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ABSTRACT

Because of the rapid growth of the State of Florida during the 60's, educational decisionmakers have decided that a 3-stage public university system is best suited to fulfill Florida's educational needs. The first and third levels are already well established. The first level is comprised of 2-year community colleges and the third is comprised of those institutions offering graduate programs through the Ph.D. The second level is comprised of those institutions that offer only junior and senior year programs and limited graduate work. Such an institution is Florida International University (FIU), which will open its doors in the fall of 1972. From its inception, FIU has envisioned itself as a metropolitan-commuter university specifically designed to serve the needs of numerous community college graduates who want to continue their college educations. This document provides data concerning the potential students at FIU, including information about socioeconomic status of the families and educational background. It is evident from the data that the demand for an institution of this type exists, and that the planned expansion of the University to other areas of the state probably will be feasible. (HS)

THE DEMAND FOR A SECOND TWO-YEAR UNIVERSITY

A REPORT TO THE FLORIDA INTERNATIONAL UNIVERSITY

December, 1970

by

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CHAPTER ONE

INTRODUCTION

During the 1960's Florida became the second most rapidly growing state in the nation. A few areas of the state experienced particularly dramatic urbanization and urban growth. The central southeastern portion of the state and Miami-Dade County were two areas that received especially large numbers of in-migrants. The space exploration programs at Cape Kennedy, the planning and ground breaking for Disney World, the lure of southern Florida for retirees and the continued influx of Cuban refugees lent to the remarkable growth rate in these areas. During the past decade, Florida's public institutions began to respond to these dramatic population growths and shifts as well as the correlative technological and social changes. The intensified growth and emerging design of the state's higher education system represent such an institutional response.

Educational decision makers have decided that a three-stage public university system is best suited to fulfill Florida's educational needs. The first level is comprised of the two-year community (junior) college, devoted to the freshman and sophomore years, as well as some certification in selected vocational areas. The next level is currently shared by two different types of institutions. The junior and senior years are predominately taken at the well established Ph.D. granting institutions but will be increasingly offered at the newly developing senior universities. In addition to the junior and senior years, senior universities will

offer limited graduate programs at the masters level. The third level is represented by the Ph.D. granting universities which increasingly emphasize research and graduate training functions.

The first level of the three-stage university system has been accomplished. There is a public community college reasonably accessible (within commuting distance) to nearly every high school graduate in the state. Most of the more than two dozen colleges in this state-wide network remain relatively small, reflecting the population base on which they rest. In contrast, two-year community colleges located in metropolitan areas have recently grown very rapidly. Miami-Dade Junior College is certainly a forerunner in this respect. It has grown, in little more then ten years, to become the nation's largest, having a total enrollment of more than 29,000 at its three campuses. If the concept of senior universities meets with as rapid and thorough acceptance, and this is likely to be especially true of senior universities with metropolitan population bases, then Florida International University (the first Florida senior university to be located within a large metropolitan area) can expect very rapid growth.

Focus of the Study

From its inception, Florida International University (FIU) has envisioned itself as a metropolitan commuter university specifically designed to serve the needs of numerous community college graduates (and others who have completed their freshman and sophomore years) who want to continue their college educations, but who cannot afford or do not choose to enter private colleges, leave the Miami area to enroll in a

state university, or give up their jobs to enroll as full time students. FIU will primarily serve Dade County residents who are willing and able to commute to school. Therefore, it is reasonable to assume that a majority of the university's students will be former graduates in Dade County public high schools and Miami-Dade Junior College. We make the basic assumption that the future plans of these two groups of graduates reflect the plans of a large segment of the population from which FIU will draw its students. A systematic knowledge of these students should enable FIU to better anticipate the interests and needs of its initial student body which will enter in the fall of 1972.

There has been comparatively little research conducted regarding the future educational and occupational career plans of junior college graduates. Most of the research on student aspirations and plans has been conducted using high school students. Very little (if any) professional research has been conducted with respect to the concept of a senior university. Florida's senior university concept, on the other hand, may become a prototype of future higher educational institutions. Therefore, in addition to providing FIU with specific information on the Miami area student population, which it is likely to serve, the research reported here may have general relevance for professionals interested in student aspirations and college plans and the factors which influence these. Many factors will determine whether or not Florida International succeeds in its unique role, but certainly a systematic knowledge of the perceptions, plans and interests of its potential students should provide important clues in how to proceed.

Order of Topics

Immediately following this section are listed the major research findings by chapter. In Chapter Two, consideration is given to the research design and data collection techniques. The latter part of that chapter is devoted to the presentation of some selected facts and opinions of the student respondents. Chapter Three presents data on the cost savings derived from attending a local community college and the distribution of these savings among different income groups. Chapter Four analyzes the differential services provided students by various colleges and universities with a special emphasis on reasons students give for remaining in Dade County. Chapter Five analyzes the relationship between students' self-image and their future plans. Chapter Six presents a regression model which attempts to assess the various factors influencing college plans which were examined separately in earlier chapters. Chapter Seven discusses the findings with regard to their policy implications for FIU and concludes with some suggestions for further research.

Major Findings of the Report

Chapter Two: Student Respondents

1. A brief profile of the Dade County high school seniors includes the following characteristics:

   (a) 72 percent are white, 15 percent black and 13 percent Spanish-speaking,

   (b) half the students are male and half female,

   (c) respondents range from those in the top 10 percent of their senior class academically to those in the bottom 25 percent and tend to be equally distributed with regard to academic rank,

   (d) 25 percent of the students' fathers have graduated from college,

(e) half (50 percent) of the respondents' mothers are employed and 80 percent of those hold full time jobs,

(f) the typical student has lived in Dade County for more than 10 years and plans to live and work there after finishing his education.

2. The high school students' future educational plans can be summarized as follows:

(a) 26 percent plan to go directly to a four year college, 23 percent to a junior college and transfer to a four year college, 11 percent plan a junior college education followed by a transfer to a senior university and 22 percent plan vocational schooling after graduation or no additional schooling,

(b) nine out of ten students who plan a college education, intend to enter Florida colleges or universities,

(c) 69 percent of the Miami students plan to enter a junior college, all but five percent (64 percent) expect to attend Miami-Dade Junior College,

(d) 53 percent of college bound seniors plan to have academic majors in arts and sciences, 12 percent in education, 10 percent in business, 14 percent in technology, and the applied professions and 11 percent in health and rehabilitative services.

3. Financial reasons are clearly the most important reasons students give for wishing to remain in the Miami area to continue their education. When you combine savings from the costs of attending college away from home with the importance of having a job, 52 percent give one or the other of these reasons as being the most important; 45 percent list one of these financial reasons as being the second most important.

4. One out of four (27 percent) high school seniors give "common knowledge" as the most important source of information regarding the college or university they wish to attend - one in ten (11 percent) responded guidance counselors.

5. Seventy (70) percent of the high school respondents say that it was one of their parents who most influenced their post high school educational plans; only one in 40 mentioned a guidance counselor having been this influential.

6. Looking at high school seniors' perception of the chief purpose for getting a college education, four in ten students are clearly career oriented. If you include good paying jobs and acquiring social status, 70 percent of the students see college as a "means-to-an-end;" 13 percent report the chief purpose of a college education is to gain knowledge for its own sake.

7. In terms of seniors' expected difficulties in achieving their post graduation educational goals, three out of ten students report inadequate finances, 26 percent report their own poor study habits as the greatest obstacle and 18 percent say they have received poor preparation in high school.

8. Turning to the junior college associate degree recipients, their profile includes the following characteristics:

   (a) 78 percent are white, 17 percent are Spanish-speaking and only five percent are black;

   (b) they are about equally divided between the sexes;

   (c) one in four are married and majority of those who are have at least one child;

   (d) their average grade point average is 2.69 (on a four point scale);

   (e) the average student has a father who is a high school graduate but did not graduate from college;

   (f) nearly half (48 percent) of the graduates' mothers are employed, and 75 percent of these hold full time jobs;

   (g) like his high school counterpart, the average student has lived in the Miami area for more than 10 years and plans to live and work there after completing his education;

   (h) the typical associate degree recipient has never attended another college or university and spent at least one term as a part time student on route to the degree.

9. The junior college student's future educational plans can be summarized as follows:

   (a) 64 percent plan to transfer to a four year university or college, 20 percent plan to transfer to a senior university, and 15 percent plan to terminate their college education with the associate degree;

   (b) similar to their high school counterparts, nine out of ten graduates planning to work for their baccalaureate degree intend to enter Florida schools; only five percent plan to attend private colleges;

   (c) one third of the respondents who plan to go on to a four year university plan to attend the University of Miami, while virtually all (95 percent) who plan to transfer to a senior school plan to go to Florida Atlantic University;

(d) 41 percent of the respondents plan an academic major which falls within the arts and sciences area, 23 percent plan to enter the education area, and 22 expect to enter business. About half as many degree recipients plan careers in the applied fields as do high school seniors.

10. The junior college graduates emphasize financial factors to an even greater degree than high school seniors, when asked for their most important reason for remaining in Dade County to continue their education.

11. One out of four (28 percent) of the degree recipients claim "common knowledge" as their most important source of information on the college of their choice, one out of five (19 percent) report relying primarily on their own use of references, while one in twenty (6 percent) give guidance counselor as this source.

12. Fifty-five (55) percent of the junior college students give one of their parents as the most important person who influenced their decision regarding a college education, 16 percent listed their spouse as most important, while only three in one hundred replied guidance counselor.

13. Three out of ten junior college graduates reflect a career orientation in their perceptions of the value of a college education; when you include good paying job and improved social status, half the graduates have a "means-to-an-end" orientation. Nearly three in ten (27 percent) report the chief purpose of college to be acquiring knowledge for its own sake.

14. Three out of ten junior college graduates report lack of sufficient money as their greatest difficulty in getting a college education, 20 percent say it is their poor study habits, 13 percent report poor preparation for college in high school and 14 percent report insufficient time to devote to studies because of the job or household responsibilities.

Chapter Three: Miami-Dade Public Colleges: Cost Savings to Students

1. Students attending a Florida four year university all four years incur a net cost of over $19,000, this cost rises to over $22,000 if they go to the University of Miami and falls to approximately $18,800 if they would transfer from Miami-Dade Junior College to Florida International University. (These figures are based on 1970 expenditures for tuition, fees, books, and housing and are adjusted for unemployment and summer earnings.)

2. There is a real cost savings accrued to students by commuting to Miami-Dade Junior College and residing at home, provided they live within 17 miles of their campus - the "break even point." In general the closer they live to the local college, the greater savings they incur.

   (a) the mean one-way commuting distance for the junior college graduate is 9.1 miles and 85 percent of the respondents live within the break even point;

   (b) the average student saves $590 per term by commuting to a local college; over four years (at 1970 costs) this savings would amount to nearly $2400, or approximately 12 percent of the net cost of going away to a state university in Florida;

3. When cost savings are allocated by family income levels, it becomes clear that it is Miami's middle income students and their families, residing within the break even point, who benefit most from the existence of a local two-year college;

   (a) using techniques discussed in the text, we estimate that the students in our population save nearly $55,000 per month by having a public college located near by;

   (b) 60 percent of this savings listed above goes to those with family incomes in excess of $10,000 a year; seven (7) percent of this subsidy goes to the lowest income group - those earning less than $3000.

Chapter Four: The Services Provided by Colleges

1. There appears to be little relationship between the sources of college information on which students rely and students' future plans: this is true for both high school seniors and junior college students:

   (a) there is some evidence that students with academic plans rely on more balanced sources of information;

   (b) reliance on a person in college or a relative increases as students' academic plans become more long range.

2. For high school seniors, there is a positive association between those reporting parental influence regarding post graduation plans and attending college; no relationship between influentials and future plans appears for the junior college students.

3. Students perceive different benefits from attending different colleges. Both high school seniors and junior college students attribute benefits to attending local colleges in accord with their future educational plans.

   (a) the comparative low cost of attending a nearby school appears to attract high schoolers to community colleges but not to business schools;

   (b) Junior college students find attending a local college attractive because it enables them to be close to their families.

4. Among both groups of students, the benefit most frequently listed by those going away to a four year state university is the quality of the school and/or its particular academic programs; this is a less frequent response among other students.

5. Four year universities outside of the Miami area appear to attract more "cosmopolitan" students; they less frequently report plans to live and work in the Dade County area after completing their schooling than do students planning to attend two year universities or those electing no further education.

6. Certain kinds of educational career paths appear to be treated by high school students (and their families) as "inferior services," i.e., they are less frequently chosen alternatives as income rises:

   (a) stopping education after high school, attending vocational or business schools, stopping with a two year degree, and transferring to a senior university all appear to be perceived as "inferior" services;

   (b) transfer from junior college to a four year college is unrelated to family income;

   (c) direct entry to a four year college or university is positively associated with family income.

7. Family income is unrelated to junior college students' career choices. Several factors are related to this lack of relationship:

   (a) there is considerably less variability in the reported income data for these students than there is for high school seniors;

   (b) parental gifts account for little (10 percent) of the average student's budget suggesting less dependency upon parents;

   (c) more than seven out of ten respondents are employed, and although their reported income is low, those with higher incomes are more likely to continue their education.

Chapter Five: The Self-Concept of Students and Student Plans

1. In both the high school sample and the junior college group, students' self-concepts are positively associated with their parental income: as income rises so do students' perceived self-competence.

2. There is a similar relationship between students' self concepts and their future plans as was found between family income and plans: the more positive a student's self-image, the more likely he is to have long range educational plans.

3. High school students can readily be divided into three subgroups by their self-concept and their college plans: students who plan no further education beyond high school (including the minority who will drop, flunk out); those who plan to get an associate degree or additional vocational training after high school, and those students who plan four years of college education.

4. Senior university bound students and potential senior university students (those planning two years after junior college) have equally positive self-concepts as those students planning to attend four year universities directly from high school; they have better self-concepts than those who expect to terminate their education with junior college.

5. Analysis suggests that a selective process is occurring whereby students with better self-concepts proceed through the educational system while those with poorer self-images select themselves out of the system.

6. Analysis of students' choice of academic subject areas (arts and sciences, business, education, etc.) by self-concept indicates that self-concept is not directly related to the choice of these areas. For example, it cannot be demonstrated that students with particularly high self-concepts gravitate to particular college curricula.

7. High school students with positive self-concepts having interests in social activities and sports appear to choose four year universities, while students with positive self-images and interests in business related activities typically enter a junior college.

8. Whereas it is generally true that as family income rises, the demand for the services of local two year colleges or universities decreases, this does not hold for the two minority groups. For black and Spanish-speaking students, the demand for two year colleges is unrelated to parental income.

9. Spanish-speaking high school seniors have a significantly higher self-concept than either their white or black counterparts. Spanish-speaking degree candidates, on the other hand, have self-concepts which are not significantly different from other students.

10. The relatively small group of black junior college degree candidates tends to have a slightly higher self-concept than others, although this difference is not a statistically significant one. These students are not from high income black families; their family income is low in contrast to the respondents in general.

11. Spanish-speaking students are overrepresented among students interested in higher priced colleges and particularly in the University of Miami:

    (a) their income distribution is not significantly different from other students;

    (b) data suggest that the relatively high self-concepts of these students and the fact that the University of Miami is in close proximity to their community may be important factors in helping to explain this phenomenon.

12. A clear majority of black students who plan to go on to college beyond their associate degrees plan to attend "local" colleges and university (those within a 30 mile radius). The data suggest that proximity may be important in explaining this finding, but such an explanation is less apparent than it is for the Spanish-speaking group.

Chapter Six: The Probability that a Junior College Student Will Continue His Education

1. In this chapter, a multiple regression technique is utilized to isolate those variables which best predict the future educational career a junior college graduate will choose--no further education beyond junior college, attending a senior university or transferring to a four year university. Eighteen (18) variables are found to have a statistically significant effect on at least one of these three alternative career paths. Among the more interesting findings this analysis reveals are the following:

    (a) if a student's parents exert the major influence on his post graduation choice, the probability that he will not continue beyond junior college is significantly reduced;

    (b) a student's junior college grade point average does not appear to affect his future plans;

    (c) students' academic rank in their high school graduating class is related to their future plans; a senior university is most attractive to students who ranked between the 25 and 50 percentile and least attractive to those in the top quartile;

    (d) students who have decided on a college major are very unlikely to terminate their education with the associate degree;

(e) the data suggest that individuals lack a clear image of a senior university: no major influences are exerted in favor of choosing this type of university, while several direct students to four year schools;

(f) the probability that a student chooses a senior university depends upon his choice of major. For example, after removing the effects of other variables, 11 percent of the junior college students plan to attend a senior university. If, however, students are interested in fine arts, this probability rises to 34 percent;

(g) in general, the future plans of students appear to be influenced by the extra curricula pursuits they desire. The fact that college activities do not appear to be important in choosing a second two year school is probably due to students' lack of information on available activities at these schools;

(h) the college tuition charged by the senior universities does appear to be a determinant of choosing that type school.

2. Several variables that were emphasized in the analyses in earlier chapters no longer appear significant in teh regression analysis:

(a) the ethnicity-race variable no longer appears to affect students' plans. Black and Spanish-speaking students seem to make no different choices than white students when other variables are controlled;

(b) students' self-concepts do not seem to affect future plans; this supports the notion that self-concept operates as an intervening mechanism, which, when the other variables with which it intervenes are specified, looses its independent effects.

3. In the last section of the chapter, another formulation of the regression analysis reveals that the effects of certain independent variables differ depending upon the college major a junior college graduate chooses. Separate probabilities are computed for social science, business and education majors. Because of the limited cases in technology, health services, hotel management, etc., these were placed in a fourth "other" category. Many of the earlier findings are upheld, but some interesting differences across majors appear. For example, the independent variable "father's education," now appears to be an important factor only among those students planning to study social science. The tabular presentation of probabilities in this section may be used to construct a set of probabilities that a student will continue on to a certain type of college given his desired major area of study.

CHAPTER TWO

STUDY DESIGN, DATA COLLECTION AND THE STUDENT RESPONDENTS

The research findings in this report are primarily based upon data collected from more than 3100 students in Dade County, Florida: 930 junior college students and 2453 high school seniors. Much of the information gathered concerning future educational plans was timely for the respondents; the data was collected during the spring term, when graduation was only several weeks away. Particular care was exercised in recording the names and local addresses of students in order to faciliate the possibility of a follow-up survey.[1]

The major steps involved in the research reported here were undertaken in three phases or stages. The first two of these, the "major stages", pertain to the junior college student respondents and their high school counterparts, respectively. The chapter sections which follow provide the essential details of data collection for each group of students. The third stage of data collection involved intensive interviews with counselors and other guidance personnel in the public school system and at the Miami-Dade Junior College campuses. Additional details about this part of

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[1]Students were assured of the complete confidentiality of their responses. The master list of respondents and their addresses will be accessible only to those researchers who have been concerned with the present study. A follow-up study, of the type suggested here, would be somewhat unique in educational research.

the study as well as the findings regarding counselors are discussed below in Appendix B.

