 3	Probability = .8960

As shown in Table 3, the chi-square analysis of the relationship between age and student loan default indicates that age was not significant at the .10 level. The expected frequency for each cell based on chance alone would be 12.5% and, as shown, the actual frequency percentage for the cells ranged from 7.9% to 17.1%.

The chi-square analysis of the relationship between marital status and student loan default is shown in Table 4. The results of the chi-square analysis for marital status indicate a statistical significance at the .10 level. The expected frequency for each cell based on chance alone would be 25% and, as shown by the table, the actual frequency percentage for the cells ranged from 14.5% to 35.5%. Therefore,

Table 4
Chi-Square Analysis of the Relationship
Between Marital Status and Student Loan Default

Status		Defaulters	Non-Defaulters
Married	Number	18	11
	% of total frequency	23.68	14.47
Single	Number	20	27
	% of total frequency	26.32	35.53
Chi-Square = 2.732		DF = 1	Probability = 0.0983

the use of the variable marital status in a subsequent prediction model was appropriate.

As shown in Table 5, the chi-square analysis of the relationship between sex and student loan default indicates that sex was not significant at the .10 level.

Table 5
Chi-Square Analysis of the Relationship
Between Sex and Student Loan Default

Sex		Defaulters	Non-Defaulters
Male	Number	18	13
	% of total frequency	23.68	17.11
Female	Number	20	25
	% of total frequency	26.32	32.89
Chi-Square = 1.362		DF = 1	Probability = 0.2432

The expected frequency for each cell based on chance alone would be 25% and, as shown, the actual frequency percentage ranged from 17.1% to 32.9%.

The chi-square analysis of the relationship between college standing and student loan default is shown in Table 6. The data collected did not indicate college standing to be significantly related to defaulters and non-defaulters at the .10 level. The expected frequency for each

Table 6
Chi-Square Analysis of the Relationship Between
College Standing and Student Loan Default

College Standing		Defaulters	Non-Defaulters
Freshman	Number	21	17
	% of total frequency	27.63	22.37
Sophomore	Number	17	21
	% of total frequency	22.37	27.63
Chi-Square = 0.8420		DF = 1	Probability = 0.3588

cell based on chance alone would be 25% and, as shown, the actual frequency percentage ranged from 22.4% to 27.6%.

Table 7 shows the chi-square analysis of the relationship between grade point average and student loan default. The results of the chi-square analysis indicated that grade point average was not significant at the .10 level. The

Table 7
Chi-Square Analysis of the Relationship Between
Grade Point Average and Student Loan Default

Grade Point Average		Defaulters	Non-Defaulters
1.50-1.99	Number	2	0
	% of total frequency	2.63	0.00
2.00-2.49	Number	18	13
	% of total frequency	23.68	17.11
2.50-2.99	Number	8	12
	% of total frequency	10.53	15.79
3.00-3.49	Number	8	8
	% of total frequency	10.53	10.53
3.50-4.00	Number	2	5
	% of total frequency	2.63	6.58

expected frequency percentage for each cell would be 10% based on chance alone; however, the actual frequency percentage for the cells ranged from 0.00% to 23.68%.

The chi-square results of the relationship between loan total and student loan default are presented in Table 8. The loan total variable was significant at the .10 level. The expected frequency for each cell based on chance alone would be 8.3% and, as shown, the actual frequency percentage for the cells ranged from 0.0% to 18.42%. Therefore, the size of the loan total was a significant variable to include in any prediction formula designed to ascertain the likelihood of a student loan default.

Table 8
Chi-Square Analysis of the Relationship Between
Loan Total and Student Loan Default

Size of Loan		Defaulters	Non-Defaulters
0-\$1,000	Number	13	6
	% of total frequency	17.11	7.89
\$1,001-\$2,000	Number	11	6
	% of total frequency	14.47	7.89
\$2,001-\$3,000	Number	13	14
	% of total frequency	17.11	18.42
\$3,001-\$4,000	Number	1	5
	% of total frequency	1.32	6.58
\$4,001-\$5,000	Number	0	5
	% of total frequency	0.00	6.58
\$5,001-\$6,000	Number	0	2
	% of total frequency	0.00	2.63
Chi-Square = 15.7530		DF = 5	Probability = 0.0173

The results of the chi-square tests showed that only two of the variables were significant at the .10 level (marital status and loan total). The differences found between the categories (student loan defaulters and non-defaulters) for both of these variables cannot be attributed to chance alone. The remaining four variables (sex, grade point average, age and college standing) were not statistically significant according to the chi-square results of this study, but they may demonstrate some differentiation between defaulters and

non-defaulters on student loans based on the results of previous researchers.

