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**An analysis of resources and expenditures of Iowa State
University undergraduate students**

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Iowa State University, 1987

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An analysis of resources and expenditures of
Iowa State University undergraduate students

by

Ardys Deichmann Ulrichson

A Dissertation Submitted to the
Graduate Faculty in Partial Fulfillment of the
Requirements for the Degree of
DOCTOR OF PHILOSOPHY

Major: Family Environment

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CHAPTER I. INTRODUCTION

Purpose of the Study

The purpose of this study is to analyze the financial resources and expenditures of undergraduate students at Iowa State University and to assess the impact of economic factors on academic success. The objectives of this study will be accomplished in three ways:

- (1) The study will present financial profiles of different populations of undergraduate students at Iowa State University.
- (2) The impact of financial resources (the level of contributions from parents, financial aid, educational loans, and employment) as well as housing and grade level on the spending patterns of students will be examined.
- (3) The study will analyze the impact of economic factors on academic success.

At a time when educational costs are rising and funding for student aid programs is being cut, the need for accurate information on the actual costs of higher education is critical. This information is needed by students and families as they plan financially for their education, by university officials as they advise and recruit students, and by financial aid administrators as they develop budgets

for financial aid recipients and award financial aid resources.

The cost of a four-year college education is a major expenditure. For many families only the cost of their home exceeds the cost of educating their children. However, families do not have the advantage of a mortgage to spread those educational costs over a thirty-year period. Many families expect their children to attend college, but few plan financially for those expenditures. Most families have not anticipated the costs to the point that they have saved sufficiently for those costs. Furthermore, the increases in postsecondary costs have not followed inflation trends in this country. During the 1970s when inflation was extremely high, increases in educational costs were below the annual inflation rates. Institutions, faced with high energy and maintenance costs delayed building construction and repair work and faculty salary increases were below the inflation rate. However, in the 1980s when inflation is averaging four percent per year, college costs are rising between 8 and 12 percent per year. Institutions now must do the repair work that was delayed in the seventies and increase faculty salaries to make them more competitive (Rudzitis, 1985).

Federal financial aid programs for students have been the major way the federal government has supported

postsecondary education in the United States. However, costs are rising at a time when federal aid programs are being cut. During the seventies, financial aid allocations increased and program guidelines were liberal. In the eighties, financial aid resources have been cut and program guidelines are more restrictive; fewer students qualify for aid.

Students need information about educational costs and about the impact of their financial decisions to assist them in making those decisions.

In addition to information on educational costs, students need information on the impact of employment and housing on their academic success. This information will help students and families make choices that could reduce the educational debt burden that many students are acquiring.

Financial aid administrators need accurate and complete information on student expenditures to develop student expense budgets. The purpose of financial aid programs is to provide financial assistance to students who otherwise would not be able to attain a postsecondary education. Financial aid administrators are obligated to meet the needs of disadvantaged students and to manage public funds efficiently and effectively. Student expense budgets affect both the federal funding level of student aid to the institution as well as the award packages to individual

students. Institutions have the primary responsibility for developing student budgets. The National Student Expense Conference was held in 1977 to define student expense budgets and to develop budget guidelines. For financial aid purposes, student budgets should reflect a modest standard of living at an institution (Clark, 1977).

The results of the study will be used to advise students and parents as they plan for and manage their educational resources. The results will also be used by the Financial Aid and Student Employment Office in establishing student expenditure budgets and in developing an awarding philosophy for the administration of financial aid.

Background

Education has always been given a high priority in the American political system. Educated citizens are essential if a democracy is to succeed. Education has been viewed as a way to achieve a successful, more fulfilling life. A postsecondary degree is required in many career fields and is recognized as a means to financial rewards and social mobility. In 1984, the median income of families with a householder with four or more years of college education was \$43,170 as compared to \$26,528 for families whose wage earner had four years of high school and \$14,937 for wage earners with only an elementary education (U. S. Bureau of the Census, 1986b, p. 1).

In the United States, society's commitment to education is evidenced in several ways. There are approximately 7,000 postsecondary schools in the United States and approximately 12 million students in these institutions. Since 1960, over 600 two-year colleges have been established. Between 1970 and 1983, enrollment in postsecondary institutions increased by 126 percent (Dennis, 1986). As noted earlier, the federal government has supported postsecondary education through student financial aid programs. Federal support increased from 40 percent of every student aid dollar in 1960 to 80 percent in 1984. In 1985, 17 billion dollars was available for student aid from public and private sources (Dennis, 1986).

Historically, the federal government has supported postsecondary education through a variety of student aid programs. For many years, there has been a commitment in this country to make higher education available to financially needy students through scholarships provided by individuals, organizations, and state governments (Meade, 1972, pp. 41-46). Even during colonial times both public and private colleges were supported by government appropriations, land grants, and lotteries (Rudolph, 1962). In 1862, the federal government's Land-Grant Act (the Morrill Act) aided students more directly by providing low-cost postsecondary public institutions (Godzicki, 1975). The federally funded National Defense Act

of 1916 created the Reserve Officers Training Corps in World War I. During the economic depression of the 1930s, the Emergency Relief Administration provided work-study jobs for participating students. The Serviceman's Readjustment Act of 1944 (G.I. Bill) provided financial assistance to veterans for a postsecondary education. However, in 1946 President Truman's Commission on Higher Education conducted a major program evaluation and concluded that higher education was accessible to only a small proportion of American youth and postsecondary institutions were producing an intellectual elite. The Commission recommended that racial, ethnic, and sex discrimination barriers to higher education be eliminated. It also recommended that economic barriers be reduced by increasing the number of low- or no-tuition commuter schools such as community colleges and by offering student financial aid in the form of loans (President's Commission on Higher Education, 1947). However, it was almost twenty years later, during the 1960s when President Johnson's War on Poverty was initiated, that some of the Commission's recommendations finally became policy. In the meantime the National Defense Education Act of 1958 was passed by Congress as a reaction to the success of the Soviet space program; this legislation provided graduate fellowships to students in specific academic disciplines. At the same time and after overcoming many obstacles, Congress approved the National Defense Student Loan

program (renamed National Direct Student Loan in 1972 and Perkins Loan in 1986). This program provided low-interest loans to "high risk" (i.e., financially needy) college students (Morse, 1977).

In the mid-1960s, several student aid programs were established as part of President Lyndon Johnson's War on Poverty. The Economic Opportunity Act of 1964 established the federally funded College Work-Study program for students. The Health Professions Educational Assistance Act of 1963 and the Nurse's Training Act of 1964 provided low-interest loans to encourage students to enter health professions.

Through the Higher Education Act of 1965, the federal government developed programs providing aid to both higher education institutions and students. States and institutions received support to construct academic facilities, educational institutions, and libraries and received support to develop continuing education programs.

Title IV of the Act established need-based student aid programs. The Educational Opportunity Grant (EOG) program and the Guaranteed Student Loan (GSL) program were created under the Higher Education Act of 1965. The EOG provided grants to low-income students and the GSL provided loans with interest subsidies and generous repayment terms to students from low- and middle-income families. The Higher

Education Act of 1965 gave support to institutions and also provided equal access to higher education for all Americans.

Amendments to the Higher Education Act in 1972, 1976, 1978, and 1980 broadened federal involvement in higher education; student aid became the major way the federal government assisted higher education. In 1972, through the Basic Educational Opportunity Grant (Pell Grant), Congress established the first federal grant program awarded directly to students; the program was based solely on financial need. In 1972, the State Student Incentive Program (SSIG) which provided federal matching funds for state grants was also established. The 1972 amendments emphasized access and choice for students.

The Middle Income Student Assistance Act (MISAA) of 1978 expanded the eligibility guidelines for the Pell Grant program and eliminated income ceilings for the Guaranteed Student Loan program. Through this legislation, students from average-sized families with incomes up to the national median income became eligible for Pell Grants.

In 1981, Congress assisted upper income families by establishing the Parents Loan for Undergraduate Students (PLUS) and the Auxiliary Loans to Assist Students (renamed Supplemental Loans for Students (SLS) in 1986) programs. These programs allowed upper income families to borrow money for educational purposes at relatively low interest rates.

The Higher Education Amendment of 1986 increased the loan limits for both the PLUS and SLS programs and liberalized the eligibility criteria for the SLS program.

The expanded student aid programs created both a financial and a political crisis by the early eighties. Although the financial impact of the changes in Pell eligibility was modest, the elimination of the income ceiling for the Guaranteed Student Loan program under the Middle Income Student Assistance Act (MISSA) in 1978 had a dramatic affect on the participation level in the program. The amount borrowed through the GSL program increased from \$1.7 billion in 1977-78 to \$6.2 billion in 1980-81 (Stampen, 1984). Between 1963 and 1983, total student aid increased from 500 million to 16.1 billion dollars (in constant 1982 dollars) (Gillespie & Carlson, 1983). The Reagan Administration in the 1980s cut student aid funding as part of its program to reduce federal spending. In 1981, Congress limited Pell Grant eligibility and reinstated the income ceiling for the GSL program (Omnibus Reconciliation Act of 1981). "Overall, aid available to students from programs administered by the U. S. Department of Education declined (in constant 1980 dollars) by 21 percent" (Stampen, 1984, p. 7). An additional reduction of \$1.6 billion in student aid resulted when Social Security education benefits were eliminated in 1985. Federal aid to veterans of the

armed forces has also been phased out. Additional cuts occurred in 1986. Congressional appropriations for the 1986-87 Pell Grant program were 69 million dollars short of the funding needed based on estimates of the U. S. Department of Education. In addition to this 69 million dollar shortfall, the program was reduced 154 million dollars as a result of the cuts required by the Gramm/Rudman/Hollings legislation (Martin, 1986).

Because of the cuts in the Pell Grant program, fewer students received grants in 1986-87 than during the previous year. Furthermore, the average student award has not kept pace with inflation. "Between 1977 and 1984, the average Pell Grant increased by only 33 percent, while the rate of inflation (as measured by the Consumer Price Index) was 75 percent" (Miller & Hexter, 1985a, p. 20). As a result, more students have to borrow to attend school and the level of borrowing per student has increased. Table 1 shows how the proportions of student aid have changed from 1970 to 1985.

S1965, The Higher Education Amendment of 1986, which was signed into law by President Ronald Reagan on October 17, 1986, drastically cut funding for student aid programs. The major reductions will occur in the Guaranteed Student Loan program. Prior to the new law, the eligibility guidelines for the GSL program were much more liberal than the guidelines for campus-based aid (federal programs

Table 1. Proportion of Aid Provided through Grants, Loans and Work 1970-1985

	1970-71 ^a	1975-76 ^a	1984-85 ^b
Grants	66.0%	80.3%	44.6%
Loans	28.9	16.9	51.7
Work	5.1	2.8	3.7
	<u>100.0</u>	<u>100.0</u>	<u>100.9</u>

^aGillespie and Carlson, 1983.

^bGillespie and Quincy, 1984.

administered and awarded by institutions); under the new law, the GSL program has the same eligibility guidelines as campus-based aid programs. The new guidelines will limit the number of students eligible for the program and the amount many students can borrow. On the other hand, the maximum amounts per year and aggregate amounts for both undergraduate and graduate students have increased.

College Costs

While student aid programs have been cut in the eighties, educational costs at postsecondary institutions have been rising. College costs increased dramatically between 1963 and 1983. Real costs rose between 1963 and 1973, declined during the late seventies, and increased again in the eighties. However, in the eighties tuition and

educational costs are rising to meet higher operating costs, maintenance and repair costs, and higher faculty salaries (Rudzitis, 1985, p. 5). The real increase in costs from 1963 to 1983 averaged 4 percent at public universities, 13 percent at four-year public colleges, 19 percent at community colleges, 23 percent at private four-year colleges and 27 percent at private universities (Gillespie & Carlson, 1983, p. 18).

While educational costs were increasing, income during the period from 1963 to 1983 was also increasing. Using two measures of income, disposable personal income and median before-tax income, Gillespie and Carlson (1983) found that "between 1963 and 1983 the financial resources available to families increased by a percentage in the upper end of the 14- to 39- percent range..." (pp. 18 and 19). Real increases of 278 percent also occurred during the 1963 to 1983 time period in the area of student aid. However, the statistics are deceiving because in 1963 the amount of aid available to students was minimal (Gillespie & Carlson, 1983).

Although costs, income and aid have all increased during the 1963 to 1983 time period, it is important to note the pattern of those increases. Between 1980 and 1983, real costs increased 4 to 15 percent, real disposable personal income has remained unchanged while real median family

income dropped 5 percent and total student aid decreased about 21 percent (Gillespie & Carlson, 1983, p. 19).

In Iowa, college costs rose approximately 5.6 percent in 1986-87. These rate increases compare with the national average of 5 to 6 percent. However, these increases are considerably lower than in the past four years when student costs grew at an annual rate of 7 to 10 percent. Tuition, room and board at Iowa schools rose 12.4 percent from 1980-81 to 1981-82 and by 12.7 percent from 1982-83 to 1983-84 (Des Moines Sunday Register, March 2, 1986, p. 1, col. 6). At Iowa State University and the University of Iowa, resident tuition will increase twelve percent in the 1987-88 academic year from \$1,390 in 1986-87 to \$1,564; nonresident tuition will increase twenty percent from \$4,080 in 1986-87 to \$4,900.

How Do Families Pay for College?

Families meet educational costs in a variety of ways. Some families contribute a percentage of their earnings (funds available for discretionary spending), use savings or principal/earnings from previously established investment programs, borrow against their assets, take out a second mortgage, increase parental earnings, borrow from private lenders, borrow through federal educational loan programs (GSL, PLUS, SLS), and/or rely on student earnings. However, for many families these resources are not available. As noted earlier, student aid programs have been established to

assist families who are unable to finance all or part of their children's (or their own) postsecondary education. But, according to a study done by Scott E. Miller and Holly Hexter (1985a), even families of financial aid recipients are paying the majority of college costs through savings, work, or later repayments of loans. The authors used data gathered through the 1983-84 Student Aid Recipient Survey conducted jointly by the National Institute of Independent Colleges and Universities and by the National Association of State Universities and Land-Grant Colleges of the American Association of State Colleges and Universities and by the American Association of Community and Junior Colleges (NIICU and NASULGC/AASCU/AACJC).

Low-income families, in particular, do not have the resources listed above available to them, but they are expected to contribute over half of the educational costs of their children. In the report by Miller and Hexter (1985a), low-income families are defined as families with adjusted gross incomes of less than \$15,000 per year. The average poverty threshold for a family of four in 1984 was \$10,609 (U. S. Bureau of the Census, 1986a, p. 1).¹ In this report, the "real cost to the family" of college attendance includes

¹Only full-time students who were dependent on their families for financial support were surveyed.

earnings by the student, funds borrowed by the family and/or the student as well as funds provided by the parents. Only scholarships and grants are not included in "real cost to the family." According to Miller and Hexter (1985a), when considering "real costs," "low-income families are expected to pay for at least one-half of the costs of college" (p. 4). However, these families do not have the personal resources identified above available to them. Low-income families struggle to meet the expenses for the basic necessities; no discretionary income remains for college expenses. Furthermore, credit is not available to many of these families; they have few assets to use as collateral for commercial loans. Limited time and/or job skills prevent them from increasing earnings. Low-income students also have difficulty finding employment. Minority students are especially affected since minority students are over-represented among low-income students: in 1984, the poverty rate for blacks was 33.8 percent, about three times the rate of whites at 11.5 percent (U. S. Bureau of the Census, 1986a, p. 1). The highest unemployment rates in the nation are reported for nonwhite male teenagers.

According to Miller and Hexter (1985a), federal student aid programs (Pell Grants, Supplemental Educational Opportunity Grants (SEOG), National Direct Student Loans (NDSL), College Work-Study (CWS), and Guaranteed Student

Loans (GSL)) provide the foundation for meeting college costs for low-income students. More low-income students receive support from the five federal programs than from state or college programs (Miller & Hexter, 1985a). Since costs are higher at independent institutions, the proportion of low-income students receiving assistance from the five federal programs is greater at independent institutions than at public institutions (Table 2).

Table 2. Proportion of Low-Income Aid Recipients Receiving Federal Aid^a

Aid Program	Proportion of Public College Recipients ^a	Proportion of Independent College Recipients ^b
Pell	83%	85%
GSL	27	61
SEOG	24	30
NDSL	24	31
CWS	30	41

^aMiller & Hexter, 1985a.

^bSource: 1983-84 National Institute of Independent Colleges and Universities Student Aid Recipient Survey.

Even though the Pell Grant program is targeted to low-income students, in 1983-84 approximately one-sixth of low-income aid recipients did not receive Pell Grants (Miller & Hexter, 1985a, p. 12). For those students receiving Pell

Grants, the amount of the grant varies (Table 3).

Although few Pell Grant recipients receive maximum Pell Grants, the majority will receive more than \$1,000 in Pell funds. However, many low-income Pell Grant recipients receive no other form of need-based aid. "In the 1983-84

Table 3. Size of Pell Awards for Low-Income Students

Size of Pell Grant	Percentage of Public College Pell Recipients ^a	Percentage of Independent College Pell Recipients ^b
\$1,500 - 1,800	16%	55%
\$1,000 - 1,499	55	16
\$500 - 999	24	11
\$200 - \$499 ^c	5	18
	100%	100%

^aSource: 1983-84 NASULGC/AASCU/AACJC Student Aid Recipient Survey.

^bSource: 1983-84 NIICU Student Aid Recipient Survey.

^cThe minimum Pell Grant is \$200.

school year, over 30,000 low-income students attending public college who received Pell Grants received no other form of need-based state, college or federal aid. This represents about 19 percent of low-income Pell Grant recipients at public colleges" and about 4 percent at

independent colleges (Miller & Hexter, 1985a, p. 14). Of these students, one in six receives additional assistance through merit-based scholarships; 20 percent attend low-cost community colleges where additional financial assistance is not needed.

Only about half of all low-income aid recipients receive funding from the federal campus-based aid programs (SEOG, NDSL, CWS) (Miller & Hexter, 1985a, p. 15). In addition, low-income students are borrowing to meet educational costs through the GSL program: three out of every five low-income students at independent colleges are borrowing an average of \$2,250 annually and one out of four low-income students at public institutions are borrowing an average of \$1,850 annually (Miller & Hexter, 1985a).

According to the 1983-84 NASULGC/AASCU/AACJC Student Aid Recipient Survey and the 1983-84 NIICU Student aid Recipient Survey, low-income students are assisted through a combination of Pell Grants, federal campus-based aid (SEOG/Perkins loans), state grants and family contribution, but 20 percent of low-income students (families with incomes between 0 and \$7,499) at state institutions and 30 percent at independent colleges fall short of meeting the full cost of college (Miller & Hexter, 1985a, p. 24). For students at public colleges, the gap is 15 percent while it is 30 percent at independent colleges. According to Miller and

Hexter (1985a), the students identified here are not using the GSL to fill the gap. However, these families are still paying at least half the cost of college for the full-time dependent students. Families with incomes below \$7,500 bear about one third (65 percent) of the cost when GSL's are part of their aid packages at public institutions. The percentage rises to 70 percent at independent institutions. Real costs for the family increase as family income rises. Families of students attending public institutions with incomes between \$7,500 and \$15,000 bear over 50 percent of the real cost when they do not have a GSL and nearly 70 percent when a GSL is included. These percentages increase to nearly 60 percent and over 75 percent respectively at independent institutions (Miller & Hexter, 1985a, pp. 25-28).

Although student aid gives low-income families access to college, the families are still providing a portion of the "real costs" of college. Furthermore, in spite of student aid programs, low-income students are still under-represented in the college population. While approximately 17 percent of the U. S. population in 1983 earned less than \$10,000 annually, only about 8 percent of college students enrolled full time were from families earning less than \$10,000 (U. S. Bureau of the Census, After-Tax Money Income Estimates of Households: 1983 and Applied Systems

Institute, unpublished data, 1985 in Miller & Hexter, 1985a, p. 3).

Low-income families are not receiving a free college education. They are using their own resources along with aid assistance to attain a postsecondary education.

