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UNIVERSITY OF CALIFORNIA

Los Angeles

The Effects of Time-to-Degree Completion, Stopping Out, Transferring, and Reasons for Leaving College on Students' Long-Term Retention, Educational Aspirations, Occupational Prestige, and Income

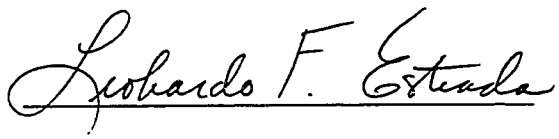
A dissertation submitted in partial satisfaction of the
requirements for the degree of Doctor of Philosophy
in Education

by

Juan Avalos

1996

The dissertation of Juan Avalos is approved.



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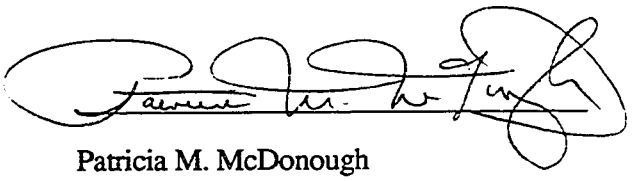

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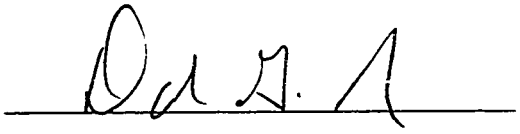

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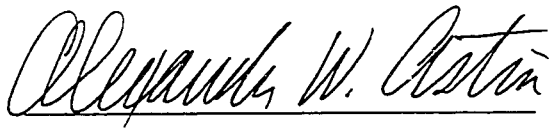

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1996

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It is often understood that research is, in many ways, "me-search"; and this experience has not been any different. My interest in investigating issues related to college student retention stem from my educational experiences and encounters with our system of higher education. As an undergraduate, I saw fellow classmates, acquaintances, and long-time friends juggle the difficult decision of whether to stay or leave college. Unforunately, in the end some left because of academic difficulties, while others left because they either were unsure of their goals and interests or they wanted to be closer to home. The paths that the "act of leaving" had for my friends and classmates intrigued me and became of utmost concern in what has become my academic research agenda.

Perhaps what had the greatest impact on my research agenda and my life came from my personal dealings with the decision to stay or leave college. Although I did consider leaving UC Davis (after three years of full-time enrollment), I never considered leaving higher education altogether. As a devoted student and student advocate, I had to develop an intricate set of *survival/coping mechanisms* which aided me during my most difficult moments as a young student trying to make sense of the complexities of life. Aside from my never-ending drive to succeed and a strong work ethic; I was inspired by my deep-rooted sense of respcsibility to those who came before me (friends, family, and members of the Latino community) whose dreams of "being somebody" collided with our system of higher education. It is with this history and passion for making a difference that I moved forward to pursue a "meaningful" academic career and research agenda.

I would like to acknowledge and thank the individuals whose support and guidance made this work possible. First of all, I would like to thank the members of my

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In closing, I would like to dedicate this dissertation and my academic career to the memory of two very special people in my life: Rogelio Flores (1978-1994) and Eduardo Vasquez (1966-1994), whose tragic deaths came just a month apart and delivered a devastating blow to me and my entire family. Roger...Eduardo.... may the memory of you live in my mind, in my heart, and through my work.

> "Lord, grant me the*Serenity* to change the things I can, the *Courage* to accept the things I can't, and the*Wisdom* to know the difference" (Unknown Author)

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ABSTRACT OF THE DISSERTATION

The Effects of Time-to-Degree Completion, Stopping Out, Transferring, and Reasons for Leaving College on Students' Long-Term Retention, Educational Aspirations, Occupational Prestige, and Income

by

Juan Avalos
Doctor of Philosophy in Education
University of California, Los Angeles, 1996
Professor Alexander W. Astin, Chair

This study explores how time-to-degree completion, stopping out, transferring and students' self-reported reasons for leaving college affect long-term retention, post-college educational aspirations, occupational prestige, and income. Multivariate analyses of longitudinal student data derived from a national database are utilized to determine how consequences of dropping out vary according to how retention is defined and according to reasons given for leaving college.

Data are drawn from the Cooperative Institutional Research Program's 1985 Freshmen Survey, the 1989 Follow-Up Survey, and the Nine-Year Follow-Up Survey (1994). The Original sample includes 8,973 students who aspired to get at least a bachelor's degree and who enrolled at a four year institution as freshmen in 1985. Three distinct subsamples for analyses of status attainment, retention, and reasons for leaving were generated from the original sample.

As expected, retention has positive effects on all three outcomes. Further, degree completion within four years has a positive influence on income, but no effect on occupational prestige and educational aspirations. Although transferring before graduation has a neutral effect on income, occupational prestige, and educational aspirations, it has a negative effect on students' chances of obtaining the bachelor's degree. Findings also suggest that stopping out is not simply a matter of prolonging time-to-degree completion, since it has negative direct effects not only on eventual degree attainment, but also on later income and occupation.

Overall, the findings from this study show that involvement during college is a major determinant not only of college persistence, but also of post-college income, occupational prestige, and educational aspirations. The findings also suggest that the long-term implications of dropping out are <u>not</u> fully reflected in the practical impediments that not having a bachelor's degree poses. The circumstances surrounding the dropout decision--good job offer, financial difficulties, etc.--have important implications for the student's subsequent income, occupation, and educational aspirations, independent of whether or not the student eventually obtains the degree.

Chapter 1
Introduction

> "Few people will argue with the premise that attending college can have a profound effect on one's life. With the possible exception of getting married or having children, few choices have more far-reaching implications than the decision about college." (Astin 1993, p. 1)

Different students go to college for different reasons, and colleges strive to develop and prepare students for a range of conditions later on in life. Yet, while the goals of students and colleges may often differ, it is quite clear that there is wide agreement that two principal purposes of higher education in America are the student's academic and intellectual development and their preparation for the work world. In fact, these two areas include some of the most frequently studied outcomes of college attendance (Astin 1975, 1977, 1993; Pascarella and Terenzini, 1991).

Statement of the Problem

A great deal of research supports the argument that completing a bachelor's degree will increase the likelihood of securing a well-paying and satisfying job not only for the college graduate, but also for his/her children. This intergenerational effect of completing the bachelor's degree has been well supported by recent literature in the field (Astin 1975, 1977, 1993; Pascarella and Terenzini, 1991). Pascarella and Terenzini (1991) summarize the intergenerational effects of obtaining a BA by noting that:

> "Attending and graduating from college is perhaps the single most important determinant of the kind of work an individual does; and the nature of one's work has implications for an array of outcomes that shape one's life." (p. 495).... "In terms of impact on educational attainment, the evidence is quite clear that the benefits of obtaining a college degree are passed on from one generation to the next. Having a bachelor's degree or above appears to have a positive influence on the educational attainment of sons and daughters even when controls are made for such factors as income, family size, and offspring's intelligence." (p. 421)

Due to the relationship between degree attainment and Social Mobility[1] it is not surprising that most of the literature on student retention, which focuses on attrition from the institution of initial entry, has viewed the act of leaving college in a negative light. Although these negative views on attrition persist, as more and more research has been done on the issue and as a greater understanding of the phenomenon has been reached, there is a growing belief that student attrition does not always lead to negative outcomes (Astin 1975; Cope & Hannah 1975; Lenning, Sauer, & Beal 1980; Tinto 1982; Noel, Levitz, Saluri & Assoc. 1985) and that withdrawal from college is not necessarily a traumatic experience for all students (UC Office of the President, 1989).

This disagreement about the significance of dropping out may be traced in part to the varying definitions and methodologies that have been employed in studies of student retention. If there is disagreement on who the "dropouts" are, then it is not surprising that our understanding of the significance of dropping out will also be unclear. Until these definitional issues are adequately addressed, progress in coping with the dropout problem are difficult. At the same time, determining the "goodness" or "badness" of

[1] Pascarella and Terenzini (1991) refer to changes in occupational status and income between the parent and the child as Social Mobility. Status Attainment (Blau & Duncan, 1967; Duncan, Featherman, & Duncan, 1972, Sewell & Hauser, 1972, 1975; Sewell, Hauser, & Wolf, 1980; Chiswick, 1980; Borjas, 1985; Pascarella and Terenzini, 1991) are existing frameworks that are closely related to their notion of Social Mobility.

dropping out are difficult as long as we remain ignorant of its consequences for the student.

Given that people have a pension for rationalizing their previous behavior in ways that are socially acceptable (Starks, 1988; Tinto 1987; Wenc, 1977), the meaning and, consequently, the significance of dropping out needs to be addressed by looking at the empirical results. We need to focus on what happens to people who dropout and what would have happened if they stayed in college, and then make some judgment about whether or not they are better off with or without that decision. Therefore, the issue of whether or not student attrition is a negative event ultimately depends on the long-term effects that this action has on the individual.

Regardless of one's position on how dropout should be defined and whether dropping out is always a negative event, there is a need for more empirically-driven knowledge concerning both issues. Thus, one purpose of this study is to assess some of the long-term consequences of dropping out of college and to determine if these consequences depend upon how dropping out is defined.

Terenzini (1982), in a summary of the literature on attrition studies, identifies three different data collection designs that have been used in past retention studies: autopsy, cross-sectional, and longitudinal designs. It is very clear that the autopsy designs (usually involving exit interviews) and cross-sectional designs (surveys that compare dropouts and persisters) have dominated the literature. Although both designs can be useful, they have many limitations. Exit interviews suffer from the lack of a comparison group of non-dropouts, the inability to track the students, questionable validity of responses given, and low response rates. Although cross-sectional designs are probably better than autopsy designs, in that they can include a comparison group and often control retrospectively for some pre-college characteristics (making them quasi-

longitudinal), they suffer because the pre-college characteristics are usually inadequately controlled; the effects of the college experience cannot be assessed; and long-term effects of the dropout process are not examined.

Longitudinal studies can not only avoid many of the limitations associated with autopsy and cross-sectional studies, but can also enhance the benefits associated with these other types of research designs (Astin 1975; Terenzini 1982). For example, longitudinal designs can add substance and validity to a students' self-reported reasons for leaving (the main focus of autopsy studies) by incorporating a wide range of student, institutional and student-institutional interaction data. But the major advantages of longitudinal designs is that they enable us to control for the biasing effect of pre-college characteristics and to examine the relationship between how we define and measure dropping out and the effect of dropping out on subsequent outcomes such as the students' educational aspirations, occupational prestige, and income.

Purpose of the Study

The main purpose of this study is to enhance our understanding of the retention process and to clarify certain methodological issues related to the study of retention. Specifically, the study explores how time-to-degree completion, stopping out, transferring, and students' self-reported reasons for leaving college affect four long-term student outcomes: nine-year retention, post-college educational aspirations, occupational prestige, and income. Although models of student retention have provided extensive insight on the student attrition process, they have failed to inform our understanding of the long-term consequence for students who leave their first college. How does dropping out affect long-term academic and intellectual development, occupational choice, and income? How are our conclusions about such matters

influenced by the manner in which dropping out is defined? In seeking preliminary answers to such questions, this study also attempts to develop guidelines that may help to reconcile differences in findings from one study to the next and to determine which studies can legitimately be considered as replications. Multivariate analysis of longitudinal student data derived from a national database are used to determine how the consequences of dropping out vary according to how retention is defined.

This study focuses on three different retention-related issues. One methodological issue concerning how we define retention or dropping out is time to completion. If students who do not complete a degree within, say, four or five years are considered to be dropouts (which is the case in many studies), then retention becomes confounded with time-to-degree completion. A second issue is the matter of stopping out. A stopout is someone who leaves college for a period of time before completing the degree. Thus, if one defines retention as earning a degree only after continuous college attendance the stopouts are classified as dropouts. A third issue is the matter of changing college. Most institutions consider a student to be a dropout if that student fails to complete a degree program at that first college, even though the student may immediately transfer to another college and actually complete the degree. Such students are thus classified as dropouts, even though they complete the degree (sometimes within four years).

To examine these questions the study employs as dependent variables four long-term student outcomes measures: nine-year retention, educational aspirations, occupational prestige, and income.

Research Questions

This study addresses the global question of "What is the meaning and significance of dropping out of college?" Four different analyses of data are performed and, within each set of analyses, specific research questions are explored.

The first set of analyses examines the effects of various pre-college characteristics, institutional characteristics, and collegiate experiences on student's educational aspirations, occupational prestige and income level after college, with a major focus on how these three outcome measures are affected by obtaining a bachelor's degree. The following two research questions are addressed in this first set of analyses:

(1) What antecedent variables hold the most predictive power in the understanding of students' long-term educational aspirations, occupational prestige, and income?

(2) What is the effect of nine-year bachelor's degree attainment on students' long-term educational aspirations, occupational prestige, and income?

The second set of analyses examine the effects of the retention-related variables on status attainment. Using a sample of students who had completed their bachelor's degrees within nine years after entering college, these analyses attempt to disentangle the effects of obtaining a bachelor's degree from the effects of time-to-degree completion, stopping out, and changing institutions. The following three research questions are addressed in this second set of analyses:

(1) What is the impact of time to completion on students' long-term educational aspirations, occupational prestige, and income?

(2) What is the impact of stopping out on students' long-term educational aspirations, occupational prestige, and income?

(3) What is the impact of changing institutions on students' long-term educational aspirations, occupational prestige, and income?

The third set of analyses explores the effects of antecedent and retention-related variables on nine-year degree completion in order to shed some additional light on how these retention-related variables affect our popular understanding of the factors that influence retention. Three research questions are addressed in this third set of analyses:

(1) Do our conclusions about the influence of known predictors of college retention change as a function of how much time we allow for degree completion (four years versus nine years)?

(2) Do our conclusions about the influence of known predictors of college retention change as a function of whether we consider stopouts as persisters rather than as dropouts?

(3) Do our conclusions about the influence of known predictors of college retention change as a function of whether we limit retention to the first institution as opposed to any institution?

Finally, the fourth set of analyses examines the effects of students' self-reported reasons for leaving college on students' long-term college retention, educational aspirations, occupational prestige, and income. It aims at providing additional insight into the significance of dropping out by coming to an understanding of whether or not the consequences of leaving college varies according to the reasons students' give for leaving. Two specific research questions are addressed:

(1) Do the students' self-reported reasons for leaving college affect their ultimate chances of obtaining the bachelor's degree (nine years after college entry)?

(2) What is the relationship between self-reported reasons for leaving college and students' subsequent educational aspirations, occupational prestige, and income?

This last set of analyses will explore the question of whether or not dropping out of the institution of initial entry is ever a "good" idea. That is, are there circumstances under which leaving the first college actually enhances the students' subsequent development?

Significance of the Study

Prominent researchers in the field (Astin 1975, 1982; Feldman & Newcomb 1969) have attested to the importance of studying the post-college experiences of students. Feldman & Newcomb (1969) write:

> "Neither educators nor the public at large would justify the college experience in terms of the college years alone. College is supposed to do something to students, and that something refers primarily to consequences that make a difference in later years."
> (pg. 308)

Perhaps the results of this study are of most value to researchers who study retention, since the findings will help them to determine how they should define their dependent variable. But the results will have theoretical and applied implications as well.

Theoretical Issues

Coming to an empirical understanding of the consequences of dropping out and being able to measure the effects of varying definitions of student retention on these post-college outcomes can provide valuable insights for the development of theory and multiple possibilities for its implementation into practice. That is, findings from a study of this sort can help to determine whether the way you go about defining dropout has significance not just for the consequences of dropping out, but also in terms of the antecedent variables. For example, does the importance of the students' socioeconomic

background, race, gender or academic preparation depend on how one defines dropout? Such a finding would be important to theory and model builders. The process of theory and model building can also be improved by providing information on whether the manner in which retention is actually defined has any significance in terms of how the model is structured. Do you need, for example, a different branch in the model if you are defining retention as only at the first institution as opposed as retention anywhere?

Another theoretical application are in the area of meta-analyses. The vast and diverse literature on student retention is difficult to synthesize in any meaningful way, in part because of difficulties in the way that "retention" and "dropout" are defined. Findings from the current study should provide a useful guide for helping to reconcile differences in findings from one study to the next and for determining which studies can legitimately be considered as replications.

Applied Issues

This proposed study also has some practical significance since policy makers are concerned about developing better ways of enhancing retention. The question naturally arises, do educational programs that are specifically designed to enhance retention at the first institution have the same effect on retention if you consider it at any institution? It might not be an economical use of resources for an institution to invest a lot in trying to increase retention at the first institution when the people who would otherwise drop out of the first institution are going to go on and finish at another institution.

Another practical application would be in the case of counseling programs to prevent dropping out. If it could be shown that there are good reasons for dropping out, that it is, conditions for dropping out which are actually beneficial to students in terms of the long-term outcomes, then intervention programs might want to bypass such students

and focus on those whose reasons for considering dropping out might be associated with more negative outcomes.

Finally, the quality of advice to students, counselors, and parents about the consequences of dropping out would be substantially improved with the knowledge gathered from this study. Interested parties could be given advice on what likely outcomes might be in store for individuals who do not finish college. This information may even lead to greater retention efforts on the part of students, parents, institutional personnel, and policy makers.

Chapter 2

Review of the Literature

There are at least two major conclusions that can be drawn from the higher education literature concerning the purpose of our American higher education system and the consequences of not obtaining a bachelor's degree. First, there is wide agreement that two principal purposes of higher education in America are students' academic and intellectual development and their preparation for the work world (Astin 1975, 1977, 1993; Pascarella and Terenzini, 1991). Second, it is also clear that there may be far reaching consequences of not obtaining a bachelor's degree, especially in relation to students' ultimate level of status attainment. For example, we know that completing a bachelor's degree will increase the likelihood of securing a well-paying and satisfying job not only for the college graduate, but also for his/her children (Astin 1975, 1977, 1993; Pascarella and Terenzini, 1991).

Despite this overwhelming literature attesting to the consequences of not obtaining a bachelor's degree on students' ultimate career status and income, there has been a growing indication that student attrition may not always lead to negative outcomes (Astin, 1975; Cope & Hannah, 1975; Lenning, Sauer, & Beal, 1980; Tinto, 1982; Noel, Levitz, Saluri & Assoc., 1985). In other words, withdrawal from college may not necessarily be a negative experience for all students (UC Office of the President, 1989).