The results of the chi-square analyses indicated that only two of the six variables studied most frequently by previous researchers were significant according to the data collected in this study. The discovery that the only financial type variable (loan total) was also one of the two variables found to be significant may underscore the importance of Pattillo and Wiant's (1972) conclusion that items reflecting financial rather than biographical data appear to be better predictors of loan delinquency. This finding may indicate that since students with high loan needs have good loan payback rates, the students with the highest needs are the best loan risk for any one of a number of reasons (i.e., they may value money more due to its scarcity, they may have learned to manage money more frugally or they may have learned how to budget more effectively). The strength of the relationship of this one variable to student loan payback indicates that other financial type data should be studied.

Before developing a prediction model based on the results of the chi-square analyses, the researcher explored the possibility of interaction effects between the six variables. These results are presented in Table 9. It can be observed that no interaction between the variables related significantly to payback.

Table 9
Interaction Effects Between the Variables

Variables	F	Pr > F	Significant ($\alpha = .10$)
Loan by Sex	1.45	.2320	No
Loan by Grade Point	0.01	.9185	No
Loan by Marital Status	0.10	.7573	No
Sex by Marital Status	0.05	.8250	No
Sex by Grade Point Aver.	0.47	.4956	No
Grade Point by Marital Status	2.14	.1483	No

Therefore, in developing the prediction model, the researcher utilized only the six original variables selected from the literature review.

Although four of the selected variables were not significant according to the chi-square results of this study, they were included in the formation of the prediction model because the literature was inconclusive regarding which variables should be used in a prediction model. It should be noted that the unique results of the chi-square analyses in this study may be due to the unique population. Since the previous studies did not examine the relationship between selected variables and student loan default for community college students, the difference in results may be due to the

specific characteristics of the community college population. Since the results presented in the literature and the results found for the community college students in this study were not corroborative regarding the significance of the variables, all six selected variables were utilized in the prediction model.

Development of the Model

In order to try to predict categorical membership based on the most discriminating variables, a multiple discriminant analysis technique was employed. Essentially this statistical procedure "weights" the predictor variables to yield maximum discrimination between the two groups (i.e., in this study it discriminates defaulters from non-defaulters) (Hays, 1981). In addition, the nominal variables of marital status, college standing and sex were used to define dummy variables in order to introduce variance into the prediction equation.

Three notable formulae generated by the multiple discriminant analysis function of the Statistical Analysis System (SAS) program were useful in distinguishing student loan defaulters. Therefore, three prediction models were developed.

The first formula included all six variables which were entered into the data file in the following (arbitrary) order: age, marital status, sex, college standing, grade

point average, and loan total. The results of this multiple discriminant analysis indicate that the six selected variables correctly predicted group membership for approximately 68% of the sample cases. Considering that the prior probability (based on chance alone) would be a 50% correct prediction, the six selected variables appear to be successful in improving the accuracy of predicting group membership.

In order to improve the chances of making more accurate predictions, a second discriminant analysis procedure was performed. This time the multiple discriminant analysis enabled the researcher to catalogue the individual effect of each selected variable on the accuracy of the categorical prediction. Based on the probability and significance levels of the chi-square analysis the most differentiating variables were first included in the prediction model. When the first variable, loan total, was entered into the prediction formula, the chances of making accurate predictions improved notably. Instead of the 50% prior probability of making accurate categorical predictions the accuracy rate improved to 66%. The only other significant variable (marital status) was entered into the model next. The inclusion of this variable increased the probability of correctly categorizing the defaulting and non-defaulting student loan recipient from 66% to 71%. Therefore, this second formula (generated by the stepwise multiple

discriminant technique) included only the two variables demonstrating the acceptable degree of significance based on the chi-square results ($\alpha = .10$) and it provided the best accuracy for categorical prediction (71%).