Middle-income families, too, are bearing most of the "real costs" of their children's postsecondary education. In a study of middle-income families, Miller and Hexter (1985b) found that most middle-income families pay at least two-thirds of the real costs of college. The authors define middle-income families as those with adjusted gross incomes of between \$15,000 and \$35,000 per year. In 1983, the median income for a family of four in the United States was \$25,000. However, many middle-income families have little discretionary income available for college costs. According to Miller and Hexter (1985b), a family of four earning \$15,000 per year with a low standard of living has only about \$141 in discretionary income per year. A family of four earning \$25,000 with an intermediate standard of living has no discretionary income; at \$35,000 and an intermediate standard of living a family may have about \$7,500 available for discretionary spending.

Middle-income students are more likely to receive self-help types of aid than grants. According to Miller and Hexter's report (1985b), about half of the middle-income aid

families receive Pell Grants and most of these families have incomes below \$25,000. In 1983-84, Pell Grants awarded to middle-income students averaged less than \$1,000, considerably lower than the \$1,800 maximum amount.

The statistics show that middle-income families borrow more than low-income families. In 1983-84, 55 percent of middle-income families borrowed on the GSL program and the average amount borrowed was \$2,500. For one in eight middle-income families, the Guaranteed Student Loan was their only source of financial aid. Since loans are self-help and thus part of the "real costs" families bear, these families are responsible for 100 percent of their college costs.

The amount of aid middle-income students receive from campus-based financial aid programs (SEOG, Perkins loans, CWS) varies among institutions. Campus-based aid programs are administered by the institutions' financial aid offices and are need-based. The amount of financial need a student has varies based on the cost of the institution. Miller and Hexter (1985b) found that 54 percent of all middle-income aid recipients receive assistance from one of the campus-based programs.

In general, middle-income families are using their own resources to pay for college. Middle-income families pay at least two-thirds or more of the "real costs" of college.

Students from families whose incomes exceed \$25,000 are less likely to receive aid. Approximately three-fourths of middle-income aid recipients at independent colleges and one-half at public colleges receive GSLs.

The Reauthorization Bill signed by President Ronald Reagan on October 18, 1986 limits financial aid available to middle income families even more. Although the amounts available per student in the Pell and GSL programs may increase, the guidelines for eligibility are stricter and fewer students from middle-income families will qualify. Many families who relied on Guaranteed Student Loans will no longer have that program available to them.

Consumer Information and Decisions

As a result of the increases in costs for a higher education plus the reductions in funding for financial aid programs, students and their families need information about costs and financial assistance to make informed consumer decisions about the educational choices available to them. In order to plan financially for educational expenditures, families need to know what costs to anticipate. Information about the total costs at an institution plus a breakdown of those costs allows families to compare institutions and select programs that will give the maximum return on their investment. Students and families need to know the fixed costs as well as the flexible costs.

Families fund college education from past income (savings), current income (discretionary earnings), and future income (loans). However, many families are not saving for their children's educations. A study sponsored by the National Institute of Independent Colleges and Universities and the Teagle Foundation found that only 52 percent of those families with incomes between \$20,000 and \$30,000 are saving for college. And they are saving only an average of \$466 per year which will not meet the \$10,000 they expect to save by the time their children begin college (Miller & Hexter, 1985b, p. 30). The 1983 survey of high school seniors and their parents conducted by the U.S. Department of Education, National Center for Education Statistics Longitudinal Studies Branch, found that approximately two-fifths of families of college students had saved for college, but the median amount saved was \$2,500. One-fourth of those who did save began saving when their children were in high school (Miller & Hexter, 1985b, p. 30).

Since families are not saving for college and college costs are rising, it is likely that more students will be borrowing and larger amounts will be borrowed. According to a 1983 survey, "American Attitudes Toward Higher Education," Americans with incomes between \$15,000 and \$25,000 believe they can afford college only if they have assistance from

low-interest loans or grants (Miller & Hexter, 1985b). Currently, 56 percent of middle-income aid recipients borrow through the GSL program (Miller & Hexter, 1985b, p. 19). Three-fifths of low-income undergraduate students at independent colleges and one-quarter at public institutions are borrowing annually on the GSL program (Miller & Hexter, 1985a, p. 17). Today, loans make up a larger proportion of aid than grants. In 1970-71, 66 percent of the aid received by all students was in the form of grants and 25 percent in loans. In 1975-76, the proportion of grants was 80 percent with loans making up 17 percent of the total aid (Gillespie & Carlson, 1983, p. 12). Loans comprised 52 percent of aid awarded in 1984-85 with grants providing 45 percent of all aid (Gillespie & Quincy, 1984). In 1983, over 2 million students borrowed more than 6 billion dollars in Guaranteed Student Loans; 845,000 students borrowed under the NDSL program, 95,000 from PLUS, and 23,000 from HEAL (Dennis, 1986, p. 15).

As borrowing increases, students and families need to be informed of the guidelines for manageable debt and how to calculate a manageable educational debt level. Students must realize that the amount borrowed for educational purposes should be related to their expected earnings after graduation. They need to be aware that their educational debt burden will decrease their future flexibility and delay

financial goals. Families must look for other funding options which could limit or reduce their debt burden.

The availability of employment during the academic year and its impact on a student's academic achievement is part of the consumer information needed by students and families. Living expenses can vary greatly in a community. The cost of various types of housing and their impact on academic performance and satisfaction is another example of needed information to assist families in making educational decisions. The importance of money management, record keeping and making wise consumer decisions are part of the information which can help students and families maximize their educational resources. This information is also needed by university officials as they advise and recruit students and by financial aid administrators as they develop budgets for financial aid recipients.

CHAPTER II. THEORETICAL BACKGROUND

The purpose of this study is to examine the impact of economic factors on the academic success of undergraduate students at Iowa State University. The concepts of both microeconomic theory and the exchange theory are used in the development of the conceptual framework for this study. In this section, the major concepts of the study are defined, their historical development is presented and their application to the current study is described.

Microeconomic Theory

Many definitions of economics limit it to the study of material goods and the market place. Rees (1968) defines economics as "...the social science that deals with the ways in which men and societies seek to satisfy their material needs and desires" (p. 624). Pigou (1962) described economic welfare as "that part of social welfare that can be brought directly or indirectly into relation with the measuring rod of money" (p. 11). Both Robbins (1962) and Rees (1968) described economics as the allocation of scarce resources to meet competing uses. However, according to Becker (1979), the economic approach is not restricted to material goods and wants nor to the market sector. Becker (1979) contends that the economic approach is a valuable framework for understanding all human behavior. According

to Becker (1979) "all human behavior can be viewed as involving participants who maximize their utility from a stable set of preferences and accumulate an optimal amount of information and other inputs in a variety of markets" (p. 20).

Based on Becker's broader definition of the economic approach, microeconomic theory is used as the framework for this study. Microeconomic theory explains the economic behavior of individual units such as consumers, firms, employers (Mansfield, 1982). Students and their families have limited resources and must make decisions about alternative uses for those resources. It is assumed that students and their families want to maximize the utility of their resources. Information is needed by students and their families to make informed decisions about the choices available to them. The microeconomic concepts used in the theoretical development of this study are described in this section.

Human wants

Human wants are "the things, services, goods and circumstances that people desire" (Mansfield, 1982, p. 9). In this study, it is assumed that students want a post-secondary education, they want to succeed academically, and they want to maximize their financial resources given their constraints.

Consumption

Consumption is the process of gaining utility from a good or service. In some cases the good or service is "used up" or expended; in other cases, utility is gained from use but the good is not "destroyed." Adam Smith (1776/1937) limited consumption to goods produced. According to his views "Consumption is the sole end and purpose of all production" (p. 620). Davis (1945) extended the definition of consumption to include goods and services. According to his definition "Consumption includes having available as well as using free goods of nature and public goods that are utilized without charge and self-service and mutual service, in addition to purchased commodities and services and the use of semidurable and durable goods owned or rented" (p. 7). Consumption satisfies needs or wants.

Resources

Resources are the skills, intelligence, education, goods, services, money income, money stock needed to satisfy wants. In this study, financial resources available to achieve a post-secondary education are examined. Human resources, skills, intelligence, education are not measured directly but affect a student's ability to succeed academically, to obtain employment, etc. Resources are considered scarce commodities; alternative uses compete for resources. Time, too, is considered a resource or scarce

commodity (Becker, 1965, 1981; Linder, 1970). According to Becker (1979), prices in the market sector and shadow imputed prices in the nonmarket sector measure the opportunity costs of using scarce resources. If time is a limited resource, the individual will use time to produce various commodities or activities to maximize his/her utility (Becker, 1979, p. 10). Students are using their time to pursue a degree rather than earning money by working full-time. Furthermore, with limited time, students need to make choices about alternative uses for their time; students need to make decisions about the number of credits to carry, number of hours to work, time for recreation, etc., in order to maximize their utility.

Constraints

Constraints are the limitations on the amounts of inputs or resources that are available for production (Mansfield, 1982, p. 225). When resources are scarce various uses compete for limited resources. Market prices or shadow imputed prices in the nonmarket sector rise when resource scarcity increases. Price measures the opportunity cost of using a resource. In computing the cost of their education, students need to consider the earnings foregone while the student is in school.

Utility

Utility is the satisfaction the individual receives from consumption. Consuming units derive satisfaction from the service or commodities consumed during a given period of time (Gould and Ferguson, 1980). Reid (1934) and Becker (1965) extended microeconomic theory to households and individuals. According to Becker, individuals gain utility from many activities, such as eating, recreation, sleeping, work, and not just from production or consumption. Within constraints, various commodities or services can be substituted for each other to produce equal utility. Economists describe this combination and substitution of commodities as indifference curves. Although the combination of commodities changes along the indifference curve, at any point on a given indifference curve, the individual's utility or satisfaction is constant. However, the individual's constraints determine the level of the indifference curve. In effect, constraints determine the level which may be attained. Individuals make decisions about their consumption to maximize their utility within constraints. For example, students must make decisions about their level of living, use of time, number of credits carried per semester, and employment based on their individual constraints.

Opportunity costs

Opportunity costs measure the value of a resource if used in an alternate way (Mansfield, 1982, p. 178). Resources used for one purpose are not available for other uses. Opportunity costs are the estimated value of returns foregone (Fitzsimmons & Williams, 1973). The alternative uses of a resource may be different in the long run than in the short run. An opportunity cost for a student is the income foregone while the individual is a student. The investment earnings given up on the funds used for an education is another example of opportunity costs for students and their families.

Tastes and preferences

Tastes and preferences are assumed to be stable in microeconomic theory.

Maximizing utility

Maximizing utility is another assumption of microeconomic behavior. It is assumed that individuals make choices to attain the most satisfaction from a given set of resources.

Standard of living, level of living, norms, tastes and preferences

In making decisions about alternative uses of resources, individuals have measures by which to make those

decisions. The standard of living is the scale or plan that is considered necessary. All individuals have standards, but they vary among individuals. Devine (1924) describes the standard of living as "All those things one insists upon having.... Each individual has his own standard, determining every choice he makes" (p. 1). Standards do not measure the ideal or the perfect situation. Kyrk (1953) notes that "There is a standard other than the ideal standard. There is a scale of preference, a code or plan for material living that satisfies our sense of the necessary, the decent, the tolerable, although it does not represent our ideal" (p. 374).

Davis (1945) distinguishes between what is needed and what is desired when he introduces the four concepts: consumption, living, standard and level. "The chief distinctions are to be drawn between consumption and living, and between level and standard. The basic concepts are four: (1) consumption level, (2) consumption standard, (3) level or plane of living, and (4) standard of living in the strict sense.... Consumption means the commodities, their uses, and services consumed; living includes consumption and much more: working conditions, cushions against major and minor shocks, freedoms of various kinds, and what I tentatively call "atmosphere." The level of consumption or living, as I see it, is that actually experienced, enjoyed

or suffered by the individual or group: the standard of consumption or living is the level that is urgently desired and striven for in respect to quantities, qualities, and proportions of the various goods consumed or wanted for consumption" (Davis, 1945, pp. 2-3). According to Davis, the level of living is what is actually experienced; the standard of living is what the individual strives to achieve.

Several methods for measuring a family's level of living have been used in past research. One method measures a family's level of living by the income it receives or by its wealth position (Dusenberry, 1949; Friedman, 1957; Ando & Modigliani, 1963; Moon, 1977; Morgan, Dickinson, Dickinson, Benus & Duncan, 1974; Garfinkel & Haveman, 1977). Another approach uses the level of expenditures as an indicator of level of living. As income rises, the proportion spent on food declines (Engel's Law). Therefore, the proportion of income spent on food and necessities is a good measure of a family's level of living. Roundtree (1899) developed a budget method to measure level of living. A family's income is compared with the costs of a basket of goods, the ideal mix of goods and services necessary for the family's welfare. Based on this income/expenditure ratio, the family's level of living is determined.

Fergusson, Horwood and Beautrais (1981) theorize that a

measure based on a family's ownership and consumption pattern is a better indicator of material well-being than economic inputs and processes, which they call economic well-being. These authors distinguish between economic and material well-being as follows: "Family economic well-being describes the level of financial input received by the family and the transactions that are (or may be) performed on this input; family material well-being refers (or should refer) to the mix of goods, commodities and services to which family members actually have access" (Fergusson et al., 1981, p. 716). In their study, family material well-being is measured by family ownership (such things as home, car, television, refrigerator, telephone, radio, etc.) and on consumption patterns (the level of family economizing behavior).

Fergusson et al. (1981) conclude that measuring family ownership and consumption provides a better theoretical base for measuring a family's level of living than the approaches described earlier. However, these authors recognize that several factors could bias these measures. For example, families vary in their response to financial stress; for some families minor economic problems lead to major economizing measures while for other families complete economic ruin is contemplated with little concern. Bankruptcy studies indicate little remorse on the part of

some bankrupts (Brimmer, 1981; Sullivan, 1982). In addition, family aspirations and preferences dictate patterns of ownership and consumption.

Many factors other than income, expenditures, budget, ownership and economizing enter into the broader concept of well-being. According to Davis (1945), the plane of living is a broader concept which includes the quality of life, a combination of consumption, working conditions, atmosphere, freedoms, possessions and the balance and harmony among all these conditions. In his studies at the macro level, Liu (1977) examines quality of life which he defines as "a set of wants, the satisfaction of which makes people happy. It reflects a combination of the subjective feelings and objective status of the 'well-being' of people and the environment in which they live at a particular point in time" (Liu, 1977, p. 226). Liu examines the quality of life in the United States by state and he concludes that "income beyond a certain level bears little ascertainable relationship to the quality of life. In fact, the locational decisions of heads of households have a tendency to be associated more with the quality of life ingredients than with income or employment, factors which traditionally have dominated all others in migration studies" (Liu, 1977, p. 227).

Davis (1945) also describes a deferred standard of

living which young people in high school or college, among others, are likely to accept. According to Davis, groups accepting a deferred standard of living "all develop more or less articulate ideas as to the kind of living they urgently want when a stage looked forward to is reached. Though recognized as a standard for deferred application, this figures in the atmosphere components of the current plane and standard of living. Individual and group morals depend heavily on the character of deferred standards. If these seem reasonably attainable in the not too distant future, current standards will be readjusted so that the current living content will be tolerable even if it is grossly inferior to former standards in respect to consumption, working conditions, and freedoms" (p. 12).

Although standards are set by individuals and families, within groups standards may be very similar. Devine (1924) states that "Each locality and each nation has its standard, produced by the interplay of an infinite number of economic, social and psychic forces" (p. 1). Culture influences the wants and the standards people set. According to Kyrk (1953), "Our wants are culture products and represent culture traits. The individual regards these as in part imposed from without and in a sense compelling him to live in a particular way" (p. 376). Cultural norms are rules or standards for a particular society; cultural norms represent

what should be achieved or performed by an individual or family (Williams, 1970; Morris & Winter, 1978).

In microeconomic theory, individuals make decisions and choices based on tastes and preferences. When constraints are present, individuals make choices based on their preferences.

This information on level of living, standard of living, plane of living, quality of life, norms, tastes and preferences is presented to explain how students and their families make decisions about expenditures for their education. However, this study deals primarily with the narrower definition of level of living, the income, expenditures and goods and services to which the individual actually has access. It is assumed that most students have a deferred standard of living.

Information

Individuals need information to maximize their utility. The theory of rational or optimal accumulation of costly information implies that individuals will invest more in gathering information for major decisions rather than minor ones (Stigler, 1961). According to Becker (1979), "The assumption that information is often seriously incomplete because it is costly to acquire is used in the economic approach to explain the same kind of behavior that is explained by irrational or volatile behavior, or traditional

behavior, or 'nonrational' behavior in other discussions (p. 11). In many cases, information needed by students and their families is not available. A mandate to provide information on financial aid programs to families who may be eligible is part of the federal law (the 1976 Amendments to the Higher Education Act commonly called the Student Consumer Information Services regulation).

Exchange Theory

The exchange theory which is very similar to microeconomic theory is also used in the development of the conceptual framework for this study. The concepts of the exchange theory have been developed through the work of Thibaut and Kelley (1959), Homans (1961), Blau (1964), and Levi-Strauss (1969). Other contributors to this theory are Simpson (1972), Ekeh (1974), Heath (1976), Chadwick-Jones (1976) and Nye (1979).

The general principle of the exchange theory is that

...humans avoid costly behavior and seek rewarding statuses, relationships, interactions, and feeling states to the end that profits are maximized. Of course, in seeking rewards they voluntarily accept some costs; likewise in avoiding costs, some rewards are foregone, but the person, groups, or organization will choose the best outcome available, based on his/her/its perception of rewards and costs (Nye, 1979, p. 2).

Rewards

Rewards are the "...pleasures, satisfactions, and gratifications the person enjoys" (Thibaut and Kelley, 1959, p. 12).

Costs

Costs are statuses, relationships, interactions or feelings disliked by a person. Costs may be punishments (persecution, distrust, rejection, powerlessness) or rewards foregone (Thibaut & Kelley, 1959). Another type of cost described by Nye (1979) is uncertainty or ambiguity. This occurs when an individual does not know the extent of rewards or costs in an alternative situation. Uncertainty creates anxiety and may retain a person in a status when he/she could move into a new situation with greater rewards.

Profit or outcome

Profit is the return after the rewards and costs of a given situation have been determined given alternative choices. "The most profitable outcome is the one that provides the best relationship of rewards to costs" (Nye, 1979, p. 3). This may mean that an individual is maximizing profits or minimizing losses.

Comparison level

Individuals evaluate rewards and costs based on their standards. Thibaut and Kelley (1959) define the comparison level as the "...standard by which the person evaluates the rewards and costs of a given relationship in terms of what he feels he deserves" (p. 21). Furthermore, the outcomes of others in similar situations affect an individual's comparison level.

Norms

Norms influence an individual's comparison level. For example, a teacher compares him/herself to other teachers with similar experiences.

Level of alternatives

The level of alternatives also is part of the evaluation to determine the rewards and costs of a situation/relationship. The level of alternatives is defined as "the lowest level of outcomes a member will accept in the light of alternative opportunities" (Thibaut & Kelley, 1959, p. 21). The level of one's outcomes in a given situation depends on the alternatives available to that person. Whenever an alternative situation offers a better reward-cost outcome, the individual will choose the alternative situation. The profits of the alternative situation must be great enough to overcome the uncertainty

of the costs in the new situation.

Whenever outcomes are above an individual's comparison level, the individual will not seek alternatives. If they fall below the comparison level, the individual will look for alternatives. However, it is assumed that the rewards of a new situation are great enough to cover the costs of moving to the alternative (Nye, 1979, p. 3).

Nye (1979) points out that individuals consider future outcomes. "Humans can endure relationships, positions, or occupations that have poor present outcomes if they provide a basis for a profitable future..." (p. 3).

Choice

Individuals must make choices to reduce costs and maximize profits. Choice is a major concept of exchange theory. In fact, Heath (1976) states "...their general domain is that of choice; exchange is merely part of the domain" (p. 176). "Exchanges always involve choices, but choices may not necessarily involve exchanges" (Nye, 1979, p. 4).