The Junior College Population

The junior college population, as defined in this study, consisted of all the spring term associate degree registrants at the two Miami-Dade Junior College campuses. The associate degree recipients graduated during the first week of May, 1970.[2] The spring term graduating class is typically the largest at both campuses; it has accounted for approximately 40 percent of the graduates in recent school years.[3] After the deadline for registering for a spring diploma, the central administration office provided the names and addresses of the 1312 students who had registered for the Associate of Arts and Associate of Science degrees--880 and 432 students at the North and South campuses, respectively.[4]

A student questionnaire, containing approximately 80 different items, was used to collect the data (Appendix A). It provided primarily for structured responses but also included several "open-ended" questions which permitted the respondents to evaluate certain issues on their own terms and

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[2]Due to the fact that Miami-Dade students register for their degrees three to four weeks prior to graduation, the drop-out rate among registrants is low.

[3]This information was provided by the Miami-Dade Junior College central administration office.

[4]During the past years, the Associate of Arts degree has accounted for 75-80 percent of the two-year degrees awarded. This same ratio is shown by our data; 75 percent of our respondents worked for the "A.A." Although perhaps not immediately relevant, it is at least interesting that only two to three percent of graduates from Miami-Dade receive the one-year degree certifying them in a vocational area. In recent years, despite its large student population, only one Miami-Dade student in ten earns a degree or certificate during an academic year.

to give personal views concerning a college education. In addition to the student's full name, and local school address, the items contained in the questionnaire could be subsumed under the following categories: descriptive background data, including age, sex, birthplace, etc.; socio-economic status indices, including father's occupation and education; the student's perception of the most important influences regarding his choice of educational career pattern; the student's future specific educational plans; the actual colleges he plans to attend and his first choice major subjects; student's commutation and housing expenses; and selected opinions concerning higher education.

A pretest questionnaire was designed and administered to several sophomore classes at Broward Junior College. The researchers and several colleagues analyzed the quality and substance of students' responses and concluded that the "preliminary" instrument was generally satisfactory. Only minor revisions and additions were necessary. On April 10, 1970, 1312 questionnaires were mailed, one to each of the students registered for an associate degree. A printed return envelope, general instructions for filling out the instrument and a cover letter from the college president were included with the questionnaire. The initial rate of return was rapid. It appeared that a good number of students were eager to respond. (Within ten days of the mail out, between 40 and 45 percent of the students had replied.) Two follow-up letters were mailed to non-respondents; the first was sent two weeks after the questionnaire and the second after one month. Six weeks after the mailing, we had received a total of 930 usable questionnaires--a respectable 72% response rate. A follow-up of non-respondents proved to the researchers' satisfaction that

these students were not atypical of the associate degree recipients.[5] For purposes of our analysis then, the 930 student respondents are considered fully representative of the population of spring term graduates from Miami-Dade.

Frequency distributions were run for each of twelve important variables and controls introduced for the junior college campus the student attended and the particular degree for which he registered. With only minor exceptions, there were no significant differences by campus or by degree.[6]

The High School Sample

There are 17 senior high schools in the Dade County school system.[7] Each high school belongs to one of six public school districts. During the 1969-70 school year there were 13,542 high school seniors enrolled in the public school system.[8]

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[5] A ten percent random sampling of non-respondents was conducted. In addition to recording the sex, campus, and ethnicity of each student contacted, he was asked if he received a questionnaire; whether or not he filled it out; why he did not do so, if applicable; whether he graduated, and if so which degree he received; and what his future plans were. The only difference between the two groups of students was that the non-respondents tended to be less certain than the respondents of their future plans, and fewer planned to go on immediately for additional college work. Only one in ten of the non-respondents decidedly disapproved of the questionnaire. Lack of time was the major reason given for not completing and returning the questionnaire.

[6] A somewhat disproportionate number of upper income students (parental income in excess of $15,000) were enrolled at the South campus--a fact which bears out the perceptions of a number of guidance personnel. Associate of Science recipients are slightly older than their Associate of Arts counterparts.

[7] This excludes one small special education high school which had a fall enrollment of 171 students.

[8] This figure is based upon the fall term enrollment and may be somewhat larger or smaller than the actual school enrollment at the time of the survey depending upon the number of drop-outs and transfers.

In an initial entry into the schools we found that all seniors, regardless of their programs or future plans, are required to enroll in a course in U. S. government. This is true of all the schools in each of the districts. We completed an inventory of these government classes in each of the seventeen schools by the period they met, classroom, and teacher.[9] Working from this enumeration, we randomly selected a sufficient number of classrooms from each school.[10] An earlier decision, based upon available resources and time restraints, called for a one-in-five or a 20 percent sample of the high school seniors. After the data collection was completed, we had 2453 usable questionnaires, or approximately 18 percent of the senior students in the public school system.[11]

The items on the high school questionnaire are essentially the same as those on the junior college questionnaire which was described above and are included as Appendix A. The high school instrument differed only in that some of the items on the junior college questionnaire were omitted. The omitted items included those pertaining to marital status, number of children, distance from school, estimated costs of commutation, and monthly rent.

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[9] An earlier design called for a sampling frame using senior home-rooms. However, we found that in many schools these periods were too short (8 minutes, e.g.) and in others they were non-existent.

[10] A proportionate sampling procedure was followed to assure that the larger high schools in the county system would contribute the largest number of students to our sample and the reverse.

[11] Approximately half of the attrition was due to absenteeism and the remaining half to incomplete or improperly completed questionnaires. Disproportionate degrees of neither were found at any particular school or schools.

As in the case of the junior college research, a pretest questionnaire was developed and administered. Several senior classes in the Miami parochial school system served for our pretest. Again, the pretest was analyzed and minor changes made for the final instrument.

Well trained and experienced fieldworkers administered the questionnaires during a two week period in May (May 11 - May 22, 1970). They remained with each of the preselected classes to answer questions and pick up the completed questionnaires. The average student spent 30 - 40 minutes completing the questionnaire. Those who administered the questionnaires were generally well received by the teachers and their students. No problems of serious proportion arose during the data collection process. We turn now to brief descriptions of the students upon whose responses our data analysis is based.

A Sketch of The Student Respondents

Acknowledging that averages sometimes obscure as much as they reveal, we might nonetheless begin by asking what our "average" respondent is like. The average junior college graduate is 21 years of age, white, has an overall grade point average of 2.69 (based on a 4.00), and plans to begin work on a baccalaureate degree. He (or she) is currently unmarried, plans to pursue a professional career, has never attended another college, and has finished his associate degree only after spending one or more terms as a part time student. A typical student has lived in Dade County for at least ten years and plans to live and work there after finishing his education. His father graduated from high school but did not go to college.

In addition, our junior college graduates are equally divided between the sexes. One quarter of them are married, and, for the majority of those

who are, there has been at least one child. Nearly half (48 percent) of the graduates' mothers are employed, and a substantial majority (75 percent) of them have full time jobs. Despite the relatively sizable black population in Dade County, only five percent of its junior college graduates are black. On the other hand, the county's largest ethnic group is well represented; 17 percent of the graduates are Spanish-speaking.

The average high school graduate plans to attend a college or university and to earn at least a baccalaureate degree. He also looks ahead to pursuing a professional career. Like his junior college counterpart, our average high school graduate has lived in Dade County for more than ten years, and he (or she) plans to live and work in the county after completing his education.

Furthermore, in comparison to the junior college respondents, a larger number of the high school graduates' fathers (25 percent) earned a college degree. Half the high school seniors in our sample are male and half female. More than half (52 percent) of the students' mothers are employed and 80 percent of those who are hold full time jobs. Our high school sample contains a relatively large and nearly equal number of black and Spanish-speaking students--15 and 13 percent, respectively.

Selected Facts and Opinions of The Student Respondents

Tables 1 through 10 present selected descriptive characteristics of the student respondents. Tables 1 and 2 present the educational career plans of the high school and junior college students.[12] It is clear that a majority

[12]In the calculation of frequencies "other" and nonresponse categories have been omitted.

TABLE 1

SELECTED FACTS AND OPINIONS OF STUDENT RESPONDENTS

Actual Educational Career Plans of Dade County High School Seniors

	Number	Percent
Graduate from High School and Go Directly to a Four-Year College or University	505	26.2
Graduate from High School and Go to a Junior College then Transfer to a Four-Year College or University	444	23.0
Graduate from High School and Go to a Junior College then Transfer to a Senior University	219	11.4
Graduate from High School and Go to a Junior College and Stop after Completion	327	17.0
Graduate from High School and Acquire Vocational Training	249	12.9
Graduate from High School and Stop After Completion	173	9.0
Drop Out of High School Before Graduation	11	.5
	1,928	100.0

TABLE 2

ACTUAL EDUCATIONAL CAREER PLANS OF MIAMI-DADE JUNIOR COLLEGE ASSOCIATE DEGREE RECIPIENTS

	Number	Percent
Graduate from Dade and Transfer to a Four-Year College or University	506	63.9[a]
Graduate from Dade and Transfer to a Senior University	162	20.5[b]
Graduate from Dade and Stop After Completion	118	14.9
Drop Out of Dade Before Receiving Two-Year Degree	6	.7
	792	100.00

[a]Approximately one third of these students plan to attend the University of Miami.

[b]Nearly 95 percent of these students are planning to enter Florida Atlantic University.

of graduating students from both high school and junior college plans to work toward a baccalaureate degree. Graduating from a four year college or university, in contrast to completing the last years of schooling at a senior university, is the choice of most graduates. However, attending a senior university is the chosen career plan of a substantial minority of both high school seniors and junior college graduates--11.4 and 20.5 percent, respectively.[13] Apparently a majority of students in the Miami area view attending a junior college as the first component of a four year college education. Nearly 85 percent of the junior college graduates plan to continue their education beyond their associate degrees.

Roughly nine out of ten students who plan to enter college or continue their college education plan to attend Florida schools. Table 3 shows the institutions or types of colleges these students plan to attend. More than two thirds of the college bound high school students plan to enter a state junior college, 64 percent will go on to one of the Miami-Dade campuses. One in five students plans to begin his freshman year at one of Florida's four-year state universities. Whereas only a small proportion (five percent) of Dade County college bound seniors plan to enter the University of Miami as freshmen, 26 percent of the junior college students plan to transfer there. Transfer to one of the four-year state universities

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[13]No controls are introduced in the data as they are presented in Table 1, except to distinguish between high school and junior college students. For example, if we were to have introduced parental income, we would have shown that income and the plans of high school students were associated one with another: stopping one's education after high school or pursuing a vocational education become less and less likely career choices as income increases.

TABLE 3

FIRST CHOICE COLLEGE OR UNIVERSITY OF STUDENT RESPONDENTS WHO PLAN TO CONTINUE THEIR EDUCATION IN FLORIDA*

	High School Students		Junior College Students	
	Number	Percent	Number	Percent
Miami-Dade Junior College	1059	64	---	---
Other State Junior Colleges (community colleges)	73	5	---	---
A State Senior University	----	--	210	31
University of Miami	86	5	172	26
A State Four-Year University	332	20	251	38
A Private College or University	100	6	36	5
	1650	100	669	100

*87.3% of the high school students planning to continue their education plan to enter Florida Colleges and Universities. 75% of these students had made application to their first choice institution at the time of the survey. The corresponding percentages for the junior college students are 88.3% and 68%.

is the most popular option for the junior college student (38 percent). However, nearly a third (31 percent) plan to transfer to a senior university; as indicated above, the vast majority mention Florida Atlantic University in Boca Raton. Excluding the University of Miami, very few students plan to enter or transfer to Florida's private colleges.

Table 4 reports the subject areas which the respondents express most interest in pursuing upon entering or transfering to the college of their choice. A majority of the college bound high school students (53 percent) plan to select a major within arts and sciences. Junior college students most frequently plan to transfer into this same area (41 percent). The junior college transfer student is next most likely to select a major in education or business--22.5 and 22 percent. Far fewer seniors report interests in these fields; the figures for the high school graduates are 12.3 and 9.6 percent, respectively. The high school graduates as a whole are twice as interested as are their junior college counterparts in the technical and applied professions, which include the health and social service professions.

What are the most frequently chosen major subjects within these general areas? The most frequently chosen majors within the field of arts and sciences are psychology and English; this is true for both the high school seniors and the junior college graduates. Elementary education is the most "popular" major within the field of education, followed by physical education for the high school respondents and "general" education for the junior college students. Business administration is the major subject most frequently cited by both groups within the field of business. Within the technological applied professions, more students choose engineering than any other subject. This

TABLE 4

FIRST CHOICE SUBJECT AREA OF STUDENT RESPONDENTS WHO PLAN TO CONTINUE THEIR EDUCATION

	High School Students		Junior College Students	
	Number	Percent	Number	Percent
Arts and Sciences	871	53.0	308	41.0
Education	202	12.3	169	22.5
Business	158	9.6	165	22.0
Technology and Applied Professions (excluding Health and Social Services)	231	14.1	53	7.0
Health and Rehabilitative Services, Social Services	177	10.8	51	6.8
Hotel Management and Food Services	3	.2	5	.7
	1642	100.0	751	100.0

applied to both seniors and junior college graduates. Computer technology is the second most frequently mentioned major within this field, and this is also true of both groups of respondents. The first and second most frequently chosen subjects within the general field of health and social services are "crime and corrections" and nursing. Again, both groups of students professed the same preferences. Despite their comparative distance on the educational career ladder, high school graduates and two-year degree recipients are quite similar in the major subjects in which they express the most interest.

Large numbers of students wish to remain in Dade County to continue their education. It is clear from an examination of Table 5 that financial reasons are the most important reasons given by high school seniors for not leaving the county.[14] A majority of students (52.2 percent) mention saving on additional costs of leaving the area or the availability of jobs as the most important reasons for attending Dade county schools; 45.5 percent of the students give one of these reasons as their second most important reason for remaining. Whether or not the earnings from student employment contribute significantly to off-setting the costs of a college education, our data show that 48 percent of Dade County high school seniors hold jobs during the school term. Within our junior college associate degree population this employment figure jumps to 71 percent.

Supportive social relationships are not very frequently cited as being the most important reason for remaining. Slightly more than one student

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[14]Comparable coding categories were not used for the junior college respondents. However, from their replies to the same questions it is evident that they consider financial reasons even more important than high school students.

TABLE 5

HIGH SCHOOL STUDENTS' TWO MOST IMPORTANT REASONS FOR REMAINING IN THE DADE COUNTY AREA TO CONTINUE THEIR EDUCATION

	Most Important Reason		Second Most Important Reason	
	Number	Percent	Number	Percent
In order to save on the costs of going away to school	465	42.3	204	23.7
In order to keep a job or due to availability of jobs or a job	109	9.9	188	21.8
In order to continue peer group relationships (including dates, financees)	129	11.7	166	19.3
In order to be close to parents or guardians (the student feels dependent on them or the reverse)	126	11.5	86	10.0
Due to a general feeling of satisfaction in living in the area and/or ambivalence about moving	163	14.8	156	18.1
Other Reasons	108	9.8	61	7.1
	1100	100.0	861	100.0

in ten gives either close proximity to parents or peers as a major reason. Nearly one fifth of the students (19.3 percent), however, list the continued association with high school peers as the second most important reason for remaining to attend college.[15] When reasons for remaining are run by educational career patterns, it appears that those choosing to enter junior college are those most concerned with cost savings.

Table 6 shows those sources of information that students found most informative regarding the college or university of their first choice. Somewhat more than a fourth of the high school and junior college respondents reported that a "common knowledge" they shared with their peers was their most important information source. Recalling that such a large proportion of the respondents planned to attend "local" colleges and universities suggests that the students may have developed such a "sufficient" amount of information over a considerable period of time. All student respondents in both groups reveal quite a variety of sources. It is not surprising to find that parents and counselors are far more frequently mentioned by high school students as sources of information than are they mentioned by the junior college students. While on the other hand, nearly 20 percent of the associate degree candidates report their own use of reference materials as being most informative. Put in another way, it appears that students' preceptions regarding the most important source of information vary little from one another excepting that the older junior college student

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[15] A disproportionate number of the Spanish-speaking students cite these supportive relationships (kin and peers) as foremost reasons. Spanish-speaking students are discussed more fully in Chapter Five.

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Other Reasons	108	9.8	61	7.1
	1100	100.0	861	100.0

relies less upon his parents and counselors and more upon available reference materials.

Turning to students' preceptions regarding the person who most influenced their decisions as whether or not to continue their education (Table 7), the perceived importance of members of the students' immediate families is very evident.[16] Fully a third of the students in both groups mention their fathers as having been most influential. For high school seniors as a group, mothers are equivalently influential. Nearly 16 percent of the junior college students reply spouse; recalling that 25 percent were married, this underscores the frequent encouragement and support married students receive from their spouses. Counselors appear to be far more influential as sources of information (Table 6) than they do as persons instrumental in students' decisions regarding whether or not to continue their formal education. This is especially true for the high school students.

Table 8 reports what students perceive as the chief return or reward accrued to them from pursuing a college education. The most frequent response among both student groups, although more frequent among high school seniors, is that a college education is a necessary prerequisite for the career of their choice or a "good career" in general. The second and third most frequent responses of high school students are gaining social status (17.4 percent) and making more money (16.2 percent). The second and third most

[16]More than a fourth of the high school students had made their decisions prior to their senior year. Parents were probably especially influential in these cases.

TABLE 7

STUDENTS' PERCEPTIONS OF THE MOST IMPORTANT PERSON IN HELPING THEM MAKE DECISIONS CONCERNING A COLLEGE EDUCATION

	High School Students		Junior College Students	
	Number	Percent	Number	Percent
Father	760	35.7	267	32.4
Mother	741	34.8	188	22.8
Spouse	----	-----	128	15.6
School and other peer group friends (including dates, fiancees)	258	12.2	59	7.2
A teacher	87	4.1	40	4.2
A guidance counselor	54	2.5	25	3.0
Other (includes other relatives, employees, clergymen, etc.)	228	10.7	116	14.1
	2128	100.0	823	100.0

TABLE 8

STUDENTS' OPINIONS: WHAT IS THE CHIEF PURPOSE OF A COLLEGE EDUCATION?