These contradictory conclusions about the significance of dropping out may be traced in part to two current characteristics of the student retention literature: (1) disagreement as to a precise definition of retention and (2) a limited understanding of the student attrition process beyond the institution of initial entry. In other words, the

student retention literature does not appear to be consistent about who the "dropouts" really are, and it does not address what happens to students who leave the institution of initial entry before degree completion. This perhaps is not surprising, since conclusions on whether leaving college is ever a "good" or "bad" idea will continue to go unresolved unless we clarify student retention more precisely, and unless we study this process beyond the institution of initial entry.

This study attempts to improve our understanding of these issues by exploring the meaning and significance of dropping out of college through analyses of retention-related methodological issues and student's self-reported reasons for leaving college. It plans to assess some of the long-term consequences of dropping out of college, and to determine if these consequences depend upon how dropping out is defined.

Thus, the literature selected for review in this chapter meets two general criteria that will contribute to the focus of this study. First, given that this current study will measure the consequences of dropping out on students' post college status attainment, this chapter will first review literature on studies and models of status attainment. This first section will help set this proposed study within a theoretical/conceptual framework of status attainment.

Second, since the question of student retention is directly related to the issue of status attainment (because "the highest degree attained" is a well documented predictor of status attainment), this chapter will also review literature on student retention. A review of the student retention literature will point out some of the specific problems related to the definitional issues commensurate with college student attrition.

After reviewing the pertinent literature on status attainment and student retention, and after a theoretical/conceptual framework for this study has been identified, the last

section of the chapter will review the methodological and theoretical contributions this study will make to the extant literature.

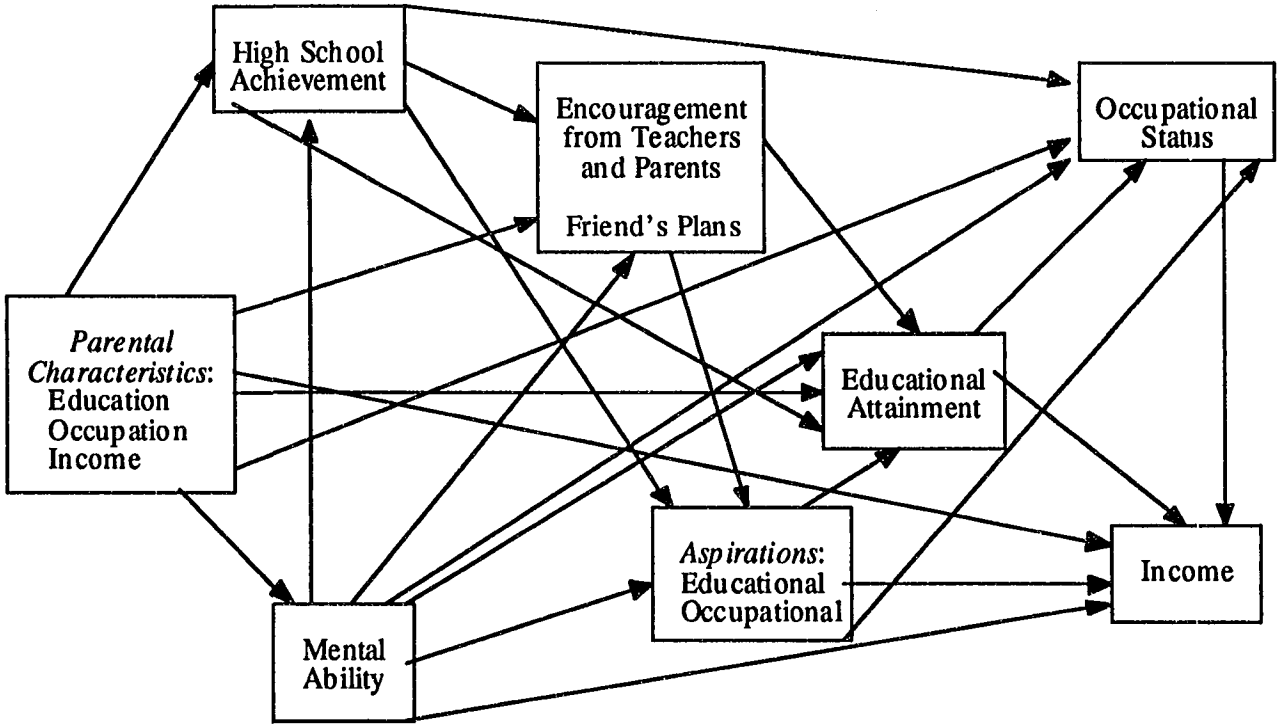
A Theoretical Framework: Status Attainment Models

Status attainment models help set the underlying theoretical framework in the design of this study. They help provide the context for understanding the long-term consequences of dropping out of college by enabling this study to empirically examine a number of methodological and definitional issues.

Traditional Models of Status Attainment

Early research on status attainment or social mobility, focused specifically on the extent to which occupational status is mainly a function of family socioeconomic status (parental education, occupation, and income) and individual ability (Pascarella and Terenzini, 1991). These early studies suggest that social mobility should be understood as a static condition that is dictated by parental and individual characteristics rather than a dynamic process that evolves over the life span of the individual. This more dynamic view is suggested by the seminal studies of status attainment conducted by Blau & Duncan (1967) and Sewell & Hauser (1975). The status attainment models that evolved from these studies account for the effects or influence of four sets of factors: significant others, the individual's educational aspirations and subsequent attainment, occupational aspirations, and income (Blau & Duncan, 1967; Duncan, 1968; Duncan, Featherman, & Duncan, 1972; Sewell & Hauser, 1972; Featherman & Carter, 1976; Jencks et al., 1979).

Figure 1: A General Model of Status Attainment



Source : Drawn from Pascarella and Terenzini (1991)

Pascarella & Terenzini (1991) constructed a general model of status attainment which attempts to integrate most of the variables that predict status attainment. In this general model, there is a clear relationship between the various predictors and subsequent occupational status and income. Among the main predictors of status attainment are family socioeconomic status, the individual's intellectual capacity and academic achievement, support from significant others, educational and occupational aspirations and their ultimate educational attainment. This model (see Figure 1) provides an appropriate framework for this proposed study by indicating which variables affect status attainment.

Thus, this investigation incorporates family economic status, the entering student's academic preparation and achievement, support from significant others, both educational and occupational aspirations and students' subsequent degree attainment in the design of this study.

More recent literature (Sewell, Hauser, & Wolf, 1980; Chiswich, 1980; Borjas, 1985) suggests an additional dimension of status attainment that attempts to account for differential gains in occupational prestige and income between whites and non-whites, and between men and women. Since, these differences could not be explained using the traditional status attainment models, Sewell, Hauser, & Wolf (1980) suggest that future models focus on different ethnic populations and women, and consider variables that may be more relevant to their experiences.

Chiswick's (1980) study attempted to do this. It looked at the economic progress of immigrants using longitudinal data on earnings, and found that earnings rise more rapidly in the United States for the foreign-born than for the native-born, suggesting that generation status or nativity may be an important predictor of future income.

More recently, Borjas (1985) attempted to account more directly for differences in status attainment between whites and nonwhites that had not been accounted for by traditional status attainment models (Blau & Duncan, 1967; Duncan et al, 1972; Pascarella & Terenzini, 1991). In his article on ethnic capital and intergenerational mobility, Borjas suggests that the *skills* (education, wage rates, or occupation) of the next generation depend not only on family socioeconomic status, but also on the average skill (again, education, wage rates, or occupation) level of the ethnic group in the father's generation (this measure is discussed in more detail in Chapter 3). He termed this concept as *ethnic capital*: "the mean of the specific skill variable evaluated within the ethnic group in the father's generation" (Borjas, p. 133). Under this conceptualization, workers who belong to ethnic groups with low levels of ethnic capital will experience low levels of intergenerational progress. Consequently, the apparent inequalities of educational attainment, occupational prestige and income between whites and nonwhites, when all else is equal, can potentially be explained by the differences in ethnic capital between the various groups. This is an important point for this study because it indicates the significance of considering race as a predictor variable.

In summary, recent studies on status attainment account for differential gains in occupational prestige and income, which were previously not explained by traditional models. They suggest the importance of also controlling for ethnicity, gender, nativity status, and the level of ethnic capital, in addition to the traditional predictors of status attainment. Consequently, this study includes variables that account for ethnicity, gender, nativity status, and the level of ethnic capital in its analyses.

Thus, the theoretical framework on which this study is based includes measures of the traditional status attainment models and more recent measures that can more

appropriately help interpret our findings. Given the focus of this study, the measure of ethnic capital is an important input variable included in the study design.

This review has identified a conceptual framework that can help guide the investigation of a number of methodological issues related to student retention, in order to better understand factors related to the long-term consequences of dropping out of college.

The following section reviews conceptual models and general findings from the literature on college student retention that relate to this study's investigation of how the definition of retention may affect our conclusions about the effects of retention on post-college status attainment.

Literature on College Student Retention: An Overview

The following section identifies some of the more prominent conceptual models in the field and attempts to provide additional insight on the major variables which have been found to affect student retention.

Conceptual Models of Student Retention

College Impact refers to the attribution of observed changes in the students' cognitive or affective outcomes during college to the college itself (Astin, Pascarella, Spady, and Tinto models). *Impact* models are concerned with the context in which the student acts and thinks. Both the individual and the environment are seen as active forces in the growth of the individual. According to these models, change is influenced not only by the nature and the intensity of the environmental stimulus, but also by whether and how the student responds. Since college student retention is only one of many possible outcomes of college attendance, many college retention models can be

considered college impact models, but not all college impact models are retention models. Although Astin's and Pascarella's impact models have a broad scope, their concepts have very clear applications in the study of college student retention.

Astin's involvement theory asserts that students learn as a result of their "physical and psychological engagement" in the educational process (Astin 1985, p. 134). In other words, students learn by becoming involved and by investing time and energy in the educational process. Astin also proposes to assess the impact of college on students through the analysis of Input, Environment, and Outcome variables (The I-E-O model). The environment, according to Astin, presents the student with various opportunities for active involvement (Astin 1977, 1982, 1985, 1990). The student's level of involvement is the major element in determining whether or not that student will eventually persist in college. Dropping out is seen as the ultimate act of noninvolvement.

Although Astin's work on student involvement initially evolved from his research on college student retention (Astin, 1975), it has lately been used primarily to explain the general growth and development of college students. In his most recent studies on retention, Astin (1993a, 1993b, 1993c, 1993d) has used entering student characteristics, including aspirations, family background, ethnicity, and pre-college academic achievement, together with institutional structural characteristics. He also accounted for characteristics of the student peer group, characteristics of the faculty, financial characteristics, as well as a series of several dozen specific student involvement measures, including academic involvement, social involvement, and so forth. Pascarella's (1980) general model utilizes many of these same independent variables.

Pascarella's general model (1980, 1985; Pascarella & Terenzini 1979b, 1991) for assessing change also takes into consideration an institution's structural characteristics

and its general environment. Under this model, student change is similarly seen as a function of the interactions with major socializing agents (peer groups, faculty) and the quality of student efforts in learning and developing (involvement). Like Astin, Spady, and Tinto, Pascarella also incorporates background characteristics into his model of Student Learning and Cognitive Development. Pascarella depicts how these background characteristics, combined with various institutional factors, affect a student's degree of informal contact with faculty, and exposure to various college experiences. Ultimately Pascarella views these within-college experiences (what Astin, 1991, calls "intermediate outcomes") as directly influencing the retention/attrition decision.

Of the remaining theoretical understandings that can be classified as impact models, Spady's and Tinto's models have been specifically tailored to address the issue of college student attrition. Overall, these models specify factors that seem to be important to the study of retention and attempt to describe the interrelationships (interactions) among the factors. These models describe attrition as a longitudinal process where certain student background characteristics influence a student's interaction in the college environment (academic/non-academic). These interactions, in turn, produce attitudes and feelings in the student and conditions in the environment (institutional/external) which guide the student through the decision making process.

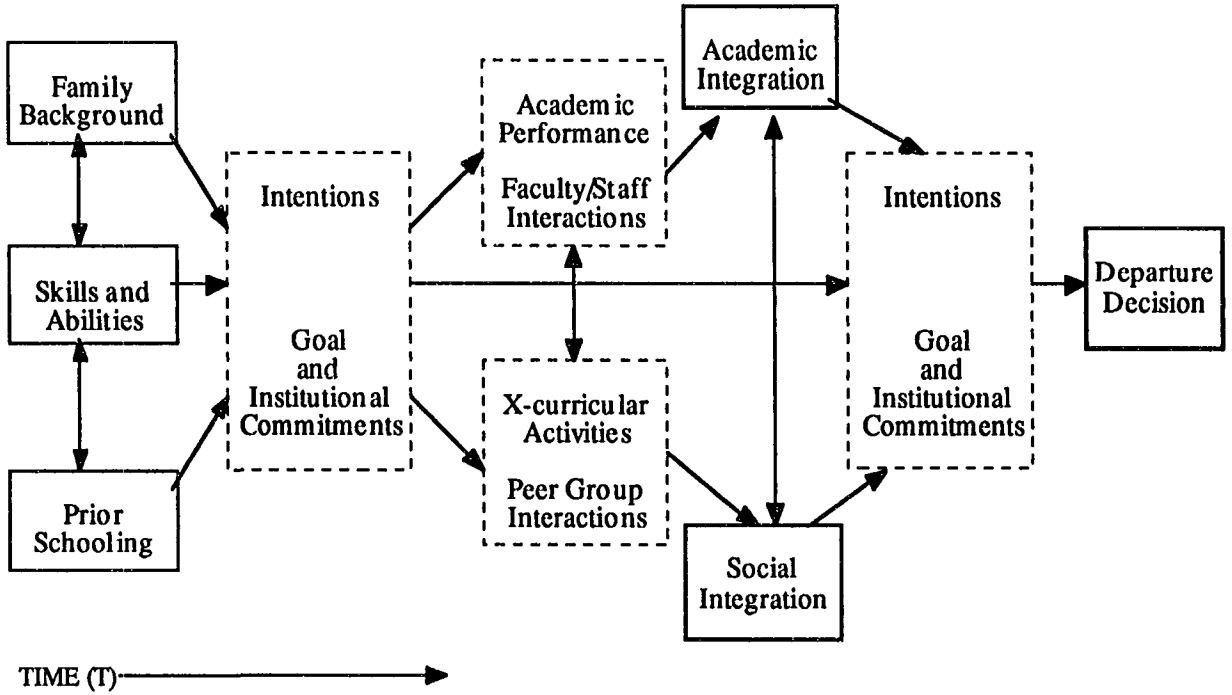
Spady's (1970) model has been viewed by many as the first systematic model for explaining the dropout process (Bean & Metzner, 1985; Pascarella & Terenzini, 1991; Tinto 1987, 1993). Spady's (1970) underlying rationale comes from Durkheim's (1961) idea that shared group values and friendship support are expected to reduce suicide and, by analogy, dropout. Durkheim's theory also forms the foundation for Tinto's (1975) model, where social and academic integration, which correspond to

shared group values and friendship support, are both expected to influence the dropout decision.

Tinto's model of student departure is arguably the most widely used model in studies of student attrition (Tierney, 1992). The basic components of Tinto's model (Tinto 1987, p. 91-104) were adopted from the philosophies and writings of Van Gennep (Rites of Passage) and, as already noted, Emile Durkheim (Theory of Suicide). Tinto saw the process of student departure as functionally similar to that of becoming incorporated into the life of human communities in which individuals must go through the stages of separation, transition, and incorporation. Durkheim's Theory of Suicide (egotistical suicide) comes into play when individuals are not able to integrate or become members of the social and intellectual communities of society. Tinto's model of student departure (see Figure 2) incorporates Gennep's and, as already noted, Durkheim's work by seeing the process of persistence as being marked over time by different stages in the passage of students from past forms of association to new forms of membership in the social and intellectual communities of the college (Tinto 1987, p. 95-126).

Under Tinto's theory of student departure, a student's intentions and commitments are in continual interaction with the structures and members of both the academic and social communities of the institution. The underlying dynamic in Tinto's theory is the student's integration into the academic and social systems of the institution. Integration refers to the student's ability to share the values of peers and faculty and to abide by the formal and informal structural requirements for membership in that community. Satisfying and rewarding encounters with the formal and informal academic and social systems of the institution would lead to greater integration, which in turn leads to student retention.

Figure 2: Tinto's Longitudinal Model of Institutional Departure



Negative interactions and experiences, on the other hand, tend to distance the individual from the academic and social systems, thus alienating the student and promoting his/her eventual withdrawal (Tinto 1987, p. 113-115). It is the daily interaction of the person with other members in the academic and social domains of the college, and the person's perception or evaluation of those interactions, that determine departure decisions (Tinto 1987, p. 127).

This study includes a range of variables posited by theorists as affecting retention (see Appendix E, for a detailed description of the study variables). Included in the design of this study are the following student variables:

(1) Demographic	(ethnicity, gender, socioeconomic status, ethnic capital, nativity status)
(2) Academic	(high school gpa, academic rank in high school, admission test scores)
(3) Aspiration/Motivation	(educational aspiration; occupational aspiration; self-estimates on the possibility of making at least a "B" average, getting the bachelor's degree, dropping out, and transferring)

Aside from these pre-college characteristics, this study accounts for institutional characteristics (size, selectivity, control, type, affiliation) and various collegiate experiences noted in models of student retention (measures of student involvement or integration).

Although this preceding section highlights the dominant and often-used retention frameworks and predictors, it is important to identify alternative models and variables that have been found to predict the college retention of nontraditional students.

Predictors of Nontraditional Student Retention

Tinto recently revised his original model of student departure to include the effects of external (non-collegiate) environmental forces (Tinto, 1993). Although Tinto's revised model does not identify specific external influences, he does acknowledge the general importance of the out-of-college experience (particularly for students of color, adult students, and women) in the student attrition process (1993, pp. 75-77). Under this new framework, but relying heavily on his previous conceptualization, Tinto sees academic difficulties, incongruence, isolation, and finances as being more severe for students of color. Besides having different values and attitudes, older students are especially subject to external demands which prevent them from integrating fully into the academic and social systems of the institution. Tinto believes that "unlike the typical youthful high school graduate who goes to college *instead of doing something else*, the typical adult student goes to college *in addition to doing other things* "(Tinto 1993, p. 76). When it comes to women, Tinto feels that departure for females is, relative to that of males, determined more by social forces than by academic ones. As a result, they are influenced more by forms of social integration.