Grants Economy

The exchange theory described above involves a two-way transfer of economic goods and/or noneconomic goods (i.e., respect, status, prestige). According to the exchange theory, there is always a two-way transfer or exchange

between two people. However, Boulding (1973) defines a one-way transfer called a grant. The grants economy may describe more accurately the family action with regard to providing education for children. According to Boulding (1973), a grant is a one-way transfer of resources from a donor to a recipient with no contractual reciprocal agreement. In some cases, grants may appear to be deferred exchanges or serial reciprocity (i.e., the parent educates the child with the expectation that the child will care for the parent in old age) (Bivens, 1979).

Grants may be motivated by benevolence or love at one end of the spectrum or by fear or threat at the other end. Usually there is a mixture of both love and fear, according to Boulding (1971). For example, parents support their children because they love them, but they also are afraid of what neighbors will say and authorities will do if they neglect their children. Grants may occur within the family, intrafamily or in the public or private sector.

The objective of a grant "may be to reallocate resources in a direction the grantor finds desirable" (Boulding, 1971, p. 10). For example, a parent may provide an education for their children to direct the activity of their children. The public and private sector may use grants to change the distribution of income. Depending on the definition used for the grants economy, as much as fifty

percent of the U. S. economy may be organized by grants rather than exchanges (Boulding, 1971).

In applying the economic approach to families, Becker (1981) talks about the altruistic nature of families when he describes the transfers of parents to their children. Parents invest in their children because it is efficient; contributions from parents to children are productive because children have longer lifetimes and have not accumulated as much human capital as their parents (Becker, 1981, p. 197). Bivens (1979) points out that young people today are economically dependent on their parents for a longer period of time than previous generations were because of the increased minimum work age legislation and the need for increased education and training. Education also has become more costly.

When parents provide the funding for their children's education, they are providing a grant. However, as noted earlier, many families are relying more on the public grants economy to educate their children. As transfers from the government for education increased in the seventies, transfers from families for their children's education decreased.

The Conceptual Model

Based on the theoretical background presented in this chapter, a conceptual model for this study has been

developed (Figure 1).

Based on their age, marital status, and socioeconomic background, students use the resources available to them to maximize their utility or satisfaction. Although students are constrained by limited resources, they are able to make choices about alternative uses of the resources available to them. Based on theory, it is assumed that the student will choose the best combination of their resources to maximize profit and minimize costs. Decisions on level of living while a student are based on the tastes and preferences of individual students which are influenced by the cultural norms for university students.

It is assumed that students have accepted a deferred standard of living (or rewards foregone based on the expectation of future profits). In making choices, students must also consider future costs that are currently being incurred (i.e., the debt burden of educational loans) and opportunity costs (i.e., the lost income from deferred employment, the lost earnings from investment of funds used for educational costs). It is also assumed that students are striving for academic success and that they want the best possible level of living (financial situation) given their constraints while they are in school.

With the constraints of their resources and academic environment, choices are available to students which may

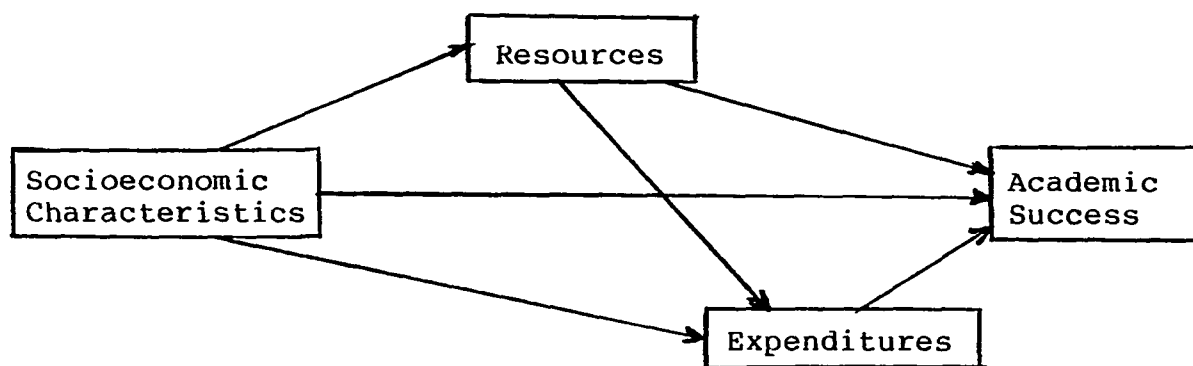


Figure 1. Conceptual model

affect their academic success. In the following chapter, relevant studies will be examined to decide which factors influence academic success. These variables will then be controlled when testing the models for this study.

CHAPTER III. LITERATURE REVIEW

Although funding a postsecondary education for their children is a major financial investment for many families, there is little information on the impact of the resources and spending behavior of students on their academic success. When making decisions about a postsecondary education, families are faced with many consumer decisions, but little information is available to assist students/families as they make those decisions. Furthermore, aid administrators lack information on the impact of their aid dollars on academic success and persistence. This chapter reviews the literature relative to information and knowledge about resources and costs, how students/families are financing postsecondary education, the relationship between resources and spending patterns, the impact of resources on enrollment, persistence, cumulative grade point average, the impact of loans and work on academic success and the potential impact of financial stress on the student.

Information and Knowledge about Costs/Resources

Consumers make decisions to maximize utility. Information is needed to make informed decisions. Students and their families are consumers of education and need information about resources and costs to maximize their educational dollars.

In a study published in 1977, the College Scholarship Service reported that high school students were not well-informed about educational costs and financial resources (College Scholarship Service, 1977). Pugh (1984) found that students did not estimate their educational costs accurately: students at public institutions estimated higher costs than the institutional budgets while students at private institutions estimated lower costs.

Studies also show that actual costs reported by students are greater than institutional budgets. In a study on the financial needs of married students at Kansas University in the spring of 1976, Bergen, Bergen and Meisner (1977) found that the actual expenditures of married students were greater than the university's financial aid budgets for married students. Hyde (1980) found that the actual commuting costs of students at both community colleges and four-year institutions were greater than the estimated transportation costs at institutions. In his study, commuting costs included both the cost of transportation and the opportunity cost of the time spent commuting. However, students and families need to know all their educational costs.

Access to information about educational resources has been a concern for many years. In order to apply for scholarships, grants, and low-interest educational loans,

students need to know about available resources. In the 1970s, there was general concern that students lacked knowledge about financial aid programs and that students and their families could be vulnerable to unscrupulous marketing practices. Several studies concluded that information about costs and financial aid programs was needed (College Scholarship Service Student Advisory Committee, 1976; New Jersey Commission on Financing Post-secondary Education, 1976; Pennsylvania Higher Education Assistance Agency, 1976). In 1976, Congress required institutions receiving Title IV funds to provide basic financial aid information to students; funds were also provided to states to establish Education Information Centers. However, in the early eighties, studies revealed that a lack of information on financial aid programs still existed (El-Khawas, 1977; National Center for Education Statistics, 1983). Furthermore, the highest percentage of students with no knowledge were from the lower socio-economic groups (National Center for Education Statistics, 1983). Higgins (1984), however, concluded that the lack of knowledge may really reflect a lack of interest or a lack of skills to seek information about financial aid and therefore "the vast majority are not penalized because of the ignorance of financial aid programs" (p. 24).

Minority students, in particular, need information on

aid available and on ways to fund their educations (Burke, 1975; Fawcett and Campbell, 1970; Henry, 1974). In the mid-seventies it was apparent that postsecondary institutions were not enrolling adequate numbers of minority students (Boyd, 1973; Van Dyne, 1974; Green, 1975; Newman, 1971). There are many barriers for minority students such as poor academic preparation, standardized tests, limited financial resources, lack of motivation, geographic location (Crossland, 1971; Laosa, 1973; Martyn, 1966). However, Penn (1975) found that lack of financial resources could stand alone as a barrier.

How Students/Families Finance College

Research indicates that families are not meeting the costs of their children's education. Parents are contributing less than their expected contributions (Boyd, Fenske, & Maxey, 1978; Miller & Hexter, 1985a, 1985b). As reported earlier, Miller and Hexter (1985a) found that low-income families eligible for financial aid are expected to contribute at least half of their students' education (self-help is considered part of the real cost to the family). But low-income families have few discretionary funds left after meeting their living costs. Middle-income families eligible for financial aid are expected to contribute approximately two-thirds of the real cost of college (Miller & Hexter, 1985b), but it is unlikely the

parents of these students are able to contribute that much. Even the parents of "no need" students who are expected to contribute 100 percent of the students's educational costs are not doing so (Schonhart, 1977; Boyd & Fenske, 1976). In fact, in a study of 1,000 high academic potential students and 1,000 average academic potential students conducted by Boyd, Fenske and Maxey (1978), the typical parent only provides about 11.9 percent of the total resources needed for college. Parents of high ability women provided the most and in all categories after controlling for income, parents of high ability students contributed more than parents of average ability students. Students were meeting college costs using a combination of resources. Schonhart (1977) found that 55 percent of the financing of "no need" freshmen at Fredonia came from their parents and the remainder from a combination of other sources (student resources, 8%; student earnings during school, 2%; Guaranteed Student Loan, 5%; private scholarships, 4%; tuition assistance programs, 19%; other sources, 5%).

Through the years there has been a shift in philosophy regarding the financing of a college education. In the fifties and sixties, parents were willing to sacrifice to provide a post-secondary education for their children. However, as financial aid programs became more available and accessible in the 1970s, families relied more on aid

programs and less on their own resources. Many families became unwilling to make the sacrifices to assist their children in financing their education. Boyd, Fenske and Maxey (1978) studied 1,000 Illinois students receiving Illinois State Scholarship Commission scholarships and 1,000 Illinois students receiving grants during the 1967-68, 1970-71, 1973-74 and 1976-77 academic years. Students at both public and private institutions were surveyed. They found that over the 9-year period grant funds showed the most significant increase and loans became a smaller part of the total aid package. There was an increase in academic year earnings as a portion of resources with grant recipients working more than scholarship recipients. However, scholarship recipients earned more during the summer months than grant recipients. As mentioned earlier, parents provided less than the expected contributions and the typical parent in this study provided about 11.9 percent of the student's total resources. The authors concluded that there had been a dramatic change over the period in the way students were financing their education and they attributed the change primarily to the federal Basic Educational Opportunity Grant (BEOG) program which became available to all students in 1974-75.

However, with the new Reauthorization Bill signed into law on October 17, 1986, federal aid programs will be

limited to fewer families and less funds will be available to those who are eligible. Many students and their families will once again have to use their own resources to finance a postsecondary education.

Resources

Financial factors have a major influence on who attends postsecondary institutions. Family income and/or socioeconomic status are the strongest predictors of attending a postsecondary institution (Featherman & Hauser, 1978; Thomas, 1979; Jencks, 1979). Other contributing factors are parental encouragement, motivation, ambition, high school program, sex and race. Achievement and test scores also have an impact. However, test scores are related to socioeconomic status. Research shows that there is a positive correlation between socioeconomic status and test scores (Doermann, 1978; College Entrance Examination Board, 1982; Educational Testing Service, 1980).

Information on available financial assistance can have an impact on a student's enrollment plans. In a study of 767 financial aid recipients from several different institutions, Creamer (1985) found that the amount of financial assistance and changes in financial assistance were significantly associated with enrollment plans. The type of aid, however, (loans versus grants) did not have a significant relationship with enrollment plans. These

findings agree with the results of a study conducted by Sanford (1978). He found that the type or amount of financial aid a student received as an undergraduate had no impact on their enrollment in a graduate or professional program. Only students who had received scholarships as undergraduate students were more likely to continue their education.

In a study designed to gather information on the impact of Tuition Assistance Grants in Virginia, Schwartz and Chronister (1978) concluded that students from lower-income families would not have attended the college they were enrolled in without the grant. Beal and Noel (1980) found that financial need was the most frequently stated cause of attrition in the sophomore year.

Expenditures

Other studies have found a difference in costs as well as a difference in resources based on type of student. Jackson and Pogue (1983) found that expenditures for men and women students are substantially different and also found that different grade levels have different expenses. In a study of 29,000 full-time undergraduate students from three states, Davis (1977) concluded that there were significant sex-related differences in total resources available to pay college costs, in amounts and percentages available from different sources and in the way financial aid is

distributed. Davis (1977) found that parents of women contributed more than they were expected to contribute based on the results of financial aid need analysis while parents of men contributed less than their expected contribution. Men received more financial aid and a greater percentage of their aid was in the form of grants. However, according to Davis, more men may live in off-campus housing which is more costly than residence halls and/or men may apply for financial aid earlier than women and thus receive more grant money. Boyd et al. (1978) also found that parents of high ability women contributed the most toward their college costs. However, Caplan (1980) found that there was an equal number of men and women receiving aid in her study of 7,618 financial aid recipients.

In a 1983-84 study of 76,462 students with financial need at postsecondary institutions in the state of Washington, Hearn, Fenske and Curry (1985) found that female students accounted for more of the total need than male students; traditional students accounted for more of the total need than older nontraditional students and students from low-income families made up a larger portion of total need than other students. Average levels of unmet need were concentrated in the freshman and sophomore years. Students with the most extreme levels of unmet need were independent female students with dependents and students in the

independent college sector.¹ Other studies indicate that adult students do not have information about other resources such as ADC, CETA, food stamps, etc. (Streeter, 1980; Swift, Mills, Colvin, & Smith, 1986).

Several studies indicate that cost is the major barrier to a postsecondary education for the nontraditional or adult student (Carp, Peterson, & Roelfs, 1974; Cross & Valley, 1974; Vermilye, 1974; Muse, 1979). Muse (1979) found a significant difference between the individual costs of traditional students and adult students. There was not a significant difference in rate of return between the two groups when controlling for college major. However, the adult student has foregone earnings as part of the cost so has more to recover and less time to do it.

Relationship of Resources and Spending Patterns

Maxey, Fenske, and Boyd (1979) found that there is a relationship between type of resources and spending patterns. In April of 1976, the Illinois State Scholarship Commission analyzed 1,254 scholarship and grant recipients selected randomly. They found that spending patterns correlate directly with family income: as income increased, tuition and fees paid as well as room and board paid

¹Independent students are self-supporting; they receive no financial assistance from their parents.

increased. As loan levels increased, expenditures also increased: total expenses had a linear relationship with the loan level. The total expenses of self-supporting students were greater than dependent students. Although dependent students spent more on tuition and fees, independent students spent more on medical costs, transportation, and personal costs.

Bergen, Bergen, and Meisner (1977) also found that spending patterns varied based on type of resources that a student has. In a study of 327 married student couples at the University of Kansas in the spring of 1977, the authors found that couples in university housing spent 26 percent of their income on housing and 26 percent for food. Loan dependent couples, however, spent 28 percent of income for housing and 27 percent for food.

Impact of Resources on Enrollment, Persistence, GPA

Other studies also examined the impact of resources on GPA and retention. Bergen and Zielke (1979) compared 102 freshmen BEOG recipients and 102 freshmen non-BEOG students at the University of Wyoming in 1973. They found that there was no significant difference in cumulative GPAs, cumulative mean credits earned, and graduation between the two groups. They concluded that the "BEOG program is accomplishing what the Educational Amendments of 1972 intended: making students from low resource families equal

to students from more affluent families in their opportunity to persist, achieve and graduate from institutions of higher educations" (Bergen & Zielke, 1979, p. 22).

Several studies found that loans have a negative influence on persistence (Blanchfield, 1971; Astin, 1975; Wenc, 1977; Jensen, 1981; Hochstein & Butler, 1983). In a study of 131 enrolled students and 131 students who withdrew from the University of Nebraska at Omaha during the fall semester of 1981, Hochstein and Butler (1983) found that over 50 percent of the nonpersisters had been awarded a loan as their only type of financial aid. Student persistence increased when students were awarded both grants and loans. Astin (1975) found that receiving a grant increased persistence. Other studies found that grants, scholarships and on-campus employment contributed to retention (Lenning et al., 1980; Blanchfield, 1971; Jensen, 1981). However, several studies found that the type of aid did not relate to persistence (Peng & Fетters, 1977; Fields & LeMay, 1973). In a study of Virginia students who had a reduction in aid greater than \$500 between the 1981-82 and 1982-83 academic years, Creamer (1985) found that only a small percentage, 7.5 percent, of the students planned to transfer or withdraw as a result of their cut in aid; the number was not significant. However, Pantages and Creedon (1978) found that financial reasons were reported as the

second most frequent reason for withdrawing from school. Financial reasons ranked high in importance by both male and female dropouts according to studies by Bayer (1968) and Panos and Astin (1968). Terkla (1985) found a significant relationship between college completion and receiving financial aid. When controlling for all other variables, financial aid recipients were more likely to complete their degrees; only high school GPA and degree level goal had stronger direct effects.

Impact of Loans/Work on Academic Success

When families are making decisions about resources for college, they need to know about the impact of loans and employment, called self-help in a student's financial aid package. Many families are concerned that employment will have a negative effect on academic success. As already noted, several studies reported that loans have a negative influence on student persistence (Blanchfield, 1971; Astin, 1975; Wenc, 1977; Jensen, 1981; Hochstein, 1983). Chambers (1962) felt loans are discriminatory against women and have "a reverse dowry" effect. However, Sanford (1981) found no relationship between loans and "forming a family." Heavy use of loans can impede opportunity and also can result in serious inequities between upper and lower income groups (Hanford & Nelson, 1970; Sanford, 1981). Schlekut (1968) found that upper socio-economic students were more likely to

receive grants while low socio-economic students received loans or employment.

Sanford (1979) used the National Longitudinal Study of the High School Class of 1972 as his data base to examine the impact of loans during a student's undergraduate program. He found that graduates with loans are more likely to be attending graduate or professional school than those who do not have loans. There also was a positive relationship between the amount of the loan and enrollment in a graduate or professional program. He found no relationship between enrollment in graduate school and employment as an undergraduate and no relationships between undergraduate borrowing and having a family. Sanford (1979) concluded that self-help forms of financial assistance are not detrimental to the behavior of college graduates. These findings agree with those of Golladay and Noel (1978).

On the other hand, the employment component of self-help is generally considered to have a positive impact. Although parents of first term college students are generally afraid work will interfere with their academic performance, previous studies indicate this is not the case. Previous studies show that a reasonable amount of part-time work (15 to 20 hours per week) has no statistically significant effect on academic achievement (Gaston, 1973; MacGregor, 1966; Kaiser & Bergen, 1968; Hay, 1969;

Augsburger, 1974; Barnes & Keene, 1974; Kelly, 1970). Keene (1960) found that students who worked had a higher GPA and Trueblood (1957) found that employment in the student's major may raise the student's grades. Astin (1975) reported that a job usually increases a student's chances of finishing college. If the employment is under 25 hours per week, there is a 10 to 15 percent decrease in dropout probabilities (Astin, 1975). A study by L. Wieker at Nebraska-Wesleyan University indicated that student employment was a significant factor in persistence (McKenzie, 1981).

Potential Impact of Financial Stress

Although there are no studies dealing specifically with the impact of financial stress on students, many studies reveal a relationship between family stress and economic difficulties. Several studies demonstrate that family stability increases as income rises (Scanzoni, 1971; Brenner, 1973; Hamermesh & Soss, 1974). Lower socioeconomic groups are the most vulnerable to economic instability resulting from economic downturns. Several studies have found an inverse relationship between health, family and economic problems and socio-economic level (Mayer, 1955; Barber, 1957; Goode, 1961; Gordon, 1958). Other studies relate specific family problems such as mental and physical illness, marital disharmony and divorce, child abuse and

violence to financial stress (Brenner, 1973; Daly, 1977; Gil, 1971; Price-Bonham & Balswick, 1980; Prescott & Letko, 1977; Straus et al., 1980; Titus, 1981). Researchers have found that marital problems and divorce are often part of the extreme financial problems which lead to bankruptcy (Heck, 1981, Herman, 1965; Matthews, 1969; Ulrichson, 1982). In a study comparing the fluctuations in the mental hospitalization admissions with the fluctuations in the unemployment indexes in the state of New York, Brenner (1973) concluded that "economic changes are probably the single most important cause of mental hospitalizations" (p. 243). He found an inverse relationship between the state of the economy and mental illness.