	High School Students		Junior College Students	
	Number	Percent	Number	Percent
A college degree is prerequisite for student's chosen career or a "good" career in general	924	40.6	284	31.3
In order to get a higher paying job, to make more money	370	16.2	101	11.1
To gain knowledge, to become more intelligent	299	13.1	248	27.3
To gain social status, to become an overall success in others eyes, to achieve a decent station in life	397	17.4	105	11.6
To be better able to cope with the modern day adult world, to better understand and adjust to contemporary society	152	6.7	110	12.1
To better serve my community, to help others more effectively	56	2.5	40	4.4
Other reasons (including avoid the draft, follow my girl friend, "its the thing to do, etc.)	80	3.5	20	2.2
	2278	100.0	908	100.0

frequent responses for the associate degree students are becoming more intelligent and making a satisfactory adjustment to contemporary society--27.3 and 12.2 percent, respectively.

Junior college degree candidates, then, appear to more often view a college education as providing an opportunity to acquire knowledge and to develop a social consciousness than do their high school counterparts. In contrast, high school seniors are typically less "idealistic" and more pragmatic. They tend to see a college education as providing avenues to upward social mobility and greater wealth.

Students were also asked what they perceived as the most serious problem facing education in the United States. Their responses are presented in Table 9. An examination of the table shows that the largest proportion of both groups of respondents view the U. S. school system as being overly endoctrinating and inflexible to the extent of being detrimental to its students. A fifth of the high school students and a fourth of the junior college students made such replies. The second most frequent response for each group shows that a sizeable proportion of high school and junior college students are critical of the way teachers and/or administrators perform their jobs--16.6 and 20.6 percent, respectively. Between 10 and 15 percent of the high school seniors see the most crucial problem as either insufficient numbers of teachers or school equipment, insensitivity of the system to current social issues, or disruptions caused by undisciplined students. Far fewer junior college degree candidates view these three issues as the most serious problem. The third most frequently mentioned problem among the junior college students (13.5 percent) is the

TABLE 9

STUDENTS' OPINIONS: WHAT IS THE BIGGEST PROBLEM FACING THE AMERICAN EDUCATIONAL SYSTEM?

	High School Students		Junior College Students	
	Number	Percent	Number	Percent
The school system--requirements, grading, etc.--is overly competitive, too endoctrinating and too inflexible, needs to be changed	411	20.0	220	25.1
Inadequate teaching and/or school administration	343	16.6	181	20.6
Schools are overcrowded, too few teachers, facilities are out-of-date and inadequate--there is too little money to correct these	314	15.2	69	7.8
School systems are not sensitive enough to current social concerns (war, racism, prejudice, sex, etc.)	268	13.0	59	6.7
Too many students are prone to disrupting the schools, they are violent, sloppy, undisciplined	214	10.4	25	2.8
Too many students are apathetic, uninvolved, etc.	116	5.6	---	-----
Course content is irrelevant to the current times, to important issues	88	4.3	64	7.3
Getting a college education is too expensive for the average person	87	4.2	118	13.5
Lower grades in the school systems do a poor job preparing students for high school	46	2.2	35	4.0
Schools have inadequate guidance programs	14	.7	10	1.1
Other problems	162	7.8	98	11.1
	2063	100.0	879	100.0

fact that a college education is too expensive. In comparison, this is seldom perceived as most crucial by high school seniors (4.2 percent).

Table 10 presents the junior college students' chief difficulties in getting their degree and the chief difficulties high school seniors expect to have. In general, the experiences of the junior college students and the expectations of the high school seniors are quite congruent. Nearly a third of each group perceives lack of money as the chief difficulty. Inability to study effectively is the second most frequent reason given by high school and junior college students. More than half of all the students see either finances or lack of good study habits as the most crucial obstacle in getting a college education. Nearly 18 percent of the high school seniors were critical of the preparation they received in high school for college. The corresponding figure for junior college students is 12.8 percent. Interestingly, between seven and ten percent of each group of students reply that personal emotional problems (either in coping with strain or with members of their family) are or are likely to be the most difficult for them to overcome. Insufficient time to devote to studies, due to work and/or household responsibilities, is given much more often by junior college respondents (14.2 percent) than by the high school seniors (four percent).

Chapter Two has been devoted to a description of the data collection techniques used by the authors and a general description of the respondents upon whose collective responses much of the analysis that follows rests. In the following four chapters we present more systematic analyses which focus upon the educational career plans of Dade County high school seniors and Miami-Dade Junior College associate degree recipients. We turn first

TABLE 10

STUDENTS' OWN CHIEF DIFFICULTY OR EXPECTED DIFFICULTY IN GETTING A COLLEGE EDUCATION

	High School Students		Junior College Students	
	Number	Percent	Number	Percent
Insufficient money	626	30.3	274	31.2
Poor study habits--a lack of interest in Subjects	547	26.4	175	19.9
Inadequate preparation in high school for college (includes poor counseling)	367	17.7	112	12.8
Personal adjustment problems, inability to cope with strain, family problems	161	7.8	79	9.0
Insufficient time to devote to studies because of job and/or household responsibilities	82	4.0	125	14.2
Being a member of a racial or ethnic minority--including language difficulties	23	1.1	12	1.4
Has no difficulties or expects none	127	6.1	70	8.0
Other difficulty (including the draft, housing problems, fear of violence, etc.)	136	6.6	31	3.5
	2069	100.0	878	100.0

to a discussion of the costs of getting a college education in Florida in general, and, more specifically, to the cost savings to Dade County students of attending a local junior college.

CHAPTER THREE

MIAMI-DADE PUBLIC COLLEGES AND COST SAVINGS TO STUDENTS

Recent years have seen a growth in the number of public colleges located close to major population centers. One reason for this may have been the egalitarian views held by some educators and college administrators. By increasing the number of college openings, administrators could lower (or at least not raise) entrance requirements, thus providing space for all students desiring to attend college. Another reason may have been the growing number of cities with populations between 25 and 100,000. This growth both increased the population which would benefit from the existence of a local college and the tax base from which the new colleges could be financed.

Public concern for student finances has also played a role. In the past, many students from low income families have had to forego college because they could not afford to give up a part or full-time job, because they lacked the means to pay out-of-pocket expenses, or for similar reasons. More recently, the rising costs of private colleges have affected the college choices of middle class students. The availability of local public colleges has enabled these students to go to college for less money than would otherwise have been possible. Indeed, the reduced costs of college attendance may be partially responsible for the growing percentage of high school graduates from all income classes going on to college.

Chapter three attempts to analyze the cost reduction (hereafter called savings) obtained by attendees at the Miami-Dade public colleges. In analyzing the nature of these savings, we shall focus on the costs of college attendance, the tradeoff between housing and commutation costs, and the size of the potential savings to students.

Costs of Attending Florida Colleges

Colleges located close to home offer students an opportunity to reduce the costs of college attendance. Many studies have attempted to measure the effects of these colleges, especially on the choices of low income families.[1] Unfortunately few studies have used an economic definition of costs. Economists define the cost of any productive service to some use A as the maximum amount that the service could produce if it was used elsewhere. The value of the alternative foregone sets the value of the resource in use A.[2] This so-called "opportunity cost" notion of costs implies that the value of the time spent away from a job must be counted as a cost to the student.

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1. Since a large number of studies have been done, we refer to only a few examples to indicate the variety of research in the area. R. Fenske, A Study of Post High School Plans in Communities with Different Educational Opportunities, Ph.D. Dissertation, University of Wisconsin, 1965; L. Medsker and G. Trent, The Influences of Different Types of Public Higher Institutions on College Attendance from Varying SocioEconomic and Ability Levels, a report from the Center for Research and Development in Higher Education, University of California, Cooperative Research Project No. 438; J. Russell and T. Richardson, Geographic Origins of Michigan College Students, Legislative Study Commission on Higher Education, Lansing, Michigan, 1957. Note, too, that the term "student" will be used to refer to the student and his family.

2. See, for example, G. Stigler, The Theory of Price (New York: Macmillan and Company, Third Edition), Chapter 4.

The amount of savings foregone by the student depend upon the total hours he spends in school and the opportunities available for part-time and seasonal work. The latter are sensitive to business conditions and to the earnings prospects of the student. Ideally, potential earnings of the first year college students should be measured using earnings of otherwise equivalent persons who entered the labor force directly after high school. In fact, these data were not available.

Our estimate of earnings foregone by junior college students assumes that high school graduates receive the average manufacturing wage paid to Miami workers. No adjustment is made to reflect earnings differences attributable to age and we ignore both tax and mortality adjustments. The gross earnings of Dade County high school graduates not going on to college were about $6060 in March, 1970.[3] If the area unemployment rate is used to adjust this figure, then earnings foregone by college attendees are $5830.[4] However, although college students spend about three quarters of their available working time at school they have the summer quarter available for employment. Assuming that the students earn about 25% of the earnings of high school graduates, then their earnings foregone are $4373.[5]

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3. U. S. Department of Labor, Employment and Earnings, April, 1970.

4. U. S. Department of Labor, Area Trends in Employment and Unemployment, Miami Area, April, 1970. Our adjustment assumes that the average high school student has a 96.2% probability of getting a job and 3.8% chance of having no job.

5. The 25% figure ($1,458) was suggested by Gary Becker, Human Capital (New York, Columbia University Press, 1964) and compares rather well with a number of other studies. It also compares favorable with the mean income reported by our students but appears high when compared to the mean earnings reported by students.

Direct private costs include tuition, fees, books, and incremental housing and/or commutation costs. Tuition, fees, and book payments at the Miami-Dade Junior College are estimated to be about $600.[6] Incremental costs are more difficult to identify. Students will eat whether they go to college, loaf, or take a job. Similarly, housing and/or commutation costs will be incurred as part of the normal process of living. Ideally, only the incremental costs directly associated with college attendance should be included in an estimate of college costs. In practice, individual foregone opportunities are difficult to pinpoint. We shall deal with commutation and housing expenditures in the next section of this chapter.

Economists prefer to work with discounted costs. Since a dollar spent next year normally does not have the same value to an individual as a dollar spent today, a means must be found to equate costs incurred in two different years. The capital market performs a valuation process -- via interest rates -- which to some extent provides a measure of intertemporal (time) perferences.[7] We may "discount" costs in each year by dividing the costs in that year by a so-called "discount rate."[8]

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6. Assuming book costs of $100.

7. Three major problems are raised by the use of market interest rates: (1) capital markets for investment in human capital may be imperfect. See B. Motley, Human Investment with Imperfect Capital Markets, paper prepared for Western Economic Association, August, 1970, (2) interest rates are administered by the Federal Reserve, and (3) no clearcut guides exist to enlighten the researcher as to which of the numerous interest rates applies to investment in human capital.

8. The formula for discounting costs is:

$$C_o = \frac{C_1}{(1+r)} + \frac{C_2}{(1+r)^2} + \frac{C_3}{(1+r)^3} + \ldots + \frac{C_n}{(1+r)^n}$$

where the present value of costs (C) is equal to the stream of costs deflated by the weighted discount rate (r). For further discussion of discounting schemes, see G. Becker, Human Capital (New York: Columbia University Press, 1964), Chapter 3.

Given imperfect capital markets and limited capital sources, the discount rate should be at least as great as the returns prevailing for an equivalent investment in physical capital. Stigler has estimated this return to be about 8 percent and we shall use this figure in our analysis.[9]

Cost estimates for a number of the Florida colleges attended by Miami high school graduates appear in Table 11. The estimates include earnings foregone, tuition, and books but exclude commutation costs. Columns 1 and 2 show our estimates unadjusted for unemployment, columns 3 and 4 adjust for unemployment and columns 5 and 6 include the part time earnings of college students. Note that our estimates assume student earnings do not depend on the location of the college.

(Table 11 about here)

Table 12 shows the costs incurred by students attending Miami-Dade Junior College for the first two years and then continuing on at some other Florida school. These costs are adjusted to reflect unemployment and part time earnings. Column 3 shows the number of students in the Junior College sample who plan to follow this route.

(Table 12 about here)

The above figures ignore non-monetary costs of both a consumption and investment nature. For example, a cost of residing at home may be the foregone benefits of apartment living. Similarly, students living away from home may do better in their studies or may have a more active social life than students at home. Costs of this type can be accounted for only

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9. See H. Tuckman, A Study of College Choice, College Location, and Future Earnings: Two Economic Models of College Choice, Ph.D. Dissertation, University of Wisconsin, 1970, Chapter 3.

TABLE 11

COSTS OF TWO YEARS OF SCHOOLING AT SELECTED FLORIDA COLLEGES

FOR 1970 MIAMI HIGH SCHOOL GRADUATES

College Name	Unadjusted Two-year Costs		Costs Adjusted for Unemployment		Net Costs	
	Un-discounted	Discounted	Un-discounted	Discounted	Un-discounted	Discounted
Miami-Dade	$12,700	$11,300	$12,217	$10,871	$ 9,163	$ 8,153
Fla. State	13,100	11,800	12,602	11,352	9,542	8,514
U. of Fla.	13,100	11,800	12,602	11,352	9,452	8,514
U. of Miami	15,800	14,100	15,200	13,564	11,400	10,173
Barry College	14,700	13,100	14,141	12,602	10,606	9,452
Fla. Atlantic	13,100	11,800	12,602	11,352	9,452	8,514
U. of W. Fla.	13,100	11,800	12,602	11,352	9,452	8,514
U. of S. Fla.	13,100	11,800	12,602	11,352	9,452	8,514
Biscayne College	14,700	13,100	14,141	12,602	10,606	9,452
New College	17,600	15,700	16,931	15,103	12,698	11,327
Fla. A & M	13,000	11,500	12,506	11,063	9,380	8,297
Tampa	14.700	13,100	14,141	12,602	10,606	9,452
Fla. Tech.	14,900	13,300	14,334	12,795	10,751	9,596
Jacksonville	14,400	12,800	13,853	12,314	10,390	9,236
Fla. Southern	15,200	13,600	14,622	13,083	10,967	9,812

Source: Column 1 based upon Cass & Birnbaum, Comparative Guide to American Colleges, 1970 Edition. Column 2 computed using formula in Footnote 8. Columns 3 & 4 are columns 1 & 2 net of unemployment. Deflation of the estimates in Columns 3 & 4 to reflect earnings of college students gives Columns 5 & 6. Commutation and housing costs do not appear in these estimates.

TABLE 12

COSTS OF FOUR YEARS OF SCHOOLING AT FLORIDA COLLEGES FOR MIAMI JUNIOR COLLEGES GRADUATES

Two Years at Miami-Dade and Two Years at--	Net Costs Undiscounted	Net Costs Discounted	Number of Students in the Sample Following Pattern
Florida International	$18,615	$15,440	162*
Florida State	18,615	15,440	99
University of Florida	18,615	15,440	102
University of Miami	20,562	17,027	172
Barry College	19,769	16,377	18
Florida Atlantic	18,615	15,440	181
Univ. of West. Fla.	18,615	15,440	12
Univ. of South Fla.	18,615	15,440	45
Biscayne College	19,769	16,378	2
New College	21,862	18,110	0
Florida A&M	18,542	15,368	0
Tampa	19,769	16,378	0
Florida Technical	19,913	16,523	1
Jacksonville	19,553	16,162	2
Florida Southern	20,130	16,666	0

Source: Columns 1 & 2 based upon Cass & Birnbaum, Op.Cit., and adjustments described in Table 1. Column 3 comes from a tabulation of junior college student sample responses. Commutation and housing costs are not included in our estimates.

*Students planning to go to 2 year senior university.

with great difficulty. We shall try in a future chapter to identify some of the benefits foregone by students residing at home although the actual dollar valuation of these benefits will be left for another day.

The Housing-Commutation Tradeoff

Students will live at home when they find it less costly than living away. As the distance from their home to the local college increases, the monetary savings from commutation decrease. Suppose, for example, that students commute to college on the average of twenty days each month. Assume that students travel to school by car, that each mile costs them 5¢ in direct road costs (i.e., gasoline, maintenance, etc.) and 10¢ in opportunity costs (i.e., travel time) and that they make this trip 20 days a month. Then each mile traveled by a student will cost him $6 per month.

The simple linear relationship between mileage and commutation costs can be shown in a diagram (Figure 1). Line P-F shows the functional relationship between round-trip mileage and commutation costs. It begins at the one mile mark to reflect the assumption that students living and traveling less than one-half mile to the campus incur negligible commutation costs. Our diagram clearly represents a simplification of the true relationship between commutation and housing costs. Congestion close to the campus and access to four lane highways further away probably give P-F the shape of a curve which is somewhat concave toward the horizontal axis.

Figure 1. Round Trip Mileage and the Cost of Commutation

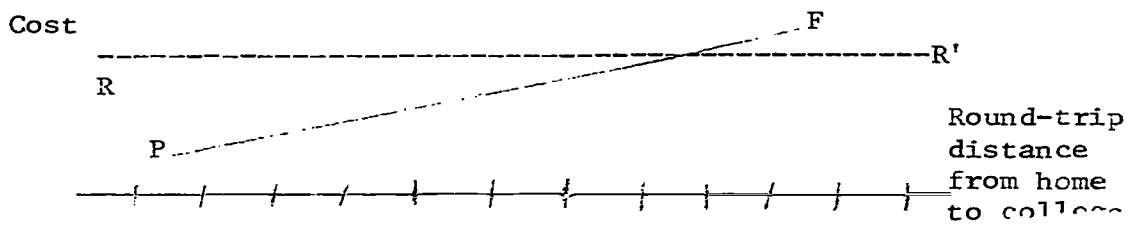

Figure 1 may also be used to depict the relationship between room rents and commutation costs. The average monthly rent reported by junior college students is $105 and is drawn so as to be unrelated to the distance from home to campus. Any distance to the left of point B (located at a point 17 miles from the junior college campus) will be profitable to commute from. Commutation from a point to the right of B will be more costly than taking an apartment. We shall call point B the breakeven distance.

How much does the student save by having a college located nearby? We assume that if a junior college was not within commuting distance then the student would have attended a similarly priced junior college located further away. Ignoring travel costs to the more distant school and using the sample mean housing cost of $105, average savings equal the difference between the average costs of renting an apartment and the direct and opportunity costs of commuting to school. Total savings for each campus are obtained by multiplying the number of students by the average savings at each distance.