When the next two variables, sex and grade point average, were included in the model, the percentage of correct categorical classifications essentially remained the same. Although the variables would appear to be useful in a prediction formula as indicated in the literature review, their inclusion was not helpful in formulating a more accurate prediction model. When the variable sex was included in the model, the accuracy rating remained at 71%; however, when the variable grade point average was included, the number of correct classifications decreased by one and reduced the accuracy rating to 70%. Such a result seems to be inconsistent with statistical theory. After studying the values for each of the sample cases generated by the prediction formula, the researcher believes that the decreasing accuracy may be due to the mathematical rounding procedure within the Statistical Analysis System program. As a result, one sample case that defaulted on a student loan was classified by the prediction model as a non-defaulter on the total probability difference of .0033. Therefore, the apparent decreasing accuracy of the prediction model may be attributed to the mathematical precision of the computer program rather than the reflection of a conflict with statistical theory.

The third formula was generated at the conclusion of the stepwise multiple discriminant technique and it included all six selected variables. The addition of the remaining two variables, college standing and age, did not improve the accuracy rating for the prediction model. Therefore, the formula, including all six selected variables, generated by the stepwise technique was able to predict correct categorical membership for 70% of the sample cases.

Although both the first and third formulae included the six selected variables, the disparity in the predictive accuracy of the formulae is accounted for in the statistical technique employed for the derivation of the formulae. Since the stepwise multiple discriminant analysis technique enters the variables in the order of probability, the improved accuracy of the third formula (70%) is a result of the mathematical process of weighting the variables as they are entered into the prediction formula. Because the order of inclusion in the formula is different and the mathematical weighting is improved, the accuracy of the formula is improved.

Based on the results of the discriminant analysis, it would appear that the best predictive formula for determining correct classification of defaulting and non-defaulting community college students would include only data regarding the students' loan totals and marital status. Adding the

variables grade point average, sex, college standing and age, essentially maintained the effectiveness of the prediction formula. As evidenced, the stepwise technique employed to produce the second and third formulae improved the accuracy for categorical classification over the regular multiple discriminant analysis technique utilized for the first formula.

Results

Based on chance alone, one would expect to predict correctly the proper placement of students into the two categories (defaulting and non-defaulting) 50% of the time. The prediction formula generated by the inclusion of data concerning loan total and marital status increases the likelihood of making an accurate prediction from 50% to 71%. Therefore, it would appear that these data are relevant in predicting whether a student is likely to default on a student loan. The additional data that were collected for the other four variables (sex, grade point average, college standing and age) also appear to be relevant in producing a prediction model since the prediction formula derived from all six variables produced a 70% accuracy rating concerning categorical prediction and this rating is substantially higher than the 50% probability based on chance alone.

However, all three of the prediction formulae reflect an error factor of nearly 30% indicating that roughly one-third of the cases were classified in error. In addition, the testing of the prediction formula utilizing new cases is not possible since the formula is derived from a stratified sample (which was necessary in order to perform the chi-square tests to determine variable usefulness). Therefore, the usefulness of the results of this study is limited even though the prediction formula demonstrates moderate success in differentiating defaulters from non-defaulters.

Previous researchers also produced prediction models with limitations. For example, although Dyl and McGann (1977) reported significant success with their prediction model, Myers and Siera (1980) indicated that Dyl and McGann did not validate their results by applying the formula to cases other than those from which the formula was derived. In addition, the results of the study performed by Myers and Siera seem to indicate that although they presented a useful model, when they attempted to validate their model by predicting new, non-sample cases, the model was not reliable or useful.

The results of this study show that the six variables which were selected based upon the results of the studies presented by previous researchers were not reliable predictors of payback for community college students. Therefore, a dependable prediction model cannot be formulated for

community college students based on these variables. Perhaps the importance of this study is that the results coincide with findings reported by Hauptman (1978), Emmert (1978) and Pattillo and Wiant (1972).

Hauptman first suggested that research must be independently conducted on the different types of postsecondary institutions. Underscoring this perception, Emmert concluded that institutional default rates may not be comparable if the schools' respective populations are from substantially different backgrounds. It may be significant that the two studies previously successful in determining reliable demographic variables and formulating prediction models (Dyl and McGann, 1977, and Myers and Siera, 1980) were based on four-year public univeristy (University of Wyoming and New Mexico State University respectively) samples.