The mental and emotional demands of many academic programs are great. Students need to devote most of their time and energy to their academic endeavors. The worry and stress of financial problems could be detrimental to their academic progress. Students need adequate financial support so that they can devote their primary effort to succeeding academically.

Summary of Literature Review

The literature review for this study indicates the following trends:

High school students are not well-informed about college costs nor about resources available to

meet college costs.

Parents are contributing less than their expected contributions based on financial aid need analysis.

There has been a change over the last twenty years in the way students finance their education.

Resources have an impact on enrollment, persistence and academic success.

Different populations of students have different amounts of need and receive different types of aid.

There is a relationship between resources and spending patterns.

Loans have a negative impact on persistence; part-time employment has a positive influence on academic success.

There is a relationship between family stress and financial problems.

CHAPTER IV. METHODS

In this chapter, the models and hypotheses are presented, the data sources and variables are described, and the statistical procedures are explained.

The Model

The empirical model presented here is based on a conceptual model (Figure 1) developed from the theoretical framework and empirical results presented in the literature review. The empirical model is presented in Figure 2. From this model, the following general hypotheses will be tested using operational methods described later in this chapter.

The Hypotheses

- The student's resources are a function of selected socioeconomic characteristics of the student.
- The student's expenditures are a function of selected socioeconomic characteristics of the student.
- The student's expenditures are a function of the total resources available to the student.
- The student's academic performance is a function of selected socioeconomic characteristics.
- The student's academic performance is a function of the resources available to the student.
- The student's academic performance is a function

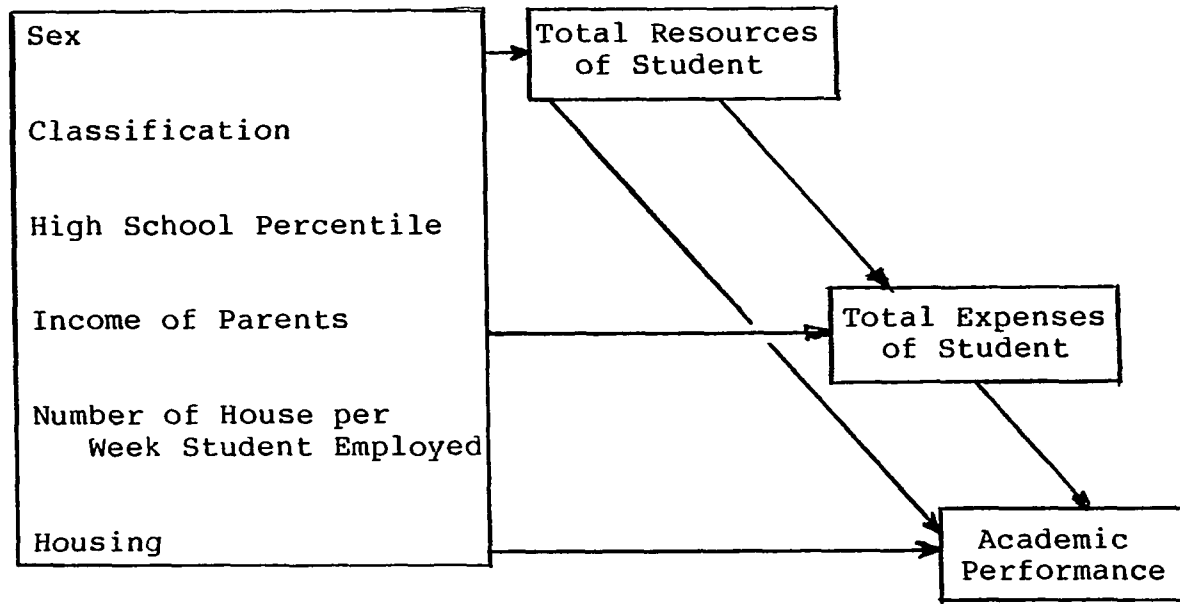


Figure 2. Model to be tested

of the student's expenditures.

Source of the Data

The data for this study were collected during the fall semester of 1985. A random sample of 661 students was drawn from the Registrar's record of undergraduate students enrolled at Iowa State University during the fall semester of 1985. A telephone survey using an instrument with 101 items was conducted in the evenings and on Saturdays during the last two weeks of November and the first week of December. The survey instrument is presented in the Appendix. Surveys were mailed to those students who did not have a telephone number or whose number had been disconnected. A follow-up request was mailed to nonrespondents three weeks later. Additional demographic information such as academic major, college, ACT score and high school percentile, grade level and financial aid information was gathered from university records. From the sample of 661 students, 327 surveys were completed. Since housing is a major expenditure in a student's budget, a stratified sample was used to assure that the N in each of the following categories was sufficient to allow comparisons of students with the following living accommodations: residence halls, sororities and fraternities, and off campus apartments. Students living with their parents were removed from the sample because their expenses would not be typical.

For this study, the sample was limited to single undergraduate students taking 9 credits or more. Since the survey was conducted after midterm exams, some students who had been enrolled full time when the sample was drawn in early October had dropped credits. However, their resources and expenditures reflected their full time status at the beginning of the term. Therefore, students taking 9 credits or more were included for the analysis. Two cases were eliminated from the regression analysis because of their atypical circumstances. In one case, the student had earnings of \$30,000 for the year; without this case, the range for the student wages variable was from 0 to \$14,500. In the other case, the parents' adjusted gross income was \$400,000. The range without this outlier was from 0 to \$100,000. The sample size for this analysis was 243.

Students reported their financial resources and their expenditures for both typical budget items and unusual expenses. In addition, students were asked about their employment, transportation needs and costs, current and anticipated debt level, and their parents' income and occupations.

The Iowa State University Committee on the Use of Human Subjects in Research reviewed this project and concluded that the rights and welfare of the human subjects were adequately protected, that risks were outweighed by the

potential benefits and expected value of the knowledge sought, that confidentiality of data was assured and that informed consent was obtained by appropriate procedures.

The Variables

The analysis for this study consisted of two stages. 1) Descriptive statistics were used to compare different types of students. 2) Regression analysis was used to test the model presented in Figure 2. Selected variables were used in the different stages of the analyses. The operational definitions of all the variables and their descriptive statistics are presented in the next section.

Exogenous variables

The following exogenous variables were used in this study: sex of the student, classification of the student, high school percentile of the student, the number of hours per week the student worked, where the student lived and the reported adjusted gross income of the student's parents. Missing values for the exogenous variables were recoded as mean values.

Of the 243 undergraduate single students taking 9 or more credits fall semester of 1985, 83 or 34.2 percent were female students and 160, 65.8 percent, were male students. In the fall of 1985, 38.3 percent of the total student population were female students. Female students were

underrepresented in the sample.

All of the respondents were undergraduate students: 77 (31.7 percent) were classified as freshmen, 57 (23.5 percent) as sophomores, 47 (19.6 percent) as juniors and 62 (25.5 percent) as seniors. Dummy variables were used to model classification. The students were divided into underclass students (freshmen and sophomores) and upperclass students (juniors and seniors). One-hundred thirty-four (55.1 percent) were underclass students; 109 (44.9 percent) were upperclass students.

The mean high school percentile was 76.9 with a standard deviation of 17.0. The mean high school percentile for students entering Iowa State in the fall of 1985 was 73.9. The high school percentile variable was used as a continuous variable in the regression analysis.

The mean ACT score was 23.8 with a standard deviation of 3.9. In the fall of 1985, the average ACT score for entering students Iowa State University was 22.8.

The number of hours per week that students worked ranged from 0 to 61. One-hundred fifty-seven students did not work during the academic year. For those students who were employed, the number of hours worked per week ranged from 1 to 61 with a mean of 14.27. The variable was recoded into three categories for both the descriptive analysis and the regression analysis: (1) no work, (2) 15 hours per week

or less, (3) more than 15 hours per week. Fifty-eight students worked 15 hours or less per week; 28 worked more than 15 hours each week.

For the comparative analysis of student groups, where the student lived was coded into three categories: (1) residence hall, (2) fraternity or sorority, (3) off campus housing. Ninety-three students (38.3 percent) lived in the residence halls, 46 (18.9 percent) lived in fraternities or sororities, and 104 (42.8 percent) lived in off campus housing.

Students were asked to report their parents' adjusted gross income. This variable had the largest number of missing values, 78, which were recoded to the mean value of \$38,057. As noted earlier, for the regression analysis the outlier of \$400,000 was removed, leaving a range from 0 to \$100,000.

Endogenous variables

The variables measuring student resources and expenditures were collapsed into two variables, total resources and total expenditures, which were the endogenous variables in the regression analysis. All of the variables measuring student resources and expenses were transformed to academic year amounts. On the survey instrument, students were asked about their resources and expenditures in a way that would facilitate recall. For example, students were

asked how much they spent each week on groceries, laundry, entertainment; they were asked how much they spent per month on rent, telephone, etc. Weekly amounts were multiplied by 36 to convert them to academic year amounts. Monthly amounts were multiplied by 9 and semester amounts by 2. Annual amounts for a few variables such as medical and dental costs and car insurance were included.

Missing data were recoded as predicted values for the resource and expense variables. The resource variables were regressed on the exogenous variables to determine the equation for the predicted values; the expense variables were regressed on the exogenous variables and on the resource variables used in the model. The mean amounts reported include the predicted value for the missing cases.

Variables measuring resources and expenditures were collapsed into the resource and expense categories used by the Financial Aid Office for their student budgets.

Financial assistance from parents and gifts were added together to give parental contribution. The range of the parental contribution variable was from 0 to \$20,000. Sixty-seven students reported that they received no contribution from their parents. For those students who received assistance from their parents, the mean value was \$2,671 and the standard deviation was \$2,692. There were two missing cases.

The student contribution variable consisted of the student's academic year earnings, summer earnings, and savings. The student contribution variable ranged from 0 to \$20,000. When the 25 cases with no student contribution and the one missing case were removed, the mean was \$3,015 and the standard deviation was \$3,289.

Financial aid received by the student was the third component of student resources. Sources of financial aid were scholarships, Pell grants, ISU grants, National Direct Student Loans, Guaranteed Student Loans and Vocational Rehabilitation grants received by students for the 1985-86 academic year. The financial aid variable ranged from 0 to \$6,550. Among the students who received aid, the mean was \$2,917 with a range from \$50 to \$6,550.

The three components of student resources, (parental contribution, student contribution and financial aid) were used separately in the descriptive analysis. However, the three variables were collapsed to form the total resources variable for the regression analysis. The mean of total resources was \$6,079 with a standard deviation of \$3,449.

Student expenses were categorized as follows: room and board costs, personal expenses, entertainment costs, transportation costs, and educational expenses.

Room and board costs consisted of the room and board charges in the residence hall, fraternity and sorority

housing costs, or a student's rent and utility payments. Room and board costs in the residence halls for the 1985-86 academic year were \$1,924. The average housing cost for fraternities and sororities was \$2,124. Telephone costs, groceries and the amount spent for lunches on campus were also included in this variable. The mean was \$2,424 with a standard deviation of \$861. Four cases were missing.

Personal expenses consisted of medical and dental costs, prescription costs, amounts spent on toiletries, haircuts, cosmetics, laundry and dry cleaning, clothing, and unusual expenses. Some of the items listed as unusual expenses were the cost of a computer, contact lenses, travel, television repair, and a loft. Personal expenses ranged from 0 to \$5,042 with a mean of \$830 and a standard deviation of \$669. There were 22 missing cases.

The amounts spent for movies, plays and concerts, alcohol, tobacco, meals in restaurants, snacks, records, cable television and athletic events were included in the variable which measured entertainment expenditures. The mean amount was \$825 with a standard deviation of \$526 and a range from 0 to \$3,260. There were no missing cases.

Transportation costs included the cost of transportation in the Ames area (bus fare, gas and oil) plus the cost of trips home, car payments and car insurance. This variable had 15 missing cases and ranged from 0 to

\$3,411 with a mean of \$437 and a standard deviation of \$585.

Educational costs included the costs of books and supplies as well as fees for the academic year. Tuition was not included in educational costs since it is a fixed amount. The mean amount was \$415 with a standard deviation of \$209 and a range from 0 to \$1,600. Only two missing cases were reported.

The five variables measuring student expenses represented the categories in the student expense budgets used by the Financial Aid Office to award financial aid. These five variables were used in the descriptive analysis for this study.

The five expense variables were collapsed into the total expenses variable for the regression analysis. The range of total expenses was from \$548 to \$15,770 with a mean of \$4,931 and a standard deviation of \$1,638. In the 1985-86 academic year resident tuition was \$1,304 and nonresident tuition was \$3,830. When these amounts were added to the mean, the average total expenses for undergraduate resident students at Iowa State University was \$6,235 and \$8,761 for nonresident students.

Dependent variable

The student's cumulative grade point average was used to measure academic performance. The range of the academic performance variable was from .82 to 4.0 with a mean of 2.5

and a standard deviation of .619.

Statistical Analysis Procedures

The data were analyzed in two stages. Descriptive statistics were used to examine the financial behavior of different types of students and to examine the impact of different situations on the financial behavior of students. Path analysis was used to test the model.

The SPSSx statistical package (SPSSx Users Guide, 1986) was used to analyze the data. The frequency distributions for all variables were examined for missing data and coding errors. An explanation of the recoding of missing values was presented earlier in this chapter. In addition, the outliers on two variables, room and board and total resources, were recoded to the mean to minimize their effect on the regression analysis.

Frequency and breakdown procedures produced the descriptive statistics used in the first stage of the analysis to examine different types of students and situations. The t-test and analysis of variance were used to ascertain if the differences among the means of selected characteristics of groups were statistically significant.

The t-test provides the test statistic to test the null hypothesis that the means of two groups are equal. The t-test examines the difference in the means of two groups and the differences in the variances in the two populations

(Ott, Mendenhall & Larson, 1978).

Analysis of variance examines the amount of variance in the responses between groups against the variation among members of the same group. The method deals with whether "the means of a variable differ from one group of observations to another" (Iverson and Norpoth, 1976). Ratios of variances are examined to establish whether the means differ.

Contingency tables were analyzed prior to the regression analysis to detect curvilinear relationships that would not be identified in the regression analysis. No curvilinear relationships were apparent in this analysis.

The chi-square statistic was used to assess if the independent variables in the model were statistically independent. Variables with a chi-square significance at the .05 level or less were retained in the analysis. Based on this criteria, the exogenous variable, ACT score, was removed from the analysis.

Pearson product-moment correlations of all pairs of variables used in the analysis are presented in Table 4. High correlations between exogenous or independent variables are one indication that multicollinearity exists. Multicollinearity did not appear to be a problem in this study. Pearson correlations also indicate the direction of a relationship between two variables and the strength of that relationship (Nie, Hull, Jenkins, Steinbrenner & Bent,

Table 4. Pearson product-moment correlation of all variables (N = 243)^a

Variables	1	2	3	4	5	6	7	8	9	10	11
1	-										
2	.09	-									
3	-.05	.18	-								
4	-.08	-.03	.06	-							
5	-.06	-.23	.11	.02	-						
6	-.01	-.02	-.05	.10	-.05	-					
7	.08	.39	-.01	-.14	-.32	-.08	-				
8	-.01	.17	.03	.09	.06	.00	.06	-			
9	.11	.13	.07	.07	-.08	-.30	.12	.06	-		
10	.09	.02	-.08	.09	-.10	-.13	.08	.06	.36	-	
11	-.07	.21	.41	.02	.05	.06	-.12	.10	-.04	-.17	-

^a1=Sex; 2=Classification; 3=High School Percentile; 4=Income of Parents; 5=Contrast 1:Work vs. No Work; 6=Contrast 2:Work < 15 hrs. vs. Work > 15 hrs.; 7=Contrast 1:On Campus vs. Off Campus; 8=Contrast 2:Dorm vs. Greek; 9=Total Resources; 10=Total Expenses; 11=Academic Performance.

1975).

Path analysis was used to test the model. Based on the preanalysis tests described above, the assumptions of both ordinary least squares regression and path analysis have been met.¹

Path analysis uses the techniques of multiple regression to test the strength of the relationship of interest while controlling for all the variables in the equation simultaneously. In path analysis, more than one regression analysis may occur as the model is analyzed in stages. "Each endogenous (dependent) variable in a causal model may be represented by an equation consisting of the variables upon which it is assumed to be dependent..." (Pedhazur, 1982, p. 583). The standardized regression coefficients (Bs) of ordinary regression analysis are the path coefficients in path analysis. The standardized regression coefficient measures the expected change in the

¹The assumptions of ordinary least squares are: (1) there is no specification error, (2) there is no measurement error, (3) the expected value of the error term is zero, (4) the variance of the error term is constant for all values of the independent variables, (5) the error terms are uncorrelated, (6) the independent variable is uncorrelated with the error term, and (7) the error term is normally distributed. For path analysis it is assumed that (1) the relationships among the variables are linear, additive and causal, (2) each residual is not correlated with the variables that precede it in the model, (3) the model is recursive, (4) variables are measured on an interval scale, and (5) the variables are measured without error.

standard deviation of the dependent variable associated with one standard deviation change in the independent variable while controlling for the remaining variables (Pedhazur, 1982). Variables with different scales of measurement can be compared using standardized regression coefficients. In addition, the relative predictive strength of the explanatory variable is indicated by the relative magnitude of the standardized regression coefficient. In path analysis, it is possible to use ordinary least squares regression to decompose the total effects of explanatory variables into direct and indirect effects. The total effect explains how much change in a consequent variable results from a given change in an antecedent variable (Alwin & Hauser, 1981, p. 125). "Indirect effects are those parts of a variable's total effect which are transmitted or mediated by variables specified as intervening between the cause and effect of interest in a model.... The direct effect of one variable on another is simply that part of its total effect which remains when intervening variables have been held constant" (Alwin & Hauser, 1981, pp. 125-126).

In this study, the direct and indirect effects of resources and expenditures of students on academic performance were examined. This study examined whether the resources influenced academic performance through

expenditures and whether the exogenous variables influenced academic performance through resources.

CHAPTER V. DESCRIPTIVE ANALYSIS

One goal of this study was to provide information about the resources and expenditures of students so that students and families could make informed consumer decisions about their educational costs and plan financially for those costs. Descriptive statistics were used to examine the resources and expenditures of different types of students and to explain the impact of different situations on the financial behavior and academic performance of students.