Table 13 applies our analysis to the students in the junior college sample. We believe these estimates to be conservative. By using addresses given on the student questionnaires, students can be located at one mile intervals from the campus. The opportunity costs are then figured from the average travel time and distance reported by the students. Average time required to travel one mile (3.7 percent of an hour) multiplied by the average hourly wage for manufacturing workers in Miami gives the dollar value of time spent in travel (10¢ per mile). This measure is acceptable if students

value their leisure at the same rate that they value their work.[11] Since direct travel costs vary depending upon whether depreciation and maintenance costs are included, we shall provide both a 5¢ and 10¢ per mile estimate. The former probably understates costs while the latter may overstate them.

(Table 13 about here)

In order to graphically illustrate the geographic distribution of junior college students' residences around the two Miami-Dade campuses, we prepared the two special maps that appear below (Figures 2 and 3). Each map is drawn to scale and is the finished product of a process of photographic reduction from a large wall map prepared by the Metro-Dade Planning Department. The series of concentric circles drawn out from each campus indicates one mile intervals. Each dot denotes the location of a dwelling unit occupied by a student while attending college.[12]

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[11]The theory behind this measure of travel time is well established. In equilibrium students will allocate their time so that the value of one more unit will be equal among the various uses (travel, leisure, work). At the margin, the value of time spent in travel will equal the value of time spent in work. See, for example, R. Gronau, "The Effect of Traveling Time on the Demand for Passenger Transportation," Journal of Political Economy, March-April, 1970.

[12]With the aid of a detailed roadmap, the dwelling unit of each junior college degree candidate was located on the large wall map--using distinguishable symbols for each campus. The map indicated the 1970 census tract boundaries on a 1964 road base. Large concentric circles were swung around each campus indicating one mile intervals. Separate tracings were subsequently made for each campus--showing the concentric circles, dwelling units and several natural and man-made boundaries of Dade County. These tracings were then photographically reduced, resulting in the figures presented in the report. We would like to acknowledge the services provided us in the preparation of these maps by the Metro-Dade Planning Department, the cartography laboratory of the Geography Department at Florida State University and the Lithographic Technology Department at Florida Agricultural and Mechanical University.

TABLE 13

ESTIMATED SAVINGS OBTAINED BY STUDENT'S IN THE SAMPLE
(Savings in Dollars)

Mileage[1] (Home to Campus)	No. of Students at this Distance[2]		Average Amount Saved by Living at Home		Total Savings at Each Junior College				Total Cumulative Savings for both Junior Colleges	
	North Campus	South Campus	@15¢ Commutation Cost	@20¢ Commutation Cost	North @15¢	North @20¢	South @15¢	South @20¢	@15¢	@20¢
1	8	5	$102	$101	$ 816	$ 808	$ 510	$ 505	$ 1326	$ 1326
2	47	6	96	93	4512	4371	576	558	6414	6242
3	82	23	90	85	7380	6970	2070	1955	15864	15167
4	108	42	84	77	9072	8316	3528	3234	28464	26717
5	103	48	78	69	8034	7107	3744	3312	40242	37136
6	60	43	72	61	4320	3660	3096	2623	47658	43419
7	47	32	66	53	3102	2491	2112	1696	52872	47606
8	60	29	60	45	3600	2700	1740	1305	58212	51611
9	27	19	54	37	1458	999	1026	703	60696	53313
10	12	6	48	29	576	348	288	174	61560	53835
11	6	17	42	21	252	126	714	357	62526	54318
12	4	7	36	13	144	52	252	91	62922	54461
13	2	2	30	5	60	10	60	10	63042	54481
14	---	7	24	----	----	----	168	----	63210	-----
15	2	3	118	----	36	----	54	----	63300	-----
16	1	1	12	----	12	----	12	----	63324	-----
17	---	2	6	----	----	----	12	----	63336	-----

Source: Based upon distance estimates obtained from Miami map and formula discussed in text.

[1]Cost estimates assume students travel a distance equal to the midpoint between this interval and the previous one.

[2]Figures exclude 53 students from North campus and 14 students from South campus who live more than 17 miles from campus.

considered significant for our purposes.[6] Note, for example, that parental influence has a t-value of 3.3 which is well above the rejection value in our statistical test. The interpretation of columns 4 through parallels the discussion presented above.

What can be said about the key variables affecting choice? Note that in contrast to our earlier findings several variables no longer seem to be significant. Ethnicity does not affect choice. In terms of the categories presented above, black or Cuban students do not make different choices than whites, when other variables are controlled for. Moreover, self concept does not appear to effect choice. This result seems reasonable since self concept represents an intervening variable and once the other variables it intervenes with are specified its independent effects disappear.

Interestingly, junior college grade point does not appear to influence choice although high school rank does. There are two likely explanations for this: Limited variability in the junior college variable may render it of little value for prediction (viz., mean 2.69, standard deviation .68). Alternatively, high school teachers may do a better job of discriminating among student abilities.[7]

Students who have decided on a major area of study seem less likely to stop after junior college and more likely to go to either a second two year or to a four year college than students who have not. Further

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[6]More precisely, we test the null hypothesis that $B_i = 0$ using an α of 0.10. A parameter value greater than 1.65 for 930 observations causes us to reject the null hypothesis.

[7]This might be due to the fact that high schools deal with a broader range of students including those not going to junior colleges and those going to more selective colleges.

students choosing education or social science majors appear to prefer a four year college to a second two year college. Interestingly, our data suggest that the probability of a student's choosing a second two year school depends upon his choice of major.

The intercept term of a regression [(a) in Diagram 1] shows the probability that a student will make a given decision independent of the characteristics influencing choice. In other words, after removing the effects of other variables, 10.7% of the junior college students in the sample plan to attend a second two year school. If the student is interested in fine arts the probability of his choosing this type of school rises to 33.6%. Recall, however, that we must adjust our data to reflect the possibility that the individual parameter estimates are not additive.

The above results also suggest that people lack a clearcut image of the second two year university. Note that no major influence is exerted in favor of choosing this type of school while several groups influence students in favor of continuing on beyond junior college. Further, although our results suggest that counselors and teachers exert a significant influence on the probability of a student's attending a two or four year school this result requires cautious interpretation. The means in Appendix Table 2 show that only 7% of the students in the regression are influenced by the teacher-counselor group while 81% of the students are influenced by parents, spouse, or friends!

Choice of college appears to be influenced by the non-academic activities desired by students. This seems to be consistent with the hypothesis that students receive current services as well as investment benefits from attending college. It also supports the belief that students

perceive differences in the services provided by different types of colleges.

The unimportance of college activities for those choosing second two year schools may be interpreted as a sign of lack of knowledge as to the activities available. If so, the fact that some students prefer this choice, despite the lack of information on activities, suggests that college price may be a more important determinant of choice for these students than current services. The size and sign of the coefficient on the tuition variable suggests that this hypothesis may be correct.

Additivity Correction

We should like to construct a set of probabilities that a student will continue his education. Before doing this, the regression estimates must be adjusted for the possibility of probability estimates less than 0 or greater than 1.[8] Using a method developed by Orcutt, we can divide the expected values for observations in the sample into relatively homogeneous intervals. A mean of the residuals in each interval and a standard error of each mean are then calculated.

Column 1 of Table 37 shows the range of each probability interval. By comparing the residual means of each interval (column 2) to their standard errors (column 3) a t-value can be calculated to test for the significance of the residuals. When a residual mean is significant, the probability estimate falling into that interval is adjusted upward or

[8]The multicollinearity problem appears in our initial estimates but did not seem to be serious in our final regressions.

downward by the residual mean.[9]

(See Table 37)

Having made the calculations shown above we may now present some data to illustrate the probability that a student with a given set of characteristics will choose to continue his education.

(See Table 38)

Characteristics Affecting the Choice of Career Alternatives--By Major Subject

Until now we have assumed that the way that a variable (i.e., price) affects choice is independent of the student's major area of study. Thus, desired major appears as a dummy variable and is either added or subtracted from the intercept term. In this section, we explore an alternative formulation--one which enables us to examine whether the effect of the independent variables differs depending on a student's choice of major.[10] In other words, given that the policy-maker knows that a student intends to major in an area (i.e., social science), we then seek to determine the set of variables which affect his choice of school. This approach enables us to zero in on the factors influencing specific groups of junior college students rather than the factors influencing all of the students.

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[9] Thus $\hat{Y}' = \hat{Y}_i + f(\hat{Y}_i)$ where Y_i is the estimate of the probability $\hat{Y}$ falling into the ith interval and $f(\hat{Y}_i)$ is the mean of the residuals for units having $\hat{Y}_i$ as the original expected interval. Note that this permits us to preserve the assumption that the regression coefficients are additive.

[10] The two formulations are identical only if choice of major affects the intercepts of the regressions by subject and not the regression coefficients. This possibility can usually be tested using a test devised by Chow. See J. Johnston, Econometric Methods (New York: McGraw-Hill, 1963), p. 136. We have not utilized this test since it is not necessary for the purposes of this chapter.

TABLE 37: ADJUSTMENT OF $\hat{Y}$ ESTIMATES FOR THE ABOVE REGRESSIONS

I. Stop After Junior College

Value of $\hat{Y}$	Mean of Residuals	Standard Error
.104 - .287	-.189*	.019
.298 - .534	.013	.062
.538 - .688	.272*	.062
.694 - .815	.128*	.063
.815 - .885	.017	.071
.886 - .927	-.010	.069
.928 - .992	-.088	.086
.992 - 1.200	-.143*	.085

II. Continue to Second 2 Year College

Value of $\hat{Y}$	Mean of Residuals	Standard Error
-.195 - .044	.054*	.017
.047 - .105	.033	.040
.107 - .141	-.090*	.028
.145 - .228	-.064	.056
.228 - .266	-.070	.081
.267 - .302	.064	.108
.305 - .459	.060	.099

* Indicates that residual mean differs significantly from zero ($\alpha = .10$).

TABLE 37 CONTINUED

III. Continue to 2 or 4 Year College

Value of $\hat{Y}$	Mean of Residuals	Standard Error
.134 - .287	-.190*	.010
.298 - .534	.013*	.006
.538 - .688	.272*	.040
.694 - .815	.128*	.027
.815 - .885	.017*	.010
.886 - .927	-.010	.008
.928 - .992	-.088*	.026
.992 - 1.20	-.142*	.034

* Indicates that residual mean differs significantly from zero α = .10 .

TABLE 38

PROBABILITY OF A STUDENT WITH SELECT CHARACTERISTICS CONTINUING HIS EDUCATION

I. Attend A Second Two Year College

Predicted Probability	Major	Father's Education	Tuition
.18	Social Science	College	$600
.27	Social Science	Grade School	$600
.20	Business	High School	$600
.20	Business	College	$400
.27	Education	High School	$400
.30	Fine Arts	Grade School	$600
.34	Fine Arts	Grade School	$400

II. Attend A Second Two Year or A Four Year College

Adjusted Probability	Major	Rank in High School Class	Parental Influence	Sex	Preferred Activity	Tuition
.89	Social Science	Top 25%	Parent	Male	Social	$600
.85	Social Science	25-50%	Teacher	Male	Sports	$600
.84	Business	Top 25%	Friend	Male	Political	$600
.84	Business	Top 25%	Parent	Male	Political	$800
.90	Business	50-75%	Parent	Female	Social	$400
.84	Fine Arts	50-75%	Parent	Female	Other	$600
.88	Education	25-50%	Parent	Female	Future Career	$600

Table 39 shows the results of the regressions run for students interested in specific areas of study. Separate parameter estimates appear for social science, education, and business majors. An "other" category consists of technology, hotel, food services, and health services. Unfortunately, separate estimates could not be run for fine arts and sciences majors because of the limited number of students choosing these categories. Moreover, since lumping these categories in with other groups tended to bias our results, we excluded these two groups from the analysis in this section.

(Table 39 about here)

Table 39 reads the same way as Table 36 except for the fact that several columns are now left blank. Our examination of the data showed that very few of the students who had chosen an academic major were not continuing their education. Thus, it was not possible to estimate regression coefficients for those stopping after junior college except in the "other" (i.e., non-academic) category. Interestingly, among social science majors the regression of choice of a second two year college on the independent variables yielded meaningful results while the regression of two plus four year choice did not. We suspect this was due to the relative homogeneity of students choosing a social science major. The results in all of the other categories were significant, although they differed in the degree to which they explained the variation in the data. The largest amount of explained variation (R^2 = .53) occurred in the "other" regression for two or four year choice. The smallest amount (R^2 = .03) appeared in the two or four year education regression.

TABLE 39

CHARACTERISTICS OF STUDENTS CHOOSING ALTERNATIVE

CAREER PLANS - BY DESIRED MAJOR

	Effect on the Probability of			
	Stopping After	Continuing on to		
Characteristic	Junior College	Second 2 Yr. Sch.		2 or 4 Yr. Sch.
I. Social Science	Probability	T-Value	Probability	T-Value
Intercept	.525			
Married	.206	3.2		
High School Rank				
Top 25%	-.079	.8		
25-50%	.080	.7		
50-75%	.334	2.5		
Father's Education				
Grade School	-.224	1.6		
HS Grad. +	-.251	1.9		
College Grad. +	-.254	1.9		
Tuition of College	-.00017	3.9		
	R^2=.20			
	F=6.2			
	Standard Error =.37			
II. Education				
Intercept	.814		.922	
Black			-.162	1.7
High School Rank				
Top 25%	-.363	2.8		
25-50%	-.305	2.3		
50-75%	-.473	3.3		
Preferred Activities				
Social	-.128	1.6	.052	1.0
Political	-.174	.9	.110	.9
Future Career	.076	.5	-.033	.3
Sports	-.177	1.8	.007	.1
Other	-.081	.8	-.115	1.7
Tuition of College	-.0002	3.8		
	R^2=.17		R^2=.06	
	F=3.6		F=1.7	
	Standard Error =.40		Stan. Error =.27	

TABLE 39 CONTINUED

III. Business	Stop.After JC	Proba-bility	T-Value	Proba-bility	T-Value
Intercept		.706		.932	
High School Rank					
Top 25%		.028	.3	-.163	1.7
25-50%		.198	1.8	-.190	1.9
50-75%		.027	.2	-.122	1.1
Most In-fluential					
Mother or Father		-.308	2.3	.075	.7*
Teacher or Guid. Counselor		-.273	1.3	.244	1.4*
Friend/Spouse		-.221	1.6	.088	.8*
Activities Preferred					
Social		-.220	2.6		
Political		-.236	1.7		
Future Career		-.095	.6		
Sports		-.265	2.8		
Other		-.271	2.9		
Tuition of College		-.00017	3.4		
		R^2=.19		R^2=.03	
		F=2.98		F=.8	
	Standard Error	= .39	Stan.Error	=.35	
IV. Other Categories					
Intercept	.477		.057		.066	
Male	-.092	1.9	.056	2.0	.107	2.7
High School Rank						
Top 25%	.128	1.6	-.082	1.9		
25-50%	.173	2.2	-.052	1.2		
50-75%	.215	2.4	-.036	.7		
Activities						
Social	-.384	5.5	.035	.9	.531	9.0
Political	-.428	2.3	-.043	.4	.525	3.4
Future Career	-.375	3.4	.045	.7	.399	4.3
Sports	-.388	4.2	.202	4.0	.662	8.4
Other	-.302	3.1	.048	.9	.479	5.9
Tuition of College	-.00019				.0002	6.5
	R^2 = .32		R^2 = .09		R^2 = .53	
	F = 14.1		F = 3.4		F = 41.6	
Standard Error = .40		St. Er. = .23		St. Er. = .34		

Notice that the variables affecting choice differ according to the student's major. Father's education, a significant variable in our earlier analysis of the choice of second two year schools, now appears to be important only for the social science regression. Similarly, parental influence only appears to be significant for the business regression. Notice the asterisks placed next to the t-values for the two or four year regression. These indicate that the variables were significant in the initial regression but when included in a regression with only significant parameters they became insignificant. Two explanations seem reasonable. Either these variables are collinear with some other one or the effect of these variables is dependent on the specification of the model. The reader will also note that we have included all of the dummy terms showing major influences on the student in the second two year regression even though the parental parameter is the only significant one. This follows from the practice of treating the dummies as a group of terms rather than separately.

High school rank appears to be significant in all of the second two year regressions and in some of the two or four regressions although its effects vary. Generally, the results suggest that a second two year school is most attractive to the group ranking between the 25 and 50 percentile in their high school and least attractive to the top 25% group. In the 50 - 75% group second two year colleges are most desirable to those majoring in social science and least desirable to those in education.

The activities desired by students are generally negatively associated with choice of a second two year college except in the "other" regression. In the two or four year regressions activities generally tend to be positively associated with a positive choice when the activities variable is

significant. Moreover, the price variable generally tends to be negative and significant when activities are negative or non-significant. Interestingly, when activities are positive, price tends to be either non-significant or positive.[11] These findings are consistent with our earlier discussion of the tradeoff between price and current consumption services.

The probabilities in Table 39 may be used to construct a set of probabilities that a student will continue his education; given that we know his desired major area of study. Once again we adjust for the possibility of probability estimates less than 0 or greater than 1. Interval means and standard errors appear in Table 40.

(Table 40 about here)

Probability estimates for students with given characteristics appear in Table 41. These results illustrate the way in which the coefficients in Table 39 can be used and the reader may wish to work with alternative combinations of the data.

(Table 41 about here)

Summary

In this chapter we utilize multiple regression techniques to determine those variables which best predict the probability that a student will choose either a two or four year college after he graduates from junior college. By this method 18 variables were found which, on the average, predicted 10% of the variation in the choices of those going to two year schools and 31% of the variation in the choices of those going to either a two or four year school. Among the significant variables were major area

[11] A positive price might occur, for example, if price serves as a proxy for the future returns expected from an education.

TABLE 40

ADJUSTMENT OF $\hat{Y}$ ESTIMATES FOR THE ABOVE REGRESSIONS

Social Science			Business		
2 year			2 Year		
Value of $\hat{Y}$	Mean of Residuals	Standard Error	Value of $\hat{Y}$	Mean of Residuals	Standard Error
-.212-.126	.040	.028	-.164-.092	.038	.033
.127-.194	.046	.059	.096-.184	.007	.077
.195-.298	.003	.117	.212-.361	-.055	.112
.316-.794	.003	.121	.362-.631	.010	.148

Business			Education					
2 Year or 4 Year			2 Year			2 Year or 4 Year		
Value of $\hat{Y}$	Mean of Residuals	Standard Error	Value of $\hat{Y}$	Mean of Residuals	Standard Error	Value of $\hat{Y}$	Mean of Residuals	Standard Error
.735-.817	-.041	.065	-.200-.010	.039	.034	.645-.889	-.008	.061
.830-.844	.065	.056	.137-.248	-.072	.072	.922-.924	-.017	.065
.857-.885	-.023	.096	.257-.352	.002	.123	.929-.950	.031	.084
.898-1.020	-.022	.087	.375-.738	.036	.159	.974-1.03	.005	.028

Other								
Junior College and Stop			2 Year			2 Year or 4 Year		
Value of $\hat{Y}$	Mean of Residuals	Standard Error	Value of $\hat{Y}$	Mean of Residuals	Standard Error	Value of $\hat{Y}$	Mean of Residuals	Standard Error
-.334-.121	.034	.021	-038-.005	.024*	.012	.012-.066	-.052*	.002
.121-.441	-.114*	.061	.010-.056	.028	.028	.119-.173	-.021	.062
.477-.599	-.020	.102	.057-.077	.036	.036	.202-.711	.112	.102
.605-.692	.088	.093	.079-.315	.084	.084	.733-1.270	.028	.079

*Denotes mean of residuals significant at $\alpha = .10$.