With the number of nontraditional students on the rise and their high rate of attrition, Bean & Metzner (1985, pp. 485-486) were motivated to develop a conceptual model of nontraditional undergraduate student attrition. The various model components were derived from models of traditional student attrition, behavioral theories, and from an extensive review of the literature on nontraditional students. Over seventy studies were examined in the development of this model--forty were on two-year colleges, sixteen addressed commuter-oriented four-year institutions, and fourteen focused primarily on residence-oriented four-year institutions (Bean & Metzner, p. 509-519). A major thrust in the development of Bean's work also came from the earlier works of

Fishbein & Ajzen (1975) on the importance of *intentions* in influencing behavior and Bentler & Speckart (1979) on the importance of *past behavior* in influencing intentions. Together these works have produced frameworks for predicting future behaviors from specific intentions and past behavior (Bean, 1982a, 1982b; Bean & Metzner, 1985; Pascarella, 1982). These frameworks have become a trademark of Bean's work on the college attrition process for both traditional and non-traditional students. Indeed all of Astin's work also attests to the importance of accounting for students' initial intentions and past behavior in controlling for student input characteristics.

The contributions of Spady (1970), Tinto (1975), and Pascarella (1980) all relied heavily on the integration of the student into the academic and social environments of the institution in attempting to explain the attrition process. Bean & Metzner rely heavily on these previous models, but make some modifications to account for differences in the student retention process of nontraditional students. The first modification came by down-playing the effect of social integration. The basis for this change was data suggesting that the one defining characteristic of the nontraditional student is the lack of social integration into the institution. Placing little importance on social integration, Bean & Metzner give special emphasis to the importance of the noncollegiate environment (namely external support systems) as a major factor underlying the process of attrition for nontraditional students (Bean & Metzner, pp. 489-490).

Bean and Metzner are basically arguing that this is an <u>interaction</u> between student status (traditional vs. nontraditional) and social integration, namely, that social integration will have a stronger effect on retention among residential students of traditional age than among older commuter or part-time students. They implicitly postulate still another interaction: that external support systems are stronger predictors of retention among <u>non</u>traditional students. So far, at least, neither interaction effect has

been demonstrated through empirical research. At the same time, a considerable body of empirical evidence indicates that commuting, attending part-time, and working off-campus are among the most powerful negative factors affecting retention among traditional students (Astin, 1993). Yet, what can be taken from Bean & Metzner's model, and has been backed by other literature in the field, is the overall importance of support systems and encouragement from significant others for the retention of certain types of nontraditional students (primarily students of color) (Nora & Cabrera, 1994; Rendon, 1994; Laden, 1993; Allen, 1992; Cabrera et al., 1992a, 1992b; Cabrera et al., 1990; Nora & Rendon, 1990; Alva, 1988; Stage & Hossler, 1988; Wilson, 1988; Sedlacek, 1987; Werner & Smith, 1982; Sewell & Hauser, 1980; Trent, 1970). One of the problems here is that nontraditional includes a heterogeneous set of groups--adults, students of color, commuters--for which the same set of predictors may not apply uniformly.

In addition to support from significant others, such as family, friends, faculty, and staff, research on predictors of retention for students of color (Allen, 1992; Wilson, 1988; Mingle, 1987; Sedlacek, 1987; Astin, 1985, 1982b, 1975; Peng, 1977; Trent & Medsker, 1968) identifies noncognitive factors, such as students' level of motivation, aspirations, self-concept, and leadership. The works of Rendon (1994) and Allen (1992) conclude that students of color develop best in environments where they feel valued, protected, accepted, and socially connected. Astin's (1985) work on student involvement appears to provide a general mechanism for studying how students of all types search and become active in environments that validate them as people and see themselves as members of the institutional community. Involvement may well assume different forms for different categories of nontraditional students. All of this research

underscores the importance of both "in-class" and "out-of-class" experiences for all categories of students.

Accordingly, the research design employed in this study incorporates these noncognitive variables along with variables that have been found to predict college retention for traditional as well as for nontraditional students with the aim of elaborating the models most often used in the student retention literature (see Appendix D, for a synthesis of overall factors influencing student retention). Astin's I-E-O assessment model are used as the methodological tool for measuring the effect of these variables in the study design, since his model requires the sequential ordering of variables. A detailed description of Astin's I-E-O model and the statistical blocking scheme of this study is given in Chapter 3.

Despite providing extensive insight into student departure from the first institution attended, models of student retention have failed to shed light on other components of the student attrition process, namely, what happens to students after they have decided to leave their initial college. The main reason for this limitation is that these models have been developed and/or tested at a single institution. Therefore, understanding what happens to the student after leaving that first college remains somewhat of a mystery. Do students eventually return to the same college and complete their degree years later? Do they transfer to another college and eventually obtain their bachelor's degree? Are there circumstances under which leaving the first college actually enhances the students' subsequent development? These are among the many questions that remain unanswered in the literature and that form the basis for the study of methodological issues central to this study.

Methodological Issues in the Study of Student Retention

The disagreement about the meaning of dropping out of college may be traced in part to methodologies that have been employed in studies of student attrition. The first methodological issue concerns how we define retention or dropping out. A second methodological issue concerns the types of research designs traditionally employed in retention studies, including autopsy, cross-sectional, and longitudinal designs. Finally, the third methodological issue (closely related to the second issue) concerns the relative validity and significance of students' self-reported reasons for leaving college.

Defining Dropout

Student retention can be defined and operationalized in many ways. First of all, at least three general ways of measuring student retention have been found in the literature: (1) program completion, (2) course or term completion, and (3) personal goal attainment. Many retention studies have further refined their desired retention definition in terms of various methodological considerations such as: time limits (retention after a designated period of time), institution (of initial entry or other), and program (initially entered or other) (Lenning, Sauer, & Beal 1980; Lenning 1982; Porter 1989). Such variation has accounted, at least in part, for the large number of possible retention definitions and subsequent research designs found in the literature.

Although there is nothing inherently wrong with any given definition, Astin (1993b, 1993c, 1993d) has questioned the U.S. Congress's 1991 "Student-Right-to-Know and Campus Security Act," which stipulates a simple six-year retention rate, on the grounds that such rates can be misleading because they fail to take into account student input characteristics.

Using a national longitudinal database which included student input (1985) and follow-up (1989) data, Astin (1993c) compared three different dichotomous retention measures, which will also serve as retention measures included in the current study: (1) a "retained" student is one who had earned a bachelor's degree within four years of entering college; (2) a "retained" student is one who had earned a bachelor's degree or had completed four years of undergraduate work within four years and (3) a "retained" student is one who had either earned a bachelor's degree, completed four years of undergraduate work, or was still enrolled after four years.

There were two critical findings derived from this study. First, among a host of pre-college characteristics, students' high school grades, scores on college admission tests, sex, and race account for the bulk of the variance in retention that could be predicted by student inputs. Second, the most stringent measure of retention (degree attainment within four years) was more predictable from the student inputs than were the two more liberal measures. Such a finding is consistent with his earlier study of student retention (Astin, 1975) which concluded that, "while the more stringent measure of retention (within four years) will misclassify as 'non-persisters' many students who will eventually complete their degrees, the less stringent measures will incorrectly classify as 'peristers' many students who will become permanent dropouts."

Although Astin's (1993b, 1993c, 1993d) most recent work on student retention identified and tested various retention definitions, his work was bounded by limitations in the database (which could track students only into their fourth year after first entering college in 1985. Other shortcomings of the time span covered by his database include the inability to study the issue of students who "stop out." Despite the limitation experience by the time span of the database, his latest works provide the foundations from which to pursue three retention methodological issues that remain unresolved.

One such issue concerns time to completion. If students who do not complete a degree within, say, four or five years are considered to be dropouts (which is the case in many studies), then retention becomes confounded with time-to-degree completion. A second issue is the matter of stopping out. A "stopout" is someone who leaves college for a period of time before completing the degree. Thus, if one defines retention as earning a degree only after continuous college attendance, the stopouts are classified as dropouts. A third issue is the matter of changing college. Most institutions consider a student to be a dropout if that student fails to complete a degree program at that first college, even though the student may immediately transfer to another college and actually complete the degree. Such students are thus classified as dropouts, even though they complete the degree (sometimes within four years).

Design of Retention Studies

> "Dropping out of college is a little like the weather: something everyone talks about but no one does anything about. This predilection for talk over action is reflected in much of the research on dropouts, which has focused more on counting, describing, and classifying them than on seeking solutions to the problem." (Astin 1975, pg. 1)

Given that studies of student retention have used various perspectives and definitions of student withdrawal, it is not surprising that the study of retention in higher education has involved large numbers of descriptive studies which are only marginally guided by theory. Terenzini (1982), in a summary of the literature on attrition studies, identifies three basic data-collection designs that have been used in past retention studies: autopsy, cross-sectional and longitudinal designs. According to Terenzini, autopsy designs involve identifying students who have withdrawn from the institution and are then interviewed or sent a questionnaire. The limitations to these types of studies are

that: (a) there is no comparison group of non-dropouts; (b) the data collection occurs after students have already withdrawn; (c) the responses given are of questionable validity; and (d) such designs suffer from low response rates.

A second data-collection approach is the cross-sectional study. This type of study provides a "snapshot" or one-time collection of data from currently enrolled students, and is better than autopsy designs in that it can include a comparison group of non-dropouts as well as "controls" for any pre-college differences that can be measured retrospectively. Similar to autopsy studies, cross-sectional studies cannot effectively account for effects due to the college experience itself. The principal drawback of the cross-sectional study is that it is a one-point-in-time collection of data. As far as understanding student retention, the time period of data collection is very critical since retention takes on different shapes and is affected by different factors at various points in time. The well documented facts that most student withdrawals occur before the end of the student's freshman year and that a majority of college students who graduate do so by the end of their sixth year, highlight the important role that the time period of data collection plays in designing retention studies.

The third type of design, and clearly the best equipped to provide meaningful information on the process of college student attrition, is the longitudinal design (Astin 1975; Terenzini 1982). A longitudinal design can involve some of the same information collected by both autopsy and cross-sectional designs, but data are collected at two or more points in time. A wide range of student, institutional and student-institution interaction data can be collected under this design. While the longitudinal approach lends itself to richer data (and is perfect for multi-institutional analyses of retention), it is more expensive and time consuming, and requires more statistical knowledge than the previous two.

Students' Self-Reported Reasons for Leaving

Self-reported reasons for leaving college can potentially provide additional insight on the student attrition process. Yet the collection of such data has been given little attention because they are often employed under autopsy designs, which lack a sound methodology (Terenzini, 1982). A major limitation of studies of students' reasons for leaving college is that the analyses are usually limited to a simple tabulation of the percentages of students who report one reason for leaving over another. Longitudinal designs can add substance and validity to a student's self-reported reasons for leaving since they can link these reasons with other student/institutional data. These same longitudinal designs, when linked to multi-institutional data, can expand our existing knowledge of student retention beyond the institution of initial entry and can shed light on whether or not dropping out of the first institution is ever a good idea.

In a pilot study, using a multi-institutional national longitudinal database, Avalos (1994) organized students' self-reported reasons for leaving into a group of five factors or themes of student departure. This analysis found that students do in fact leave for very different reasons and that there are very different factors, both background and college environmental characteristics, that predict which particular set of reasons the student would give for leaving college. For example, unlike predictors of other sets of reasons[2], the set of reasons that pertained to "external factors" namely, family responsibilities and meeting college financial obligations, were predominantly influenced by variables associated with work, socioeconomic status, and money. Thus, parental income, the possibility of working full-time during college, father's education, the

[2] Fourteen student self-reported reasons for leaving factored into five main categories that were labeled: (1) College Not For Me; (2) Academic Difficulties; (3) Institutional Fit; (4) Transition/Adjustment Difficulties; and (5) External Factors.

number of people currently dependent on the parents, and time spent commuting to campus were among the major predictors of students' giving this reason for leaving college.

Although there is support in the literature for studying student retention in terms of themes or reasons of departure (Avalos, 1994; Office of the President, 1989; Noel, 1985; Cope & Hannah, 1975), and even though there has been widespread use of exit interviews in the study of attrition, the exploration of the long-term effects of students' self-reported reasons for leaving has been all but absent in longitudinal studies of student retention.

There are two very important questions regarding students' self-reported reasons for leaving that have yet to be answered by the literature in the field: (1) Do the students' self-reported reasons for leaving college affect their ultimate chances of obtaining a bachelor's degree? (i.e., Are students who leave for certain types of reasons more likely to eventually get their bachelor's degree than students who leave for other reasons?) and (2) What is the relationship between students' self-reported reasons for leaving college and the students' subsequent educational aspirations, occupational prestige, and income? (i.e., Is it ever a good idea to drop out of the institution of initial entry? Are there circumstances under which leaving the first college actually enhances the students' subsequent development?).

Through the use of students' self-reported reasons for leaving college and the availability of a nine-year multi-institutional national longitudinal database which includes information on student pre-college characteristics, institutional, student-institutional interaction data, and student post-college measures, this study intends on providing additional insight into the significance of dropping out.

Summary

This review of the literature had two main purposes. First, given that this current study will assess the consequences of dropping out on students' post college status attainment, this chapter first reviewed literature on studies and models of status attainment, and helped set this proposed study within a theoretical/conceptual framework of status attainment. Second, since the question of student retention is directly related to the issue of status attainment (because "the highest degree attained" is a well documented predictor of status attainment), this chapter reviewed literature on student retention which provided insights on the college student attrition process, and pointed out some of the specific problems related to the definitional issues commensurate with college student attrition.

The review suggested further that there are four areas that have not been addressed by the literature. First, traditional models of status attainment have been unable to account for differential gains in occupational prestige and income between whites and nonwhites, and between men and women. Second, although prominent models of student retention aim at describing the student retention process for all students, they have been limited in their inclusion of additional variables (namely, noncognitive variables) that have been found to predict nontraditional student retention. The third limitation has to do with the scope of our current understanding of the student attrition process. Current literature on student institutional departure has failed to provide insight on the student attrition process beyond the institution of initial entry. Finally, and clearly the main focus of this study, there is disagreement in the field as to a precise definition of student retention. The third and fourth limitations are, of course, central to the methodological questions examined in the design of this study.

Consequently, this study will contribute to the existing body of literature by accounting for limitations found in both status attainment and student retention literature, by employing sound research methodology that includes multi-institutional longitudinal data, and by empirically addressing the issue of how to define student retention, in an attempt to help inform the current debate as to the meaning and significance of dropping out. It is also hoped that the results of this study are of use in future studies of retention and in the development and refinement of theory in the field of student retention.

Chapter 3

Research Methodology

Overview

The chapter focuses on the data sources, methodology, specific analysis plan, and set of hypothesized findings. The general focus and design of this study is as follows. This study explores how time-to-degree completion, stopping out, transferring and students' self-reported reasons for leaving college affect long-term retention, post-college educational aspirations, occupational prestige, and income. Multivariate analyses of longitudinal student data derived from a national database are utilized to determine how consequences of dropping out vary according to how retention is defined and according to the reasons given for leaving college. The study sample includes 8,973 students who aspired to get at least a bachelor's degree and who enrolled at a four year institution as freshmen in 1985. Four basic sets of analyses address the specific research questions posed in this study.

Data Sources

This study will utilize data collected as part of the Cooperative Institutional Research Program (CIRP) that is sponsored by the American Council on Education and the Higher Education Research Institute (HERI) at the University of California, Los Angeles. Using a national sample of several hundred higher education institutions, the CIRP freshman survey program annually collects a broad array of student background information through the Student Information Form (SIF). With follow-ups, CIRP is designed to longitudinally assess the impact of college on students. The data for this

study are drawn from the 1985 SIF administered to first time freshmen, the 1989 Follow-up of this same 1985 freshman cohort, and the nine-year follow-up conducted in 1994. Copies of these instruments can be found in Appendices A, B, and C, respectively.

The freshman SIF, the 1989 follow-up, and the nine-year follow-up data are ideally suited for the analyses proposed in this chapter, for several reasons. First, the data are longitudinal: we have nine years of data for college freshmen entering in 1985. Moreover, the data set includes student pre-college and background characteristics, measures of student-institution interactions and environmental variables, and measures of the students' post-college life. Linking together these three sources of information under a longitudinal, multi-institutional design enhances our ability to explore the methodological and definitional issues central to this study. In particular, it allows us to examine how different definitions of student retention affect our conclusions about the impact of retention on students' educational aspirations, occupational prestige, and income after college.

The 1985 Student Information Form

The Student Information Form (SIF) was distributed to campuses in the Spring and Summer of 1985 for distribution to college freshman during orientation programs and in the first few weeks of fall classes. As part of the 1985 freshman survey, the CIRP invited 2,741 institutions to participate. Of these, 546 institutions (20%) accepted and were able to participate. Data on approximately 280,000 entering freshmen at 546 institutions were collected in the fall of 1985. A normative subsample of 192, 453 students at 372 institutions was constructed using guidelines to ensure that it was representative of the 1985 population of all first-time full-time entering freshmen in the

United States (Astin, Green, Korn, & Schalit, 1985, p. 97). These data were weighted and used to provide a normative picture of the 1985 college freshman population.

Follow-up Surveys

Since 1982, the Higher Education Research Institute has been conducting regular follow-up surveys of entering classes of college freshmen two and four years later. These follow-ups, when linked with freshman SIF data, are designed to assess a wide-range of student experiences and undergraduate achievements and to provide a longitudinal database for studying how different college environments influence student development (see Hurtado, Astin, Korn, & Dey, 1989). With the 1989 and 1994 follow-ups, this set of data was extended to include information on the students' college experiences and post-college development. For each student who was sent a follow-up survey, additional student information was solicited from several other sources, in 1989 and then again in 1994. In addition to obtaining admissions and graduate admissions test scores directly from the Educational Testing Service and the American College Testing Program, academic information (or registrar's data) was solicited directly from these freshmen institutions. Rosters of names of students in the follow-up sample were sent to CIRP institutional representatives requesting information on each student's degree earned (if any), number of years completed, and current enrollment status.