Previous discussion regarding the importance of financial aid for community college students demonstrated the meaningful differences between the typical community college student and the typical four-year university student. The disappointing accuracy of this model, specifically the incorrect classification of 30% of the sample, may be attributed to the demographic differences between the sample in this study and the samples used in the previous studies. For example, the results of the previous research reported in the literature indicate that the demographic data represented by the six selected variables discriminate student

loan defaulters and non-defaulters for four-year college or university students. However, as indicated by the chi-square results in this study, these same variables do not entirely discriminate student loan defaulters from non-defaulters for community college students. Therefore, the variables, selected based on the success of the previous studies conducted with a university student sample, are apparently not the best variables to use when attempting to predict community college student loan defaulters.

The results of this study also appear to support Pattillo and Wiant's (1972) conclusion that financial rather than biographical data are better predictors of loan delinquency. One of the two variables that met the .10 statistical significance level in the chi-square analyses of this study was the loan total. It was also the only variable that was financially related since all of the other (five) variables in this study represented purely biographical demographic characteristics. Considering that the only financially related variable was also statistically significant, perhaps more financially related variables would yield a more accurate prediction model. Therefore, the results of this study may lead to the conclusion that, as suggested by Pattillo and Wiant, more financial data need to be collected and analyzed in order to make any reliable prediction of loan delinquency. This conclusion may be also applicable to the results presented by Dyl and McGann (1977) and Myers and Siera (1980).

Although they have been able to develop successfully a prediction model, neither Dyl and McGann nor Myers and Siera has been able to validate successfully their models by predicting accurately new cases, cases not presented in the sample that derived the prediction model. Perhaps they need to collect more financial data regarding their students in order to formulate an accurate prediction model that can be validated by new cases.

Summary

The prediction formula derived from the data available through the Florida Student Financial Aid Commission for Florida community college students indicates that it is possible to make a useful discrimination regarding who will and who will not repay their student loans for approximately 70% of the sample cases. This prediction formula was derived through a (stepwise) multiple discriminant analysis computer program utilizing the six selected variables highlighted in previous research studies as useful discriminators between defaulting and non-defaulting students. A second (stepwise) multiple discriminant analysis utilizing only the two variables demonstrating statistical significance ($\alpha = .10$), loan total and marital status, yielded a prediction formula with a categorical prediction accuracy rating of 71%. A third formula utilizing all six selected variables entered into the formula in random order

(non-stepwise) generated a model that predicted correct categorical membership for 68% of the sample. Regardless of the formula utilized, approximately one-third of the sample cases were not predicted accurately. Although none of the prediction models are accurate for one-third of the cases, each prediction model is capable of predicting nearly 70% of the cases correctly. Therefore, the models are of some value in addressing the questions of this study. Future models may be more useful in predicting those students likely to repay student loans from those students who are not likely to repay student loans since the models derived from the data in this study have limitations concerning their application as discussed in Chapter IV.

The limited success of these prediction models appears to be consistent with the findings presented by the previous researchers in the field. Since the difficulty in validating even successful prediction models appears to be widespread, as confirmed by the results of previous researchers, it may be that the variables utilized thus far are not the most discriminating variables regarding student loan defaults. Perhaps future research should focus on financial type variables in order to provide relevant, statistically acceptable prediction models to assist student financial aid administrators in predicting student loan defaulters.

CHAPTER IV

CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

Previous studies researching the relationship between student demographics and loan repayment recorded similar results to this study. However, the results of this study demonstrate several unique implications for future researchers.

Conclusions

Since the models presented in this study improve the chances of making an accurate prediction concerning the likelihood of default on student loans from 50% (based on chance alone) to nearly 70% (based on the models), the models are successful in discriminating student loan defaulters from non-defaulters. Therefore, the questions of this study presented in Chapter I must be answered in the affirmative.

Even though some of the six selected variables were not statistically significant in this study, the inclusion of all six variables in the prediction models was warranted because of the inconclusive results regarding the importance of the individual variables as demonstrated by previous university researchers. Inclusion of all six variables was

also appropriate since this study was the first to utilize a community college sample, and the results of the chi-square analyses in this study may indicate that the variables distinguishing community college student loan defaulters may be different from the variables distinguishing university student loan defaulters.