TABLE 41

PROBABILITY OF A STUDENT WITH SELECT CHARACTERISTICS CONTINUING HIS EDUCATION

I. Same Set of Characteristics--Different Major--Attend A Second Two Year College

Predicted Probability	Major	Rank	Father's Education	Most Influential Person	Preferred Activity	Tuition	Sex
.25	Social Science	25-50	High School	Parent	Social	$600	Male
.28	Education	25-50	High School	Parent	Social	$600	Male
.27	Business	25-50	High School	Parent	Social	$600	Male
.10	"Other"	25-50	High School	Parent	Social	$600	Male

II. Different Sets of Characteristics--"Other" Major--Attend a Second Two Year College

.28	"Other"	50-75			Sports	$600	Male
.26	"Other"	25-50			Sports	$800	Male
.04	"Other"	25-50			Social	$600	Female
.01	"Other"	Top 25			Social	$800	Female

III. Same Characteristics as II--Attend a Four Year College

.96	"Other"	50-75			Sports	$600	Male
.99	"Other"	25-50			Sports	$800	Male
.72	"Other"	25-50			Social	$600	Female
.76	"Other"	Top 25			Social	$800	Female

of study, high school rank, and college price. From these data we developed illustrative probabilities that students would choose to continue their education.

We then broke the data down by major area of study and ran separate regressions for each group. Many of our earlier findings were confirmed, although the determinants of choice tended to differ among the groups. The implications of our findings are discussed further in the concluding chapter of this report.

APPENDIX TABLE 1

THE ORIGINAL ESTIMATING EQUATION

The regression equation originally used to estimate the tables in this chapter is (A1) $Y = a + B_1X_1 \ldots, B_i X_i \ldots, B_{30} X_{30}$

The X_i variables are:

X_1 - 1 if male
X_2 = 1 if black
X_3 = 1 if married
X_4 = 1 if born in Latin America
X_5 = 1 if in top 25% of high school class
X_6 = 1 if in 25-50% of high school class
X_7 = 1 if in 50-75% of high school class
X_8 = Junior College Grade
X_9 = 1 if father completed grade school or some high school
X_{10} = 1 if father completed high school or some college
X_{11} = 1 if father completed college or graduate training
X_{12} = Family Income
X_{13} = 1 if major influence was parent
X_{14} = 1 if major influence was teacher or guidance counselor
X_{15} = 1 if major influence was friend or spouse
X_{16} = 1 if student thought most important activity at college was social
X_{17} = 1 if student thought most important activity at college was political
X_{18} = 1 if student thought most important activity at college was future career related
X_{19} = 1 if student thought most important activity at college was sports
X_{20} = 1 if student thought most important activity at college was other
X_{21} = Tuition and fees at students' first choice college
X_{22} = 1 if self-concept less than 14 (see Chapter 5 for more details)
X_{23} = 1 if self-concept 14-18
X_{24} = 1 if self-concept greater than 18
*X_{25} = 1 if student intends to major in social science
*X_{26} = 1 if student intends to major in fine arts
*X_{27} = 1 if student intends to major in business
*X_{28} = 1 if student intends to major in education
*X_{29} = 1 if student intends to major in science
*X_{30} = 1 if student intends to major in other

APPENDIX TABLE 1 CONTINUED

Recall that Y is a dichotomous variable and takes a value of 1 when a student makes a yes decision. This regression is used for several choices including

1. Attend junior college and stop
2. Attend junior college and go on to a second 2-year college
3. Attend junior college and go on to a 4 year college

*These X_i variables are only used in the main regression

APPENDIX TABLE 2

MEANS AND STANDARD DEVIATIONS OF

DUMMY VARIABLES USED IN REGRESSIONS

I. Regressions Based Upon Students Choosing A Second Two Year School[1/]

Variable	All Students X	All Students σ	Social Sci X	Social Sci σ	Business X	Business σ	Education X	Education σ	Other[2/] X	Other[2/] σ
Married			.23	.42						
Male			.51	.50					.52	.50
High School Rank										
Top 25%			.52	.50	.40	.49			.35	.48
25-50%			.32	.47	.35	.48			.37	.48
50-75%			.08	.27	.15	.36			.17	.37
Father's Education										
Grade School	.28	.45	.29	.46						
High School	.34	.48	.34	.47						
College Grad.	.33	.47	.32	.47						
Most Influential										
Mother or Father					.53	.50				
Teacher or Guidance Counselor					.04	.19				
Friend or Spouse					.37	.48				
Activities										
Social					.27	.45			.15	.35
Political					.06	.24			.02	.13
Future Career					.04	.20			.05	.22
Sports					.19	.39			.08	.27
Other					.17	.38			.07	.25

APPENDIX TABLE 2 CONTINUED

I. Regressions Based Upon Students Choosing A Second Two Year School[1/]

Variable	All Students		Social Sci		Business		Education		Other[2/]	
	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ
Tuition	$671	$656	$764	$614						
Major										
Soc Sci		.22	.42							
Fine Arts		.05	.22							
Science		.04	.18							
Education		.18	.39							
Business		.18	.38							

(Continued on next page)

APPENDIX TABLE 2 CONTINUED

II. Regressions Using Choice of a Second 2 Year or 4 Year College[1/]

Variable	All Students		Social Sci		Business		Education		Other[2/]	
	X	σ	X	σ	X	σ	X	σ	X	σ
Male	.51	.50							.52	.50
Black					.03	.17				
High School Rank										
Top 25%	.42	.49			.40	.49	.40	.49		
25-50%	.35	.47			.35	.48	.40	.49		
50-75%	.14	.34			.15	.36	.14	.34		
Most Influential										
Mother or Father	.50	.50			.53	.50				
Teacher or Guid.Coun.	.07	.25			.04	.19				
Friend or Spouse	.33	.47			.37	.48				
Activities										
Social	.29	.45					.35	.48	.15	.35
Political	.04	.18					.03	.17	.02	.13
Future										
Career	.06	.24					.05	.23	.05	.22
Sports	.12	.32					.15	.36	.08	.27
Other	.12	.33					.15	.36	.07	.25
Tuition	$672	$656					$778	$610	$416	$619
Major										
Social Sci.	.22	.42								
Fine Arts	.05	.22								
Science	.04	.18								
Education	.18	.39								
Business	.18	.38								

1/ Means and standard deviation are shown only for the significant variables.
2/ Excludes science and fine arts for which too few variables were available to permit a separate meaningful regression.
3/ Regression not significant.

CHAPTER SEVEN

CONCLUSIONS AND IMPLICATIONS

This report suggests that there is a potential demand for a senior two year college, among high school and junior college graduates, in the Miami area. It also shows that certain socioeconomic and attitudinal factors favorably predispose a number of students and their families toward a metro-Miami senior university. These are the factors that we recommend that members of the F.I.U. staff consider and build upon in recruiting students.

A primary feature of this report is that it provides a contextual understanding of the perception Miami-Dade County students have of various types of colleges and of the contingencies these students face in planning their future educational careers. Moreover, our report provides an insight as to the type of student F.I.U. will most readily attract. As most research documents, it raises as many questions as it answers. Thus, we suggest that it be used in conjunction with other available materials and with the experiences of planners.

One limitation of the report is that it does not permit us to measure directly the demand for a senior university among the Miami area residents who have received associate degrees in the past. Whereas there are several indications that Miami-Dade will become the primary "feeder" school for the F.I.U. as soon as it opens and increasingly after the F.I.U. becomes established - F.I.U. will also draw

upon the independent pool of associate degree recipients living and working in Miami. The number of students in this pool is undoubtedly large, but it is difficult to estimate due to migration in and out of the area and to the lack of a central data source. However, once the 1970 Census data on educational achievement become available, some rough estimates will be possible.

The necessity and/or desire to hold a job was clearly prevalent among the student respondents studied in our report. This would no doubt also be true of the individuals in the pool of those likely to return for additional education. F.I.U. probably can expect many part-time students. A college curriculum offering a broad range of courses and evening classes would be most likely to appeal to potential students.

Assuming that individuals in the Miami pool are reasonably similar to respondents in our study, then those who will be most attracted to a local senior university are in the top 25 to 50 percent of the class and have a definite idea of the major they would like to pursue, i.e., especially students interested in arts and sciences, business, and education.

Another group of students for whom we have no data are potential candidates for F.I.U. These students have completed or are in the process of completing their "basic studies" at state universities, and those having or working toward an associate degree at one of the many other two year community colleges throughout the state. We believe that these students can be divided into two groups: students whose home is in the Miami metropolitan area and those who might be drawn there.

Our data show that a vast majority of Miami high school students wish to remain in Miami, especially if they have spent most of their lives there. Moreover, the lure of the year-round summer climate, the metropolitan environment and especially the more lucrative job opportunities, in contrast to the opportunities available in small junior college towns, can be expected to draw some non-native students. A great deal will, of course, depend upon the price of F.I.U. in relation to both the price of other Florida schools and of schools outside of Florida.

Ultimately, F.I.U. should be viewed as a newly established alternative educational opportunity and seen in relation to other schools which offer the last two years of a baccalaureate program. Put in another way, we may examine what will be the factors which make F.I.U. attractive to students who ordinarily would go elsewhere? Our analysis suggests that geographical proximity to a school is highly important. Students tend to go to "nearby" schools, and especially if the curriculum, admissions requirements, available activities, job opportunities, and cost are "right" relative to what other schools offer.

In light of our findings regarding proximity (discussed in Chapters Three, Four and Five in detail), F.I.U.'s long-range goal of establishing a number of campuses throughout the metropolitan area appears to be very sound. Beyond this, and because the more immediate plans for the school focus on the existing campus, the F.I.U. planning staff should particularly address themselves to the factors above in further developing the design and image of the university. Our data indicate, for example, that offering a broad spectrum of courses, especially in the general

majors (i.e., social science, science) will increase F.I.U.'s appeal as a second two year school. It should be kept in mind that breadth of curriculum attracts large numbers of students to the four year colleges and universities.

Whereas F.I.U.'s tuition and fees will be equivalent to those of other state universities, we clearly show that attending a commuter-type school provides a less expensive education. Furthermore, we suggest that this fact should be drawn out and emphasized in F.I.U.'s literature. With a tuition and fees increase imminent, it seems likely that students will be increasingly reluctant or unable to meet the additional costs of residence at an "away" college or university.

The desire for campus activities (particularly social activities and sports) appears to be negatively associated with selecting a two-year community college. Moreover, the availability of these activities influences students' decisions to attend four year universities. The fact that activities do not appear to be significant determinants of the choice of a two year school suggests that a key lever in creating a positive image would be the inclusion of available activities. In conjunction with the concept, it would seem reasonable for F.I.U. to capitalize on the fact by remaining in or coming to Miami one is in close proximity to the wide variety of social, cultural and sports activities that city offers.

The vast majority of the students in our study have a "career orientation" towards a college education. And, as mentioned above, they very frequently plan to work while attending school. One possible way to capitalize on this fact would be to incorporate an employment service in the operating plans of F.I.U. and to design an effective

placement service, for both full and part time students. This would not only provide a strong selling point for students at F.I.U. but would also make F.I.U. more attractive to potential students in other parts of the state. We would also encourage F.I.U. planners to support student activities of a "career-related" nature. This might, for example, involve setting up a workshop for fine arts students, having photography exhibits, and inviting guest speakers to the campus.

The image parents have of F.I.U. should by no means be overlooked. We clearly found that parents are the ones who most frequently help to shape students' educational plans. Furthermore, parental influence is negatively associated with not continuing education and is positively associated with attending a four-year university. In addition, we also found that as a father's education increases, the likelihood that he will suggest a two year school decreases. The comparative advantage of attending a second two year institution will have to be made clear to parents. The presence of a senior university in Miami, with an acceptable reputation, may well increase the number of students who enter the local junior college planning a "two-plus-two" education.

Appropriate caution must be exercised in the inferences one makes from the results reported here. We cannot assume that the perceptions and plans of students have remained or will continue to remain constant over time. Population growth and changes in the population mix in Dade County are unlikely, in the long run, to remain the same. This implies changes in demand for a second two year school. And, of course, we cannot generalize from the study of one high school system and one junior college to others without due qualifications.

On the whole, there is a lack of information regarding two-year colleges, and this is particularly true of senior universities. F.I.U.'s success will obviously hinge upon the kind of university it develops and the effectiveness with which it promotes its services. The authors feel that the university concept F.I.U. ought to develop and promote is that of a "free access" university, a metropolitan commuter school which will be ecologically, economically and educationally attractive to students who hold an associate degree or its equivalent. It is our contention that an accessible local university, offering a broad spectrum of courses in arts and science, business and education, will be well received by the residents of the Miami area. The demand for such a school should be even greater if students and their parents are aware of the fact that attending F.I.U. will be comparatively inexpensive and that a range of extra curricula college activities will be available. In conclusion, if these recommendations are followed, we have no reason to suppose that F.I.U. will not succeed on the task it has set out to accomplish, beginning with its opening in the Fall of 1972.

APPENDIX A

SURVEY OF MIAMI-DADE JUNIOR COLLEGE STUDENTS' FUTURE PLANS FOR EDUCATION AND CAREER

Conducted by The Institute for Social Research
The Florida State University
Tallahassee, Florida
Spring 1970

Instructions: You may use either a pen or pencil. Please read all the directions on the questionnaire very carefully and answer all questions pertaining to you. Particularly note directions in capital lettering. Do not omit any questions unless the directions indicate to do so.

Note to Student: This survey is primarily being conducted to help formulate plans to provide southern Florida with a college and university system better equipped to serve the needs of the student and community. The information you give on this questionnaire will remain completely confidential. You are among over 3500 Florida students who will complete this survey. Responses will be tallied for groups of students and submitted to statistical analysis. We will not permit any information on individual students to be released. Only authorized personnel at the Institute for Social Research will have access to these questionnaires. Your name and address are requested to facilitate a possible follow-up survey to be conducted a year or more from this date. Your cooperation and time are greatly appreciated.

NAME_____
(Last) (First) (Middle Initial)

RESIDENCE
(address during school year)_____

_____COUNTY_____

1. Which of the following degrees or certificates do you expect to receive upon graduation?

___1. Associate in Arts
___2. Associate in Science
___3. Certificate of Completion
___4. Special Certification of Completion
___5. Other (describe)_____

2. Indicate below the number of trimesters (including the present one) you have been a full time student at Miami-Dade.

_____

3. Indicate below the number of trimesters (including the present one) you have been a part time student at Miami-Dade.

_____

4. Indicate below the number of terms (quarters, trimesters, semesters) you have been a full time or part time student at colleges or universities other than Miami-Dade.

_____

5. Age, as of your last birthday:

___1. 19 or younger
___2. 20
___3. 21
___4. 22
___5. 23 - 24
___6. 25 - 29
___7. 30 - 34
___8. 35 or older

6. Sex:

___1. male
___2. female

7. Race:

___1. White
___2. Black
___3. American Indian
___4. Oriental
___5. Other (identify) _____

8. Marital Status:

___1. Single
___2. Married
___3. Separated
___4. Divorced
___5. Widowed

9. Number of Children? (write in) _____

10. Where were you born? (Check one and identify the location, if necessary)

___1. In the county in which I now reside.

___2. In another Florida county (identify) _____

___3. In another state in the U. S. (identify) _____

___4. In a country outside the U. S. (identify) _____

11. Do you consider your birthplace (above) your "home town?" (The place you lived while growing up.) Check one and identify the location if necessary.

___1. Yes

___2. No; Another town in the U. S. (identify below)

Town_____State_____

___3. No; In a town and country outside the U. S. (identify below)

Town_____Country_____

12. How long have you lived in the county in which you now reside?

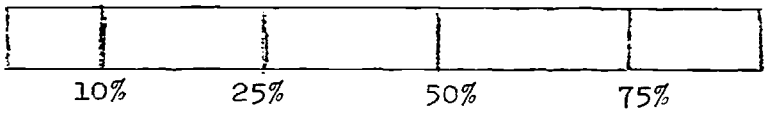
___1. Less than a year
___2. 1 - 2 years
___3. 3 - 5 years
___4. 6 - 9 years
___5. 10 or more years
___6. all my life

13. From what high school did you graduate?

Name of school_____Town and State_____

14. Indicate on the scale below how you ranked academically in your high school graduating class. (Check one box.)

Top of Class Bottom of Class



15. Indicate your junior college cumulative grade point average.

_____

16. How many brothers and sisters do you have (include stepbrothers and stepsisters)?

___None; I am an 'only' child

___1. One

___2. Two

___3. Three

___4. Four

___5. Five or more

IF YOU ARE AN ONLY CHILD, GO TO QUESTION 18. IF YOU ARE NOT AN ONLY CHILD, CHECK THE CATEGORY BELOW THAT APPLIES TO YOU (INCLUDE STEPBROTHERS AND STEPSISTERS.)

17. I have:

___1. one or more <u>younger</u> brothers or sisters--but none older.

___2. one or more <u>older</u> brothers or sisters--but none younger.

___3. both <u>younger and older</u> brothers and sisters.

QUESTIONS 18, 19 and 20 PERTAIN TO YOUR FATHER'S EDUCATION AND OCCUPATION. IF YOU PRESENTLY HAVE, OR HAVE HAD, A STEPFATHER OR MALE GUARDIAN, ANSWER THESE QUESTIONS FOR HIM. IF YOU DO NOT HAVE, AND NEVER HAVE HAD, A FATHER, STEPFATHER OR MALE GUARDIAN, GO ON TO QUESTION 21.