The 1989 Follow-up Survey

In 1989, the first follow-up survey was administered to a randomly selected subsample of 86,000 students from the normative freshman sample. A total of 27,065 students completed and returned the follow-up survey, yielding a response rate of 35 percent. In addition to the wide range of student and institutional characteristics

included in this follow-up survey, some additional features include: (1) data on students' cognitive development as measured by performance on national tests used for graduate admissions, and professional certification, as well as self-reported improvements; (2) extensive data on each institution's general education program; (3) various peer group measures at the student's institution and (4) various faculty characteristics at the student's institution (Astin 1993). A special feature of this follow-up survey, as it pertains to one of the analyses of this study, is the availability, for those students who left their first college for any period of time, their self-reported reasons for leaving college.

The 1994 Follow-up Survey

The nine-year follow-up survey (FUS) is a longitudinal study of the 1985 freshman class conducted by the Higher Education Research Institute under sponsorship of the Exxon Education Foundation, the Ford Foundation, and participating institutions. In 1994, this second follow-up survey was administered to the 27,065 students who completed and returned the 1989 follow-up survey and to students of ethnic minority background who did not participate in the 1989 follow-up survey. The implementation of an oversampling strategy is a direct attempt to fortify our understanding and knowledge about underrepresented ethnic minority students in the normative freshman sample. The total nine-year FUS sample includes 17,783 students from 224 higher education institutions. Among these, 12,376 also completed the 1989 follow-up survey (See Table 3.1).

Table 3.1 Nine-year Follow-up Survey Final Sample

Race	1994 Respondents	With 1989 data	% with 1989 data
Total	**17,783 (100.0)**	**12,376 (100.0)**	**(69.6)**
White	14,826 (83.4)	11,117 (89.8)	(75.0)
African-American	1,326 (7.5)	391 (3.2)	(29.5)
American Indian	262 (1.5)	86 (0.7)	(32.8)
Asian-American	886 (5.0)	535 (4.3)	(60.4)
Mexican-American	411 (2.3)	202 (1.6)	(49.1)
Puerto Rican	139 (0.8)	33 (0.3)	(23.7)
Other	405 (2.3)	149 (1.2)	(36.8)

Source: Higher Education Research Institute, unpublished 1994 FUS statistics.

The 1994 FUS assesses outcomes in the following four primary areas: (1) early career choice and experiences, (2) graduate school attainment and experiences, (3) involvement in post-college volunteerism and community service, and (4) direct post-tests of behavioral and psychological measures included in the 1985 freshman survey. The percents of African-American, Latino, and American Indian students who also have 1989 data are lower in part because of substantial numbers of these students were not surveyed in 1989. These groups were oversampled in 1994 to increase the size of the respondent sample in each group.

The sample of students that includes student background data and control measures from the 1985 freshman survey, environmental and intermediate outcome measures from the 1989 follow-up survey, and students' post-college experiences from the 1994 follow-up survey is referred to as the "Nine-Year Longitudinal Sample" and is the main data source in the proposed analyses of this study.

CAMBRA Method Of Analysis

In a recent paper by Astin and Dey (1995), an application of hierarchical regression analysis was introduced which addresses the problem of multicolinearity among variables (a problem common to almost all large data sets) while incorporating many of the advantages of other causal modeling approaches. CAMBRA uses blocked stepwise multiple regression analysis, also known as hierarchical regression with forward selection, a form of regression that allows predictor variables to be added to a regression equation in temporal blocks, with individual variables within any given block being entered according to which one will add the most predictive power to those already in the equation (Astin & Dey, 1995). The major advantage of CAMBRA is that it permits the investigation to examine the full effects of multicollinearity on every variable at each step in the analysis.

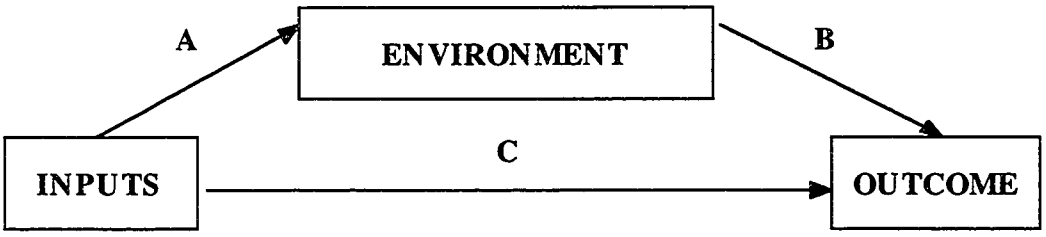
Although some investigators have objected to the use of stepwise procedures because they may "capitalize upon chance covariation" in a relatively small sample, the CAMBRA method directly addresses such concerns in two ways: (1) by tracing the step-by-step changes in the coefficients for predictor variables both in and not in the equation and (2) by examining whether or not the predictive power of any entering variable is significantly different from that of other competing predictor variables that do not enter the regression equation (Astin & Dey, 1995). Although the CAMBRA

approach does not solve all of the inferential problems associated with multicollinearity, it offers a method for dissecting and better understanding the effects of multicolinearity within the entire variable set.

Astin's I-E-O Assessment Model

Astin's Input-Environment-Output assessment model was originally introduced as a framework for conceptualizing longitudinal research and especially for minimizing bias in interpreting the effects of independent (environmental) variables using experimental (correlational) data. According to Astin (1990), "...any educational assessment project is incomplete unless it includes data on student inputs, student outcomes, and the educational environment to which the student is exposed." Astin refers to outcomes as the "talents" that educational programs are trying to develop (dependent variables). Inputs refer to those personal qualities the student brings initially to the educational program (pretest or control variables). Environment refers to the student's actual experiences during the education program (independent variables). Figure 3 graphically depicts the model, along with arrows representing the interrelationships between each of the components of the model.

Figure 3: The I-E-O Framework

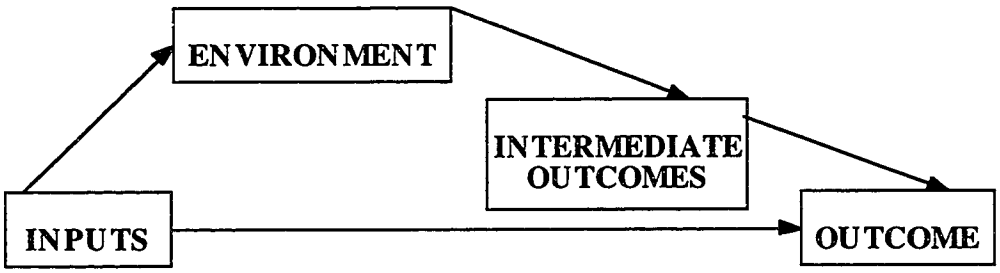


According to Astin, Assessment and evaluation in education are primarily concerned with the effects of environmental variables on outcome variables (relationship B). Since student inputs can be related to both outputs (relationship C) and environments (relationship A), they can also affect the observed relationship (B) between environments and outputs. Thus, the relationship between environments and student outcomes cannot be understood without also taking into account (controlling for) student inputs. In other words, it is critical to control for student inputs (those personal qualities the student brings initially with them) in order to more accurately assess the effect of the environment (student's actual experiences) on student outcomes (desired "talents").

More recently Astin has elaborated the I-E-O model (see Figure 4) by adding what he calls "intermediate outcomes" between environmental and outcome variables. Intermediate outcomes are variables that could be considered outcome variables, in and of themselves, but are temporally situated somewhere between the independent (environmental) variables and the desired dependent (outcome) measures. Intermediate

outcome variables include such things as student involvement measures and--in this study--student retention.

Figure 4: The I-E-O Framework, Elaborated



As explained by Astin (1991), variables are entered into a regression equation in the proposed order in which they are believed to affect, or be experienced by, the student. Therefore, student characteristics and pre-college characteristics would constitute the first block to enter the model--the input block. Subsequent to the input block, variables that describe the environment or context (e.g. characteristics of the college entered, the faculty, the peer group, etc...) are entered. Next would be intermediate outcome measures, which in this study would include time-to-degree completion, stopping out before graduating, changing institutions before degree completion and--in the second and third sets of analyses--bachelor's degree attainment (in a second intermediate outcome block). The third set of analyses will include reasons for leaving college in the first block of intermediate outcomes.

All analyses consist of separate regressions, for each outcome measure, employing the CAMBRA method of analysis (hierarchical blocked stepwise regressions). The blocking of variables included separate blocks for pre-college characteristics, institutional characteristics, individual college experiences, and the different retention definitions or bachelor's degree attainment by 1994 (depending on the specific set of analyses) in a final block. The data for tables showing the standardized regression coefficients at various steps in the regressions are extracted from regression results using Beta View (Dey, 1990) and is provided in the appendices of this study. Beta View (Dey, 1990) is a computer program that allows standardized regression coefficients (Betas) for all variables to be examined as each variable enters the equation, which also enables us to examine coefficient changes. Regression coefficients show if particular variables of interest, make a unique contribution over and above the effects of the other independent variables. More detail on the exact blocking scheme, types of regression tables, and variables of interest for the specific set of analyses are provided in their corresponding sections.

Variables

In this section, the various dependent and independent variables employed in this study are identified and defined. For a detailed description of the study variables see Appendix E.

Outcome (Dependent) Variables

Several scholars in the field (Astin 1975, 1977, 1993; Pascarella and Terenzini, 1991) agree that among the purposes of higher education in America, the student's academic and intellectual development and preparation for the work world are among the

most important outcomes of college attendance. Consequently, long-term educational and occupational outcomes would be appropriate measures of the consequences of dropping out of college. In accordance with this logic, three of the four dependent variables analyzed in this study are: Educational Aspiration, Occupational Prestige and Income (all outcomes were surveyed in 1994)[3]. Educational Aspiration is operationalized as "Please indicate the highest degree you plan to receive": (1) less than a Bachelor's degree, (2) Bachelor's degree, (3) Master's degree or equivalent, and (4) Doctoral degree or equivalent. Occupational Prestige is a newly created variable. The 1994 FUS occupation measure ("Please mark your current or most recent career/occupation") are converted into occupational prestige scores using the guidelines found in "Updating occupational prestige and socioeconomic scores: How the new measures measure up" by Nakao and Treas (1994). Income is operationalized as "What is your current annual income before taxes? If self-employed, indicate your annual earned income after adjusting for business expenses": (1) less than $10,000; (2) $10,000 - $14,999; (3) $15,000 - $19,999; (4) $20,000 - $29,999; (5) $30,000 - $39,999; (6) $40,000 - $49,999; (7) $50,000 - $59,999; (8) $60,000 - $74,999; (9) $75,000 - $99,999; (10) $100,000 - $149,999; (11) $150,000 or more.

Finally, since students' long-term college retention is of interest in this study, a fourth dependent variable is used in this study. Long-term college retention is a measure of whether or not a student has obtained the bachelor's degree by 1994, nine years since entering college as a freshman. Retention is a dummy variable and is operationalized as: (1) no bachelor's degree by 1994; (2) bachelor's degree by 1994.

[3] Analyses on students' occupational prestige and income will only be done for individuals who are currently employed full time. Thus, individuals who are currently unemployed or are employed only part time will not be examined under these specific analyses.

Independent Variables

Independent variables are blocked in the following order: (1) input characteristics, (2) institutional characteristics, (3) individual collegiate experiences, (4) reasons for leaving college (only for the fourth set of analyses), and (5) retention-related variables (or bachelor's degree attainment depending on the specific set of analyses).

Input characteristics (Table 3.2) include freshmen year pretests for career choice and degree aspirations, as well as a set of control variables. The control variables are a set of characteristics the provide information on demographics, academic performance, personality, values, aspirations, and motivation. Only the most prominent/significant predictors of student attrition, educational aspiration, occupational prestige, and income were selected.[4]

Environmental measures (Table 3.3) include the next two blocks of variables. It is important to control for environmental measures that are known to affect retention because they will, by definition, be confounded with retention. Thus, in the analyses of the effects of retention on post college outcomes you want to determine the independent effect of retention over and above any effect of the college variables that are related to retention. The first block will include structural characteristics of institutions (e.g., size, selectivity, control, type, affiliation) since previous retention literature suggest that they have on effect on students' degree attainment. The second block will take into consideration the effect that various collegiate experiences (e.g., living arrangements during freshmen year in college, academic involvement, social involvement) have on students' subsequent degree attainment.

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[4] In Status Attainment models "degree attainment" is a predictor of occupational prestige and income. Thus, predictors of student retention were also used as predictors of occupational prestige, income and future educational aspirations.

Table 3.2 Student Input Characteristics in 1985 (Block 1)

Student Demographic

- Ethnic Background[b]
  - White
  - African-American
  - American-Indian
  - Asian
  - Chicano
  - Puerto Rican
- Gender (Female)[b]
- Parental Education (two measures)
- Parental Occupation[c]
- Parental Income
- Ethnic Capital[d]
- First Generation College Student
- Nativity Status (Citizen)[b]
- Concern About Financing College[f]
- Total Dollar Amount of Aid[g]

Initial Aspirations and Motivation

- Educational Aspiration (highest degree sought)
- Occupational Aspiration[c]
- Self-Estimates on the Possibility of:
  - Making at least a "B" average
  - Getting a bachelor's degree
  - Dropping out temporarily
  - Dropping out permanently
  - Transferring before graduating
- Parental support for attending college

Student Academic

- High School GPA
- Academic Rank in High School
- Score on the SAT Math
- Score on the SAT Verbal

Student Personality and Values

- Intellectual Self-Confidence[a]
- Social Self-Confidence[a]
- Leadership Ability[a]
- Scholar Typology[e]

[a]Self-rating

[b]Dichotomous variables.

[c]Converted to prestige scores

[d]Computed measure of mean ses (educational attainment and occupation) of parents in each racial group.

[e]Computed from the following six variables: degree aspirations in 1985, possibility of graduating with honors, possibility of being elected to honor society, self-rated academic ability, self-rated math ability and intellectual self-confidence.

[f]Measure of students' perception of their ability to finance their college education.

[g]This measure accounts for twenty-one possible sources, ranging from: personal savings, parental contribution, state, federal, institutional, private, earning through work, loans, etc.

Table 3.3 Environmental Characteristics (Blocks 2 and 3)

Block 2 Institutional Characteristics

Size (undergraduate enrollment)

Selectivity[b]

Control/type/affiliation[a]

- Public university
- Public four-year college
- Private university
- Nonsectarian four-year college
- Catholic four-year college
- Protestant four-year college

Block 3 Individual Collegiate Experiences

Living Arrangements during the Freshmen Year[a]

- Lived at home
- Lived in college dormitory
- Other private living arrangement

Academic Involvement

- College GPA
- Student-faculty interaction

Social Involvement

- Extracurricular activities[c]
- Student-student interaction

[a]Dichotomous variables.

[b]Defined as the average SAT (or ACT equivalent) of entering freshmen.

[c]Five individual variables make up the extracurricular activities category. One variable is a measure of the student's hrs/wk spent (in the last year) on student clubs/groups. The other four variables are dummy measures of whether or not a student: was a member of fraternity or sorority, participated in campus protests/demonstrations, elected to student office, or participated in intercollegiate athletics.

The intermediate outcome measures, blocks 4 and 5, contain the variables of primary focus of this proposed study (Table 3.4). Students self-reported reasons for leaving are included in block 4 in which the analyses examine the long-term effects of students' self-reported reasons for leaving college. The last block addresses the issues of length of time-to-degree completion, the case of students who stop out, and students who change institutions before graduating.

Table 3.4 Intermediate Outcomes (Block 4 and 5)

Block 4	**Reasons for Leaving College**
	Fourteen self-reported reasons for leaving college[a]
Block 5	**Retention-Related Variables**
	Time-to-degree completion (Degree within four years)
	Stopping out before degree completion[b]
	Changing institutions before degree completion
	Bachelor's degree attainment by 1994[c]

[a]This intermediate outcome block is only for the analyses of the effects of reasons on the status attainment variables (Analyses: Part Four).

[b]Individuals who took time off prior to 1989 and were planning on being enrolled at least part time in the fall of 1989.

[c]Nine-year college retention is use as an intermediate outcome only for analyses where we need to account for the effects of retention on the status attainment variables (Analyses: Part One, Analyses: Part Four).

Analysis Plan

For purposes of this study, only students who aspired to get at least a bachelor's degree and who enrolled at a four-year institution as freshmen in 1985 were included. This sample, which is referred to as the "Original" sample, includes 8,973 students from the Nine-year Longitudinal Sample (17,783). Several sub-sets of cases from the Original sample were created. The subsample of 8,614 completors, all of whom had degrees by 1994, was generated for analyses of the effects of the retention-related variables on status attainment. Given the unusually high percentage of completors in the Original sample (96%), a sub-sample of 360 non-completors matched with 360 completors on parental income, parental education, high school gpa, and degree aspirations in 1985 was generated in order to achieve a 50% completion rate (N=720). For example, a non-completor whose parents made <10,000/yr, whose parents had no more than a high school education, who had a "B" average in high school, and who aspired to no more than a bachelor's degree was matched with a completor with the same background characteristics. This matched sample was used for analyzing the effects of antecedent variables both on nine-year retention and on the three status attainment variables. A third sub-sample consisted of students who completed questions in the 1989 follow-up survey pertaining to self-reported reasons for leaving college (N=1,940).

The three distinct sub-samples described above,were used for the analyses of status attainment (two analyses), retention, and reasons for leaving. Analyses: Part One, focuses on the major predictors of educational aspiration, occupational prestige, and income, with special attention given to the effect of bachelor's degree attainment. Analyses: Part Two, explores the effects of time-to-degree completion, stopping out, and transferring on students' post-college degree aspirations, occupational prestige, and

income. Analyses: Part Three identifies key antecedent variables that predict bachelor's degree attainment within nine years. The fourth and final component of this study focuses on the effects of students' self-reported reasons for leaving college (given in 1989) on bachelor's degree attainment, educational aspirations, occupational prestige, and 1994 income.

Hypotheses

There are several results that I am expecting to find at the conclusion of this study. These expected findings are expressed, on the following page, in the form of separate hypotheses which have been generated from findings in the review of literature on status attainment and college student retention:

Hypothesis I: The strongest predictors of post-college educational aspirations, occupational prestige and income are the student's pre-college input characteristics. These are expected to account for most of the predictive variance, above and beyond any college environmental measures and any student intermediate outcome.