Despite the differing results of the chi-square analyses for the individual variables, the models formulated utilizing all six selected variables were accurate in predicting default or non-default for nearly 70% of the sample cases. Therefore, the models presented in this study are useful in predicting student loan defaulters. The conclusions of this study suggest several implications of importance for future studies.

Implications

The most notable implication of this study is that there are differences between community college students and university students regarding the significant variables distinguishing student loan defaulters from non-defaulters. This study shows that, although previous researchers identified the six selected variables and determined that they were significant in distinguishing defaulting university students, only two of the six variables were significant in distinguishing defaulting community college students. Therefore, this study underscores the importance of performing separate

study designs yielding specific results for the different kinds of institutions utilizing the Guaranteed Student Loan system.

The results of the chi-square analyses also appear to indicate that the data currently being collected for community college students do not adequately distinguish defaulting from non-defaulting student borrowers. As suggested previously, it appears that more financial data should be collected and analyzed if one is to achieve a more accurate prediction model for community college student loan defaults. Although there are inherent differences between the administrative mechanisms employed for the student loan system and those utilized by commercial lending institutions, information found useful in determining eligibility for commercial loans may be useful in distinguishing student loan defaulters from non-defaulters. Therefore, a second implication based on the results of this study is that future research should provide more focus on the financial data of community college students in order to improve the chances of formulating a better prediction model.

Limitations of the Model

The results of this study reveal two major limitations of importance for future researchers.

First, the models presented in this study do not accurately categorize nearly one-third of the sample cases.

As indicated, an inaccurate prediction regarding the probability of default or repayment was made for nearly one-third of the students in the sample. This imperfection results in the limited application of the prediction models. Previous researchers were unable to formulate a prediction model and validate their models with any great success; similarly, this study did not find a sufficiently accurate prediction model for determining who will default on their student loan.

Second, since the models were not effective in making an accurate prediction for all cases in the sample, it appears that additional (especially financially related) variables may be of value in future research studies. This study was restricted to the use of data highlighted as significant in the literature and available through the Florida Student Financial Aid Commission (FSFAC) in Tallahassee, Florida. The results of this study and the previous studies seem to indicate that some variables which were not available through the FSFAC data files may be of critical importance in formulating a more accurate prediction model. For example, the employment status and type of job held at the time of loan application or the family's financial data including loan repayment history may be reliable variables to consider when predicting student loan defaults. In addition, data concerning ethnic background, college major, and adjusted gross income were found to be of value in prediction formulae presented by university researchers. Although the

data are not currently available in the data system provided through FSFAC, perhaps these variables are also important in the formation of a prediction model concerning the probability of default for community college students. Any further study regarding a prediction model for determining the probability of default should also research the value of including these variables. Based on the difficulty of collecting data concerning these variables, the inclusion of these variables would alter considerably the methodology section of any similar research study. However, the variables do appear to be of value in examining critically the student loan default problem and presenting a model that improves predictive accuracy. Therefore, the resources employed to collect the data would appear to be prudently utilized.

Recommendations

The use of any of these predictive models for determining the likelihood of students defaulting on their student loans is limited. Therefore, the foremost recommendation derived from the data and the literature search is the need to encourage further research. The importance of this study is that the data indicate it is possible to formulate a model which will accurately predict 70% of the students within the sample. It appears realistic to assume that further research, especially the financially related research suggested in the previous discussion, may result

in a more inclusive and accurate prediction model which would be useful in determining the probability of default. Such research would need to be more inclusive and therefore the collection of the new data would demand much more time and financial resources. However, the possibility of finding an appropriate collection of variables and the usefulness of the resultant prediction formula would indicate that student loan default prediction is an appropriate area for further study.

In the event that a subsequent study does provide a reliable prediction model, it should be tested and validated by the researcher using new cases derived from a different sample. In addition, before the model is implemented on any individual college campus, it should be tested and validated by the financial aid officer for applicability on his/her campus. Only when these validations are performed can there be confidence in the predictive capability of the model, for the results of this study and the research presented in the literature clearly indicate that the models and appropriate variables vary from institution to institution. This variation is dependent upon the type of institution being researched. Another reason for establishing institutional validation procedures is to determine if significant differences occur among institutions of the same type. It is possible that a single, reliable prediction model that is derived from data representing a state-wide population for a

selected type of institution may have no validity or usefulness on a single campus.