18. What is the highest level of education completed by your father? (Check one)

___1. Grade school or less
___2. Attended high school--did not graduate
___3. Graduated from high school
___4. Vocational or trade school after high school
___5. Attended college, but did not graduate from a 4-year school
___6. Graduated from a 4-year college
___7. Received additional graduate or professional training after graduating from a 4-year school
___8. Other (describe)_____

19. What is your father's occupation? If your father (stepfather/guardian) is not working or is deceased answer with respect to the kind of work he usually does or did do. Be as exact in your description as possible.

Job Title: _____

Description of actual work activity: _____

_____

20. ANSWER THIS QUESTION ONLY IF YOUR FATHER (STEPFATHER/GUARDIAN) CAME TO LIVE IN THE UNITED STATES WITHIN THE PAST 10 YEARS. IF THIS DOES NOT APPLY TO YOUR FATHER, GO ON TO QUESTION 21.

What was your father's occupation before coming to the United States? Answer in the same manner as you did for question 17.

Job Title: _____

Description of actual work activity: _____

_____

QUESTIONS 21, 22, and 23 PERTAIN TO MOTHER'S EDUCATION AND OCCUPATION. IF YOU PRESENTLY HAVE, OR HAVE HAD, A STEPMOTHER OR FEMALE GUARDIAN ANSWER THESE QUESTIONS FOR HER. IF YOU DO NOT HAVE, AND NEVER HAVE HAD A MOTHER, STEPMOTHER, OR FEMALE GUARDIAN, GO ON TO QUESTION 24.

21. What is the highest level of education completed by your mother? (Check one.)

___1. Grade school or less
___2. Attended high school--did not graduate
___3. Graduated from high school
___4. Vocational or business school after high school
___5. Attended college, but did not graduate from a 4-year school
___6. Graduated from a 4-year college
___7. Received additional graduate or professional training after graduating from a 4-year school
___8. Other (describe) _____

22. Is your mother (stepmother/guardian) employed?

___1. No; she does not work
___2. No; she is deceased
___3. Yes; she has a full time job
___4. Yes; she has a part time job
___5. Other (describe)_____

23. ANSWER THIS QUESTION ONLY IF YOUR MOTHER (STEPMOTHER/GUARDIAN) IS EMPLOYED. IF SHE IS NOT EMPLOYED, GO ON TO QUESTION 24.

What is your mother's occupation--what kind of work does she so? Be as exact in your description as possible.

Job Title:_____

Description of actual work activity:_____

_____

24. What do you expect your parents' (stepparents'/guardians') total annual income will be in 1971? Enter the figure below. (Include both father and mother, if you expect both to be employed. If you are uncertain, give an approximate figure.)

$_____

25. Do you presently have a part time or full time job(s)?

___1. Yes ___2. No

IF YOU HAVE ANSWERED NO TO THE ABOVE QUESTION GO ON TO QUESTION 28.
IF YOU HAVE ANSWERED YES, ANSWER QUESTIONS 26 and 27.

26. Describe the job you presently hold--Where do you work? What do you do there?

_____

_____

27. How much do you usually earn each month from the job(s) you have described?

$_____per/month

28. SHOWN BELOW ARE A NUMBER OF POSSIBLE PLANS WHICH YOU MIGHT CHOOSE TO FOLLOW IN YOUR EDUCATIONAL CAREER. READ ALL THE PLANS CAREFULLY AND BE CERTAIN THAT YOU KNOW HOW EACH DIFFERS FROM EVERY OTHER PLAN. ENTER ONLY ONE CHECK IN EACH COLUMN.

In the first column, labeled Ideal, check the plan that you would ideally like to follow.

In the second column, labeled Parents, check the plan that you think your parents (stepparents or guardians) would most like you to follow.

In the third column, labeled Actual, check the plan which you feel most certain you will actually follow.

Ideal	Parents	Actual	Possible Plans
____1	____1	____1	A. Drop out of junior college and go no
____2	____2	____2	B. Graduate from junior college go no farther.
____3	____3	____3	C. Transfer from junior college to a 2-year senior university (one which has only junior and senior undergraduates).
____4	____4	____4	D. Transfer from junior college to a 4-year university or college.
____5	____5	____5	E. Other (describe)___ _____

29. How certain are you of achieving the actual plan, indicated above? Are you very certain, not certain at all, or somewhere in between. Check one box below.

	1	2	3	4	5	
very certain						not certain at all

IF YOU PLAN TO PURSUE YOUR EDUCATION BEYOND JUNIOR COLLEGE--TO TRANSFER TO A TWO-YEAR SENIOR UNIVERSITY OR A FOUR-YEAR UNIVERSITY OR COLLEGE--ANSWER QUESTIONS 30 THROUGH 33. IF THIS DOES NOT APPLY TO YOU, GO ON TO QUESTION 34.

30. What 2-year/senior universities or four-year universities or colleges are you considering at the present time. List these schools below in the order of your interest in them. Also check whether or not you have actually applied for admission to these schools

School	Applied for Admission
First Choice_____	___1. yes ___2. no
2nd Choice_____	___1. yes ___2. no
3rd Choice_____	___1. yes ___2. no

31. IF THE SCHOOL OF YOUR FIRST CHOICE (ABOVE) IS LOCATED WITHIN THE SAME GENERAL AREA AS MIAMI-DADE (DADE, BROWARD, OR MONROE COUNTIES), ANSWER (A) BELOW. IF YOUR FIRST CHOICE SCHOOL IS LOCATED OUTSIDE OF THIS GENERAL AREA, ANSWER (B) BELOW.

(A) Indicate below the two most important reasons you have for remaining within the same general area to further your education. Place a one (1) in front of the reason that is most important to you, and place a two (2) in front of the reason that is second most important.

___In order to save on the costs of living outside the area to go to school
___To be close to my parents
___To be close to my own family, i.e., spouse, children
___In order to take advantage of the financial opportunities in the area
___In order to keep the job I now hold
___Other (describe)_____
___Other (describe)_____

(B) Indicate below the two most important reasons you have for going outside the area to further your education.

Most Important Reason_____

Next Most Important Reason_____

32. What is the total annual income you personally expect to receive during 1971? Enter the figure below. (If you are uncertain, give an approximate figure.)

$_____

33. Of the total amount above (expected annual income), what proportion (%) do you expect to come from the following sources? Indicate below--make certain your estimates total 100%.

_____% Earnings from job you now hold

_____% Earnings from a job you expect

_____% Personal savings

_____% Scholarship/Fellowship

_____% Loan

_____% Parents (guardians)

_____% Spouse

_____% Other Source (describe)_____

100%

34. What is the distance between your place of residence and the Miami-Dade campus you attend? (Write in below)

_____miles

35. What is the average time (in minutes) it takes you to travel to campus from your residence? (Write in below)

_____minutes

36. On the average school day, how do you usually get to and from the campus ? Check one means below.

___1. walk
___2. your own car
___3. a car belonging to member of family
___4. bus
___5. carpool
___6. motorcycle or bike
___7. other (describe below)
_____
_____

37. How much does it cost you during the average week to travel to and from campus (commute) from your place of residence. (If you do not know precisely, enter the approximate cost below.)

$_____

38. IF YOU LIVE AT HOME AND PAY NO BOARD OR IF YOU OWN YOUR HOME SKIP THIS QUESTION AND GO ON TO QUESTION 39.

How much rent do you pay (per/month) during the school year?

$_____/month

39. Who were the two most influential individuals, other than yourself, who helped you make your decision as to whether or not to continue your education beyond junior college? (i.e., those two persons who helped you most in deciding whether to enter another college or university or go to work after graduating) Check only one in each column.

Most Influential Person	Second Most Influential Person
___1. Father	___1. Father
___2. Mother	___2. Mother
___3. Counselor	___3. Counselor
___4. College Teacher	___4. College Teacher
___5. College Friend	___5. College Friend
___6. Wife or husband	___6. Wife or husband
___7. Others (identify)	___7. Others (identify)
_____	_____
_____	_____

40. If you did not consider a college outside of Florida indicate the reason that best characterizes why.

____1. Couldn't qualify for higher quality school
____2. Florida colleges provide as good an education as I desire
____3. Too expensive to attend out-of-state
____4. Don't want to be that far from home
____5. Other (specify)_____

_____

QUESTIONS 41 THROUGH 46 ARE TO BE ANSWERED ONLY IF YOU PLAN TO GO ON TO ANOTHER COLLEGE OR UNIVERSITY AFTER JUNIOR COLLEGE. IF YOU DO NOT PLAN TO CONTINUE YOUR EDUCATION BEYOND JUNIOR COLLEGE, SKIP TO QUESTION 47.

41. The most important source of information which I used in deciding to apply to the college of my first choice (question 30) was:

__1. Personal conference(s) with my guidance counselor
__2. Use of available reference material
__3. A college representative who visited here
__4. A visit to that school
__5. "Common Knowledge" about the school shared by fellow students
__6. A person attending that school now
__7. A relative(s) include wife, parents, brothers, sisters
__8. Other (specify) _____

42. Has your junior college guidance counselor(s) encouraged you to consider and/or apply to any particular colleges or universities?

__1. Yes
__2. No
__3. I haven't discussed this with my counselor

IF YOU HAVE ANSWERED YES TO QUESTION 42, ANSWER QUESTION 43. IF YOU DID NOT ANSWER YES, GO ON TO QUESTION 44.

43. What particular colleges or universities did your counselor(s) encourage you to consider or make application to? Identify below.

_____

_____

44. Students planning to attend another college or university beyond junior college may choose a major from a considerable number of subject areas (English, Nursing, Chemistry, Business Administration, Home Economics, Psychology, Criminology, Marketing, etc., etc.). Indicate below those three subject areas which you feel you will most likely major in after arriving at the college or university of your choice. List them in the order of your interest. For example, one student might be most interested in English, next most interested in History, and thirdly in Philosophy. Another student might have interests in Nursing, Social Welfare and Home Economics. Still another student might have interests in Advertising, Hotel Management and Accounting, etc.

_____ Subject area most likely to major in

_____ Subject area second most likely to major in

_____ Subject area third most likely to major in

45. How certain are you that you will major in the subject you have listed above as your first choice? Are you very certain, not at all certain, or somewhere in between? Check one box below.

Very Certain						Not at all Certain
	1	2	3	4	5	

46. College life frequently involves more than attending regularly scheduled classes and studying. There are usually many other types of activities and interests a student can pursue. What activities do you particularly look forward to participating in at the college of your choice? List the two activities that interest you most in the order of your interest.

Most interest in: _____

Second most interest in: _____

47. When you finish your college education (whether or not you plan to go to another school after junior college), where do you think you will live? Check one below.

__1. In the county in which you now reside or an adjacent county
__2. In another part of Florida
__3. In a southern state (other than Florida)
__4. In a state outside the South
__5. In a country outside the United States (specify) _____

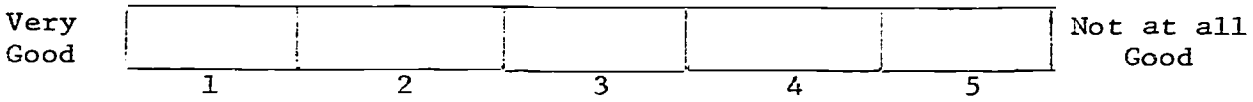
48. What occupation would you like to make your life career (farmer, engineer, secretary, teacher, doctor, plumber, salesman, lawyer, etc.)? Specify on the line below. Be specific. If, for example, you should want to become a teacher, indicate whether you would like to teach elementary grades, high school, or college.

_____

49. How certain are you that this occupation is the one which you will eventually want to work in? Are you very certain, not at all certain, or somewhere in between? Check one box below.

Very Certain						Not at all Certain
	1	2	3	4	5	

50. What do you think your chances are of eventually getting this kind of job? Are they very good, not at all good, or somewhere in between? Check one box below.



51. What do you feel is the chief purpose of getting a college education? (Write in below)

_____

52. What do you feel is the "biggest" single problem in the educational system in the United States? (Write in below)

_____

53. What have you personally found to be your own biggest problem in getting an education? (Write in below)

_____

54. Have you been generally satisfied or dissatisfied with the (your own) program at junior college?

__1. generally satisfied __2. generally dissatisfied

55. If you were granted the power to make one change in the junior college program, in order that it provide a better education for its students, what change would you make. Specify below.

_____

_____

56. Are you generally satisfied or dissatisfied with the way in which your high school program prepared you for college?

__1. generally satisfied __2. generally dissatisfied

57. If you indicated that you are dissatisfied with your high school program, explain below what you feel was most inadequate about the preparation for college at your high school.

_____

_____

IN COMPLETING THIS QUESTIONNAIRE, WE WOULD LIKE YOU TO CONSIDER CAREFULLY THE SERIES OF STATEMENTS WHICH FOLLOW. EACH STATEMENT IS ONE WHICH A PERSON COULD USE TO DESCRIBE HIMSELF. AFTER EACH STATEMENT CHECK THE RESPONSE THAT BEST DESCRIBES THE DEGREE TO WHICH YOU FEEL THAT THE STATEMENT AGREES WITH WHAT YOU THINK ABOUT YOURSELF.

For example: If the statement read: "I am nearly always happy," and you felt that you were a happy individual, you would check the "Agree a Lot" response.

58. I have often had the feeling that it's no use to try to get anywhere in this life.

__1. Agree a lot __2. Agree a little __3. Disagree a little __4. Disagree a lot

59. I nearly always feel pretty sure of myself even when people disagree with me.

__1. Agree a lot __2. Agree a little __3. Disagree a little __4. Disagree a lot

60. There's not much use for me to plan ahead because there's usually something that makes me change my plans.

__1. Agree a lot __2. Agree a little __3. Disagree a little __4. Disagree a lot

61. I never had any trouble making up my mind about important decisions.

__1. Agree a lot __2. Agree a little __3. Disagree a little __4. Disagree a lot

62. I seem to be the kind of person that has more bad luck than good luck.

__1. Agree a lot __2. Agree a little __3. Disagree a little __4. Disagree a lot

63. I have always felt pretty sure my life would work out the way I wanted it to.

__1. Agree a lot __2. Agree a little __3. Disagree a little __4. Disagree a lot

64. I would rather decide things when they come up than always try to plan ahead.

__1. Agree a lot __2. Agree a little __3. Disagree a little __4. Disagree a lot

NOW THAT YOU HAVE COMPLETED THE QUESTIONNAIRE, WON'T YOU PLEASE TAKE AN ADDITIONAL MINUTE OR TWO TO GO BACK THROUGH IT IN ORDER TO MAKE CERTAIN THAT YOU HAVE NOT OMITTED ANY QUESTIONS WHICH PERTAIN TO YOU. WE WOULD GREATLY APPRECIATE IT IF YOU WOULD INSERT YOUR COMPLETED QUESTIONNAIRE IN THE RETURN ENVELOPE AND MAIL IT AT YOUR EARLIEST CONVENIENCE.

IF YOU WOULD LIKE TO MAKE AN ADDITIONAL COMMENT(S) CONCERNING THE SURVEY, ANY ITEM ON THE QUESTIONNAIRE, OR ANY OF THE GENERAL ISSUES WITH WHICH THE SURVEY WAS CONCERNED, PLEASE FEEL FREE TO DO SO IN THE SPACE BELOW.

THANK YOU ONCE AGAIN FOR YOUR COOPERATION.

APPENDIX B

GUIDANCE PERSONNEL INTERVIEWS

In order to get a better idea of the type of guidance counseling systems to which our respondents had been exposed and to examine the attitudes and opinions of guidance personnel in those systems, a series of interviews were conducted with guidance personnel in both the high schools and the junior colleges. The interview schedule was developed and pretested by project personnel. The resulting instrument was comprised of two major sections: a series of questions with fixed coding categories and a series of open-ended questions which were taped and analyzed at a later date.

The instrument was administered to twenty high school counseling personnel and twenty-seven junior college counseling personnel during the last week of July and the first week of August, 1970. This sample represents approximately 11 percent of the high school counseling personnel and 80 percent of the junior college personnel.[1] Within each of these samples, the interviews were obtained at each level of the administrative hierarchy. These hierarchies, constructed from the

[1]The uneven sampling ratios result from the uneven population sizes and certain restraints that resulted from the vacation schedules of counselors. In spite of the relatively small sample of high school counselors, information was obtained for each of the 17 high schools in the system. Because of the subjective nature of the counselor data, the reader should exercise due caution when making any inferences.

interviews and certain administrative documents obtained from the counseling system personnel, are graphically presented in Charts One through Three.

Although the charts are for the most part self explanatory, several comments are necessary. In Chart One, each of the arrows under the "District Guidance Specialists" is meant to lead to one school. The within school hierarchies are identical to the example shown in the Chart. The dotted line shown leading to the Assistant Principal for Guidance from the District Guidance Specialist represents an organizational reality found in the counseling system. Specifically, although the principal has the final authority over all personnel within the school, he rarely intercedes between counseling personnel. In most cases, the District Guidance Specialist has more influence on the guidance policies within a school than the principal. There is a trend toward administrative "decentralization" in the county system. Hence, at all levels in the hierarchy, there is an increasing effort to delegate decision making authority to positions at the individual schools. For example, in two high schools, the counselors are being assigned to individual rooms at various locations in the school building as opposed to the traditional central location placement. In addition, the counselors will be given more autonomy.