Rationale: Previous studies of college impact (Astin, 1993; Pascarella & Terenzini,1991; Feldman & Newcomb, 1969) have shown that most outcome measures obtained at the time of graduation from college are most strongly affected by student pre-college characteristics than by either college environmental or "intermediate" outcome measures. The same differentially strong effect of inputs is being predicted here for outcomes five years after graduation.

Hypothesis II: Obtaining the bachelor's degree will have a positive effect on post-college degree aspirations, occupational prestige, and annual income.

Rationale: Obtaining a bachelor's degree will have an incouraging effect on students' aspirations for advanced degrees, since the bachelor's degree is a prerequisite for almost all advanced degrees. A similar effect is predicted for occupational prestige and income, given the importance of a bachelor's degree as a necessary credential for high level and high paying occupations.

Hypothesis III: Time-to-degree completion (degree completion within four years) will have a positive effect on income, but not on occupational prestige and educational aspirations (for students that have the bachelor's degree by 1994).

Rationale: A positive effect on income will occur because entry into the labor market has not been delayed for people who graduate within four years. Thus, there has been more opportunity for promotions and merit increases. The neutral effect on occupational prestige and educational aspirations is expected, as long as the students have the bachelor's degree at the time of the follow-up.

Hypothesis IV: Changing institutions will not have an effect on degree aspirations, occupational prestige, or income, over and above the effect of time-to-degree completion (for students who have the bachelor's degree by 1994).

Rationale: Similar to hypothesis III (above). Any effect of changing institutions are mediated by time to completion. If it does handicap the student to change institutions it is because it takes the student longer.

Hypothesis V: Stopping out will not have an effect on degree aspirations, occupational prestige, nor income, over and above the effect of time-to-degree completion (for students that have the bachelor's degree by 1994).

Rationale: Time-to-degree completion should entirely mediate any effect of stopping out. Therefore, once you control for time-to-degree completion, stopping out will have no effect.

Finally, although there are no specific hypotheses in this analysis of the long-term effects of students' self-reported reasons for leaving college since it is an exploratory component of the overall design of this study, there are some possible associations that may occur. Given the general findings of Avalos (1994) on predictors of "themes or reasons" of student attrition, there may be some self-reported reasons that may lead to temporary interruptions in the students' academic endeavors (i.e., lead to stopping out or to changing institutions). Similarly, there may also be self-reported reasons that may lead to more terminal institutional departure (i.e., student not getting a bachelor's degree by time of follow-up). Consequently, any effect that self-reported reasons may potentially have on students' educational aspirations, occupational prestige, and income are mediated through their effect on time to completion, changing institutions, and stopping out (previous hypotheses).

Chapter 4

Results

This chapter will focus on findings that specifically address relationships hypothesized in this study. The chapter is organized according to the specific analysis plan and addresses our hypotheses in the order that they were proposed. Analyses: Part One, focuses on the major predictors of educational aspiration, occupational prestige, and income (Hypothesis I), with special attention given to the effect of bachelor's degree attainment (Hypothesis II). Analyses: Part Two, explores the effects of time-to-degree completion (Hypothesis III), stopping out (Hypothesis IV), and transferring (Hypothsesis V) on students' post-college degree aspirations, occupational prestige, and income. Analyses: Part Three identifies key antecedent variables that predict bachelor's degree attainment within nine years. The fourth and final component of this results chapter focuses on the effects of students' self-reported reasons for leaving college (given in 1989) on bachelor's degree attainment, educational aspirations, occupational prestige, and 1994 income. Step-by-step regression tables for all analyses are included in Appendix F.

Analyses: Part One

This first set of analyses examines the effects of various pre-college characteristics, institutional characteristics, and collegiate experiences on student's educational aspirations, occupational prestige and income level after college, with a major focus on how these three outcome measures are affected by obtaining a bachelor's degree. This set of analyses uses the matched sample (see Chapter 3). In order to highlight the kinds of things that students and institutions can do to enhance students'

chances of obtaining the bachelor's degree, pursuing advanced degrees, and getting high-status and better-paying jobs, non-completors in the original sample were matched with completors on the most documented and supported predictors of student retention: high school gpa and pre-college degree aspirations (Astin, 1993; Pascarella & Terenzini, 1991). The matched sample has a 50%-50% split on the nine-year retention measure, by design. Additionally, regression analyses for occupational prestige and income are also restricted to individuals who are employed full time.

Predictors of Income

Results of the income regression (Tables 4.1a & 4.1b) provide support for Hypotheses I (effect of inputs) and Hypothesis II (effect of retention). As hypothesized, among the strongest predictors of income level are students' pre-college input characteristics and obtaining a bachelor's degree within nine years. Retention enters the regression and remains a highly significant ($p<.01$) predictor throughout. In other words, completing the bachelor's degree within 9 years after entering college has a positive effect on income among former students who are employed full time.

Let us now consult the overall results. First, we will note the general relationship between the independent variables that entered the regression equation and students' income level before moving into an in-depth, step-by-step view of the other standardized Beta coefficients in the regression analysis. Table 4.1a lists the main predictors of income. An overall view of the predictors, the amount of the total variance accounted for by the groups of variables, and a description of the characteristics the tend to lead to the highest incomes will follow.

Table 4.1a Predictors of Post-College Income Level (N=606)

Effect on 1994 Income	Independent Variables[†]
Increases Chances of Earning High Income:	
	Student Pre-College Characteristics
	Male**
	Asian American*
	High Parental Income**
	High SAT Math Score
	Strong Leadership Ability*
	Institutional Factors
	Nonsectarian Four-Year Colleges**
	Private Universities*
	Large Institutions**
	College Experiences
	High College GPA*
	College Retention
	Bachelor's Degree (by 1994)**
Reduces Chances of Earning High Income:	
	Student Pre-College Characteristics
	High Parental Occupational Prestige**
	Concerned With Financing College Education*

Note: Used a sample of completors and non-completors matched on parental education, parental income, student high school gpa, and student pre-college degree aspirations (50% degree completion in the sample). Only individuals who are employed full-time were used in this analysis.

[†]After controlling for student pre-college characteristics, institutional factors, college experiences, and retention definitions.

*p<.05, **p<.01 (confidence level at final step)

A total of twelve independent variables entered the regression equation, accounting for about eighteen percent of the variance associated with 1994 income level. Student pre-college characteristics accounted for about twelve percent of the total variance, institutional factors accounted for an additional three percent, college experiences (college gpa) accounted for another two percent, and obtaining a bachelor's degree by 1994 accounted for another percent and a half. Overall, student pre-college characteristics accounted for most of the predictable variance (64%), thus supporting Hypothesis I. This finding also replicates previous studies of college impact, which have shown that student pre-college characteristics greatly influence most college outcome measures. It would appear that the same differentially strong effect of inputs holds true, at least for some outcomes up to five years after graduation.

Students who tend to earn the highest incomes are male, of Asian-American background, come from an affluent families, and have parents who hold lower status occupations. They also score high on the math component of the SAT, have strong leadership abilities, and are not concerned about the financing of their college education. Additionally, these students tend to enroll at nonsectarian four-year colleges, private universities, and large institutions. While in college, the higher-income students tended to have high grade point averages. And, as already noted, they are more likely than lower income students to have completed at least the bachelor's degree by the time of the nine-year follow up.

Table 4.1b highlights the regression findings. Before interpreting these results, it is important to describe the format of this table. Beta View (Dey, 1990) was used to compile these regression results. Beta View rearranges standardized regression coefficients provided in SPSS so that the effect of each entering variable on all other variables can be more easily examined. The regression coefficients show if particular

variables of interest make a unique contribution over and above the effects of the other independent variables. The first column of Table 4.1b lists all independent variables that entered the regression equation at given steps. The second and third columns to the immediate right contain the multiple and simple correlations, respectively, between the independent variable and students' 1994 level of income. The remaining columns consist of the standardized Beta coefficients (Betas) that the independent variables have on the outcome variable at each and every step of the regression equation.

Of key interest here is what happens to the effect of certain other independent variables when bachelor's degree attainment is accounted for in the final step of the regression analysis. Since income is significantly affected by earning a bachelor's degree, is it possible that the effects of some of the other variables that entered the equation are mediated through their effects on earning the bachelor's degree? This question can be answered by observing the changes in the coefficients between step 11 and step 12 (the point at which earning the bachelor's degree entered the equation). There is little evidence that the effects of input variables are mediated by their effects on earning a bachelor's degree, since the coefficients changed very little between steps 11 and 12. The only possible exception would be concern with financing a college education, which has a small reduction (from -.10 to -.08) in the Beta coefficient when earning a bachelor's degree enters. (Interestingly, however, the effects of parental income where not mediated by earning a bachelor's degree).

The only other variables showing notable effects on earning a bachelor's degree are attending a private university and, especially, college gpa, which showed the largest shrinkage in the Beta coefficient (from .15 to .10) when earning a bachelor's degree enters. In short, these analyses indicate that some, but not all, of the effect of college gpa on post-college income is mediated by its effect on earning a bachelor's degree.

Both concern about financing one's college education and attending at private university also have a small indirect effect on income by virtue of their effect on retention. However, since none of their Betas are reduced to non-significance when earning a bachelor's degree enters the equation, all of these variables retain significant direct effects on income that can not be explained by their effects on any other intervening variable, including retention.

According to Table 4.1b, all of the independent variables predicting students' post college income have a significant (at least $p<.05$) effect on income throughout the regression, except for SAT Math. The student's score on the math component of the SAT has a modest significant positive effect on income up and until step 11, where college grade point average enters the regression equation. This suggests that the positive effect on income due to students' SAT Math sub-score is indirect, being mediated through their college gpa and possibly the type of college attended (Private university also reduces the Beta for SAT Math from .13 to .11 when it enters in step 10.) This means that students with high SAT Math scores tend to earn more money after college because they attend private universities and get better grades in college than do students with lower scores.

Note that the final Beta coefficients for most variables at step 12 are substantially smaller than their simple correlations. This is the usual situation with multicolinear independent variables, where the entry of any given variable tends to cause the coefficients of other variables to decline in magnitude. An unusual type of change that is sometimes observed is when an independent variable enters the equation and *increases* the effect that another variable has on the dependent variable (referred to as a "suppressor effect").

Table 4.1b Predicting Post-College Income in 1994 (N=606)†

Step Variables Entering:	R	r	Beta at Step 1	2	3	4	5	6	7	8	9	10	11	12
Pre-College Characteristics														
1 Asian-American	.10	.10	10*	10*	09*	09*	09*	08	08*	08	08	07	08*	08*
2 Parental Income	.23	.21	21**	21**	20**	18**	21**	18**	17**	16**	16**	15**	14**	14**
3 Gender: Woman	.28	-.18	-17**	-17**	-17**	-14**	-15**	-14**	-13**	-13**	-13**	-13**	-16**	-15**
4 SAT Math Score	.31	.18	17**	15**	12**	12**	12**	13**	13**	13**	13**	11**	07	08
5 Parent's Occup. Prestige	.32	-.01	-01	-08	-09*	-09*	-09*	-10*	-10*	-10*	-11**	-12**	-12**	-11**
6 Concern w/ Financing Coll.	.33	-.16	-15**	-09*	-07	-09*	-10*	-10*	-10*	-10*	-10*	-10*	-10*	-08*
7 Leadership Abilities	.34	.11	11**	09*	08	08*	09*	09*	09*	08*	09*	08*	08*	08*
Institutional Factors														
8 Nonsectarian 4-yr College	.35	.09	09*	08*	08*	08*	08*	09*	08*	08*	12**	15**	15**	14**
9 Institutional Size	.37	.10	10*	09*	08*	08*	08*	08	08*	12**	12**	13**	14**	14**
10 Private University	.38	.11	11**	08*	09*	06	07	07	07	09*	11**	11**	11**	09*
College Experiences														
11 College GPA	.41	.14	15**	13**	16**	14**	14**	14**	14**	15**	15**	15**	15**	10**
College Retention (1994)														
12 Earned Bachelor's Degree	.42	.20	20**	19**	19**	18**	18**	17**	17**	17**	17**	16**	13**	13**

Note: †Used a sample of completors and non-completors matched on parental education, parental income, student high school gpa, and student pre-college degree aspirations (50% degree completion in the sample) and was restricted to individuals who are employed full-time.
*p<.05, **p<.01 (Confidence level of Beta coefficients at each step)

Astin (1991) uses the term suppressor to indicate that the entering independent variable has "suppressed" the observed relationship between another independent variable and the outcome measure (in this case post-college income). In other words, controlling for one independent variable increases the correlation between another independent variable and the outcome measure. According to Astin, suppressor effects occur under two specific conditions: (1) when the two independent variables have the same relationship with the outcome measure and a negative relationship with each other; and (2) when the two have opposite relationships to the outcome measure and a positive relationship with each other.

As a general example of a suppressor effect in the regression, we can see (Table 4.1b) that parental income and parental occupational prestige have opposite relationships to students' post-college income. Thus, the negative relationship between parent's occupational prestige increases when parental income is controlled for in step 2. This is an example of a suppressor effect of the second type: when both have opposite effects on the dependent variable and are positively correlated with each other. These two variables are, of course positively correlated, i.e., the higher the parents' income, the higher the prestige of their occupations. But these two variables have opposite effects on the student's income, that is, the parents of high earning students tend to be affluent, but tend to have low status jobs. Since controlling for one variable strengthens the effect of the other variable on the outcome measure, it can be seen that suppressor effects are reciprocal in nature: When parents' occupational prestige enters, at step 5, the positive relationship between parents' income and students' post-college income also increases (from .18 to .21).

An example of the other type of suppressor effect is illustrated by the three institutional variables that entered the regression equation. All three variables have

positive effects on student income. However, the first variable, nonsectarian four-year college, is negatively correlated with the next two. This simply means that nonsectarian four-year colleges tend to be of relatively small size and tend, of course, not to be private universities. Thus, when nonsectarian four-year college enters at step 8, coefficients for size and private university get larger. Similarly, when these latter two variables enter at steps 9 and 10, the coefficient for nonsectarian four-year college increases (from .08 to .15). Thus, once you take into account the positive effect on post-college income of institutional size and private university, the positive effect of attending a nonsectarian four-year college becomes stronger. In other words, size and private university were "suppressing" the observed effect of nonsectarian four year college. Controlling for these latter two variables allows the "true" effect of nonsectarian four year colleges to emerge.

It is important to note that being a woman tends to reduce these student's post-college income. This finding supports previous research (Astin, 1977) suggesting that men may get preferential treatment in the job market simply for being male. In this case the preferential treatment may show up in the form of increased income, presumably from preferential treatment in hiring, merit increases and promotions. It should be noted that the students' occupation has not been controlled, so that the differential gender effect observed here may be wholly or in part attributable to the different types of occupations pursued by men and women after college.

The effects of the three college characteristics present interesting possibilities for speculation. Is it possible that there is additional "value added" to the student's earning potential that comes from attending either a private nonsectarian college or a private university? Does attending a large institution increase one's "human capital" more than attending a small institution? Or is it the case that graduates of these institutions are

more sought after by recruiters from higher-paying companies and organizations? These are certainly questions which deserve more exploration in future research.

A final interpretive question concerns the effect of college gpa. As already indicated, its effect on income is not explained solely in terms of its effect on retention. Can students with outstanding grade point averages command higher starting salaries from their first employer? Do some better-paying employers eliminate students from consideration on the basis of their low gpas? Or does a high grade point average truly reflect the student's earning potential? Again, these possibilities provide interesting material for future research on the relationship between undergraduate education and earnings.

Although a majority of the antecedent variables predicting income are plausible, there exist some counter-intuitive findings. One especially puzzling feature is that the students' 1985 career aspirations (prestige score) did not enter the regression. First of all, it is important to remember that these findings are generated from both bachelor's degree completors and non-completors who were employed full time at the time of the nine-year follow-up survey. This would suggest that occupations that do not require graduate training will most likely be heavily represented among these students. This would include careers like Actor or Entertainer, Architect, Business person, Computer Programmer, Dietitian, Engineer, Journalist, Law Enforcement Official, Nurse, and School Teacher (among others).

In these regression analyses special consideration was not given to specific careers or career types (i.e. business, engineering, public service careers, etc.). Of primary concern was controlling for the prestige of careers and of career aspirations. Therefore, student careers are accounted for only in terms of their prestige level. Although there is a relationship between prestige and income, occupational prestige is a measure of status

and not necessarily of income level. Thus, it is possible that, although some careers have similar status levels, they may have very different levels of income. Many of these occupations that do not require a graduate degree and some careers that are not contingent on obtaining the bachelor's degree may lead to high wages, as long as the student possesses some to the skills and competencies that bachelor/graduate degree recipients are supposed to possess (e.g. overall intellectual capacity, interpersonal/communication skills, and leadership capabilities).

Another thing to remember is that students in this sample no doubt vary in <u>when</u> they completed the bachelor's degree (or when they withdrew from college). Therefore, some students may have been in the labor market for a longer period of time and have had greater chances for promotions and merit increases than others. Time on the job is probably a critical determinant of wage increase and overall level of income, especially for careers that do not require graduate training. Traditionally there have been two main criteria that determine one's starting job salary (from an employer's point of view): level of education and experience. The inability to control for "time on the job" (a proxy for experience) may be preventing us from obtaining a full picture of what has an effect on students post-college income and may help to explain why only a small portion of the total variance in income is accounted for by the variables in the regression equation.

In summary, income after college is positively affected by earning a bachelor's degree. It is also positively affected by several characteristics of the employees when they were entering students nine years earlier: being Asian-American, having parents who are well-to-do, scoring well on the SAT math test, and a high self rating on leadership abilities. Income after college is negatively affected by being a women, concern about financing college, and-- unexpectedly-by the prestige of the parents' occupation (the negative effect of this last variable is masked to a certain extent by the

positive effect of parental income). On the environmental side, post-college earning are enhanced by attending either a private university or a private nonsectarian college as well as by attendance at a large institution. Finally, income is positively affected by the students' gpa during college.