In this chapter a profile of a typical student at Iowa State University in the fall of 1985 is presented. Profiles of the following types of students are also presented and the resources and expenditures of the students in each category are compared: (1) men and women, (2) financial aid recipients and nonrecipients, (3) students with loans and those who have not borrowed, (4) students living on campus in residence halls and in fraternities and sororities with those living off campus, (5) employed students and those who do not work during the academic year, (6) underclass students (freshmen and sophomores) and upperclass students (juniors and seniors). Bar graphs visually show the differences among the groups defined above (Figures 3-6). Two-tailed t-tests were used to detect significant differences in the means. When more than two groups were compared, one-way analysis of variance tests were used to

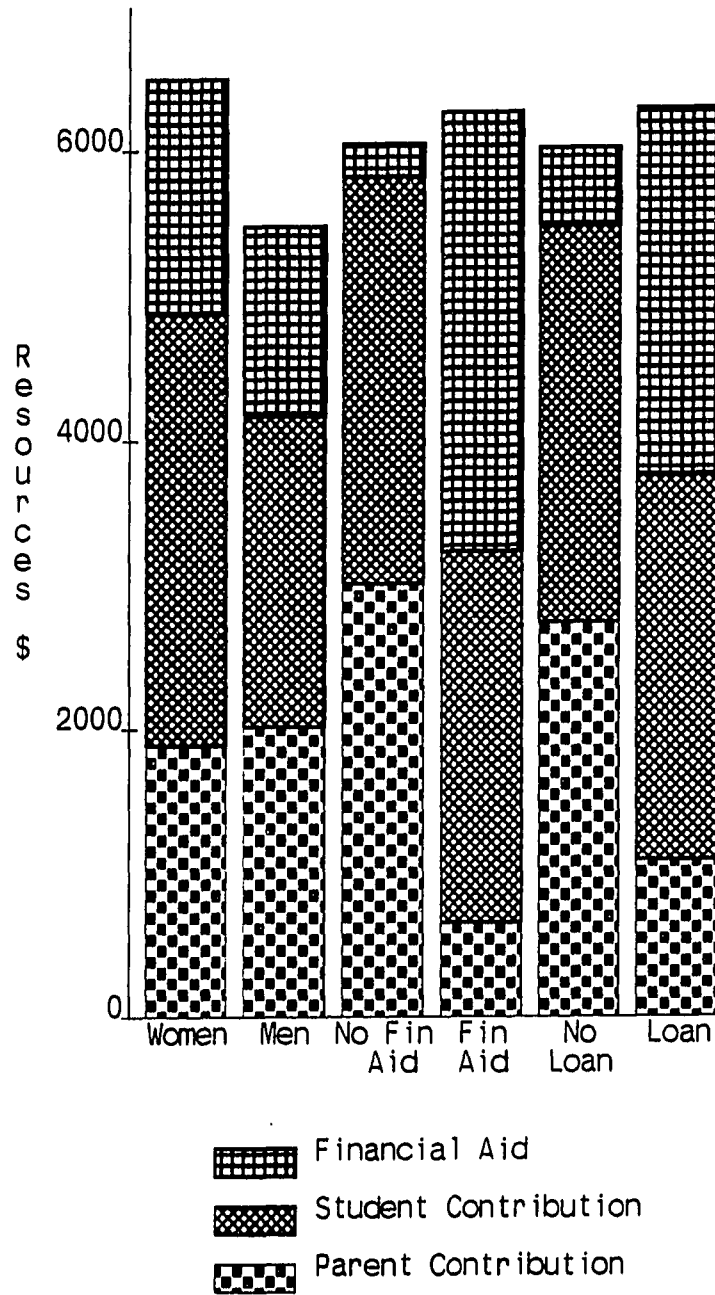


Figure 3. Academic year resources of selected groups of students

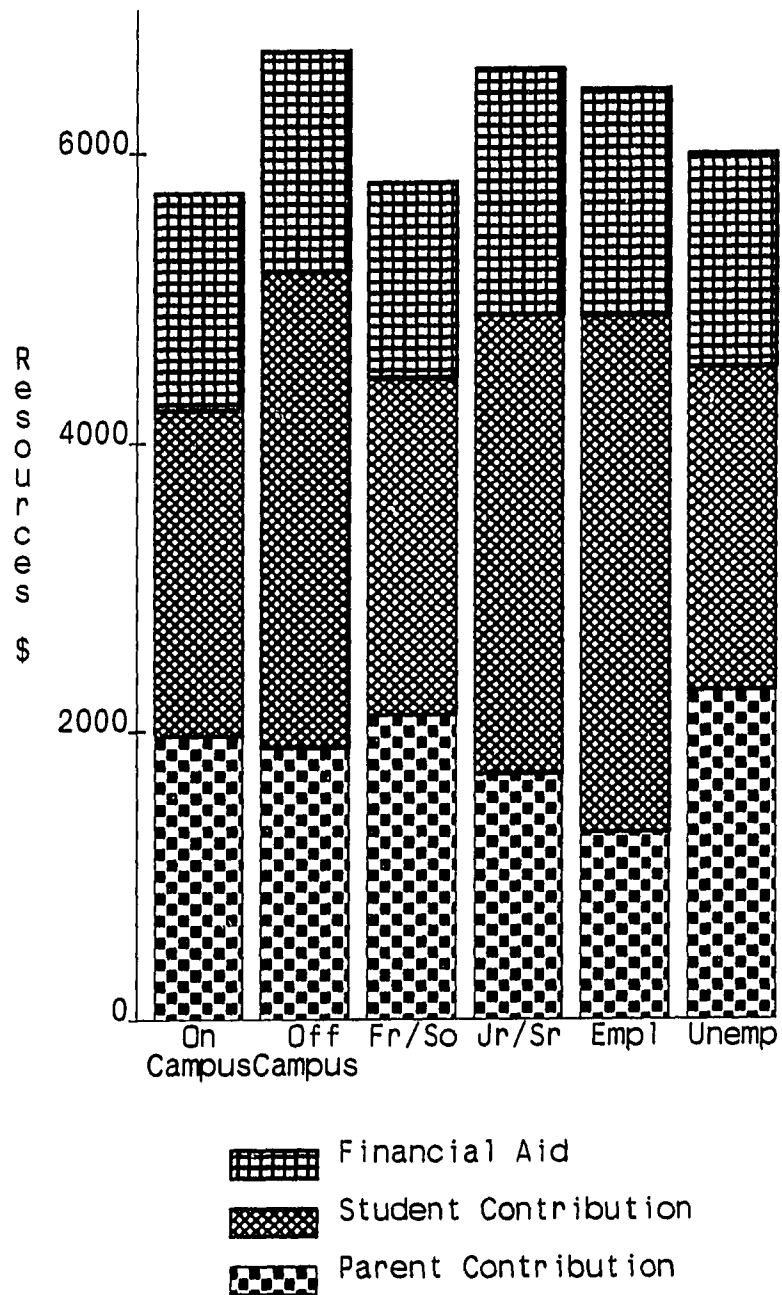


Figure 4. Academic year resources of selected groups of students

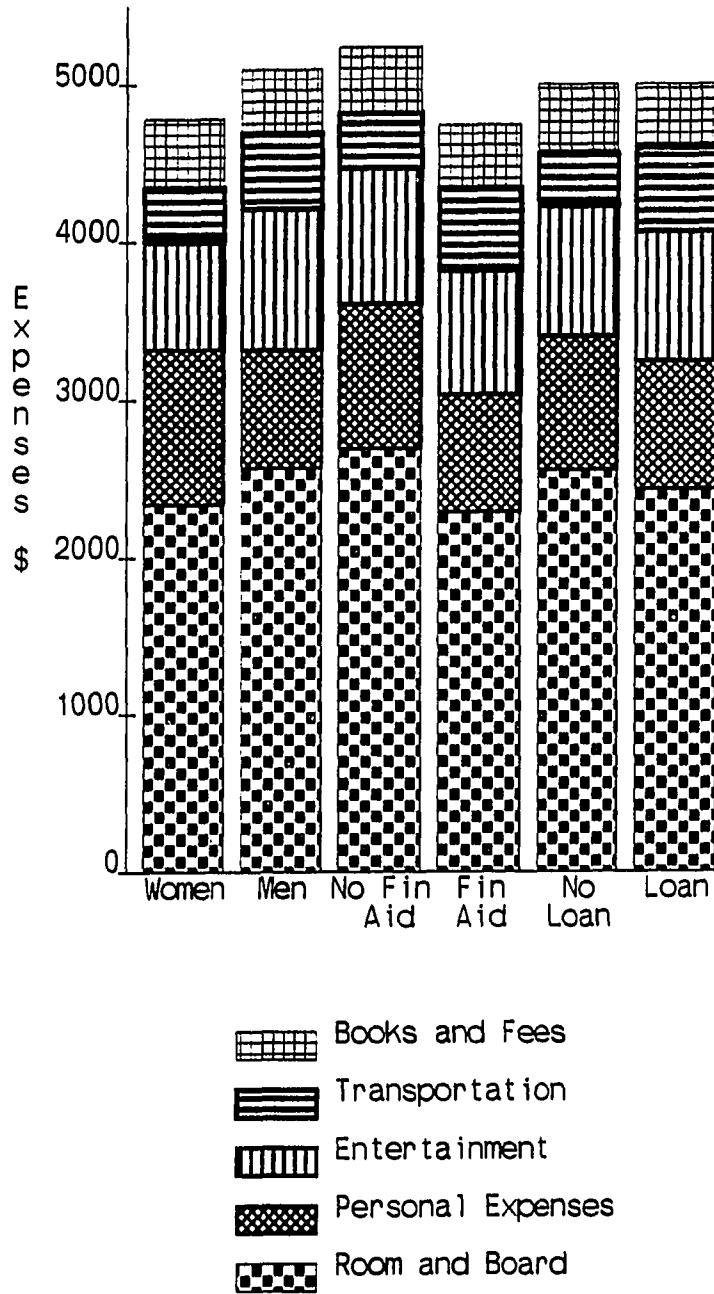


Figure 5. Academic year expenses of selected groups of students

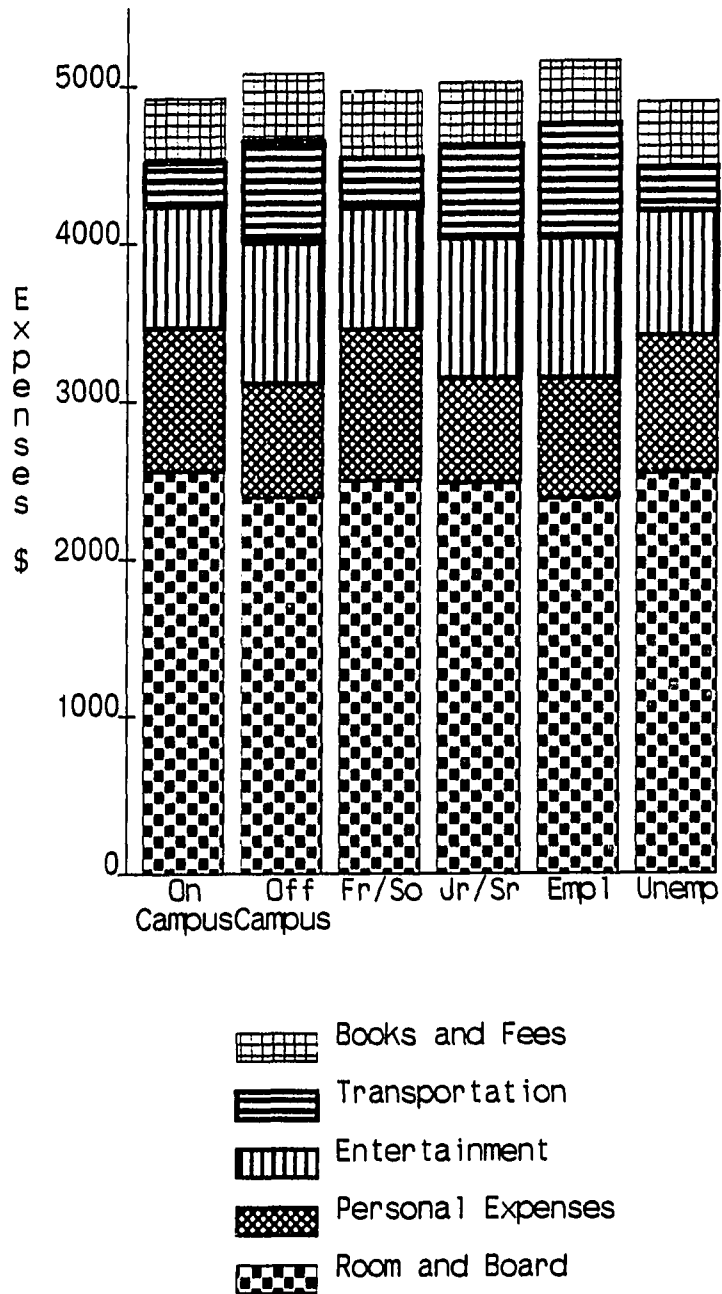


Figure 6. Academic year expenses of selected groups of students

identify differences in the means among the groups. One-way analysis of variance was used to compare students in each of the following groups: (1) students who live in residence halls, in fraternities and sororities and off campus, (2) those who do not work, those who work 15 hours per week or less and those who work more than 15 hours per week, (3) freshmen, sophomores, juniors, and seniors.

Profile of single unmarried undergraduate student

The typical student was male (66 percent) with a high school percentile of 76.9 and an ACT score of 24. Fifty-five percent of the sample were classified as underclass students (freshmen and sophomores). In the sample, 38 percent lived in fraternities or sororities and 43 percent lived in off campus housing. Sixty-five percent of the students reported they did not work during the academic year. Resources totaled \$6,079 with \$1,935 coming from parents, \$2,705 from the student's own resources (academic year earnings, summer earnings, and/or savings) and \$1,513 from financial aid (scholarships, grants, and loans).

Expenditures excluding tuition totaled \$4,931. Mean amounts spent in the different budget categories² were: \$2,424 for room and board, \$830 for personal expenses, \$825 for entertainment, \$437 for transportation, and \$415 for

²Items included in each of the budget categories are defined in the variable section of Chapter IV.

books, supplies and fees. When tuition was included, expenses totaled \$6,235 for resident students and \$8,761 for nonresident students.

Comparing male and female students

Two-tailed t-tests were used to determine the significant differences in the means of resource, expense and academic performance variables between male and female students. The student contribution of male students was significantly more than that of female students, men received more financial aid than women, and male students had significantly more total resources than women. Although the parental contribution for men and women was not significantly different, women did receive a larger contribution from parents which supports the findings of previous studies (Davis, 1977; Boyd et al., 1978). In general, the results of this study agree with the study conducted by Davis (1977) who found that there were significant sex-related differences in resources.

There were also significant sex-related differences in some expense categories. Men spent significantly more on room and board, entertainment and transportation while women spent more on personal expenses. Jackson and Pogue (1983) also found that the expenditures of men and women were significantly different.

There were no significant differences in the academic

Table 5. Mean expenditures of men and women students by type of housing

	Female	Male
Residence Halls	\$4,662 N = 34	\$4,785 N = 59
Fraternity or Sorority	\$4,825 N = 18	\$5,063 N = 28
Off Campus	\$4,734 N = 31	\$5,234 N = 73

Table 6. Mean comparisons of resource, expense and academic performance variables of men and women students

Variable	N	Mean	Standard Deviation	t-value
Parent Contribution				
Women	83	2,027	2,416	0.41
Men	160	1,887	2,672	
Student Contribution				
Women	83	2,149	2,641	-2.11*
Men	160	2,993	3,493	
Received Financial Aid				
Women	83	1,306	1,703	-1.32
Men	160	1,620	1,865	
Room and Board Costs				
Women	83	2,277	546	-2.28*
Men	160	2,500	978	
Personal Expenses				
Women	83	984	923	2.16*
Men	160	750	473	
Entertainment				
Women	83	689	481	-3.06**
Men	160	896	535	
Transportation				
Women	83	343	636	-1.74*
Men	160	486	552	
Books and Fees				
Women	83	432	199	0.92
Men	160	406	214	

*Significant at .05 level.

**Significant at .001 level.

Table 6. (continued)

Variable	N	Mean	Standard Deviation	t-value
Total Resources				
Women	83	5,556	2,995	-1.82*
Men	160	6,350	3,641	
Total Expenses				
Women	83	4,785	1,665	-1.41
Men	160	5,107	1,715	
GPA				
Women	83	2.60	0.650	1.10
Men	160	2.51	0.602	

performances of men and women students.

Comparing financial aid recipients and nonrecipients

The mean values for aid and nonaid students were significantly different for several variables (Table 7).

As expected, nonaid students received significantly more from their parents than aid recipients while aid students received significantly more financial aid than nonrecipients. However, some nonaid students did receive scholarships which are included in the financial aid variable. In only one expense category, transportation, did financial aid recipients have a significantly higher mean value than nonrecipients. There was no significant difference between the two groups in the entertainment category. In the other three expense categories (room and board, personal expenses, and books and fees), nonaid students spent significantly more than aid recipients.

There was not a significant difference between the two groups in either total resources or total expenses. Although financial aid recipients had a slightly higher mean value for total resources, the mean of their total expenditures was slightly lower than that of nonaid students. An interesting finding was the fact that nonaid students are contributing a large amount of their college costs, and the mean student contribution of nonaid students was higher (although not significantly) than aid recipients

Table 7. Mean comparisons of resource, expense and academic performance variables of financial aid students and nonaid students

Variable	N	Mean	Standard Deviation	t-value
Parent Contribution				
Nonaid	132	3,007	3,014	8.49**
Aid	111	660	916	
Student Contribution				
Nonaid	132	2,816	3,366	.059
Aid	111	2,572	3,110	
Received Financial Aid				
Nonaid	132	230	950	-18.32**
Aid	111	3,037	1,358	
Room and Board Costs				
Nonaid	132	2,515	1,004	1.88*
Aid	111	2,315	638	
Personal Expenses				
Nonaid	132	915	727	2.21*
Aid	111	729	580	
Entertainment				
Nonaid	132	832	492	0.23
Aid	111	817	565	
Transportation				
Nonaid	132	334	496	-2.97**
Aid	111	560	656	
Books and Fees				
Nonaid	132	437	241	1.85*
Aid	111	389	160	

*Significant at .05 level.

**Significant at .01 level.

Table 7. (continued)

Variable	N	Mean	Standard Deviation	t-value
Total Resources				
Nonaid	132	5,921	3,857	-0.80
Aid	111	6,268	2,894	
Total Expenses				
Nonaid	132	5,034	1,767	1.08
Aid	111	4,809	1,468	
GPA				
Nonaid	132	2.53	0.590	-0.22
Aid	111	2.55	0.655	

(Table 7). Furthermore, parents of nonaid students were not providing 100 percent of their children's costs which supports the studies of Miller and Hexter (1985a, 1985b), Boyd, Fenske, and Maxey (1978), Schonhart (1977), and Boyd and Fenske (1976).

A breakdown of total expenditures of aid and nonaid students by housing shows that aid recipients in the residence halls had the lowest mean expenses and nonaid recipients in fraternities and sororities had the highest mean expenses (Table 8).

As Bergen and Zielke (1979) found, there was no significant difference between the mean grade point averages of aid and nonaid students. Breakdown analysis in this study showed that aid recipients working 15 hours or less per week had the highest mean grade point averages and aid recipients working more than 15 hours per week had the lowest mean grade point averages (Table 9). However, the difference was slight.

Comparing students with and without loans

When comparing the means of students who had received loans with those who had not, the parental contribution to students with no loans was significantly higher than that of students with loans. Financial aid assistance, of course, was significantly higher for loan recipients.

Transportation was the only other category where means

Table 8. Mean expenditures of aid and nonaid students by type of housing

	Nonaid Student	Aid Student
Residence Halls	\$4,956 N = 49	\$4,500 N = 44
Fraternity or Sorority	\$5,173 N = 30	\$4,590 N = 16
Off Campus	\$5,028 N = 53	\$5,145 N = 51

Table 9. Mean grade point average of aid and nonaid students by employment

	Nonaid Student	Aid Student
No Work	2.55 N = 90	2.57 N = 67
Works 15 Hours or Less	2.49 N = 35	2.63 N = 23
Works More Than 15 Hours	2.42 N = 7	2.39 N = 21

Table 10. Mean comparisons of resources, expense and academic performance variables for students with loans and students without loans

Variable	N	Mean	Standard Deviation	t-value
Parent Contribution				
Nonrecipient	124	2,744	3,054	5.31**
Loan Recipient	119	1,092	1,600	
Student Contribution				
Nonrecipient	124	2,745	3,122	0.201
Loan Recipient	119	2,663	3,385	
Received Financial Aid				
Nonrecipient	124	534	1,257	-10.21**
Loan Recipient	119	2,532	1,744	
Room and Board Costs				
Nonrecipient	124	2,510	1,050	1.61
Loan Recipient	119	2,334	594	
Personal Expenses				
Nonrecipient	124	849	646	0.45
Loan Recipient	119	810	695	
Entertainment				
Nonrecipient	124	827	539	0.05
Loan Recipient	119	823	513	
Transportation				
Nonrecipient	124	338	522	-2.74**
Loan Recipient	119	541	629	
Books and Fees				
Nonrecipient	124	433	245	1.37
Loan Recipient	119	396	162	

*Significant at .05 level.

**Significant at .01 level.

Table 10. (continued)

Variable	N	Mean	Standard Deviation	t-value
Total Resources				
Nonrecipient	124	5,880	3,549	-0.92
Loan Recipient	119	6,287	3,343	
Total Expenses				
Nonrecipient	124	4,956	1,827	0.24
Loan Recipient	119	4,905	1,422	
GPA				
Nonrecipient	124	2.51	0.614	-0.74
Loan Recipient	119	2.57	0.626	

were significantly different; loan recipients had higher transportation costs but spent less on books and fees (Table 10). These findings agree with Bergen, Bergen and Meisner (1977) who found that spending patterns varied based on type of resource. Maxey, Fenske and Boyd (1979) found a linear relationship between loan levels and total expenses. However, they were comparing students at different types of schools and students at higher cost schools were borrowing more.