Chart Two shows the counseling system at the South Campus of Miami-Dade. The majority of students there are handled by the faculty advisors. The three permanent, and ten high school counselors, advise first quarter students and those with special problems. The counseling center, and the learning resources center, focus on students with

CHART 1

COUNSELING SYSTEM: DADE COUNTY SCHOOLS

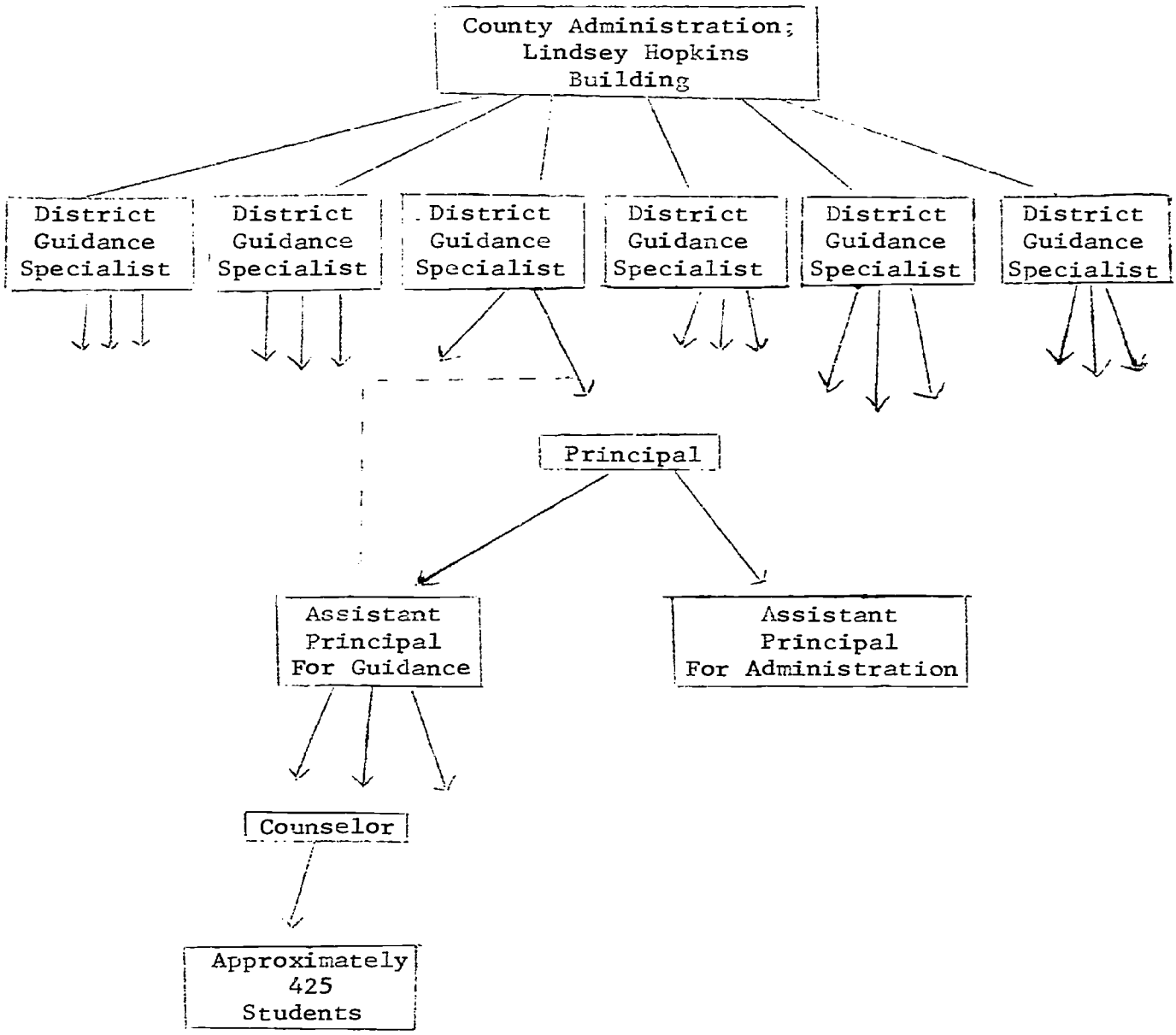
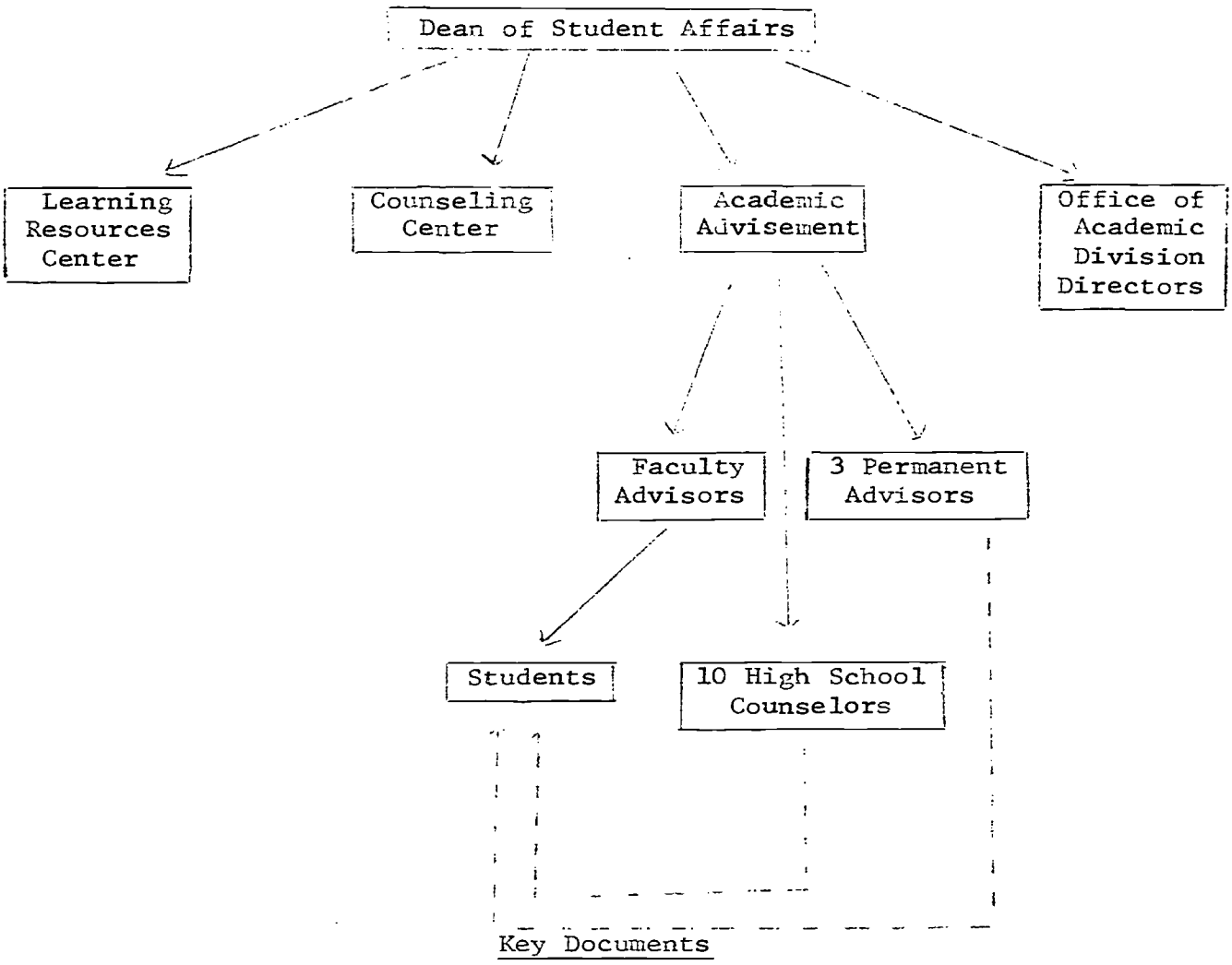


CHART 2

COUNSELING SYSTEM: MIAMI DADE SOUTH



1. Handbook for Faculty Advisors

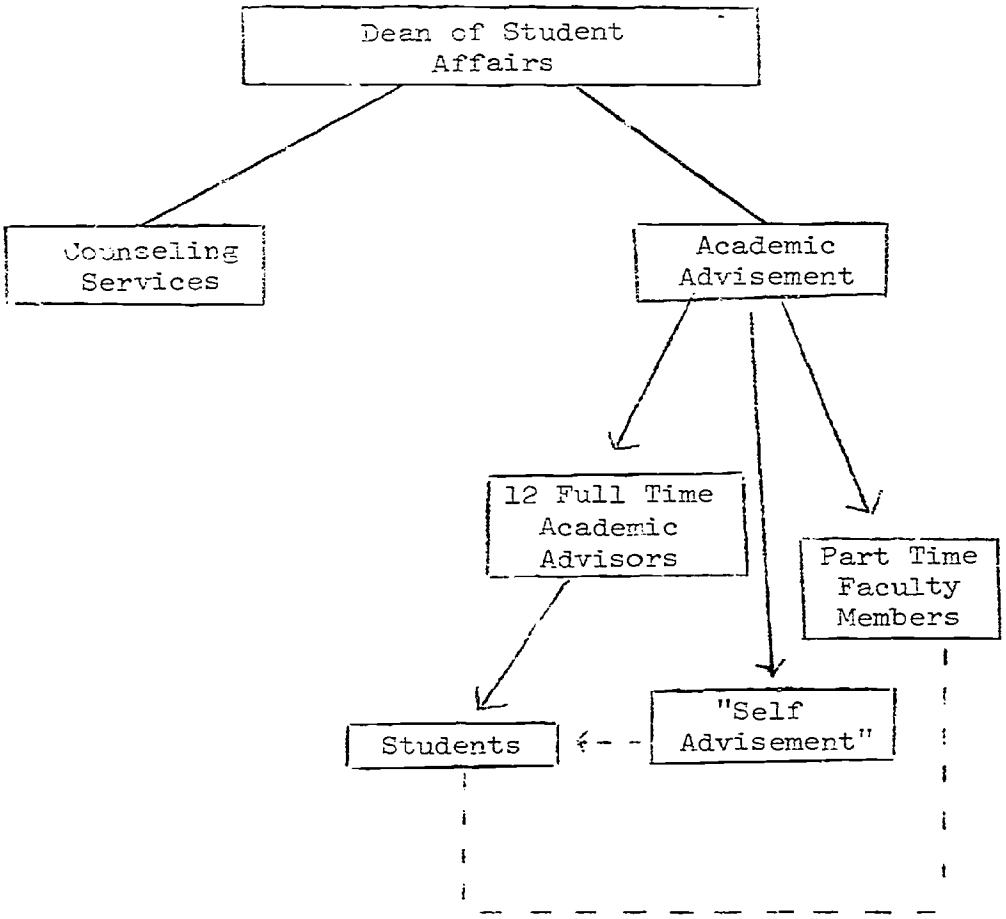
2. Program Planning Sheets

psychological problems, vocational uncertainties, or learning difficulties. In contrast, the routine advisement is accomplished by the faculty advisors, as indicated above. This advisement is accomplished thru the use of an advisor's handbook, produced by the Coordinator of Academic Advisement, and the program planning sheet, produced by the same office. One interesting feature of these program planning sheets, which should interest Florida International University, is the inclusion of specific recommendations for courses students need to take who plan to attend Florida State University, University of Florida, Florida Atlantic University, or the University of Miami. Hence, at this writing, many of the students who will be eligible for the first class at FIU in 1972, are planning their program with reference to the requirements of one of the four universities mentioned above.

The organization of the counseling system at the Miami-Dade North Campus, (Chart Three) is considerably different from that of Miami-Dade South. The advisement of students at the North campus is primarily accomplished through twelve full-time Academic Advisors housed in a central office. Although students have the option of self advisement, and have the option to see special part-time faculty members used as counselors during registration, most students depend on the half hour counseling sessions with the full-time academic advisors. In contrast to the considerable difference in the area of academic advisement between North and South Campus, it should be noted that both campuses have very similar counseling service departments offering the psychological and vocational services previously described. The responses of the guidance counselors are presented in a tabular fashion and without interpretation in the following pages.

CHART 3

COUNSELING SYSTEM: MIAMI DADE NORTH



Key Documents

1. Miami Dade Junior College Catalog

2. Academic Advisement Worksheet

COUNSELOR

RESPONSES TO HIGH SCHOOL SCHEDULE

	Question	Response	Frequency
1.	How are your students assigned to counselors at .....High?	By Homeroom By Curriculum By Alphabet By IBM Number	10 1 5 1
	How many students were assigned to you last year?	The average number reported was 425 with a range of from 400 to 450	
	What type of students are assigned to you?	None, I move with a cohort of students I do take students at a given grade level	15 2
2.	Do you attempt to see that all students in each grade talk with a counselor a certain minimal number of times per term?	No Yes	3 14
	If you attempt to see them, how often do you see them?	One time per year Two times per year Three times per year	9 4 1
3.	What standardized tests are administered to students considering entering college?	All counselors listed the same set of tests; 12th grade placement, SAT, and special tests depending on college entrance requirements.	
	How are ...High's students scores distributed on these tests?	Below normal Average Above normal	4 8 5
4.	What procedure do you recommend students follow in applying to a particular college after they have selected one?	Almost all recommended that the student secure an application and complete it	

	Question	Response	Frequency
	Does ....High have a policy whereby counselors process students' college applications?	All schools recommend that students give the completed application to the registrar so that grade sections may be completed, then standard references are supplied by the guidance counselors	
5.	What proportion of students make use of the guidance office materials before applying to college?	1 to 25% 26 to 50% 51 to 75% 76 to 100%	3 3 5 6
	A question was included to probe the relationship between the high school and junior high school guidance programs. This question was deleted after it was discovered that there was an extensive county wide program of articulation between the high school and junior high's. A copy of this program can be obtained from county authorities.		
6.	What kinds of systematic contact does ...High have with colleges and their representatives?	There is no county wide program; all schools, except North Miami High, are in the process of discontinuing their college day programs. Thus, mailings and representatives are the non-continuous forms of present contact.	
	Do you perceive any relationship between the colleges that take part in such programs and the schools to which your graduates go?	No relationship Some relationship Strong relationship	6 8 5
	How frequently do you personally communicate with colleges or universities to discuss admissions procedures?	One time per year Three times per year Five times per year Twenty-one times per year Twenty-seven times per year Thirty times per year Thirty-six times per year Forty times per year Fifty times per year 108 times per year 180 times per year	1 1 2 1 2 2 1 2 2 2 1
	What method do you use to communicate with them?	Varies on nature of problem and University involved	

	Question	Response	Frequency
	Are some schools more cooperative to work with regarding these matters?	No Yes Undecided	15 1 1
7.	During the past school year, approximately how many of your students' parents did you contact?	1 to 24% 25 to 50% 51 to 75% 76 to 100%	1* 11 3 0
	Did most of the students' parents contact you or the reverse?	Parents most often initiated contact Counselor most often initiated contact Unable to say	5 3 7
	With what kinds of matters were the student's parents most concerned?	Academic problems and/or behavioral problems	15
	How knowledgeable are most student's parents concerning college admissions requirements?	Well informed Generally ignorant	2 17
	Of what in particular have you found parents to be most ignorant?	Everything in general Current admission requirements	14 2
8.	What are the educational plans of the average student whom you counsel? (frequencies reflect divided responses)	High school and no further Junior College and no further Junior College then four year college Direct to four year college or university	1 2 1/2 9 2 1/2
	What are the educational plans of the students you see most frequently?	All respondents indicated that there were two kinds of students whom counselors see an above the average number of times: those with "problems" and those seeking financial aid in college.	
	In your opinion, whom do you think is the most influential person(s) for the majority of students when it comes to helping them decide on <u>whether</u> to go to college or stop after high school?	Parents High school teacher High school counselor High school friend Student Other	8 1 4 2 1 2

*The unequal total frequencies are the result of the lack of applicability of some of the questions to upper level administrative personnel interviewed.

	Question	Response	Frequency
	Of those students that go to college, whom do you think has been most influential in helping them decide which school to attend?	Parents	4
		High school teacher	3
		High school counselor	8
		High school friend	1
		Student	1
		Other	2
9.	How do you personally rank the various colleges and universities in Florida in terms of their prestige?	Almost all respondents placed qualifiers, such as: "it depends on what is major under consideration," etc., and refused to be specific.	
	Do the students you counsel have a clear notion as to which of the Florida colleges and universities are the more prestigious?	Yes, quite clear	3
		A pretty clear idea	2
		No	10
	What criteria do most students use to rank colleges or universities?	It depends on the interests of the individual student	7
	How do you personally rate the colleges and universities within Florida in comparison to those outside the State?	Generally better	1
		Comparable	16
		Generally worse	1
10.	Among the numerous reasons given for getting a college education, what single reason do you personally feel is most important?	To get a good paying job that provides financial security, etc.	3
		To gain knowledge, to become intelligent	11
		To be able to cope with modern social life	1
		To be able to get the job one wants	1
		Other	2
	Among those problems facing the American education system today, what do you feel is the most serious threat?	Students: their values, disobediance, etc.	6
		Courses and materials not relevant to 20th century	4
		Lack of money for materials or personnel	4
		Social/racial inequalities	1
		Schools too rigid	1
		Parent pressure	1
		Knowledge explosion	1
		Other	2

Question	Response	Frequency
Are you generally satisfied or dissatisfied with the counseling program at .... High?	Generally satisfied Ambivalent Generally dissatisfied	15 2 2
If you were able to make one change in the counseling program at ...., what single change would you make and why?	Provide more counselors in order to give better individual attention to students Other	11 5
What do you feel is the prevailing image your high school seniors have of the counseling system at ...High?	Good Fair Busy Depends on nature of student	15 1 1 2

11. This question was designed to obtain personal information regarding the counselor personnel. Interestingly, 90 percent of the respondents had their masters in counseling education from the University of Miami, 95 percent of the counselors had been classroom teachers, and the average age of those interviewed was slightly over forty years old.