Predictors of Occupational Prestige

Results of the occupational prestige regression (Tables 4.2a & 4.2b) provide support for Hypothesis I (effect of inputs) and Hypothesis II (effect of retention): among the strongest predictors of occupational prestige are students' pre-college input characteristics and obtaining a bachelor's degree within nine years. Retention enters the regression and remains a highly significant ($p<.01$) predictor throughout. In other words, completing the bachelor's degree within 9 years after entering college has a positive effect on occupational prestige among former students who are employed full time.

Let us now consult the overall results. First, we will note the general relationship between the independent variables that entered the regression equation and students' occupational prestige before moving into an in-depth, step-by-step view of the standardized Beta coefficients in the regression analysis. Table 4.2a lists the main predictors of occupational prestige.

A total of six independent variables entered the regression equation, accounting for about nine percent of the total variance associated with students' post-college occupational prestige. Student pre-college characteristics accounted for approximately five percent of the total variance. Having a high degree of student-faculty contact during college accounted for another one percent and the final three percent of the total variance is accounted for by obtaining the bachelor's degree within nine years. Although the four

student input characteristics in the equation account for most of the predicted variance (53%), nine-year college retention (bachelor's degree within nine years) accounted for more predicted variance (39%) than any of the other variables, thus providing support for both Hypotheses I and II.

Table 4.2a Predictors of Post-College Occupational Prestige (N=606)

Effect on having High-Status Jobs:	Independent Variables†
Increases Chances:	
	Student Pre-College Characteristics
	Career Aspirations in 1985 (prestige)**
	High School GPA**
	College Experiences
	Student-Faculty Contact
	College Retention
	Obtained Bachelor's Degree (by 1994) **
Reduces Chances:	
	Student Pre-College Characteristics
	Mother's Education
	Concern with Financing College Education

Note: Used a sample of completors and non-completors matched on parental education, parental income, student high school gpa, and student pre-college degree aspirations (50% degree completion in the sample). Only individuals who are employed full-time were used in this analysis.
†After controlling for student pre-college characteristics, institutional factors, college experiences, and college retention.
*p<.05, **p<.01 (Confidence level of Beta coefficients at each step)

Students who pursue high prestige occupations after college tend to have mothers with low levels of educational attainment and tended not to be concerned about financing their college education when they started college. They did exceptionally well academically in high school (as evidenced by their grade point averages) and were likely to aspire to high-prestige careers. While in college, these students were more likely to

have frequent contact with faculty members. And, as already noted, they are more likely than students pursuing lower status careers to have completed at least the bachelor's degree by the time of the nine-year follow up survey (see Table 4.2a).

Table 4.2b details the regression findings. Since occupational prestige is significantly affected by earning a bachelor's degree, is it possible that the effects of some of the other variables that entered the equation are mediated through their effects on earning a bachelor's degree? This question can be answered by observing the changes in the coefficients between step 5 and step 6 (the point at which earning a bachelor's degree entered the equation).

Table 4.2b
Predicting Post-College Occupational Prestige in 1994 (N=606)

			Beta at Step					
Step Variables Entering:	R	r	1	2	3	4	5	6
Pre-College Characteristics								
1 Career Aspirations (prestige)	02	.14	14**	13**	13**	14**	14**	15**
2 High School GPA	03	.13	11**	11**	11**	11**	11**	10**
3 Mother's Education	04	-.08	-09*	-08*	-08*	-10*	-10*	-10
4 Concern: Financing College	05	-.05	-06	-07	-09*	-09*	-08*	-07
College Experiecnes								
5 Student-Faculty Contact	05	.08	09*	09*	08*	08*	08*	02
College Retention (1994)								
6 Bachelor's Degree	09	.20	21**	21**	21**	20**	20**	20**

Note: †Used a sample of completors and non-completors matched on parental education, parental income, student high school gpa, and student pre-college degree aspirations (50% degree completion in the sample) and are restricted to students who are with full-time employment.
*p<.05, **p<.01 (Confidence level of Beta coefficients at each step)

There is some evidence suggesting that the effects of the independent variables in the equation are mediated by their effects on earning a bachelor's degree, since the coefficients for most of the variables shrank between step 5 and step 6. The variables that showed the largest shrinkage are: level of mothers' educational attainment, concern with financing college education, and level of contact with faculty members. In all three cases, the significant effects ($p<.05$) were reduced to non-significance. What this means is that their effects are entirely mediated through their effects on obtaining the bachelor's degree within 9 years after entering college.

According to Table 4.2b, only three of the six independent variables predicting post-college occupational prestige retained their significant ($p<.01$) effect on prestige throughout the regression. Career aspirations and grade point average in high school retain significant "direct" effects on occupational prestige, i.e., effects that cannot be entirely explained by any other intervening variables, including bachelor's degree attainment. This finding suggests that, for the most part, students with good grades in high school, who as freshmen aspire to high status occupations, and who eventually obtain their bachelor's degrees, are the most likely ones to be pursing high-level occupations after college.

Predictors of Educational Aspirations

Results of the educational aspiration regression (Tables 4.3a & 4.3b) provide support for Hypothesis I (effect of inputs) and Hypothesis II (effect of retention). As expected, among the strongest predictors of educational aspirations are students' pre-college input characteristics and obtaining a bachelor's degree within nine years. Retention remains a highly significant ($p<.01$) predictor throughout the regression. In

other words, completing the bachelor's degree within 9 years after entering college has a positive effect on educational aspirations of former undergraduates.

Table 4.3a
Predictors of Post-College Educational Aspirations (N=720)

Effect On Aspiring to Advanced Degrees	Independent Variables[†]
Increases Chances:	
	Student Pre-College Characteristics
	Scholar Typology*
	Degree Aspirations in 1985**
	SAT Verbal Score
	Leadership Ability
	Expect to Get at Least "B" Average in College**
	Institutional Factors
	Institutional Selectivity
	College Experiences
	College GPA**
	Student-Student Contact
	Student-Faculty Contact
	Membership in Fraternity/Sorority*
	College Retention
	Obtained Bachelor's Degree (by 1994)**
Reduces Chances:	
	Student Pre-College Characteristics
	White**
	High School GPA**
	Institutional Factors
	Public University
	College Experiences
	Lived at Home during 1st year in College**

Note: Used a sample of completors and non-completors matched on parental education, parental income, student high school gpa, and student pre-college degree aspirations (50% degree completion in the sample).

[†]After controlling for student pre-college characteristics, institutional factors, college experiences, and college retention.

*p<.05, **p<.01 (Confidence level of Beta coefficients at each step)

Let us now consult the overall results. A total of fifteen independent variables entered the regression equation, accounting for about thirty-three percent of the total variance associated with students' post-college educational aspirations. Student pre-college characteristics accounted for about twelve percent of the total variance, institutional factors accounted for a little more than an additional two percent, and college experiences accounted for another eleven percent. The final seven plus percent of the total variance is accounted for by obtaining the bachelor's degree within nine years. Although the seven student input characteristics in the equation account for most of the predictable variance (38%), the single variable accounting for most of the predictable variance (22%) is nine year college retention (bachelor's degree within nine years). This provides support for both Hypothesis I & II.

Students who pursue advanced degrees tend to score high on the Scholar typology, to aspire to advanced degrees as freshmen, and anticipate getting at least a "B" average while in college. They also tend to score high on the verbal component of the SAT and rate themselves highly on leadership abilities. Aspiring to high level degrees is also related to being nonwhite, to earning a high grade point average during high school, and to attending a highly selective institution. Attending a public university appears to depress aspirations for high-level degrees. (This is an especially ironic finding, given that most postgraduate study takes place in public universities). While they are in college, students with the highest post-college degree aspirations tend to earn high grade point averages, to have a lot of contact with other students and with faculty members, and to join social fraternities or sororities. They tend not to live at home during their first year at college. These latter findings suggest that being in frequent contact with other members of the college community strengthens students' interest in pursuing high level degrees after college.

Table 4.3b highlights the regression findings. Of key interest here is what happens to the effect of other independent variables when bachelor's degree attainment is accounted for in the final step of the regression analysis.

Since post-college educational aspirations is positively affected by earning a bachelor's degree, is it possible that the effects of some of the other variables that entered the equation are mediated through their effects on earning a bachelor's degree? This question can be answered by observing the changes in the coefficients between step 14 and step 15 (the point at which earning a bachelor's degree entered the equation). It appears that the effects of about half of the independent variables predicting post-college educational aspirations are mediated in part by earning a bachelor's degree (note in Table 4.3b the reduction in Beta coefficients between steps 14 and 15). College gpa and student-faculty contact show the largest Beta reductions when retention enters. What this means is that getting good grades and interacting frequently with faculty in college tend to promote aspirations for advanced degrees in part because they also promote retention. College gpa still shows some direct effect on degree aspirations even after retention is controlled, but not student-faculty contact (i.e., all of its effect on aspirations appears to be explained by its effect on retention).

A very interesting pattern occurs when the negative effect of attending a public university is reduced to non-significance between step 9 (Beta= -.13, $p<.01$) and step 13 (Beta= -.06, $p>.05$). Three entering variables account for this drop: college gpa (step 10), student-student contact (step 11), and student-faculty contact (step 13). In effect, what this means is that attending a public university discourages students from pursuing advanced degrees because it (a) depresses the student's gpa and (b) reduces the amount of contact that students have with both faculty and students. Once the effects

Table 4.3b Predicting Post-College Educational Aspirations in 1994 (N=720)[†]

Step Variables Entering:	R	r	Beta at Step 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Student Inputs																	
1 White	.02	-.14	-14**	-12**	-10**	-11**	-11**	-10**	-10**	-10**	-11**	-13**	-13**	-13**	-13**	-12**	-10**
2 Scholar Typology	.08	.25	24**	24**	16**	13**	10*	15**	11*	12*	12*	12*	11*	11*	11*	11*	09*
3 Degree Aspirations	.09	.25	24**	16**	16**	16**	15**	13**	14**	14**	13**	12**	12**	12**	11**	11**	14**
4 SAT Verbal Score	.10	.15	16**	10**	10**	10**	11**	12**	12**	11**	09*	07	07	06	06	06	06
5 Leadership Ability	.11	.17	16**	10*	09*	10**	10**	09*	09*	09*	09*	09*	06	05	06	06	06
6 High School GPA	.12	.00	01	-10*	-08*	-10*	-09*	-09*	-10**	-10*	-11**	-20**	-19**	-18**	-18**	-18**	-14**
7 Expect: Get "B" Ave.	.12	.16	16**	06	08*	08	08	09*	09*	08*	09*	09*	09*	10**	10**	11**	13**
Institutional Factors																	
8 Public University	.14	-.12	-11**	-13**	-13**	-12**	-12**	-11**	-11**	-11**	-13**	-11**	-09**	-09*	-06	-05	-05
9 Selectivity	.14	.11	13**	09*	07	05	04	05	06	09*	09*	08*	08*	07	07	07	04
College Experiecnes																	
10 College GPA	.21	.26	28**	25**	25**	24**	24**	29**	29**	29**	29**	29**	26**	26**	25**	25**	15**
11 Student-Student Cntact	.23	.25	24**	22**	22**	22**	21**	21**	21**	20**	20**	15**	15**	12**	07	03	-05
12 Lived at Home 1st yr	.24	-.17	-16**	-17**	-17**	-16**	-15**	-15**	-15**	-14**	-13**	-13**	-09**	-09**	-10**	-10**	-11**
13 Student-Faculty Cntact	.25	.26	26**	24**	23**	23**	22**	22**	23**	21**	21**	15**	10*	11**	11**	13**	07
14 Member of Frat./Sor.	.25	.12	11**	12**	11**	11**	10**	10**	11**	10**	10**	10**	05	05	07*	07*	07*
College Retention (1994)																	
15 Bachelor's Degree	.33	.41	41**	40**	40**	40**	40**	40**	40**	40**	39**	34**	32**	33**	32**	32**	32**

Note: [†]Used a sample of completors and non-completors matched on parental education, parental income, student high school gpa, and student pre-college degree aspirations (50% degree completion in the sample).

*p<.05, **p<.01 (Confidence level of Beta coefficients at each step)

that these three college experiential variables have on degree aspirations is controlled, attending a public university no longer has a significant effect on degree aspirations.

Readers should be alerted to the fact that the drastic reductions in some Betas that occur when scholar typology enters at step 2 is due to the types of variables that make up the typology. Scholar typology was computed to include freshmen degree aspirations, expectation to graduate with honors, expectation to be elected to an honors society, and self-ratings on academic and math ability and on intellectual self-confidence (See Astin 1993 for more details). The reductions in the coefficients should be of no surprise since these "academic" measures are positively correlated with students' high school grades, performance on the verbal component of the SAT, self-rating on leadership ability, and expectation to make at least "B" average in college and especially with students' pre-college degree aspiration (which is actually part of the scholar typology).

Effect of Degree Completion on Status Attainment After College

As hypothesized, obtaining a bachelor's degree (by 1994) has a positive effect on degree aspirations, occupational prestige, and annual income after college. Beyond the effects of student inputs, institutional factors, and college experiences on these three outcomes, there are clearly added benefits take come from completing the bachelor's degree. These findings underscore the fact that the bachelor's degree is a prerequisite for pursuing graduate degrees, not to mention a necessary credential for many of the highest-level and best-paying jobs (see Table 4.4).

Table 4.4 The Effect†† of College Retention on Educational Aspirations, Occupational Prestige, and Income at Different Stages in the Analyses (N=720)†

Outcomes (1994)	Simple r	Beta At First Step	Beta After Student Inputs	Beta After Institutional Factors	Beta After College Experiences
Income	.20	.20**	.17**	.16**	.13**
Occupational Prestige	.20	.21**	.20**	(no variables entered)	.20**
Educational Aspiration	.41	.41**	.40**	.39**	.32**

Note: Used a sample of completors and non-completors matched on parental education, parental income, student high school gpa, and student pre-college degree aspirations (50% degree completion in the sample).

†Regressions for Occupational Prestige and Income only included students who were employed full-time in 1994 (N=606).

††Shows standardized regression coefficients.

**p<.01

Looking at Table 4.4 (previous page), the reader will note that the Betas for obtaining a bachelor's degree tend to get smaller at successive stages in the regression analyses (going from left to right in the table). The predictive power of bachelor's degree attainment on educational aspirations and income (measured by the magnitude of its regression coefficients) is substantially reduced after accounting for institutional factors, but its positive effects remain strong once all of the variables have been accounted for. A similar result occurs for the effect of bachelor's degree completion on occupational prestige, except reductions in its predictive power are accounted for predominantly by student input characteristics and the reductions are minimal. In other words, holding a bachelor's degree has strong positive effects on students' occupational prestige that are only minimally associated with the other independent variables in the equation.

In the regression on occupational prestige, the variables in the model account for only about nine percent of the total variance on occupational prestige (having the bachelor's degree accounts for three percent). Variables in the income regression model account for eighteen percent of the total variance in income, with having a bachelor's degree accounting for a little over one percent. The regression model does somewhat better for educational aspirations, accounting for thirty-three percent of the total variance, with having a bachelor's degree accounting for seven percent. What these findings suggest is that there are many factors, not reflected in the variables used in this study, which affect these three post-college outcomes (especially income and occupational prestige).

Analyses: Part Two

We will now examine the effects that three retention-related variables--time-to-degree completion, stopping out, and changing institutions--have on students' post college educational aspirations, occupational prestige, and income. With these analyses we hope to come to a closer understanding of whether or not our conclusions about the consequences of dropping out depend on how we define "dropout."

Using a sample of students who completed their bachelor's degrees within nine years after entering college, these analyses will attempt to disentangle the effects of obtaining a bachelor's degree from the effects due to time-to-degree completion, stopping out, and changing institutions. It is important to note that the matched sample used in the first set of analyses is not used in these regression runs. Instead, these analyses are limited to those students who had completed their bachelor's degree at the time of the nine-year follow-up in 1994. Although focusing on recent graduates (within five or fewer years of graduating from college), regression analyses for occupational prestige and income are further restricted to recent graduates who are employed full-time.

The extended I-E-O framework is used here to investigate the contributions the three retention-related variables have on educational aspirations, occupational prestige, and income. Specifically, Hypotheses III, IV, and V are tested (see Chapter 3). These regressions will tell us whether these three variables (added to our model in the final blocks) affect post-college outcomes, independent of the effect of retention.

Effects of Time-to-Degree Completion, Stopping Out, and Transferring

Table 4.5 highlights the regression findings. Before interpreting these results, it is important to describe the format of this table. The data for Table 4.5 are extracted from

regression results proved in Appendices F.4, F.5, & F.6. Beta View (Dey, 1990) rearranges standardized regression coefficients provided in SPSS so that the effect of each entering variable on all other variables can be more easily examined. The regression coefficients show if particular variables of interest, in this case retention-related variables, make a unique contribution over and above the effects of the other independent variables.

The first column of Table 4.5 lists the three dependent variables-- educational aspirations, occupational prestige, and income. The other sets of columns give separate results for Time to Degree (degree within 4 years), Stopping Out, and Transferring. The first column in each of these sets reports the simple correlation for its corresponding retention definition and student outcome. Listed to the right of the simple correlation are the corresponding standardized regression coefficients after controlling for student inputs (B1), institutional factors and college experiences (B2), and retention-related variables (B3) (if any entered into the regression equation at the final step/s).

As hypothesized, stopping out and transferring to another institution have no effect on students' post-college educational aspirations, above and beyond the effect of time-to-degree completion. The hypothesized effects on income were only partially supported by these analyses. Obtaining a bachelor's degree within 4 years (as opposed to 5-9 years) has a positive effect on students' post-college income. This positive effect likely occurs because, compared to those people who finish college within four years, entry into the labor market for those who take longer to finish college has been delayed. The effects of stopping out or transferring on income are at least partially mediated through time-to-degree completion, but stopping out maintains its negative effect even after time to degree is controlled.

Table 4.5 The Effects of Time-to-Degree Completion, Stopping Out, and Transferring on Educational Aspiration, Occupational Prestige, and Income (N=8,614)†

	Time to Degree (w/n 4yr)				Stopping Out				Transferring			
Outcomes (1994)	r	B1	B2	B3	r	B1	B2	B3	r	B1	B2	B3
Educational Aspiration	.11	05**	01		.01	00	02		-.05	-02*	-00	
Occupational Prestige	.03	00	-01	-02	-.04	-04**	-03**	-03**	-.03	-01	-01	-01
Income	.10	07**	07**	06**	-.07	-05**	-05**	-03**	-.06	-03**	-02	-01

Note: Regression sample only included students who had completed their bachelor's degree by 1994.