Comparing students living on and off campus

It was assumed that the costs and spending patterns of students living in the residence halls and students living in the Greek system would be similar. Therefore, students in residence halls and students in fraternities and sororities were compared with students living off campus (Table 11). The mean student contribution for students living off campus was significantly higher than the mean for those living on campus. Personal expenses were significantly higher for on campus students, but the means of entertainment and transportation costs were higher for off campus students. Although on and off campus students have similar total expenses, they spent their resources in different ways.

The mean GPA of off campus students was significantly higher than the mean GPA of on campus students. Since more

Table 11. Mean comparisons of resources, expense and academic performance variables for students living on and off campus

Variable	N	Mean	Standard Deviation	t-value
Parent Contribution				
On Campus	139	1,971	2,153	0.24
Off Campus	104	1,886	3,076	
Student Contribution				
On Campus	139	2,256	2,765	-2.42**
Off Campus	104	3,305	3,727	
Received Financial Aid				
On Campus	139	1,504	1,797	-0.09
Off Campus	104	1,524	1,790	
Room and Board Costs				
On Campus	139	2,445	507	0.40
Off Campus	104	2,395	1,181	
Personal Expenses				
On Campus	139	910	763	2.29**
Off Campus	104	723	502	
Entertainment				
On Campus	139	772	441	-1.76**
Off Campus	104	897	616	
Transportation				
On Campus	139	281	428	-4.74**
Off Campus	104	646	693	
Books and Fees				
On Campus	139	409	186	-0.54
Off Campus	104	424	237	

*Significant at .05 level.

**Significant at .01 level.

Table 11. (continued)

Variable	N	Mean	Standard Deviation	t-value
Total Resources				
On Campus	139	5,731	3,084	-1.77*
Off Campus	104	6,545	3,849	
Total Expenses				
On Campus	139	4,816	1,358	-1.21
Off Campus	104	5,085	1,947	
GPA				
On Campus	139	2.47	0.614	-1.79*
Off Campus	104	2.62	0.620	

upperclass students live off campus than underclass students and upperclass students have higher GPAs, it was assumed that the higher GPA for off campus students was influenced by the classification of the student. However, a breakdown of mean GPA by classification and housing showed that the higher average GPA was not completely influenced by classification. Freshmen and junior off campus students had higher GPAs, than freshmen and junior students living on campus, but sophomore and senior on campus students had higher average GPAs in their respective classes (Table 12).

To clarify the impact of housing on financial behavior, one-way analysis of variance was used to compare the means of resource, expense, and academic performance variables of students living in three different housing situations: (1) the residence halls, (2) fraternities and sororities, and (3) off campus-housing. The means of the variables for the three groups of students were significantly different in all categories except the amount of financial aid received and the amount spent on room and board (Table 13).

As further clarification, students in residence halls were compared to students living off campus (Table 14).

Expenditures were significantly different in all categories with dormitory students having higher costs in only one category, personal expenses. Total resources, total expenses and GPAs were significantly higher for off-

Table 12. Mean grade point average by classification and housing

	On Campus	Off Campus
Freshmen	2.27 N = 62	2.41 N = 15
Sophomores	2.67 N = 38	2.44 N = 19
Juniors	2.51 N = 22	2.69 N = 25
Seniors	2.76 N = 17	2.73 N = 45

Table 13. Mean of selected variables comparing students living in residence halls, fraternities and sororities and off campus

Variable	N	Mean	Standard Deviation	F ratio
Parent Contribution				
Residence Halls	93	1,642	1,893	2.34**
Fraternities & Sororities	46	2,636	2,494	
Off Campus	104	1,886	3,076	
Student Contribution				
Residence Halls	93	2,335	2,694	3.25*
Fraternities & Sororities	46	2,094	2,925	
Off Campus	104	3,305	3,727	
Financial Aid				
Residence Halls	93	1,575	1,779	.22
Fraternities & Sororities	46	1,361	1,962	
Off Campus	104	1,524	1,770	
Room and Board				
Residence Halls	93	2,401	518	0.46
Fraternities & Sororities	46	2,534	479	
Off Campus	104	2,395	1,181	
Personal Expenses				
Residence Halls	93	937	875	2.58**
Fraternities & Sororities	46	853	464	
Off Campus	104	723	502	
Entertainment				
Residence Halls	93	736	448	2.35**
Fraternities & Sororities	46	843	419	
Off Campus	104	897	616	

*Significant at .05 level.

**Significant at .01 level.

Table 13. (continued)

Variable	N	Mean	Standard Deviation	F ratio
Transportation				
Residence Halls	93	279	439	12.71**
Fraternities & Sororities	46	285	410	
Off Campus	104	646	693	
Books and Fees				
Residence Halls	93	386	146	1.81*
Fraternities & Sororities	46	454	243	
Off Campus	104	424	237	
Total Resources				
Residence Halls	93	5,553	2,902	2.05*
Fraternities & Sororities	46	6,091	3,430	
Off Campus	104	6,545	3,849	
Total Expenses				
Residence Halls	93	4,740	1,453	1.11
Fraternities & Sororities	46	4,970	1,142	
Off Campus	104	5,085	1,947	
GPA				
Residence Halls	93	2.42	0.68	2.68**
Fraternities & Sororities	46	2.59	0.45	
Off Campus	104	2.62	0.62	

Table 14. Mean comparisons of resources, expense and academic performance variables for students living on and off campus

Variable	N	Mean	Standard Deviation	t-value
Parent Contribution				
Residence Halls	93	1,642	1,893	-0.68
Off Campus	104	1,886	3,076	
Student Contribution				
Residence Halls	93	2,335	2,694	-2.11*
Off Campus	104	3,305	3,727	
Received Financial Aid				
Residence Halls	93	1,575	1,779	0.20
Off Campus	104	1,524	1,790	
Room and Board Costs				
Residence Halls	93	2,401	518	0.05
Off Campus	104	2,395	1,181	
Personal Expenses				
Residence Halls	93	937	875	2.07*
Off Campus	104	723	502	
Entertainment				
Residence Halls	93	736	449	-2.10*
Off Campus	104	897	616	
Transportation				
Residence Halls	93	279	439	-4.49**
Off Campus	104	646	693	
Books and Fees				
Residence Halls	93	386	146	-1.36
Off Campus	104	424	237	

*Significant at .05 level.

**Significant at .01 level.

Table 14. (continued)

Variable	N	Mean	Standard Deviation	t-value
Total Resources				
Residence Halls	93	5,552	2,902	-2.06*
Off Campus	104	6,545	3,849	
Total Expenses				
Residence Halls	93	4,739	1,453	-1.42
Off Campus	104	5,085	1,947	
GPA				
Residence Halls	93	2.42	0.675	-2.12*
Off Campus	104	2.62	0.620	

campus students than those living in the residence halls.

Comparing employed and nonemployed students

As expected when comparing employed students with those who do not work, the mean of parental contribution was significantly higher at the .01 level for students who do not work than for those who do (Table 15).

The opposite finding occurred for the mean value of student contribution. Personal expenses were significantly higher at the .10 level for students who did not work while the means of entertainment and transportation costs were significantly higher for employed students.

To further understand the impact of employment, students who worked were divided into two groups, those who worked 15 hours per week or less and those who worked more than 15 hours per week. Three groups of students were then compared using analysis of variance. Only the means and F ratios of the significant variables are reported in Table 16.

The means of the three groups for all three of the resource variables plus the total resource variable were significantly different according to the analysis of variance. Parents of students who did not work contributed the most to their children's education while students who worked more than 15 hours per week were contributing the most to their own education. Students working more than 15

Table 15. Mean comparisons of resources, expense and academic performance variables for employed and nonemployed students

Variable	N	Mean	Standard Deviation	t-value
Parent Contribution				
Nonemployed	157	2,280	2,876	3.20**
Employed	104	1,304	1,787	
Student Contribution				
Nonemployed	157	2,232	3,070	-3.03**
Employed	104	3,568	3,397	
Received Financial Aid				
Nonemployed	157	1,478	1,833	-0.41
Employed	104	1,576	1,785	
Room and Board Costs				
Nonemployed	157	2,544	1,054	1.21
Employed	104	2,389	900	
Personal Expenses				
Nonemployed	157	868	747	1.33
Employed	104	761	493	
Entertainment				
Nonemployed	157	790	496	-1.37
Employed	104	890	573	
Transportation				
Nonemployed	157	281	378	-5.04**
Employed	104	723	764	
Books and Fees				
Nonemployed	157	420	197	0.53
Employed	104	405	229	

*Significant at .05 level.

**Significant at .01 level.

Table 15. (continued)

Variable	N	Mean	Standard Deviation	t-value
Total Resources				
Nonemployed	157	5,990	3,922	-0.93
Employed	104	6,448	3,555	
Total Expenses				
Nonemployed	157	4,903	1,728	-1.18
Employed	104	5,168	1,649	
GPA				
Nonemployed	157	2.56	0.603	0.74
Employed	104	2.50	0.650	

hours per week were also receiving more financial aid.

The groups were significantly different in only one expenditure category and that was transportation. The mean amount spent on transportation was considerably different for the three groups with employed students spending the most on transportation costs (Table 16).

Although the GPAs of employed and nonemployed students were not significantly different, a breakdown of GPA by employment and housing (Table 17) and by employment and classification (Table 18) was examined. It is important to note that the Ns in some of the cells are too small to be valid.

In general, students working more than 15 hours per week had lower GPAs. Students working 15 hours or less and living off campus had the highest GPAs.

GPAs were generally lower at all grade levels for students working more than 15 hours per week. Upperclass students working 15 hours or less per week had the highest GPAs. Freshmen and sophomore students who did not work had higher GPAs than those who did work. It appears that the number of hours per week a student works is important.

Comparing underclass and upperclass students

The mean parental contribution for underclass students was significantly higher at the .10 level than for upperclass students (Table 19). However, the means of

Table 16. Means of selected variables comparing students who do not work, work 15 hours per week or less, and work more than 15 hours per week

Variable	N	Mean	Standard Deviation	F ratio
Parent Contribution				
No work	157	2,280	2,876	4.90**
15 hours or less	58	1,546	1,987	
More than 15 hours	28	804	1,155	
Student Contribution				
No work	157	2,232	3,070	15.54**
15 hours or less	58	2,527	1,886	
More than 15 hours	28	5,726	4,659	
Financial Aid				
No work	157	1,444	1,800	5.41**
15 hours or less	58	1,178	1,550	
More than 15 hours	28	2,481	1,923	
Transportation				
No work	157	281	378	22.71**
15 hours or less	58	609	697	
More than 15 hours	28	959	852	
Total Resources				
No work	157	5,877	3,383	13.48**
15 hours or less	58	5,211	2,351	
More than 15 hours	28	9,010	4,243	
Total Expenses				
No work	157	4,814	1,659	3.28**
15 hours or less	58	4,894	1,517	
More than 15 hours	28	5,665	1,627	

**Significant at .01 level.

Table 17. Mean grade point average by employment

	Residence Hall	Fraternity/ Sorority	Off Campus
Not Employed	2.29 N = 69	2.61 N = 39	2.62 N = 49
15 Hours or Less	2.20 N = 18	2.52 N = 6	2.73 N = 34
More Than 15 Hours	2.36 N = 6	1.99 N = 1	2.43 N = 21

Table 18. Mean grade point average by employment and classification

	No Work	≤ Hours	> 15 Hours
Freshmen	2.38 N = 60	2.04 N = 13	1.90 N = 4
Sophomores	2.71 N = 40	2.32 N = 11	2.39 N = 6
Juniors	2.59 N = 27	2.77 N = 12	2.40 N = 8
Senior	2.71 N = 30	2.83 N = 22	2.60 N = 10

student contribution, financial aid, and total resources were significantly higher for upperclass students. Underclass students spent more on personal expenses while upperclass students spent significantly more on entertainment and transportation. The mean GPA of upperclass students was significantly higher at the .01 level than for underclass students.

Students were also examined by grade level. The analysis of variance indicated that students in the four grade levels differed significantly in the amounts spent on personal expenses and transportation (Table 20). Freshmen students spent more on personal expenses with the amount declining as grade level increased. Senior students spent the most on transportation with the amount increasing by grade level (Table 20). There was also a significant difference in mean cumulative grade point averages among the four groups with GPAs increasing between the freshman and sophomore years and the junior and senior years (Table 20).

Comparing resident and nonresident students

When resident and nonresident students were compared, the expected trends were identified. Nonresident students had significantly higher parental contributions, total resources and transportation costs than resident students (Table 21). In addition, nonresident students spent significantly more on room and board costs. There was also

Table 19. Mean comparisons of resources, expense and academic performance variables for underclass and upperclass students

Variable	N	Mean	Standard Deviation	t-value
Parent Contribution				
Underclass	134	2,122	2,873	1.29
Upperclass	109	1,704	2,165	
Student Contribution				
Underclass	134	2,324	3,012	-2.01*
Upperclass	109	3,173	3,471	
Received Financial Aid				
Underclass	134	1,351	1,730	-1.52
Upperclass	109	1,710	1,900	
Room and Board Costs				
Underclass	134	2,422	833	-0.04
Upperclass	109	2,426	897	
Personal Expenses				
Underclass	134	958	799	3.59**
Upperclass	109	672	415	
Entertainment				
Underclass	134	774	492	-1.66*
Upperclass	109	888	560	
Transportation				
Underclass	134	314	472	-3.60**
Upperclass	109	588	671	
Books and Fees				
Underclass	134	428	215	1.10
Upperclass	109	399	200	

*Significant at .10 level.

**Significant at .05 level.

Table 19. (continued)

Variable	N	Mean	Standard Deviation	t-value
Total Resources				
Underclass	134	5,665	3,394	-2.08*
Upperclass	109	6,587	3,463	
Total Expenses				
Underclass	134	4,897	1,729	-0.37
Upperclass	109	4,974	1,525	
GPA				
Underclass	134	2.42	0.671	-3.33**
Upperclass	109	2.50	0.650	

Table 20. Means of selected variables comparing students by grade level

Variable	N	Mean	Standard Deviation	F Ratio
Personal Expenses				
Freshmen	77	1,037	966	4.70**
Sophomores	57	852	480	
Juniors	47	677	394	
Seniors	62	669	434	
Transportation				
Freshmen	77	240	333	6.08**
Sophomores	57	415	601	
Juniors	47	523	650	
Seniors	62	638	687	
GPA				
Freshmen	77	2.30	.70	6.79**
Sophomores	57	2.60	.60	
Juniors	47	2.60	.53	
Seniors	62	2.74	.51	

**Significant at .01 level.

Table 21. Mean comparisons of resources, expense and academic performance variables of resident and nonresident students

Variable	N	Mean	Standard Deviation	t-value
Parent Contribution				
Resident	173	1,431	1,847	-3.90**
Nonresident	70	3,179	3,563	
Student Contribution				
Resident	173	2,817	3,542	0.99
Nonresident	70	2,429	2,366	
Received Financial Aid				
Resident	173	1,552	1,738	0.50
Nonresident	70	1,415	1,996	
Room and Board Costs				
Resident	173	2,384	931	-1.31
Nonresident	70	2,522	651	
Personal Expenses				
Resident	173	796	589	-1.07
Nonresident	70	913	834	
Entertainment				
Resident	173	831	542	0.27
Nonresident	70	811	487	
Transportation				
Resident	173	485	624	2.32**
Nonresident	70	588	671	
Books and Fees				
Resident	173	410	217	0.58
Nonresident	70	427	189	

*Significant at .05 level.

**Significant at .01 level.

Table 21. (continued)

Variable	N	Mean	Standard Deviation	t-value
Total Resources				
Resident	173	5,800	3,669	-2.26*
Nonresident	70	6,770	2,732	
Total Expenses				
Resident	173	4,907	1,740	-0.40
Nonresident	70	4,991	1,364	
GPA				
Resident	173	2.60	0.627	2.56*
Nonresident	70	2.39	0.575	

a significant difference in the mean grade point averages of the two groups with resident students having higher GPAs.

Summary

According to this analysis, freshmen students received the most financial support from their parents. Parent contribution decreased as grade level increased. Male students were contributing more than female students to their own education; female students received more financial assistance from their parents.

Financial aid recipients received the least amount of support from their parents when comparing all groups. However, aid recipients contributed less of their own resources than nonaid students.

Freshmen students spent more on personal expenses while upperclass students spent more on transportation. More upperclass students lived off campus than underclass students.

Students who worked more than 15 hours per week spent more on both entertainment and transportation. Evidently these students were willing to work more hours to be able to spend more in these two areas. Although the GPA of the student who worked more than 15 hours per week was not significantly lower than the GPA of the student who either did not work or worked less than 15 hours per week, it was the lowest of the three groups.

Even though financial aid recipients had more total resources than nonaid students, they were spending less in all expenditure categories except transportation. It appears that aid recipients, in general, are using their resources carefully. Even students who are borrowing are spending less than nonaid students in every category except transportations. Furthermore, aid recipients are performing academically as well as nonaid students. It appears that financial aid recipients at Iowa State University have a modest but adequate standard of living as is recommended by the federal guidelines.

CHAPTER VI. EVALUATION OF THE MODEL

The results of the regression analysis are presented in this chapter. One of the goals of this study was to examine the impact of financial behavior on a student's academic performance. The model, the hypotheses to be tested, and the variables used in the analysis were presented in Chapter IV.

The direct paths of the model are presented in Table 22. The total, direct and indirect effects of the explanatory and intervening variables are presented in Table 23.

Predictors of student resources

It was hypothesized that student resources are a function of selected socioeconomic characteristics of the student. The predictors of student resources that had significant regression coefficients at the .05 level were parents' adjusted gross income and sex (Table 22). As expected, the higher the parents' adjusted gross income, the higher the total resources of the student. Male students had more resources than female students.

Orthogonal coding was used in the regression analysis to examine the impact of student employment during the academic year on student resources. Three groups of students were compared: (1) students who did not work, (2)

Table 22. Standardized regression coefficients for the variables in the model

Independent Variables	Dependent Variables		
	Total Resources	Total Expenditures	Academic Performance
Parents adjusted gross income	0.11*	0.082	0.0086
Sex of the student	0.10*	0.053	-0.051
High school percentile rank	0.046	-0.093	0.38**
Class	0.070	-0.044	0.10
Contrast 1: On Campus vs. Off Campus	0.051	0.042	0.11*
Contrast 2: Dorm vs. Greek	0.043	0.039	0.069
Contrast 1: Work vs. No Work	-0.065	-0.058	0.048
Contrast 2: Work \leq 15 hrs. vs. Work $>$ 15 hrs.	-0.31**	-0.037	0.074
Total resources		0.34**	-0.019
Total expenditures			-0.13*
R ²	0.14	0.16	0.23
F Ratio	4.74**	4.79**	7.06**
df	8 and 234	9 and 233	10 and 232

*Significant at the 0.05 level.

**Significant at the 0.01 level.

Table 23. Total, indirect and direct effects of model

Dependent Variable	Independent Variable	Total Effect	Indirect Effect Via		Direct Effect
			Resources	Expenditures	
Total Resources	Parents Adjusted Gross Income	0.11			0.11
	Sex	0.10			0.10
	High School Percentile	0.046			0.046
	Class	0.070			0.070
	On Campus vs. Off Campus	0.051			0.051
	Dorm vs. Greek	0.043			0.043
	Work vs. No Work	-0.065			-0.065
	Work < 15 hrs. vs > 15 hrs.	-0.31			-0.31
Total Expenditures	Parents Adjusted Gross Income	0.12	0.038		0.082
	Sex	0.090	0.037		0.053
	High School Percentile	0.078	0.016		-0.093
	Class	-0.021	0.023		-0.044

On Campus vs. Off Campus	0.059	0.017		0.042
Dorm vs. Greek	0.053	0.014		0.039
Work vs. No Work	-0.080	-0.022		-0.058
Work < 15 hrs. vs				
> 15 hrs.	-0.14	-0.103		-0.037
Total Resources	-0.34	--		0.34
Academic				
Performance Parents Adjusted Gross				
Income	-0.0091	-0.007	-0.011	0.009
Sex	-0.064	-0.006	-0.007	-0.050
High School Percentile	0.39	-0.002	0.014	0.38
Class	0.10	-0.000	-0.000	0.10
On Campus vs. Off Campus	0.11	-0.000	0.000	0.11
Dorm vs. Greek	0.061	-0.002	-0.006	0.069
Work vs. No Work	0.060	0.005	0.007	0.048
Work < 15 hrs. vs				
> 15 hrs.	0.099	0.020	0.005	0.074
Total Resources	-0.063	--	-0.044	-0.019
Total Expenditures	-0.13	--	--	-0.130

*Significant at .05 level.