Because of the increased emphasis on student loan programs as a major component of the student financial aid delivery system, further research concerning student demographics and the probability of default is of utmost importance. Such importance is underscored by the discussions presented in the literature search and the successful results of this study.

BIBLIOGRAPHY

- Ary, D., Jacobs, L. C., & Razavich, A. Introduction to research in education (2nd ed.). New York: Holt, Reinhart and Winston, 1979.
- Balderston, F. E. The repayment period for loan financed college education. New York: Ford Foundation, 1970. (ERIC Document Reproduction Service No. ED 081 379)
- Balkins, A. J. Withholding transcripts for non-payment of educational debts: Before and after bankruptcy. Williamette Law Review, 1979, 15, 563-575.
- Bar Admission--Default on student loan warrants denial of admission to Minnesota bar. William Mitchell Law Review, 1980, 6, 443-454.
- Block, W. R. Other students need money: An approach to the administration of revolving loan accounts. Journal of Student Financial Aid, 1977, 7, 26-30.
- Blocker, C. E. The reality of student finances. New Directions for Community Colleges, 1974, 8, 124-128.
- The Carnegie Council on Policy Studies in Higher Education. Next steps for the 1980's in student financial aid. San Francisco, CA: Jossey Bass Publications, 1979.
- Change Magazine and Educational Change. Colleges and money: A faculty guide to academic economics. Washington, DC: Author, 1976.
- Chronicle of Higher Education, February 24, April 28, December 1, 1982, February 2, 1983.
- Collins, J., Maguire, J. J., & Turner, R. M. Unmet need: How the gap is filled. Journal of Student Financial Aid, 1979, 9, 4-15.
- Crackdown begins on federal worker's student loan defaults. Higher Education and National Affairs. December 10, 1982, p. 3.
- Davis, J. S., & Van Dusen, W. D. Guide to the literature of student financial aid. Princeton, NJ: College Entrance Examination Board, 1978.

- Deitch, K. M. Pricing and financial aid in American higher education: Some interactions. Aspen, CO: Aspen Institute for Humanistic Studies, 1978. (ERIC Document Reproduction Service No. ED 184 450)
- Dyl, E. A., & McGann, A. F. Discriminant analysis of student loan application. Journal of Student Financial Aid, 1977, 7, 35-40.
- Emmert, M. A. National direct student loan default rates: A measure of administrative quality or something else? Journal of Student Financial Aid, 1978, 8, 43-47.
- Ferguson, G. A. Statistical analysis in psychology and education (3rd ed.). New York: McGraw-Hill Book Company, 1971.
- Hartman, R. The National Bank approach to solutions. In L. Rice (ed.), Student loans: Problems and policy alternatives. Princeton, NJ: College Entrance Examination Board, 1978.
- Hauptman, A. Student loan defaults: Toward a better understanding of the problem. In L. Rice (ed.), Student loans: Problem and policy alternatives. Princeton, NJ: College Entrance Examination Board, 1978.
- Hays, W. L. Statistics (3rd ed.). New York: Holt, Reinhart and Winston, 1981.
- Horch, D. H. A retrospective description of the national direct student loan program: Administrative practices and institutional default rates in 1972-73. Princeton, NJ: Educational Testing Services, 1978. (ERIC Document Reproduction Service No. ED 165 617)
- Hyde, W. D., Jr. State guarantee agencies and capital availability for student loans. Papers in education finances. Paper no. 22. Denver, CO: Education Commission of the States, Education Finance Center, 1979. (ERIC Document Reproduction Service No. ED 176 648)
- Jenkins, J. A. Whose fault is student loan default? Change, November, 1978, pp. 44-45.
- Johnstone, D. B. Student loans: Some practical radical alternatives. In Symposium on Federal Student Loans. Washington, DC: National Association of Student Financial Aid Administrators and the American Council on Education, 1978.