† Regressions for Prestige and Income are restricted to students who had their bachelor's and who were employed full-time in 1994 (N=7,463).

B1=Standardized Beta coefficients after controlling for student pre-college characteristics.

B2=Standardized Beta coefficients after controlling for student pre-college characteristics, institutional factors, and college experiences.

B3=Standardized Beta coefficients after controlling for retention-related variables (stopout entered both "prestige" and "income" regressions, degree within 4 years entered "income" regression, but transferring did not enter any regression).

*p<.05; **p<.01

A similar pattern emerges for occupational prestige: the negative effect of stopping out remains even after time to degree is controlled. Thus, the expected results for stopping out and transferring--that their effects on occupational prestige and income would be mediated by time to degree-- are supported only in the case of transferring. Thus, educational aspirations, occupational prestige, and income are more dependent on whether or not students ultimately receive their bachelor's degree than on whether or not they obtain their degree at an institution other than the one of initial entry. Stopping out, however, retains its negative effects on income and occupational prestige even after time-to-degree completion is controlled. Let us explore these results in more detail.

Time-to-Degree Completion

As mentioned earlier, the results of these analyses support the hypothesized effect of time-to-degree completion (completing the bachelor's within four years versus more than four years) on students' educational aspirations, occupational prestige, and income (see Table 4.5). Completing the bachelor's degree within four years has a significant ($p<.01$) positive effect on students' income level (after controlling for student inputs, institutional factors, and college experiences), but no effect on students' post-college educational aspirations and occupational prestige. The neutral effect on educational aspirations and occupational prestige most likely occurs because (a) these analyses focus exclusively on college graduates (i.e. excludes non-completors) and (b) having obtained a bachelor's degree is critical to the pursuit of advanced degrees and is a necessary credential for high level occupations. Whether students get their degrees within four years or whether it takes them up to nine years to obtain them does not seem to be of major importance when it comes to their chances of pursuing graduate degrees or pursuing high level occupations.

Stopping Out

The hypothesized effects of stopping out is supported only for educational aspirations, but not for occupational prestige or income. Stopping out has no effect on educational aspirations, that is, the pursuit of higher degrees is not affected by taking time off before completing the bachelor's degree. In the case of income, the negative effect of stopping out is partially weakened (Beta reduced from -05 to -03) by controlling for time to degree, but still remains significant ($p<.01$). In other words, stopping out does , as hypothesized, tend to lengthen the student's time to degree, but it still retains a significant negative effect on income after time-to-degree completion is controlled. One possible explanation here is methodological: At least a portion of the significant effect at the final step may be due to the crudeness of our time to degree measure--degree completion by four years versus more than four years. This dichotomous measure may thus not allow us to eliminate all of the variance associated with time to degree, since income may well vary as a result of completing college in nine years as compared to, say, six or seven years. Although at least some of the effect of stopping out on income is mediated by time-to-degree completion, we still lack conclusive evidence that its negative effect on income is entirely mediated through time-to-degree completion.

Similar to its effect on income, stopping out retains a significant ($p<.01$) negative effect on occupational prestige once the effects of all other independent variables have been accounted for. However, time to degree shows little mediating influence, since the coefficients at B2 and B3 are virtually identical. Apparently, the negative effects of stopping out on income and occupational prestige are not simply a matter of increased time-to-degree completion. Since stopping out also shows no effect on educational

aspirations, its negative effects on occupational prestige and income are also not explainable in terms of changes in degree aspirations, (in spite of the fact that many high level occupations require graduate degrees).

Another possible explanation for the effects of stopping out may be that there is something unique about severing one's ties to higher education, even if it is for a short period of time. Students who stop out may go through a period of reevaluation and redefining of life goals and values. Although there may very well be differences in life goals and values between stopouts who eventually graduate and those who do not, it may be that the act of leaving college (physical, academic, and emotional disassociation) may account for some of these findings. By contrast, one would expect that college departures that involve transferring to another institution (see below) would not necessarily discourage students, since they would still be connected to academic work. Analyses: Part-Four, which provides an exploratory look at the effects of self-reported "reasons for leaving" on bachelor's degree attainment and on our three status attainment variables, should provide some insight as to whether the discouraging effects attributable to stopping out are contingent on the reasons given for leaving college.

Transferring

Unlike the results for stopping out, the expected effects of transferring on the student's educational aspirations, occupational prestige, and income are generally supported by the regression analyses. In the case of income, the borderline negative effect of transferring is largely mediated through time-to-degree completion. This can be seen by observing the change in the Beta coefficient that occurs when "degree completion within four years" enters the regression equation: The Beta is reduced from -02 to -00 and its confidence level from p=.06 to p=.70. Additionally, after student

inputs, institutional factors, and college experiences are controlled, transferring has non-significant effects on educational aspirations (p=.65) and occupational prestige (p=.45). However, in the case of the latter two post-college outcomes, transferring shows no significant effects prior to controlling for time to degree. In other words, there are no effects to be mediated by time-to-degree completion.

Analyses: Part Three

The primary focus of this dissertation has been to observe the relationship between retention-related variables (time to degree, stopping out, and transferring to another institution) and three student post-college outcome measures (educational aspirations, occupational prestige, and income). Although no specific hypotheses were offered or tested concerning the expected predictors of bachelor's degree attainment within nine years, its anticipated importance for our three outcome measures was expressed in Hypothesis II. This hypothesis-- that earning a bachelor's degree will have a positive effect on degree aspirations, occupational prestige, and income-- was clearly supported in Analyses: Part One. Given these findings, this researcher deemed it necessary to explore the antecedent variables that predict degree completion in order to shed some additional light on how these retention-related variables affect our popular understanding of the factors that influence retention. Additional insights concerning the predictors of nine-year retention are shared in Analyses: Part Four, where we look at the relationship between students' self-reported reasons for leaving (by 1989) and bachelor's degree completion (by 1994).

Predictors of Bachelor's Degree Attainment

Table 4.6a lists variables having direct effects on nine-year bachelor's degree attainment and Table 4.6b provides an extensive "step-by-step" look at these predictors using the matched sample. As mentioned earlier, non-completors were matched with completors--on parental education, parental income, high school gpa, and pre-college degree aspirations-- for two main reasons: (1) to provide a more balanced distribution on the nine-year retention measure and (2) to examine variables other than the most popular student input characteristics found in the college retention literature. The reader should keep in mind that this matching procedure is going to minimize the apparent importance of input characteristics, since the retained and not-retained students are matched in terms of the known predictors. Thus, the fact that the student pre-college characteristics only accounted for three percent of the variance may simply be an artifact of the matching process, where variance in the known input predictors of retention has been eliminated by matching dropouts and persisters.

Before moving into an in-depth analysis of the standardized regression coefficients displayed in Table 4.6b, let us look at some of the "main" predictors of nine-year retention found in the regression model produced by this analysis.

Although twelve independent variables (in addition to degree completion in four years) entered this regression equation, only five of these antecedent variables retained their significant effects on nine-year bachelor's degree completion after controlling for student inputs, institutional factors, college experiences, and four-year college retention. Student's chances of obtaining a bachelor's degree within nine years are enhanced by interacting frequently with other students while in college (through courses and involvement on campus) and by getting good grades. Living off campus in a private home during the first year of college, stopping out before graduating, and transferring to

a different institution all reduce the student's odds of obtaining a bachelor's degree within nine years.

Table 4.6a
Variables Having Direct Effects on Degree Attainment by 1994 (N=720)

Bachelor Degree Attainment by 1994	Independent Variables[†]
Increases Chances :	
	College Experiences
	Student-to-Student Contact**
	College GPA**
Reduces Chances:	
	College Experiences
	Lived In A Private Home During Freshman Year*
	Retention Definitions
	Transferring (before degree completion by 1989)**
	Stopping Out (before degree completion by 1989)**

Note: Used a sample of completors and non-completors matched on parental education, parental income, student high school gpa, and student pre-college degree aspirations (50% degree completion in the sample)

[†]Significant effects after controlling for student pre-college characteristics, institutional factors, college experiences, and four-year college retention. *p<.05,**p<.01

Table 4.6b describes the regression findings. Although no specific hypotheses were tested, results confirm what we already know from the college retention literature and provide new insights on how retention-related variables affect the relationships between popular antecedent variables and college student retention.

Table 4.6b Predicting Nine-year Bachelor's Degree Completion (N=720)†

Step Variables Entering:	R^2	r	Beta at Step 1	2	3	4	5	6	7	8	9	10	11	12	13
Pre-College Characteristics															
1 Concern: Financing College	.01	-.11	-11**	-11**	-11**	-12**	-12**	-11**	-06	-05	-05	-05	-03	-03	-03
2 U.S. Citizen	.02	-.10	-09**	-09**	-10**	-09**	-10**	-09**	-08*	-07*	-07*	-06*	-04	-04	-04
3 SAT Math Score	.03	.08	08*	08*	08*	07*	07*	05	02	-01	-01	-01	00	00	00
4 Total Aid Expected ($)	.03	.06	09*	09*	07*	07*	05	03	-00	-01	-01	-02	-01	-01	-01
Institutional Factors															
5 Public University	.04	-.10	-10**	-10**	-10**	-09*	-09*	-11**	-07*	-07	-02	-02	05*	05	04
6 Institutional Selectivity	.05	.10	10**	09**	07*	06	10*	10*	10**	08*	08*	08*	-04	-05	-04
College Experiences															
7 Student-Student Contact	.17	.38	37**	37**	36**	36**	35**	35**	35**	31**	24**	23**	10**	10**	10**
8 College GPA	.23	.33	32**	32**	32**	31**	31**	31**	26**	26**	24**	24**	09**	10**	10**
9 Student-Faculty Contact	.25	.35	35**	34**	34**	34**	34**	34**	22**	17**	17**	17**	02	02	02
10 Lived Private Home 1st yr	.26	-.13	-13**	-13**	-12**	-12**	-11**	-11**	-07*	-07*	-07*	-07*	-05*	-05*	-05*
Retention Definitions (1989)															
11 4-yr Degree Completion	.56	.73	72**	72**	72**	72**	73**	74**	69**	67**	66**	66**	66**	64**	62**
12 Transferring	.56	-.24	-24**	-23**	-23**	-23**	-23**	-23**	-20**	-23**	-22**	-22**	-07**	-07**	-08**
13 Stopping Out	.57	-.25	-24**	-24**	-24**	-24**	-24**	-24**	-19**	-16**	-15**	-15**	-04**	-06*	-06*

Note: †Used a sample of completors and non-completors matched on parental education, parental income, student high school gpa, and student pre-college degree aspirations (50% degree completion in the sample).
*p<.05, **p<.01 (significance level of Beta coefficients at each step)

This regression analysis clearly demonstrates the negative impact of transferring and stopping out on retention. Both of these retention-related activities have negative effects on students' chances of obtaining the bachelor's degree, and their negative effects on nine-year retention remain even when four-year degree completion is controlled at step 11. However, it should be noted that the size of the Beta coefficients for transferring and stopping out declines substantially between steps 10 and 11, this means simply that much of their negative effect is on four year degree completion. In other words, while the major handicap proposed by transferring or stopping out is to make it more difficult for students to complete the degree within four years, these variables continue to affect nine-year retention chances among students who do not complete the degree within four years. (see steps 11, 12, and 13 in Table 4.6b). Also, the effects of transferring cannot be accounted for by the effects of stopping out nor can the effects of stopping out be accounted for by transferring.

These results once again demonstrate the importance of student "involvement" and academic performance, replicating findings that have been reported in many earlier studies of college impact (Astin, 1993; Pascarella & Terenzini, 1991). Specifically, the more contact that students have with both students and faculty and the higher their gpas during college, the more likely they are to persist. Student-student contact and college grade point average have effects on persisting within nine years, even when four year retention is controlled. The effect of student-faculty contact, on the other hand, seems to be only on four year retention. Finally, living off-campus in a private home during the first year in college seems to have a negative effect which operates both on four-year retention as well as on nine-year retention.

Table 4.6c Predicting Nine-year Degree Attainment: The Effect of Key Independent Variables on Variables That Did Not Enter the Equation (N=720)†

Variables Not Entering the Regression Equation:	Simple r	"Beta In" at Step: After Inputs & Institutional Factors	"Beta In" at Step: Student-Student Contact Enters	"Beta In" at Step: College GPA Enters	"Beta In" at Step: 4-yr Completion Enters
College Experiences					
Lived At Home 1st yr	-.10	-08*	04	02	01
Lived At College Dorm 1st yr	.15	12**	02	03	-00
Hrs/wk: Student Clubs	.27	25**	05	04	03
Member: Fraternity/Sorority	.10	09*	-06	-04	02
Participate: Campus Protests	.13	09*	00	-00	-03
Elected to Student Office	.14	12**	00	-01	-01
Part. in Intercollegiate Sports	.13	12**	03	05	02

Note: †Used a sample of completors and non-completors matched on parental education, parental income, student high school gpa, and student pre-college degree aspirations (50% degree completion in the sample).
*p<.05, **p<.01 {significance level of Beta coefficients at each step (steps 6, 7, 8, & 11 of regression}

Although the positive effects due to student-student contact are clear, it is important to point out the additional mediating effects that student-student contact appears to have on variables not in the regression equation (see Table 4.6c). The fact that some variables did not enter the regression should not necessarily be taken to mean that they are "not relevant" to predicting bachelor's degree completion within nine years. It may simply mean that their possible importance has been blurred by the small sample and/or by the substantial amount of multicollinearity among the variables. Since analyses employing stepwise multiple regression procedures may "capitalize upon chance covariation" in a relatively small sample, the CAMBRA method directly addresses such concerns by tracing the step-by-step changes in the coefficients for all

potential predictor variables, and by examining whether or not the predictive power of any entering variable is significantly different from that of other competing predictor variables that do not enter the regression equation (Astin & Dey, 1995). Table 4.6c highlights the effects of some key variables that did not enter the regression equation, but whose effects may be, to a large degree, mediated by student-student contact.

One interpretation of the relationship between student-student contact and these seven variables that did not enter the equation is that all of eight variables are measuring something in common that appears to affect retention, but that without a larger sample there is really no way to determine which one is "more important." This interpretation would be appropriate if the Beta coefficients, at the step just before student-student contact enters, are comparable in size to the Beta for student-student contact. In this case, the Beta coefficient of .35 for student-student contact at step 6 is substantially larger than those for any of the seven other variables that did not enter the regression. The largest competing Beta (.25) is for hours spent in student clubs/groups. Controlling for student-student contact at step 7 reduces this coefficient for participation in clubs/groups to a nonsignificant .05. None of the other variables' Betas even comes close to .35 at step 6, and all of their Betas become nonsignificant and very small (.00-.04) at step 7. These results suggest that student-student contact and five of these variables are measuring some of the same things.

In short, it appears that the effect of living arrangements during the first year of college and of other specific student involvement measures are mediated through student-student contact. In other words, living arrangements and other specific student involvement measures have effects on retention only to the extent that they get students involved on campus and aid in their interaction with other students.

There are also some interesting findings on the effects of attending certain types of institutions. Attending a public university has a negative effect on college retention, whereas attending a selective institution has a positive effect. The negative effects of enrolling at a public university appear to be mediated, at least partially, by student-student contact, gpa, and student-faculty contact during college. However, since the negative effect of attending a public university seems to disappear at steps 7 and 9, it would appear that the main reasons why public universities have negative effects on retention are that they have a negative effect on student-student and student-faculty contact. Once the effects of these two involvement measures are controlled, there is no more effect of attending a public university. In fact, when four-year retention is controlled there is actually a weak positive effect meaning that public universities do not encourage dropping out as much as they extend the time that students take to graduate. Although a weak positive effect of public university appears at step 11, we cannot use this finding to say that public universities have positive effects on students' nine-year college retention, simply because we have already controlled the effects of public universities on college experiences such as gpa and student contact with students and faculty. If we had not discounted the negative effects of public universities on these undergraduate experiences, these universities might well show negative effects on nine-year retention.

In addition to these effects of the college environment, there is also some indication that students' concern with financing their college education has some adverse effects on the level of student involvement during college and thus, is a negative factor in retention. Although concern over financing college enters the equation in the first step with a significant weight, its negative effect on nine-year degree completion gets weakened when the selectivity of the institution enters in step 6 and is reduced to non-

significance when the degree of student-student contact is accounted for in step 7. This suggests that students who are most concerned about financing their college education tend not to attend highly selective institutions and tend not to interact frequently with students outside of the classroom setting. The latter condition mediates most of the negative effects of "financial concern" on degree attainment. In other words, students who worry the most about financing their college education may be involved in activities such as outside work that limit their degree of interaction with other students and eventual incorporation into the college community. Interestingly the more "objective" measure of financial aid, the total dollar amount of financial aid expected has no effect on retention--any apparent effects are wiped out by controlling for institutional type.

These two findings are very fascinating and pose an interesting question: When exploring the effects of "financial aid" on students chances of obtaining the bachelor's degree, is it better to have an understanding of the level of students' concern about their ability to finance their college education or to have an understanding on amount of unmet financial need? In this study, unmet financial need was not accounted for. Total aid is the total dollar amount of financial assistance coming from all sources, regardless of differences in cost across institutions and without regard to amount of unmet need. It is possible, of course, that concern with financing college education is a proxy for unmet need. Future research should explore the relative effects of these two different types of financial aid measures: concern with finances ("perceptual") and amount of unmet financial need ("objective").

Analyses: Part Four

This fourth and final component of this results chapter focuses on how students' self-reported reasons for leaving college affect bachelor's degree attainment, educational

aspirations, occupational prestige, and 1994 income. This set of analyses is restricted to students whose last activity, as reported in their response to the 1989 follow-up survey, was that they had taken a leave of absence, withdrawn from college, or transferred to another institution. An additional requirement was that students had checked at least one of fourteen possible reasons as either "very important", "somewhat important", or "not important" in their decision to leave their first college.

Effects of Reasons for Leaving the First College On Retention

Table 4.7 highlights the regression results. It is important to note that Table 4.7 does not include the complete Beta coefficient table for the regression analysis. It highlights the effects and relationships only of the various self-reported reasons that had significant effects on college retention. For an in-depth look at other independent variables predicting bachelor's degree attainment in this analysis, please see Appendix F.8.