**Significant at .01 level.

students who worked 15 hours per week or less, and (3) students who worked more than 15 hours per week. The orthogonal contrasts were weighted to reflect the number of respondents in each group. Students who did not work were coded 1; students who worked were coded -2. Two orthogonal comparisons were performed. It was hypothesized that the mean of the resources of students who did not work was the same as the average of the means of students who worked 15 hours or less per week and students who worked more than 15 hours per week.

$$\mu_{NW} = \frac{\mu_{< 15} + \mu_{> 15}}{2}$$

where NW = student does not work
 <15 = student works 15 hours or less per week
 >15 = student works more than 15 hours per week.

The results of the analysis showed no significant difference between the two groups. However, since students who worked were coded -2, the beta of -.065 indicated that students who work have more total resources than those who do not work.

It was also hypothesized that the mean of the resources of students who worked 15 hours or less per week was the same as the mean resources of students who worked more than 15 hours per week.

$$\mu_{< 15} = \mu_{> 15}$$

where <15 = student works 15 hours or less per week
 >15 = student works more than 15 hours per week.

As in the previous contrast, the orthogonal contrasts were weighted to reflect the number of respondents in each group. For this contrast, students who did not work were coded 0; students who worked 1 through 15 hours per week were coded 6 and students who worked more than 15 hours per week were coded -11.

Results of the analysis indicated there is a significant difference between these two groups. Students who worked more than 15 hours per week had significantly more total resources than those who worked 15 hours or less per week.

Orthogonal coding was also used to examine the relationship between a student's choice of housing and the student's resources. Students in three different housing situations were compared: (1) residence halls, (2) fraternities and sororities, and (3) off campus housing. Again, the orthogonal contrasts were weighted to reflect the number of respondents in each group. Students living in the residence halls or in fraternities and sororities were coded -2; students living in off campus housing were coded 1. It was hypothesized that the average mean of the resources of students living in the residence halls and

fraternities and sororities was equal to the mean resources of students living off campus.

$$\mu_{OC} = \frac{\mu_R + \mu_{F+S}}{2}$$

where R = student lives in residence hall
 F + S = student lives in fraternity or sorority
 OC = student lives off campus

It was also hypothesized that the mean resources of students living in residence halls equaled the mean resources of students living in fraternities and sororities. For this analysis, students living in the residence halls were coded -3 and students living in fraternities and sororities were coded 5.

$$\mu_R = \mu_{F+S}$$

where R = student lives in residence hall
 F + S = student lives in fraternity or sorority

Neither hypothesis was rejected. The mean total resources of the students living in the three different housing situations were not significantly different.

Neither high school percentile nor class rank was significant in predicting total resources.

The R^2 for the regression of total student resources on the exogenous variables was .14 which indicates that 14

percent of the variance in total student resources was explained by the exogenous variables in the model. The F ratio of 4.74 was significant.

Predictors of student expenditures

It was hypothesized that student expenditures are a function of selected socioeconomic characteristics and total resources of the student. As expected, the total resources of students were significant in predicting total expenditures. Furthermore, the standardized regression coefficient was positive indicating students with more resources spent more money.

Orthogonal contrasts compared students living in the three different housing situations. The weighted codes for these contrasts are given on page 125. Although it was expected that the expenditures of students living on campus (residence halls, fraternities and sororities) would be significantly lower than off campus students, this was not the case. The regression coefficient was positive indicating the mean expenditures of off campus students was slightly higher, but the difference was not significant. When the means of the expenditures of students in residence halls and students living in fraternities and sororities were compared, they also were not significantly different. However, the positive regression coefficient indicated that students in fraternities and sororities were

spending more than students in the residence halls.

None of the other variables was significant in predicting the total expenditures of students.

The R^2 for the regression of total expenditures on total resources and the exogenous variables was .16 indicating only 16 percent of the variance in total expenditures was explained by these variables. The F ratio of 4.79 was significant.

Interaction of total resources and housing

Additional regressions were run to test for interaction effects with all of the dependent variables in the model (total resources, total expenses and GPA). When one variable affects the relationship of two other variables, an interaction effect is present. The only interaction effect identified in the model was the interaction of total resources and housing on total expenditures. There was a different relationship between total resources and total expenditures when students living on and off campus (Housing Contrast 1) were compared (Figure 7). The regression equation which included the interaction variable of total resources and housing, tested the hypothesis that the relationship between total resources and total expenditures was suppressed by type of housing. While controlling for the exogenous variables, the following regression equation was tested and is presented in Figure 7.

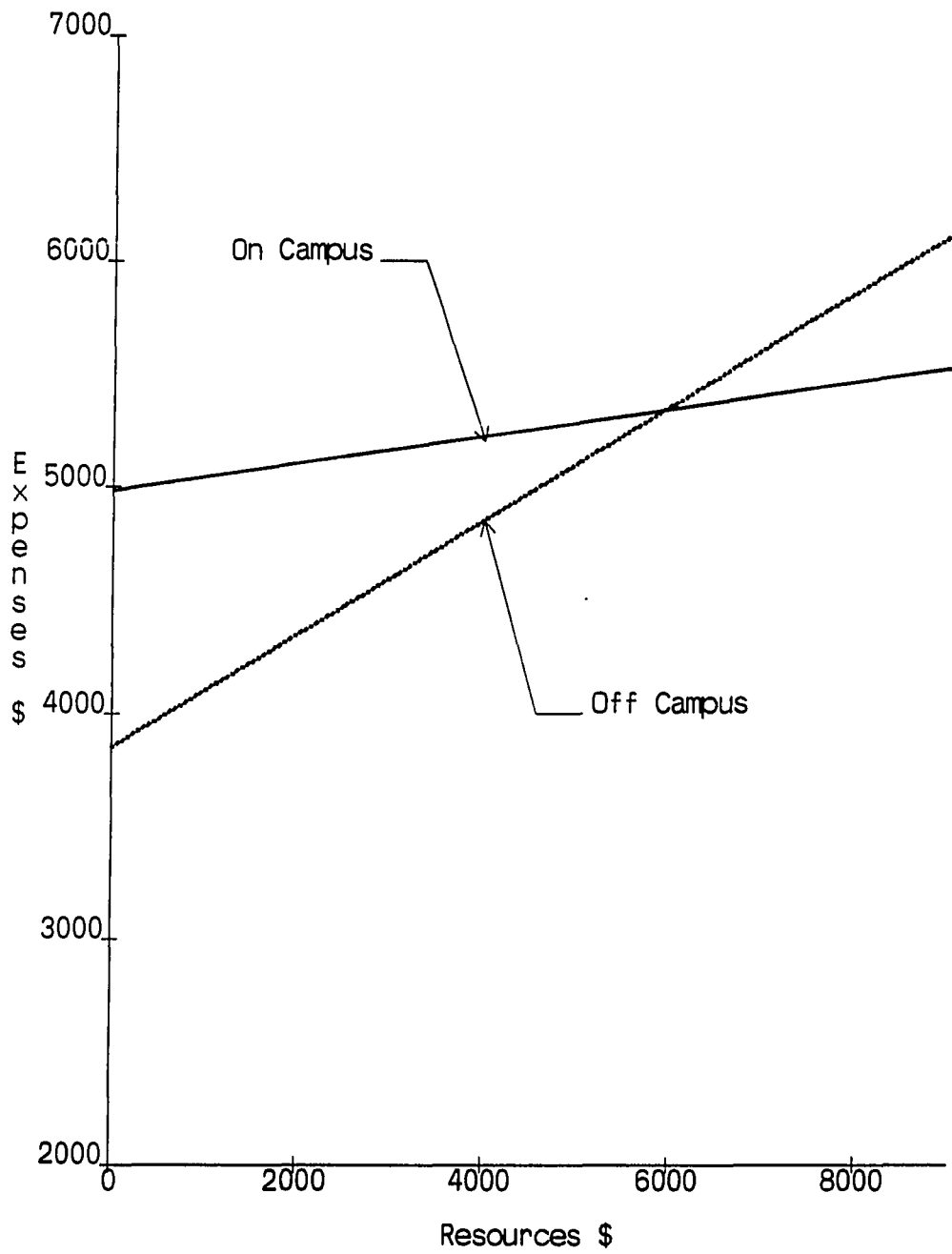


Figure 7. Academic year expenses versus resources of students living on and off campus

$$Y = 4227 - 378.2X_1 + .1879X_2 + .0638X_3$$

where Y = total expenditures
 X_1 = housing
 X_2 = total resources
 X_3 = housing and total resources
 and X_1 = -2 for students in residence halls
 = -2 for students in fraternities and sororities
 = 1 for students living off campus

Based on this analysis, the effect of total resources on expenditures depended on where the student lived. The expenditures of students living on campus remained relatively constant as resources increased. Room and board costs in the residence halls were fixed and there appeared to be little variation in the other costs that on campus students had. Furthermore, the amount of resources had little impact on total expenditures. There was only a slight increase in expenditures relative to increases in resources.

However, the slope of the off campus regression line was much steeper than the on campus regression line. The expenditures of an off campus student depended on the amount of resources the student had. Off campus students with fewer resources had fewer expenditures. The mean total resources for students was \$6,079. At the mean of total

resources, there was little difference between the expenditures of on and off campus students. However, the expenditures of off campus students with fewer resources and also with greater resources were considerably different than the expenditures of the on campus student with fewer resources and also with greater resources. Single undergraduate students with fewer resources were able to live off campus more cheaply than on campus. On the other extreme, students with more resources chose off campus housing and a lifestyle that was more costly than that of on campus students. It appears that housing is a suppressor in the relationship between resources and expenses.

More variation in the dependent variable, total expenditures, was explained when the interaction variable was included in the model. The R^2 increased from .16 to .19 with 10 and 232 degrees of freedom. The adjusted R^2 increased from .12 to .15. When the interaction variable was in the model, the F ratio of 5.27 was significant (Table 24). The interaction variable had no impact on academic performance (Table 24).

Predictors of academic performance

High school percentile with a regression coefficient of .380 was significant in predicting academic performance (Table 22). This finding supports previous research reported in the literature. However, the total expenditure

Table 24. Standardized regression coefficients for the variables in the model which includes the interaction of resources and houses

Independent Variables	Dependent Variables	
	Total Expenditures	Academic Performance
Parents adjusted gross income	.10*	.014
Sex of the student	.06	-.048
High school percentile rank	-.11*	.38**
Class	-.029	.11
Contrast 1: On Campus vs. Off Campus	-.33**	.050
Contrast 2: Dorm vs. Greek	.043	.081
Contrast 1: Work vs. No Work	-.030	.052
Contrast 2: Work \leq 15 hrs. vs. Work $>$ 15 hrs.	.0030	.080
Interaction of resources and housing	.39**	.069
Total resources	.38**	-.0045
Total expenditures		-.15**
R ²	0.19	0.24
F Ratio	5.27**	6.53**
df	10 and 232	11 and 231

*Significant at the 0.05 level.

**Significant at the 0.01 level.

variable was also significantly related to academic performance and the relationship was negative. Students with greater expenditures had lower grade point averages. Spending money is time consuming. Most activities that cost money also take time. Time spent in consumer activities means less time is available for studying. Furthermore, students who worked more than 15 hours per week had more total resources and students with higher resources spent more. Although the orthogonal contrast comparing students who worked less than 15 hours per week with those who worked more than 15 hours per week was not significant, it was positive indicating students who worked more than 15 hours a week tended toward lower grade point averages.

The analysis also showed a significant difference between students living on and off campus with off campus students having higher cumulative grade point averages. However, descriptive statistics revealed that upperclass students had higher GPAs and more upperclass students lived off campus.

The R^2 for the model with all the variables in the equation was .23. Twenty-three percent of the variance in academic performance was explained by the variables in the model. The F ratio of 7.06 was significant (Table 22).

It was hypothesized that expenditures is an intervening variable between a student's socioeconomic characteristics

and resources and the dependent variable, academic performance. The total effect of resources on academic performance is .063 of which 70 percent ($.044/.063 \times 100 = 70\%$) is transmitted via expenditures, while 30 percent ($.019/.063 \times 100 = 30\%$) is a direct effect. Seventy percent of the effect of resources on academic performance is explained by the expenditures of the student. Only 30 percent is a direct effect. Therefore, it appears that expenditures do have a mediating effect on academic performance. As mentioned earlier, time is an important factor. Time spent working to increase resources for expenditures and/or the time it takes to make the expenditures reduce the time available for studying.

When examining the direct and indirect effects of the independent variables on total expenditures, the effect of the housing contrast which compares students living on and off campus is only partially transmitted through resources. Twenty-nine percent of the effect of the housing variable on expenditures is transmitted through resources ($.017 \times .059 \times 100 = 29\%$). Seventy-one percent ($.042/.059 \times 100 = 71\%$) is a direct effect.

For the employment contrast which compares students who work less than 15 hours per week with those who work more than 15 hours per week, seventy-four percent of the total effect of this employment variable on total expenditures is

transmitted through resources ($-.103/-.14 \times 100 = 74\%$) and 26 percent ($-.037/-.14 \times 100 = 26\%$) is transmitted directly.

CHAPTER VII. DISCUSSION AND CONCLUSION

Purpose

The purpose of this study was to examine the impact of financial behavior on academic performance. The analysis consisted of two parts. (1) Descriptive statistics were used to compare the resources, expenditures and academic performance of different types of students and to assess the impact of employment and housing on expenditures and academic performance. (2) Regression analysis was used to examine the relationship between financial behavior and academic performance.

Procedure

Data for the analysis were collected during the fall semester of 1985 from a random sample of students drawn from the Registrar's record of undergraduate students at Iowa State University. A telephone survey was conducted by employees of the Financial Aid and Student Employment Office during the last two weeks of November and the first week of December. Only single undergraduate students taking 9 credits or more were selected from the total group for use in this study. Missing values for the exogenous variables were recoded to the mean value of the variable. Predicted values were calculated and used for the missing values of the endogenous variables. The sample for this study

consisted of 243 cases.

Students reported their resources, expenditures, number of hours worked per week, type of housing and parents' adjusted gross income. Information about marital status, classification, high school percentile and cumulative grade point average were gathered from university records.

Descriptive statistics were used to identify the resources, spending patterns, and academic performance of different types of students. T-tests of significance and one-way analysis of variance were used to compare groups.

In the regression analysis, socioeconomic variables were used as exogenous variables. The variable measuring the resources of the student was the independent variable and the intervening variable was student expenditures. Academic performance as measured by the student's cumulative grade point average was the dependent variable.

Based on the theoretical model, it was hypothesized that the academic performance of the student would be predicted by the student's resources, the student's expenditures, and the exogenous variables.

Major Findings

In several categories, the resources of men and women students were significantly different. The student contribution and total resources of men were significantly higher than the amounts for women. Men spent significantly

more on room and board costs, entertainment and transportation while women spent more on personal expenses.

When comparing the mean values of financial aid recipients and nonrecipients, there were no significant differences between the two groups in total resources and total expenses. However, differences in types of resources and expenditures were evident. Nonaid recipients received significantly more resources from parents and aid recipients received more financial aid. There was no significant difference between the two groups in entertainment costs. However, aid recipients spent significantly more in the transportation category while nonrecipients had higher mean values than aid recipients in all the other expense categories. There was no significant difference between the two groups in academic performance.

It was expected that students with loans would have higher expenditures especially in some budget categories. However, students with loans spent significantly more only on transportation costs.

Resources and expenditures varied depending on the student's choice of housing. When comparing students in residence halls, fraternities and sororities with students living off campus, off campus students had significantly higher student contributions, total resources, entertainment costs, and transportation costs. On campus students spent

significantly more on personal expenses. The cumulative grade point averages of off campus students were also significantly higher.

When comparing students in the three types of housing (residence halls, fraternities and sororities, and off campus), the groups were significantly different in all categories except financial aid received and room and board costs. Off campus students had significantly higher student contributions and total resources. They also had significantly higher transportation costs and total expenditures.

When comparing students who worked during the academic year with those who did not, total resources and total expenses were not significantly different for the two groups. However, employed students contributed more to their own education while the parents of nonemployed students contributed significantly more. Employed students also spent significantly more on transportation.

When comparing three groups (students who did not work, worked 15 hours or less per week, or worked more than 15 hours per week), all of the resource variables of the three groups were significantly different; transportation costs and total expenses were also significantly different for the three groups. Off campus students spent the most on transportation and students in residence halls the least.

Employment appears to have a negative impact on academic performance only if the student works more than 15 hours per week.

Underclass students and upperclass students were significantly different in the categories of student contribution, personal expenses, entertainment, transportation, and total resources. Upperclass students contributed more to their own education, and had higher total resources. They also spent more on entertainment and transportation and had significantly higher GPAs. Underclass students received more assistance from their parents and spent more on personal expenses and books and fees.

Nonresident students received significantly more financial support from their parents and had higher total resources. They also spent more on transportation. Resident students had significantly higher GPAs than nonresident students.

The hypothesis that student resources are a function of selected socioeconomic characteristics of the student was not rejected. The R^2 was .14 and the F ratio of 4.74 was significant at the .05 level.

The hypothesis that student expenses are a function of selected socioeconomic characteristics of the student was rejected. The R^2 of .06 and the F ratio of 1.80 were not

significant.

The hypothesis that student expenses are a function of selected socioeconomic characteristics of the student and student resources was not rejected. Sixteen percent of the variance in total expenditures was explained and the F ratio of 4.79 was significant.

The hypothesis that academic performance was a function of selected socioeconomic characteristics of the student was not rejected. The R^2 was .22 and the F ratio of 8.03 was significant.

The hypothesis that academic performance was a function of selected socioeconomic characteristics and student resources was not rejected. The R^2 of .22 indicated that 22 percent of the variance in academic performance was explained by the antecedent variables. The F ratio of 7.26 was significant.

The hypothesis that academic performance was a function of selected socioeconomic characteristics, student resources and student expenditures was not rejected. Twenty-three percent of the variance in academic performance was explained in the model. The F ratio of 7.06 was significant.

The analysis also indicated that student expenditures have a mediating affect on academic performance and serve as an intervening variable between student resources and

academic performance.

Conclusions

Results of this study indicate that students and families have financial choices, there are financial trends that families can anticipate and certain financial patterns can affect academic performance. Men have higher total costs than women and men are spending more on room and board, entertainment and transportation than women. But men contribute more to their own education while women receive larger contributions from their parents.

Families can plan on different resources and expenditures over the four-year period. The parental contribution is higher during the first two years while the student contribution is significantly higher during the junior and senior years. As a result, total resources were significantly higher for upperclass students. Underclass students spent more on personal expenses but upperclass students spent more on entertainment and transportation. GPAs also were higher for upperclass students.

When comparing financial aid recipients and nonrecipients, aid recipients spent significantly less in all expense categories except transportation and entertainment. However, in only one category, transportation, did aid recipients spend significantly more than nonaid students.

The type of housing a student chose had an impact on both total costs and on expenditures in different budget categories. Students living in fraternities and sororities had the highest costs. It was assumed that the costs of students living in fraternities and sororities would be similar to those of students in the residence halls. However, the orthogonal contrasts used in the regression analysis revealed that the expenditures of students living in the Greek system were higher but not significantly higher than the costs of students in the residence halls.

Results of the t-tests revealed that the mean values of the resource and expenditure categories of students in the residence halls were significantly lower than those of students living off campus. Only in the category of personal expenditures did residence hall students spend significantly more than off campus students. In all other expense categories except room and board where there was no difference, off campus students spent significantly more.