Section Two: Taped Questions

1.	Do you conduct guidance programs (classes), other than college days, on a systematic basis here at ....High?	No Yes, have Programs with parents Programs with students Programs with both parents and students	1 16 (4) (8) (4)
2.	Of the total number of students with whom you contacted this last school year, about what proportion do you feel you personally influenced regarding their future plans?	Many students Few students Impossible to ascertain No students	2 8 5 2
	How did you do so in most cases?	By providing information By achieving rapport By developing the student's inate interests	8 4 1
3.	Which students do you advise to take the various college admission tests?	All students Only those who will do well in view of their previous performance	14 2

	Question	Response	Frequency
	Are there any whom you discourage?	No	16
4.	Do scores from standardized tests have impact on students' plans?	Yes, seal off opportunities	5
		Yes, harm the student's image of himself	5
		Yes, affect financial aid	4
		Yes	2
		No	0
5.	Do you think at ...High the knowledge necessary for choosing and applying to colleges and universities is often "routine information?"	Yes	3
		Yes, among better students	7
		Yes, among students from better homes	2
		No	3
		Don't know	1
6.	What do you feel is the chief function of Florida's junior colleges?	The responses to this question tended to be multiple in nature, with each respondent listing several chief functions. Hence, the following list of responses, presented in the order of frequency of mention is presented without frequencies which would mask the split nature of the responses.	
		1. To provide an opportunity for the economically deprived	
		2. To provide a second chance for those who do not do well academically in high school	
		3. To provide training for people to develop skills needed in the community	
		4. To provide a place for students unable or unwilling to leave home	
	What do you feel is the chief function of the state's new upper division colleges, such as FIU?	The same function as the junior college	10
		No distinct function	2
		Unable to respond	4
	What (if any) do you see as the primary advantages of the "2-plus-2" transfer program?	Provides opportunity for those unable to afford to live away from home	6
		Provides opportunity for married students to complete their education	3
		No distinct advantages	6
		Were not familiar with transfer program	2

Question	Response	Frequency
What kind of students do you advise in the direction of the junior college?	Those students with poor test scores or grades	7
	Those who cannot secure necessary financial aid	4
	Those students not ready to leave home	2
	No differences between students who go to junior colleges and elsewhere	2
	Other	1

RESPONSES TO
JUNIOR COLLEGE COUNSELOR SCHEDULE

	Question	Response	Frequency
1.	In your opinion, what is the role of the Junior College counselor/ academic advisor?	Responses to this question were multiple in nature: the following categories represent the most frequently mentioned roles. The most frequently mentioned categories are listed first. 1. To provide students with information on possible educational options. 2. To help students make educational plans in terms of their ability. 3. To help students solve personal and/ or personality problems. 4. To motivate students to achieve their potential, either academic or socially.	
2.	In your opinion, what is <u>the</u> role of the Junior College?	To provide a place for the economically disadvantaged to continue their education.	10
		To provide some further education for those who cannot academically complete a full four years of college.	7
		To provide people a place to learn technical skills necessary for the local community.	4
		To provide a place for those not psychologically and/or socially prepared to leave home.	5
		Other	1

	Question	Response	Frequency
3.	In your opinion, what is the role of the senior college?	The same role as the junior college has filled at the next level	19
		The same role as the Junior College plus providing a place for local people, such as teachers to earn advanced degrees	4
		The same role as the four year state institutions	3
		Other	1
4.	Do you perceive a difference in the kinds of students who go to a Senior College as contrasted with those who transfer to a four year university?	Yes, the Senior College bound tend to be weaker academically	6
		Yes, the Senior College bound tend to be the economically poorer students	7
		Yes, the Senior College bound tend to be both the academically and economically poorer students	11
		No, differences between the two groups	4
5.	Where do you feel Junior College students get their information concerning colleges and universities?	Primarily from counselors	1
		Primarily from parents	9
		Primarily from peers	7
		Primarily from literature, including public media	3
		From no source in particular	7
6.	What criteria do you use for advising students to enter various programs?	Academic performance	4
		Ability and/or achievement test	3
		Student interest	7
		Some combination of the above	13

7. This question consisted of a series of personal information items on the respondents background. Unlike the high school respondents, the educations, ages, previous jobs, and home towns of the respondents tended to be extremely varied. Only 9 percent of the junior college counselors, as opposed to 90 percent of the High School counselors received their degree from the University of Miami.

	Question	Response	Frequency
8.	How frequently do you personally communicate with colleges or universities to learn about or discuss admission procedures?	Very rarely Rarely Frequently Very frequently	11 2 10 4
9.	Do the students you counsel have a clear notion as to which of the Florida colleges and universities are the more prestigious?	Yes, quite clear A pretty clear idea No	17 4 6
10.	How do you personally rate the college and universities within Florida in comparison to those outside the State?	Generally better Comparable Generally worse Refused to answer	2 16 2 7
11.	In your opinion, who do you think is the most influential in helping students decide on their post junior college educational plans?	Parents College Teachers Counselors Friends/peers Spouse Himself Other	6 1 1 4 1 12 2
12.	Among the numerous reasons given for getting a college education, what reason do you feel is most important?	To get a good paying job and/or financial security To gain knowledge To be able to cope with modern life To be better able to serve my fellow man and/or my community Other	11 3 7 3 3

Table 35 presents part of our analysis that lead us to these conclusions regarding the sizeable subgroup of Spanish students. In that table we find that the self-concept of the students born in Cuba and those few born in other parts of Latin America (Spanish-speaking) tends to be significantly higher than either the white or black respondents. However, in the junior college group this same pattern is not found. The Spanish-speaking degree candidates in junior college have a mean self-concept score that is not significantly different from, although somewhat lower than, other students.[17]

Turning to the group of 53 black degree registrants (Table 35), we can see that these respondents have a slightly higher mean self-concept score than either the white or Spanish-speaking subgroups, although this difference is not a statistically significant one. Recalling that the parental income of these black degree candidates is significantly lower than the junior college respondents as a whole, we would conclude that these "successful" students do not disproportionately come from middle and upper-middle black families, as one might expect. On the other hand, these findings tend to support our earlier argument for students in general; students with poor self-images select themselves out of the education system, while those with positive self-concepts go on to get their degrees.

Minority group students tend to differ from white students in other ways. Spanish-speaking students are overrepresented in the group of students interested in high priced colleges and particularly those

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[17]These findings are similar to those of Rosenberg, op. cit., pp. 302-304, in his study of second and successive generation European ethnic groups as contrasted to native born New England groups.

interested in the University of Miami. These students represent 32 percent of those junior college degree candidates who are interested attending the University of Miami. (The total percentage of Spanish-speaking students in this population is 16.8.)

An attempt was made to see if the overrepresentation of Spanish-speaking students seeking these services could be made clearer by examining other variables. The income distribution of those Spanish students interested in the University of Miami is similar to the distribuiton for the general sample, in spite of the earlier findings which indicated the high discounted cost of attending this institution. Similar examinations of the distributions of this subgroup with respect to employment, reasons for staying in the Miami area, and college services sought failed to show any significant differences from the general sample.

An examination of Spanish-speaking students by the Miami-Dade campus they attend indicates that a disproportionate percentage (67.2) of these students interested in the University of Miami attend the South campus--the campus closest to the University of Miami. (See our discussion of the geographical distribution of students in Chapter Three.) This, together with the other analysis above, suggests that there are two possible explanations for the overrepresentation of Spanish-speaking students in the group of students interested in the University of Miami: their positive self-image and the physical proximity of this ethnic group to that University.

Our data suggest that somewhat similar relationships may hold for the black junior college respondents, although the reader should keep in mind that the numbers with which we are dealing are small. Of the

42 black students who plan to continue their education beyond junior college, 27 (64 percent) plan to attend a "local" college or university--one within 30 miles. One third of these students will go to the University of Miami. Three fourths of the black students attend the Miami-Dade North campus--the campus closest to the predominately black neighborhoods within the metropolitan area. The fact that eight of the nine students planning to go on to Florida Atlantic University are from the North campus, hints at the relative importance of proximity once again. In most ways the small group of black graduates appears to be typical of the junior college student group, except that they tend to come from lower income families and more frequently plan to remain in the Miami area to continue their schooling.[18]

It is difficult to offer a concrete explanation for the minority group differences sighted above. However, it seems reasonable to suggest that the self-concept of these students and their proximity to local colleges contribute to such an understanding. In the case of the Spanish-speaking students, self-concept tends to explain some variation, but it does not account for the amount observed between this sub group of students and students in general. The physical proximity explanation should also predict more native born Dade countians in the University of Miami group than are observed. There is still another explanation for this phenomenon for which we have no "hard" data, but which we suggest is probably important. This explanation hinges on an understanding of the Cuban-American subculture.

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[18]Black students are no more likely to hold jobs while attending college than the student population in general. Three out of four black respondents are employed; the same proportion of all graduating students are employed. This does not preclude the possibility that the perceived necessity of continued employment is higher among these students.

This tradition, in which our Spanish-speaking students have been reared, with its strong sense of "rational-individual ethic," emphasizes the solidarity of the family unit and includes the expectations that children remain within the household until marriage and preferably within close proximity after marriage.[19] In sum then, we offer a third tenable explanation for the overrepresentation of Spanish-speaking students in the category of students who plan to attend relatively higher priced universities and particularly the University of Miami.

Whereas black junior college graduates similarly wish to remain in the metropolitan area to continue their education, and there is some suggestion that physical proximity to certain colleges may also be important to them, a "cultural" explanation, similar to the one offered for the Spanish-speaking students, does not appear readily applicable.[20] We turn now, in Chapter Six, to a reexamination of a number of variables we have discussed above, this time focusing on their combined effect upon college plans.

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[19] Evidence of this cultural tradition can be found in the literature on Latin-American culture. For a discussion of Cuban refugees and the concept "rational-individual ethic" see, Alejandro Portes, "Dilemmas of a Golden Exile: Integration of Cuban Refugee Families," American Sociological Review 34 (August, 1969), pp. 505-519. For a theoretical perspective on the subcultural explanation which we suggest see David O. Arnoly, The Sociology of Subcultures (Berkeley: The Glendessary Press, 1970).

[20] The majority (55 percent) of black seniors report that their mother was the most influential individual in influencing their decision as to whether or not to continue their education. This compares with only 14 percent who mentioned their father. This is clearly a dissimilar pattern from the white or Spanish-speaking students who much more frequently report fathers as being most influential. This reflects the matrifocal family form of black urban dwellers but does not go very far to suggest why so many blacks wish to continue their education in Miami. One could hypothesize that a disproportionate number of these students perceived continued employment as both necessary to meet college costs and to help support their families, but this must be treated as one of several tentative explanations.

CHAPTER SIX

The Probability that A Junior College Student will Continue His Education

The previous chapters discussed and explored the significance of variables thought to affect a student's choice of future career. Chapter 3 underscored the potential savings that a student might obtain by attending a college located near home. It also indicated that the importance of these savings depends upon the responsiveness of student demand to a change in college price. Chapter 4 showed that choice of college may depend upon who influences students and upon the services provided by a college. In Chapter 5 we suggested that a student's self concept may also affect his future educational plans.

This chapter brings together many of the variables discussed earlier in order to determine their effect on college choice. We shall utilize multiple regression techniques to aid us for several reasons. First, we shall no longer want to know <u>whether</u> two variables move together but rather <u>how</u> they move together. Second, we shall be interested in determining <u>which</u> variables affect a student's choice <u>after</u> controlling for the effects of other variables. Finally, the information acquired from fitting the regressions will be utilized to develop a set of probability estimates.

An Explanation of the Technique Utilized to Predict Choice

The Regression Line

Multiple regression is a technique for determining how a series of variables affect some other variable. In this chapter, we would like to examine how the characteristics of junior college students and of the second two year and four year colleges affect student choice. To explore this question, we define a mathematical model which describes the dependence of the college choice decision on several variables. The process of solving the model involves the fitting of several lines--each one of which shows the relationship between college choice and an explanatory variable.[1] Each line consists of two parameters--an intercept and a slope. These parameters may be tested to determine whether they significantly influence college choice. If a line has a significant slope parameter then the regression coefficient obtained from it may be used to estimate the effects of a change in that variable on choice. Moreover, the regression equation may be used to predict a student's choice.

The regression technique is complex but we shall attempt to give our readers a heuristic interpretation of how it will be used in this chapter.[2] Suppose, for example, that the number of volumes of a paperback book purchased depends negatively on book price (i.e., a rise in price reduces the demand for the book). Suppose we collect data on the

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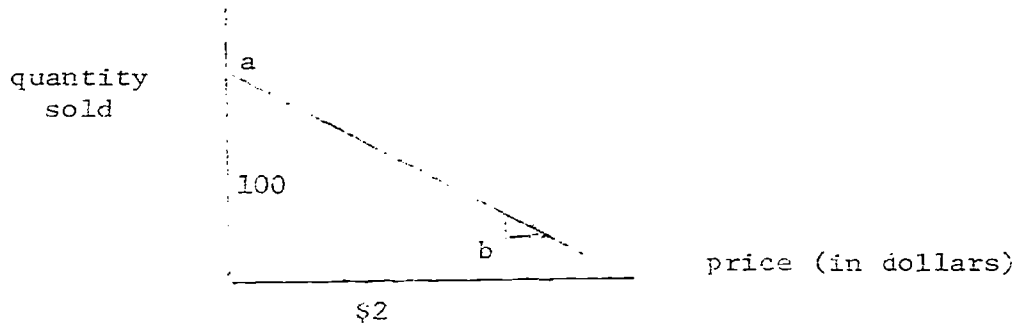
[1]These lines are fitted so as to minimize the distance from the actual observations to the fitted line. More precisely, we minimize the sum of the squares of the errors $\Sigma(Y_i - \hat{Y}_i)^2$ where Y_i is the observed value of the dependent variable and $\hat{Y}_i$ is the value of Y_i given by the regression line.

[2]The reader interested in a clear but sophisticated treatment of regression might see T. Wonnacott and R. Wonnacott, Introductory Statistics (New York: John Wiley and Sons, 1969).

number of copies of a book sold at several bookstores. Each store charges a different price and we plot our results in Figure 5 using a dot to denote the sales and price at a bookstore.

Figure 5: Fitting A Regression Line



If the dots all lay in a straight line a fitted line could easily be drawn in with a ruler. If the dots were highly scattered, fitting by eye would be too inaccurate but algebraic techniques could easily be substituted. In the multi-variable case, however, computer estimation would be easiest.

All three methods result in an intercept and a slope estimate. The intercept (a) shows the number of textbooks sold at a zero price. The slope of the line (b) shows the effects of a $1 change in price on the quantity of textbooks sold. When we test (b) for significance, we ask whether a change in price significantly affects the quantity of books sold.

Now suppose we wish to predict the number of textbooks sold at a $2 price. By locating the $2 mark on the horizontal axis the reader may

draw a line up to the fitted curve and across to the corresponding vertical axis from which he predicts that 100 books will be purchased. Thus, a knowledge of the regression line permits the user to predict how a given change in an independent (viz., causal) variable will affect the dependent variable. It can also be shown that this estimate will be the "best" estimate of the change in the dependent variable when the model is correctly specified and the value of the independent variable lies within the range of values in the sample used to fit the regression line.[3]

Regression Coefficients as Probabilities

Our regressions differ from the one described above because the dependent variable (choice) involves either a Yes or No decision; i.e., either a student decides to go to a second two year school or he does not. In this case the model can be used to predict the likelihood that a student will choose a particular educational career and each of the regression coefficients (in Figure 5 the slope (b) of the fitted line) may be interpreted as a measure of the contribution of that variable to the probability of a student's going to college.[4]

Some of the regression coefficients are continuous like the price variable. A regression coefficient of +.002 may then be interpreted to mean that an increase in that variable by one unit raises the likelihood that a student will choose that college type by .2%. Similarly, a -.0005 suggests that a positive one unit change in this variable reduces the probability of going to college by .05%. In the latter case, a rise in

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[3]If the value lies outside the sample the process is called extrapolation. Extrapolation far beyond the sample space results in meaningless predictions. See Wonnacott, op. cit., p. 249.

[4]Ibid., p. 269-279

price from $200 to $500 reduces the probability that a student will go to college from -.10 to -.25.

Other independent variables are not continuous. For example, either a student likes political activities or he doesn't. Either he is male or he isn't. We shall refer to these as dummy variables. A regression coefficient of .05 on the male dummy variable means that being male increases the probability that a student will make this choice by 5%.

By plugging in a set of characteristics of the student we can predict the probability that a student will make a particular choice. Suppose that a student's choice of a second two year university depends on his sex, the price of the university, and his self concept. If we make the rather strong assumption that these characteristics are additive, then we can predict the probability that a male with a high self concept will go to a second two year university when its price is $200, $400, etc.

The additivity assumption leaves open the possibility that the regression coefficients can be less than 0 or greater than 1 (the range for probability estimates). A technique developed by Orcutt can be used to remedy this situation.[5] After the independent variables are summed, the resulting probability estimate is corrected by referring to the residuals (i.e., the amount of variation unexplained by the regression). If statistically significant variation is observed in the residuals, we apply a correction factor to the probability estimate. This technique will become clearer when we apply it later on.

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[5]For a fuller description of the technique see C. Grigg, A. Holtmann, P. Martin, Vocational Rehabilitation of Disabled Public Assistance Clients; An Evaluation of Fourteen Research and Demonstration Projects, Urban Research Center, Number 8, 1969, pp. 129-130.

The Regression Models

The lack of an adequate theory of educational demand precludes a rigorous theoretical derivation of the variables to be used in the regression models. We have, however, discussed various theories in earlier chapters and these have aided us in selecting independent variables. Appendix Table 1 shows the variables originally tested in the regression models. The resulting estimates were then examined and insignificant variables were removed. The final estimates contain only those variables which have a statistically significant effect on demand. The results appear in the tables which follow.

Characteristics Affecting the Choice of Career Alternatives for All Junior College Graduates

What is the probability that a student will choose to continue his education? Table 36 presents our findings for three alternative choices--stopping after junior college, continuing on to a two year college such as FIU, or spending one's remaining two years at a four year college. The left hand column of the tables shows the variables which we found to be significant in affecting at least one of the three choices. The next column shows the regression estimate of the effect of each variable on the probability that a student stops after junior college. For example, if a student's father or mother exerts a major influence on his choice the probability that he will stop decreases by 10%.

[Table 36 about here]

Column 3 shows the t-value, or test statistic, for the variable. Information of this type enables the reader to perform his own test of the significance of a parameter. A parameter greater than 1.65 will be

TABLE 36

CHARACTERISTICS OF STUDENTS CHOOSING ALTERNATIVE CAREERS

Characteristic	Effect On The Probability Of: Stopping After Junior College		Continuing On To A: Second 2 Year College		Two or Four Year College	
	Probability	T-value	Probability	T-value	Probability	T-value
Intercept	.472	--	.187	--	.213	--
Choice of Major						
Social Science	-.238	9.0	.205	6.2	.371	10.5
Fine Arts	-.217	4.7	.232	4.0	.322	5.3
Science	-.177	3.5	.312	4.7	.280	4.1
Education	-.262	9.2	.245	6.8	.424	11.1
Business	-.226	8.0	.207	5.7	.332	8.8
Male	-.054	2.7	.036	1.4	.058	2.1
High School Rank						
Top 25%	.078	2.4			-.037	.9
25-50%	.108	3.3			-.079	1.8
50-75%	.127	3.3			-.068	1.3
Major Influence or Choice						
Father or Mother	-.104	3.3			.106	2.6
Teacher or Counselor	-.092	2.1			.192	3.3
Friend or Spouse	-.079	2.4			.095	2.3
Activity Desired						
Social	-.173	7.1			.218	6.7
Political	-.140	2.8			.107	1.6
Future Career	-.177	4.3			.143	2.6
Sports	-.166	5.2			.232	5.5
Other	-.156	5.1			.188	4.6
Tuition	-.0008	5.8	-.00012	6.3	.00009	4.8

TABLE 36.--Continued.

Characteristic	Effect On The Probability of: Stopping After Junior College		Continuing On To A: Second 2 Year College		Continuing On To A: Two or Four Year College	
	Probability	T-value	Probability	T-value	Probability	T-value
Father's Education						
Grade School			-.046	.8		
High School			-.119	2.0		
College			-.144	2.4		
	R^2 = .360 F = 28.6		R^2 = .11 F = 10.8		R^2 = .37 F = 29.2	
	Standard Error = .27		Standard Error = .36		Standard Error = .36	