- Kelly, M., ed. Administrator. Madison, WI: Magna Publications, January 7, 1983.
- Kendis, K. L. Solving the student loan problem by supplementing government loan policy--An expanded role for institutional aid administrators. Student loans: Alternatives for reauthorization. Washington, DC: National Association of Student Financial Aid Administrators, 1978.
- Leonard, K. J. Collection of federal student loans. Columbia Journal of Law and Social Problems, 1980, 15, 317-358.
- Martin, P. Student loans: Curing problems and insuring the future. Capital University Law Review, 1980, 9, 579-594.
- Millsap, W. L., & Wright, P. S. Recent cases on student transcript rights after bankruptcy. Journal of College and University Law, 1979, 6, 231-240.
- Myers, G., & Siera, S. Development and validation of discriminant analysis models for student loan defaulters and non-defaulters. Journal of Student Financial Aid, 1980, 10, 9-17.
- National Association of Independent Colleges and Universities, An analysis of the tuition advance fund bill. Washington, DC: Author, 1978. (ERIC Document Reproduction Service No. ED 171 189)
- New York Times, October 12, 1975, Section 3, p. 16.
- Ostar, A. W. The effects of inflation and pricing policies on college enrollments. Washington, DC: American Association of State Colleges and Universities, 1978. (ERIC Document Reproduction Service No. ED 177 961)
- Premises of federal student assistance. Washington, DC: American Association for Higher Education, 1979. (ERIC Document Reproduction Service No. ED 193 999)
- Rudolf, F. Myths and realities of student aid. College Board Review, 1962, Fall, pp. 18-23.
- Sanford, T. R. The impact of student loans on graduate education. In AIR forum 1980 paper. Atlanta, GA: Association for Institutional Research, 1980. (ERIC Document Reproduction Service No. ED 189 936)

Silber, J. R. The tuition advance fund: A proposal for funding higher education. In paper presented at Assembly of the National Center for Education Management Systems. Boston, MA: National Center for Education Management Systems, 1978. (ERIC Document Reproduction Service No. ED 163 824)

Study of the requirements for forming state guarantee agencies, Final report. New York: Research and Forecasts, Inc., 1979. (ERIC Document Reproduction Service No. ED 188 508)

Tate, J. L. Federal aid to postsecondary students. Journal of Family Law, 1979, 18, 147-178.

U. S. Congress. House. Committee on Education and Labor. Subcommittee on Postsecondary Education. Student loan defaults. Hearings before a subcommittee of the Committee on Education and Labor, House of Representatives, 95th Cong., 1st Sess., 1977. (ERIC Document Reproduction Service No. ED 153 538)

U. S. Department of Health, Education, and Welfare. Office of Education. Study of selected educational institutions and students participating in direct school lending under the federal student loan program, Final report. Washington, DC: Office of Education, 1979. (ERIC Document Reproduction Service No. ED 185 953)

U. S. General Accounting Office. Collection efforts not keeping pace with growing number of defaulted student loans. Washington, DC: Government Printing Office, 1977.

U. S. General Accounting Office. Stronger action needed to recover \$730 million in defaulted national direct student loans. Washington, DC: Government Printing Office, 1981.

BIOGRAPHICAL SKETCH

James A. Schmidt was born December 11, 1950, at Pittsburgh, Pennsylvania. He attended local schools in St. Petersburg, Florida, and graduated from Dixie M. Hollins High School in 1968. He entered the Florida State University in 1968 and received the Bachelor of Science degree in criminology in 1972 and the Master of Science degree in education (student personnel/higher education) in 1973. He served Southeastern Community College (N.C.) as Director of Admissions and Student Activities and Researcher from 1973 until mid-1976. In the fall of 1976, he entered Stetson University College of Law in St. Petersburg, Florida. The following year, 1977, he accepted a counseling position with Edison Community College in Fort Myers, Florida. During the 1981-82 academic year, he attended the University of Florida while on leave from Edison Community College in order to complete residency and course requirements for the Doctor of Philosophy degree in educational administration (higher education). Upon returning to Edison Community College in July, 1982, he assumed his present position as Director of Financial Aid.

James A. Schmidt is married to the former Linda Dale Thompson of Callahan, Florida. They have two sons, Daniel and Timothy. He is a member of Beta Theta Pi, Kappa Delta

Pi, Phi Delta Kappa, several professional and service organizations and has been selected as an Outstanding Young Man of America for 1983.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

James L. Wattenbarger, Chairman
Professor of Educational
Administration and Supervision

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

John M. Nickens
Professor of Educational
Administration and Supervision

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Harold C. Riker
Professor of Counselor Education

This dissertation was submitted to the Graduate Faculty of the Department of Educational Administration and Supervision in the College of Education and to the Graduate Council, and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

August, 1983

Dean for Graduate Studies and
Research