However, the regression analysis revealed an interaction between housing and resources which indicated that students with fewer resources who were living off campus spent considerably less than residence hall students. But off campus students with higher resources spent considerably more than residence hall students. Students living off campus had greater flexibility than students in

residence halls.' They could cut their costs by the type of housing and number of roommates they chose. Students living off campus also provided more of their own resources than on-campus students. However, this may have been due in part to the fact that more upperclass students lived off campus. The cumulative grade point averages of off campus students were higher which also is affected by the larger number of upperclass students in off campus housing. Off campus students spent significantly more on entertainment and more on transportation than on-campus students.

Employment does not appear to have a significant impact on academic performance. Students who worked 15 hours or less per week had fewer total resources than nonworkers and students working more than 15 hours per week. Working students spent more on transportation than nonworking students.

An important finding in this study is that students with greater expenditures have lower grade point averages. Consumer activities take time. Furthermore, students who worked more than 15 hours per week had higher expenditures. The time spent in both consumer activities and in acquiring resources reduced the time available for studying.

According to this study, most students are contributing to their own education. Financial aid recipients contributed 41 percent of their total resources while nonaid students contributed even more, 47 percent. Although 65

percent of the students did not work during the academic year, they were contributing 37 percent of their educational costs from their summer earnings and savings. Students who worked 15 hours or less per week during the academic year contributed 48 percent to their own educational costs; students who worked more than 15 hours contributed 64 percent.

The results of this analysis indicate that students and families have options when planning for their educational costs. Students who choose to live in fraternities or sororities are likely to have higher costs. Students can choose living situations off campus that are considerably less expensive than the residence hall costs. Transportation is a major expense for some students; the expense of a car can increase total educational costs. Students who need to minimize costs may have to delay having the convenience and pleasure of a car until they are out of school.

It is evident that students and families are sharing educational costs. In general, students are contributing about half of their educational expenses.

A family's consumption patterns, their economizing behavior, their response to financial stress, their aspirations and preferences, and their cultural norms will all influence how a family makes decisions about the

educational costs for their children. Families need to be aware of the options available to them and to make informed consumer decisions about educational costs. Students and parents together should assess resources, estimate costs, and make decisions. Parents need to discuss with their children the limitations of the financial commitment they are willing to make to educational expenses. It appears that students are contributing financially to their own education with a minimal impact on their academic performance. Although both parents and students need to make sacrifices, it appears the financial burden can be shared. In many families, both the parents and the students will have to accept a deferred standard of living while the children are attaining their educational goals. According to this study, some students are willing to work half time or more while they are in school to enjoy a higher level of living. However, students with greater expenditures have lower grade point averages; students who desire a higher level of living while they are in school need to be aware that it may impact on their academic performance.

Recommendations

It is recommended that information about specific costs, different housing options, and the impact of employment be available to families so they can make informed decisions. This information could be available to

entering students and their families when they visit campus during their senior year prior to enrolling at Iowa State or during their orientation visit to campus. It is recommended that a money management session for both parents and students be part of the orientation schedule. This information could also be part of financial planning information as families make long range plans for their children's education. Money management workshops directed particularly to freshmen and sophomore students could advise students on the efficient use of their resources and the results of this study could help them make decisions about their remaining educational expenditures.

The data for this study were limited to the student population at Iowa State University and therefore can not be generalized to students at other educational institutions. It is recommended that the study be replicated at other institutions so that comparative studies can be done.

It is recommended that the study be repeated at Iowa State University biannually to insure that current information is available to families. Gathering data with both a mail questionnaire and a telephone survey instrument to compare results is also recommended.

Facing the financial obligations of postsecondary education is overwhelming for many students and families. The availability of financial aid programs in the past

shifted the burden of financing a college education from the student/family to the federal government. Because federal aid programs were available to both low income and middle income families, many families were no longer willing to sacrifice for their children's education. With the current reduction in federal aid programs, families will once again have to assume the financial responsibility for their children's education.

Often emotions are tied to financial matters which prevent rational decisions about finances. Many families do not communicate well about family finances. In some cases, parents who are financially comfortable and have the resources for their children's education convey the message that there are limited resources available. In other cases, parents do not inform their children of the family's financial limits, and the children make educational choices that will mean extreme sacrifices for the parents. Furthermore, discussions about postsecondary educational decisions come at a time when communication is strained between parents and teenagers. As noted earlier, the economizing behavior and financial stress levels of families differ. Families need to discuss their financial parameters for educational costs and together make the decisions about educational goals and options. As this study shows, parents and students need to work together to meet educational costs.

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APPENDIX. TELEPHONE SURVEY

TELEPHONE SURVEY

Hello. Is this _____?

This is _____ at Iowa State University.

IF NO. The number I was calling is _____ and I am trying to reach

(first and last name)

IF WRONG NUMBER, TERMINATE WITH, E.G.; I am sorry to have bothered you.

IF NUMBER HAS BEEN DISCONNECTED, SEPARATE FOR MAILOUT.

I am calling from the Student Affairs Research Office. We are conducting a study to estimate the financial resources needed by students attending Iowa State University.

You have been randomly selected to participate in this very important study. You will be asked to provide some information about yourself, how much you spend for educational expenses, and how you get the money to pay for your educational expenses. The questions I need to ask should take about 15 minutes. Your responses will be completely confidential. The information you give us will be recorded by an identification number. Your name will not be placed on the questionnaire. I want to also add that I will be happy to answer any questions you might have about the study, either now or later. We very much appreciate your cooperation. Do you have a few minutes to help us?

ID Number _____

Phone Number _____

Interviewer _____

Number of Phone Attempts: 1st _____ 2nd _____ 3rd _____

ID Number _____

The first questions identify your special needs and spending patterns.

1. Are you classified as a non-resident for the purpose of paying tuition and fees? _____

0. NO
1. YES

2. What is your current martial status? _____

1. NEVER MARRIED
2. MARRIED
3. DIVORCED
4. SEPARATED
5. WIDOWED
6. LJVING TOGETHER, BUT NOT LEGALLY MARRIED.

3. Do you have children? _____

0. NO (Go to question 9)
1. YES (Go to Question 4)

- 4-8. Please indicate the number of children in each age group. (Record actual number in each age group).

4. UNDER 5 YEARS
5. 5 to 13
6. 14 to 18
7. 19 to 24
8. 25 and ABOVE

9. Is your spouse in school? _____

0. NO
1. YES, FULL TIME
2. YES, PART TIME

Living Expenses

Now I would like to ask a few questions to help us understand your living expenses.

10. Where are you living? _____

1. RESIDENCE HALL OR DORMITORY (Go to question 15)
2. FRATERNITY OR SORORITY (Go to Question 15)
3. UNIVERSITY APARTMENT (Pammel Court, Schilleter Village, Hawthorne Court, University Village)
4. PARENT'S OR RELATIVE'S HOME
5. ROOM WITHOUT COOKING FACILITIES
6. APARTMENT
7. DUPLEX OR CONDOMINIUM
8. TRAILER
9. HOUSE

(The following questions are for students who do not live in a residence hall.)

11. Do you rent or own your housing? _____

1. RENT
2. OWN
3. DOESN'T APPLY, LIVING WITH PARENTS

12. How many roommates do you have or If married or a single parent, how many dependents live with you - spouse and/or children? (Do not include the student being interviewed.) _____

13. How much does it cost each month for your housing (rent, house payment)? If you share expenses with others, give only your share of the rent. (Include lot rent, if student lives in a trailer.) _____

1. _____
8. DOESN'T APPLY, LIVES WITH PARENT
9. DON'T KNOW

14. Does your rent payment include utilities? _____

0. NO
1. YES
8. DOESN'T APPLY
9. DON'T KNOW

15. How much do you spend each month for utilities - water, sewage, electricity, gas, garbage collection? Do not include your telephone costs. If you are single and share housing give only the amount you pay. If married give total amount for your family. _____

1. _____
8. DOESN'T APPLY
9. DON'T KNOW

16. How much do you spend each month for your telephone? _____

Personal and Recreational Expenses

For all Students

(If student is married, give total for student, spouse and children.)

17. Do you have health insurance? _____
1. YES, THROUGH MY PARENTS COVERAGE
 2. YES, THROUGH IOWA STATE UNIVERSITY
 3. YES, THROUGH MY EMPLOYER
 4. YES, I PAY THE TOTAL COST MYSELF
 5. NO, I DO NOT HAVE HEALTH INSURANCE
18. If you have health insurance, what is your annual payment? _____
1. _____
 8. DOESN'T APPLY
 9. DON'T KNOW
19. Do you have life insurance? _____
0. NO
 1. YES
20. If you have life insurance, what is your annual payment? _____
1. _____
 8. DOESN'T APPLY
 9. DON'T KNOW
21. How much did you spend in the last twelve months on medical and dental care? _____
22. How much do you spend each month on medicine, prescriptions? _____
23. How much do you spend each month on personal supplies such as soap, shampoo, hair cuts, cosmetics? _____
24. How much do you spend each week on laundry, detergent, drycleaning? _____
25. How much do you spend each week for groceries? If you share expenses, give only your share of grocery expenditures. If married give the total for yourself, spouse and children. _____
26. How much do you spend each week for lunches while you are on campus? _____
1. _____
 8. DOESN'T APPLY
 9. DON'T KNOW

27-32. How much do you spend each week on the following items?

- 27. ENTERTAINMENT (Movies, plays, concerts) _____
- 28. ALCOHOLIC BEVERAGES _____
- 29. TOBACCO _____
- 30. MEALS IN RESTAURANTS (do not include lunches
purchased on campus during the week) _____
- 31. SNACKS FROM VENDING MACHINES _____
- 32. RECORDS, TAPES _____

33. How much will you spend this academic year on athletic events - football, basketball, wrestling events. _____

34. How much do you spend each month for cable T.V.? _____

35. How much do you spend each month for clothing? If you are married, include total amount for yourself, spouse and children. _____

36. How much do you spend each month for sorority or fraternity expenses? _____

- 1. _____
- 8. DOESN'T APPLY
- 9. DON'T KNOW

37. How much do you spend each month to repay consumer loans, educational loans, charge accounts, credit cards - do not include car payments or automobile insurance? _____

38. How much do you spend each month for child care, babysitter, co-op, nursery school, etc.? _____

- 1. _____
- 8. DOESN'T APPLY
- 9. DON'T KNOW

Books and Supplies

39. How much did you spend this semester on books and supplies? _____

40. How much did you spend this semester on additional fees and/or supplies - i.e. computer fee, calculator, art supplies? _____

Transportation Expenses

Now I would like to ask a few questions about your transportation expenditures.

41. How far do you live from campus during the academic year? (Enter the number of miles. If the student lives in a dorm, enter 0, if the student lives less than a mile enter 1.) _____

42. How do you travel from your residence to campus? _____
1. WALK OR HITCH HIKE
 2. BICYCLE
 3. MOTORCYCLE OR MOPED
 4. CAR OR VAN
 5. CARPOOL OR SHARE RIDE
 6. PUBLIC TRANSPORTATION OR SHUTTLE BUS
43. Where do you work during the school year?
(Read answers) _____
1. ON-CAMPUS
 2. OFF-CAMPUS
 3. I WORK BOTH ON AND OFF CAMPUS
 4. I DO NOT HAVE A JOB DURING THE SCHOOL YEAR. (Go to Question 45)
44. If you have a job while you are in school,
how do you get to work? _____
1. WALK OR HITCH-HIKE
 2. MOTORCYCLE OR MOPED
 3. CAR OR VAN
 4. CARPOOL OR SHARE A RIDE
 5. PUBLIC TRANSPORTATION OR SHUTTLE BUS
45. What means of transportation do you use most to do
your shopping? _____
1. WALK OR HITCH-HIKE
 2. BICYCLE
 3. MOTORCYCLE OR MOPED
 4. CAR OR VAN
 5. CARPOOL OR SHARE A RIDE
 6. PUBLIC TRANSPORTATION OR SHUTTLE BUS
46. How much do you spend each month for transportation
for all purposes? Include gas, oil, parking,
bus fare - do not include car payments, insurance. _____
47. How many miles from Iowa State is your parent's home?
(If student is married, student responding should
give the information on his/her parents.) _____
48. How many times will you return to your parent's
home this school year? (If married, student
responding should give answer.) _____
1. _____
 8. DOES NOT APPLY
 9. DON'T KNOW
 10. REFUSAL

49. How will you travel to your parents' home?
(Indicate the way you usually travel.) _____

1. WALK OR HITCH-HIKE
2. BICYCLE
3. MOTORCYCLE OR MOPED
4. CAR OR VAN
5. BUS
6. TRAIN
7. PLANE
8. DOESN'T APPLY (Has no parents or will
not return to parent's home.)
9. DON'T KNOW
10. REFUSAL

50. How much do you plan to spend this academic year
for transportation between your campus residence
and your parents' home? Include bus, train or plane
fare, gas, and oil. Do not include vehicle payments,
insurance, repairs, or license plates.
(Estimate the cost of one trip
and multiply by the number of trips planned.
If the student is sharing a ride with others, give
only the portion the student interviewed pays.
If student is married, give the total amount
needed to visit both parents.) _____

51. Do you have a car? Answer yes if you own a car
or if your parents provide a car for you. _____

0. NO (Go to Question 54)
1. YES (Go to Question 52)

These Questions are Only for Those Who Own a Car

52. What are your monthly car payments?
If your car is paid for, enter 0. _____

53. How much do you pay for car insurance each year? _____

1. _____
2. PARENTS PAY INSURANCE
3. I HAVE NO INSURANCE
8. DOESN'T APPLY
9. DON'T KNOW

For All Students

54. Do you own a stereo? _____

0. NO
1. YES

55. Do you own a television set? _____

0. NO
1. YES

56. Do you own a VCR?

0. NO
1. YES

57. Have you had any unusual living expenses this past month that are not covered in the previous questions?

0. NO
1. YES

58. If yes, what were they? (i.e, alimony, child-support, expenses related to a handicap)
(Write this answer below.)

Type of Expense

Amount of Expense

Sources of Income

Students use a variety of income sources to pay for their education. Please give us the amount you are receiving in the 1985-86 academic year - fall and spring semesters - from the following sources:

59. Student's wages and salaries, tips earned during 1985-86 fall and spring semesters (before taxes). _____
60. Spouse's wages, salaries, tips earned during 1985-86 fall and spring semesters (before taxes). _____
61. Financial assistance from student's parents _____
62. Financial assistance from spouse's parents _____
63. Savings from Summer Job (If spouse has summer savings, enter total of student and spouse.) _____
64. Funds from savings accounts, interest, dividends - other than summer savings _____
65. Scholarships _____
66. Pell Grant _____
67. ISU Grant _____
68. NDSL or ULTL _____
69. Guaranteed Student Loan _____
70. Vocational Rehabilitation _____
71. Unemployment Insurance _____
72. AFDC or ADC benefits _____
73. Social Security benefits _____
74. Veterans benefits (educational and other) _____
75. Gifts, contributions from others.
What is the source? _____
76. How much spending money (money for snacks, entertainment, personal items) do your parents give you each month? (What is your average spending allowance per month?) _____
77. Did your parent's claim you as a tax exemption in 1984? _____
 0. NO
 1. YES
 8. DOESN'T APPLY
 9. DON'T KNOW

79. What was your parents' approximate adjusted gross income in 1984?

- 1. _____
- 8. DOESN'T APPLY
- 9. DON'T KNOW

80. What is your father's occupation? _____

- 1. _____
- 8. DOESN'T APPLY
- 9. DON'T KNOW

81. What is your mother's occupation? _____

- 1. _____
- 8. DOESN'T APPLY
- 9. DON'T KNOW

82. How many hours per week do you work? _____

- 1. _____
- 8. DOESN'T APPLY
- 9. DON'T KNOW

83. Do you feel working has had a positive or negative affect on your academic performance? _____

- 0. NEGATIVE
- 1. POSITIVE
- 8. DOESN'T APPLY, NOT EMPLOYED
- 9. DON'T KNOW

84. Did you use the University Short Term Loan program fall semester? _____

- 0. NO
- 1. YES

85. Would you have been able to attend school this year without financial aid (from the Financial Aid and Student Employment Office)? _____

- 0. NO
- 1. YES
- 8. DOESN'T APPLY, NOT RECEIVING AID

86. Have you borrowed to finance your education - from NDSL, ULTL, GSL, PLUS, Consumer loans? Do not include the University Short Term Loan. _____

- 0. NO
- 1. YES

87. If you have not borrowed, do you expect to have to borrow by the time you finish your education? _____
- 0. NO
 - 1. YES
 - 8. DOESN'T APPLY, I HAVE BORROWED
 - 9. DON'T KNOW
88. What is the interest rate on the repayment of your GSL? _____
- 1. 7%
 - 2. 8%
 - 3. 9%
 - 8. DOESN'T APPLY, HAS NOT RECEIVED GSL
 - 9. DON'T KNOW
 - 10. REFUSAL
89. How much total GSL debt do you currently have? _____
- 1. _____
 - 8. DOESN'T APPLY
 - 9. DON'T KNOW
 - 10. REFUSAL
90. How much total GSL debt does your spouse have? _____
- 1. _____
 - 8. DOESN'T APPLY
 - 9. DON'T KNOW
 - 10. REFUSAL
91. How much total National Direct Student Loan or University Long Term Loan debt do you currently have? _____
- 1. _____
 - 8. DOESN'T APPLY, DOES NOT HAVE NDSL OR UNIVERSITY LONG TERM LOAN
 - 9. DON'T KNOW
 - 10. REFUSAL
92. If you are married, how much total National Direct Student Loan or University Long Term Loan debt does your spouse have? _____
- 1. _____
 - 8. DOESN'T APPLY, DOES NOT HAVE NDSL OR UNIVERSITY LONG TERM LOAN OR NOT MARRIED
 - 9. DON'T KNOW
 - 10. REFUSAL
93. By the time you complete your education, how much total debt do you expect to have? (include GSL, NDSL, ULTL) _____
- 1. _____
 - 8. DOESN'T APPLY, DOESN'T EXPECT TO BE IN DEBT
 - 9. DON'T KNOW
 - 10. REFUSAL

94. If you are married, how much total debt does your spouse expect to have by the time his/her education is completed (include GSL, NDSL, ULTL)? _____

1. _____
8. DOESN'T APPLY, DOESN'T EXPECT TO BE IN DEBT
9. DON'T KNOW
10. REFUSAL

95. What do you consider a reasonable level of debt to incur to complete your undergraduate education (for a bachelor's degree)? _____

1. _____
8. DOESN'T APPLY
9. DON'T KNOW
10. REFUSAL

96. What do you expect your starting salary will be after you graduate? _____

1. _____
8. DOESN'T APPLY
9. DON'T KNOW
10. REFUSAL

(Interviewer: You will need to read the answers for the following questions.)

97. Do you use charge accounts and/or credit cards? _____
1. NEVER
 2. SELDOM
 3. SOMETIMES
 4. OFTEN
 5. ALWAYS
 6. DON'T KNOW
 7. REFUSAL
98. How often do you worry about money matters? _____
1. NEVER
 2. SELDOM
 3. SOMETIMES
 4. OFTEN
 5. ALWAYS
 6. REFUSAL
99. How important is it to you not to have debts? _____
1. VERY UNIMPORTANT
 2. UNIMPORTANT
 3. NEUTRAL
 4. IMPORTANT
 5. VERY IMPORTANT
 6. REFUSAL
100. How satisfied are you with your financial situation? _____
1. VERY DISSATISFIED
 2. DISSATISFIED
 3. NEUTRAL
 4. SATISFIED
 5. VERY SATISFIED
101. How do you describe your level of living while you are going to school? _____
1. LOW
 2. MODERATE
 3. GOOD
 4. HIGH
 5. REFUSAL

Your contribution to this research is appreciated. Thank you for your cooperation.

ADDITIONAL INFORMATION

Major _____

College _____

Year _____

GPA _____

Marital Status _____

Ethnic Origin _____

Citizenship _____

Age _____

Receives Financial Aid: Yes _____ No _____