To begin with, the simple r's present a clear-cut pattern: All reasons that have to do with problems that could be resolved by attending a <u>different type</u> of college--better social life, wider course selection, better academic reputation--are <u>positively</u> associated with retention. Further, the coefficients for all three are reduced when transferring is controlled, and only one of them remains significant (Beta= .05, $p<.05$, for "wanted better social life," which is subsequently reduced to a nonsignificant .03 when stopping out is controlled). By contrast, <u>all</u> of the other five reasons produced negative simple correlations with retention, and all but one of these (family responsibilities) remained negative and significant throughout the regression!

Table 4.7 Predicting Nine-year Degree Attainment: The Long-term Effects of Self-Reported Reasons (in 1989) for Leaving the First College (N=1,940)[†]

Self-Reported Reasons for Leaving the First College:	Simple r	Beta at Step: After Inputs	After Institutional Factors	After College Experiences	After Reasons	After 4-year Completion	After Transfer	After Stopout
Had Good Job Offer	-.18	-15**	-15**	-15**	-12**	-11**	-10**	-08**
Couldn't Afford College	-.22	-18**	-18**	-15**	-13**	-11**	-11**	-09**
Wanted Better Social Life	.11	09**	09**	11**	08**	07**	05*	03
Reconsidered Goals & Interests	-.10	-08**	-08**	-08**	-09**	-07**	-07**	-07**
Wanted Wider Course Selection	.15	13**	12**	11**	08**	07**	03	03
Was Bored With Course Work	-.10	-10**	-09**	-07**	-06**	-06**	-05*	-05*
Wanted Better Academic Reputation	.11	12**	12**	11**	05*	04	02	01
Had Family Responsibilities	-.12	-10**	-10**	-09**	-04*	-03	-03	-03

Note: [†]Sample was restricted to students who stated that the last thing they had done in relation to their first college (by 1989) was take a leave of absence, withdraw, or transfer to another institution (before graduating from college) and who gave reasons for taking time off.
*p<.05, **p<.01 (Confidence of level of Beta coefficients at each step {steps 7, 8, 10, 16, 17, 18, & 19 of the regression})

In other words, when students leave their first college because of boredom, a job offer, finances, family responsibilities, or a change in their interests, they are more likely to drop out for good. But if they leave college because they want a different kind of educational experience (wider course selection, better academic reputation, or better social life), they have better chances of completing their bachelor's degrees. It should also be noted that these patterns are not completely accounted for by four-year retention; on the contrary, they continue to affect retention over a nine-year interval, even though the "reasons" were given after only four years.

Effects of Reasons for Leaving College on Status Attainment Variables

The findings fail to support the expectation that all of the effect of self-reported reasons on students' post-college aspirations, occupational prestige, and income would be mediated through their effect on college retention. Some effects of self-reported reasons on occupational and educational aspirations were indeed mediated by college retention, but none was mediated in this manner in the income regression (the main reason being that retention within 9 years just failed to enter the regression). Table 4.8 highlights the results for all three regressions.

It is important to note that Table 4.8 does not include the complete Beta coefficient tables for the regression analyses. For an in-depth look at other independent variables predicting post-college income, occupational prestige, and educational aspirations for this analysis, please see Appendices F.9, F.10, & F.11.

Table 4.8 The Effects of Students' Reasons for Leaving their First College on Post-College Income, Occupational Prestige, and Educational Aspirations (N=1,940) †

	Had Good Job Offer		Could Not Afford College		Wanted Better Academic Reputation		Had Family Obligations		Tired of Being a Student		Reconsidered Goals & Interests	
Outcomes (1994)	B1	B2	B1	B2	B1	B2	B1	B2	B1	B2	B1	B2
Income	11**	13**	-10**	-11**								
Occupational Prestige			-12**	-10**	06**	03	-07**	-04				
Educational Aspiration									-09**	-06**	-06**	-04

Note: †Sample was restricted to students who stated that the last thing they had done in relation to their first college (by 1989) was take a leave of absence, withdraw, or transfer to another institution (before graduating from college) and who gave reasons for taking time off. Regressions on Occupational Prestige and Income were further restricted to students who had full-time employment in 1994 (N=1,538).

B1=Standardized Beta coefficients after controlling for student pre-college characteristics, institutional factors, and college experiences.

B2= Standardized Beta coefficients after controlling for retention (retention within 9 years entered all regressions except for the income regression [p<.015]).

*p<.05, **p<.01 (Confidence of level of Beta coefficients at each step

The negative of effects of "could not afford college" (for prestige) and "tired of being a student" (for aspirations) were only partially reduced by controlling for retention. By contrast, the effects of "wanting better academic reputation" and "having family obligations" on occupational prestige and the effect of "reconsidered goals & interests" on educational aspirations are reduced to nonsignificance when retention enters the regression equations at the last step.

What do these findings mean? To begin with, it seems clear that the impact of leaving college on the student's chances of eventually obtaining a bachelor's degree will depend in part on why the student leaves. The same goes for longer-term educational aspirations, career plans, and income: why the student leaves college will determine in part how these outcomes are affected. If the student leaves because of a good job offer, future income will actually be enhanced, regardless of whether or not the student eventually returns and finishes college. Conversely, if the student leaves because he or she "could not afford it," later income is adversely affected (again, regardless of whether the student ever completes the bachelor's degree).

As far as long-term retention is concerned, leaving one's first college because its course selection, social life, or academic reputation is unsatisfactory has positive implications for subsequent retention. This is perhaps understandable, in light of the fact that these are limitations which can presumably be overcome by transferring to a different kind of college. The other reasons (family responsibilities, boredom, finances, etc.) probably cannot be satisfactorily addressed by changing colleges or, for that matter, by returning to college and completing the bachelor's degree.

One final comment regarding the reason, "I was tired of being a student." It is probably no surprise that this reason is negatively associated with educational

aspirations five years later, given that fulfilling aspirations for higher degrees would require that the ex-student "become a student" once again.

Chapter 5

Conclusion

The main purpose of this study has been to enhance our understanding of the retention process and to clarify certain methodological issues related to the study of retention. Specifically, the study has explored how time-to-degree completion, stopping out, transferring, and the students' self-reported reasons for leaving college affect four long-term student outcomes: retention (within nine years), post-college educational aspirations, occupational prestige, and income. This final chapter synthesizes the most important findings reported in Chapter 4, and is organized into five components. First, we review the issues and methodology used to examine these issues. The second section summarizes the results from Chapter 4, as they relate to the hypotheses and general expectations presented in Chapter 3. Next is a discussion of the implications for the development of theory, followed by a section that proposes recommendations for institutional practice. Finally, the chapter concludes with a discussion of methodological limitations and suggestions for future research.

Overview

Although models of student retention have provided extensive insight on the student attrition process, they have failed to inform our understanding of what happens in the long-term to students once they have left their first college. How does dropping out affect long-term academic and intellectual development, occupational choice, and income? How are our conclusions about such matters influenced by the manner in which dropping out is defined? In seeking preliminary answers to such questions, this study has attempted to develop guidelines that may help to reconcile differences in

findings from one study to the next and to determine which studies can legitimately be considered as replications.

The study focused on three different retention-related issues: length of time to degree completion, stopping out, and transferring, and attempted to assess their impact on three different post-college measures of status attainment: educational aspirations, occupational prestige, and income. The study utilized multivariate analysis of longitudinal student data derived from a national database to determine how the consequences of dropping out vary according to how retention is defined. The longitudinal design made it possible to control for the biasing effect of pre-college characteristics in order to examine the relationship between how we define dropping out and its subsequent effect on the post-college outcome variables. In the analyses of the effects of reasons for leaving, the longitudinal design enabled us to add some needed substance and validity to students' self-reported reasons for leaving college by incorporating a wide range of student, institutional and student-institutional interaction data.

The nine-year follow-up survey sample included 17,783 students from 224 higher education institutions. Among these, 12,376 also completed the 1989 follow-up survey. For purposes of this study, only students who aspired to get at least a bachelor's degree and who enrolled at a four-year institution as freshmen in 1985 were included. This sample, which are referred to as the "Original" sample, includes 8,973 students. Several sub-sets of cases from the Original sample were created. The subsample of 8,614 completors, all of whom had degrees by 1994, was generated for analyses of the effects of the retention-related variables on status attainment. Given the unusually high percentage of completors in the Original sample (96%), the matched sample (a matched sub-sample of 360 completors and 360 non-completors) was

generated in order to achieve a 50% completion rate (N=720) for analyzing the effects of antecedent variables both on nine-year retention and on the three status attainment variables. A third sub-sample consisted of students who completed questions in the 1989 follow-up survey pertaining to self-reported reasons for leaving college (N=1,940). It is important to note that all regressions on occupational prestige and income were further restricted to students who had full-time employment in 1994.

Summary of Findings

Only the findings relevant to the main focus of this study are highlighted in this summary section. The organization of this section proceeds according to the order of the hypotheses. Hypothesis I and II are discussed briefly since they provide an operational context from which to get into the more pertinent findings. Results relating to the most important hypotheses (the effects of retention-related variables) and results based on self-reported reasons for leaving college will follow and will constitute the main focus of discussion.

Hypothesis I: The strongest predictors of post-college educational aspirations, occupational prestige and income are the student's pre-college input characteristics. These are expected to account for most of the predictive variance, above and beyond any college environmental measures and any student intermediate outcome.

Students' pre-college input characteristics accounted for the majority of predictable variance in post-college educational aspirations, occupational prestige, and income. In addition to supporting Hypothesis I, these findings also replicate previous studies of college impact, which have shown that student pre-college characteristics carry more

weight than environmental characteristics for most college outcome measures. It would appear that the same differentially strong effect of inputs holds true for certain outcomes measured five years after graduation.

Hypothesis II: Obtaining the bachelor's degree will have a positive effect on post-college degree aspirations, occupational prestige, and annual income.

The expected positive effects of obtaining the bachelor's degree on students' post-college outcomes (including long-term educational aspirations) are clearly supported by the results of this investigation. In addition to replicating hundreds of studies of status attainment which provide abundant evidence that the completion of the bachelor's degree is central to the determination of both occupational prestige and income (for example, Astin 1975, 1977, 1993; Pascarella & Terenzini, 1991; Jencks et al., 1979; Featherman & Carter, 1976; Sewell & Hauser, 1972; Duncan, Featherman, & Duncan, 1972, Blau & Duncan, 1967), this study also provides empirical evidence that obtaining the bachelor's degree also stimulates students' aspirations for advanced degrees.

Retention-Related Variables

Although no specific hypotheses on the relationship between the retention-related variables and college retention were generated in the initial proposal for this study, findings concerning these relationships are summarized here since they are central to the focus of this study. Table 5.1 summarizes the effects of three retention-related variables on income, occupational prestige, educational aspirations, and college retention.

Table 5.1 Summary of the Effects of Retention-Related Variables on Students' Long-term Educational Aspirations, Occupational Prestige, Income, and College Retention

Long-term Student Outcomes (1994):	Degree Completion Within 4 Years	Transferring	Stopping Out
Income (for completors)	Positive	None	Negative
Occupational Prestige (for completors)	None	None	Negative
Educational Aspirations (for completors)	None	None	None
College Retention	(N/A)	Negative	Negative

Note: Significant effects (confidence level $p<.05$) after controlling for all variables in the regression model, including nine-year retention.

Hypothesis III: <u>Time-to-degree completion</u> (degree completion within four years) will have a positive effect on income, but not on occupational prestige and educational aspirations.

The expected effects of time-to-degree completion on our three post-college outcome measures were clearly supported by the results of this study. Completing the bachelor's degree within four years has a significant ($p<.01$) positive effect on students' income level (after controlling for student inputs, institutional factors, and college experiences), but no effect on students' post-college educational aspirations and occupational prestige. The positive effect on income likely occurs because those who finish college within four years, compared to those who take longer, experience no delay in entering the labor market and have had more opportunities for promotions and merit increases. The neutral effect of time to completion on educational aspirations and occupational prestige most likely occurs because (a) these analyses focus exclusively on college graduates (i.e. excludes non-completors) and (b) having obtained a bachelor's

degree is critical to the pursuit of advanced degrees and is a necessary credential for high level occupations. Whether students get their degree within four years or whether it takes them up to nine years to obtain it does not seem to be of major importance when it comes to their chances of pursuing graduate degrees or pursuing high-level occupations.

Hypothesis IV: Changing institutions will not have an effect on degree aspirations, occupational prestige, nor income, over and above the effect of time-to-degree completion.

The anticipated effects of transferring on students' educational aspiration, occupational prestige, and income are generally supported by the regression analyses. In the case of income, the borderline negative effect of transferring is largely mediated through time-to-degree completion. Additionally, after student inputs, institutional factors, and college experiences are controlled, transferring has non-significant effects on educational aspirations and occupational prestige. However, in the case of the latter two post-college outcomes, transferring shows no significant effects prior to controlling for time to degree. In other words, there are no effects to be mediated by time-to-degree completion.

Hypothesis V: Stopping out will not have an effect on degree aspirations, occupational prestige, or income, over and above the effect of time-to-degree completion.

This hypothesis was confirmed only in the case of educational aspirations: Stopping out has no effect on educational aspirations. In the case of income, the negative effect of stopping out is partially weakened by controlling for time to degree, but still remains significant ($p<.01$). In other words, stopping out does , as expected,

tend to lengthen the student's time to degree, but it still retains a significant negative effect after time to degree is controlled.

Similar to its effect on income, stopping out retains a significant ($p<.01$) negative effect on occupational prestige once the effects of all other independent variables have been accounted for. However, time to degree shows little mediating influence. Apparently, the negative effects of stopping out on income and occupational prestige are not simply a matter of increased time to degree completion. Since stopping out also shows no effect on educational aspirations, its negative effects on occupational prestige and income are also not explainable in terms of changes in degree aspirations, (in spite of the fact that many high level occupations require graduate degrees).

Effects on Bachelor's Degree Attainment

The findings from this study clearly demonstrate the negative impact of transferring and stopping out on retention. Both of these retention-related activities have negative effects on students' chances of obtaining the bachelor's degree, and their negative effects on nine-year retention remain even when four-year degree completion is controlled. However, it should be noted that much of their negative effect is on four year degree completion, which suggests that, the major handicap proposed by transferring or stopping out is to make it more difficult for students to complete the degree within four years. Nevertheless, these variables continue to affect nine-year retention chances among students who do not complete the degree within four years. Also, the effects of transferring cannot be accounted for by the effects of stopping out, nor can the effects of stopping out be accounted for by transferring.

Aside from identifying the effects of retention-related variables on degree completion, results from these analyses also replicate much of what we already know

concerning the major predictors of bachelor's degree attainment. In the section on "Other Findings" (below) we shall discuss how the power of these traditional predictors of retention is affected when we control for time to degree, stopping out, and transferring.

Reasons For Leaving College

Since the analyses of reasons for leaving college is an exploratory component of the overall design of this study (Analyses: Part Four), there were no specific hypotheses generated. Even so, certain associations were anticipated. For example, based on previous predictors of themes or reasons of student attrition (Avalos, 1994), it was anticipated that certain self-reported reasons would lead to temporary interruptions in the students' academic endeavors (i.e., lead to stopping out or to changing institutions) whereas others would lead to more terminal institutional departure (i.e., not having the bachelor's degree by the time of the nine-year follow-up). It was also expected that any effect of self-reported reasons for departure on students' educational aspirations, occupational prestige, and income would be mediated through their effect on time to completion, changing institutions, and stopping out. Table 5.2 summarizes these effects.

Table 5.2 Summary of the Effects of Self-Reported Reasons for Leaving College on the Retention-Related Variables and Long-term Outcomes

Dependent Variable:	Self-Reported Reasons For Leaving College								
	Had Good Job Offer	Could Not Afford College	Wanted Better Academic Reputation	Had Family Obligations	Tired of Being a Student	Change of Goals & Interests	Wanted Better Social Life	Wanted Wider Class Selection	Was Bored With Classes
Retention Related:									
Transferring			+				+	+	+
Stopping Out	+	+					+		
Degree Completion within Nine Years	-	-	(+)	(-)		-	(+)	(+)	-
Long-term Outcome:									
Income	+	-							
Occupational Prestige		-	(+)	(-)					
Educational Aspiration					-	(-)			

Note: Significant effects (confidence level $p<.05$) after controlling for all variables in the regression models, including nine-year retention. Effects in parentheses show the sign of the effect, even though it was not significant. Blank spaces indicate that the specific reasons did not enter the specific regression and did not have a significant effect ($p>.05$) by the final step.

Effects On College Retention

All reasons that have to do with problems that could be resolved by attending a different type of college--better social life, wider course selection, better academic reputation--are positively associated with retention. Further, the effects of all three are reduced when transferring is controlled, and only one of them remains significant ("wanted better social life," which is subsequently reduced to a nonsignificance when stopping out is accounted for). By contrast, all of the other five reasons--good job offer, financing college, reconsidered goals, bored with course work, family responsibilities--produced negative simple correlations with retention, and all but one of these (family responsibilities) remained negative and significant throughout the analysis.

In short, leaving college because its course selection, social life, or academic reputation is unsatisfactory appears to have positive implications for subsequent retention. This is perhaps understandable, in light of the fact that these are limitations which can presumably be overcome by transferring to a different kind of college. The other reasons (family responsibilities, boredom, finances, etc.) probably cannot be satisfactorily addressed by changing colleges or, for that matter, by returning to college and completing the bachelor's degree.

Effects On Status Attainment

The findings failed to support the expectation that all of the effect of self-reported reasons on students' post-college aspirations, occupational prestige, and income would be mediated through their effect on college retention. Some effects of self-reported reasons on occupational and educational aspirations were indeed accounted for by college retention, but none was mediated in this manner in the income regression.

The negative effects of "could not afford college" (for prestige) and "tired of being a student" (for aspirations) were only partially reduced by controlling for retention. By contrast, the effects of "wanting better academic reputation" and "having family obligations" on occupational prestige and the effect of "reconsidered goals & interests" on educational aspirations are reduced to nonsignificance when retention enters the regression equations at the last step.

It seems clear that the impact of leaving college on the student's chances of eventually obtaining a bachelor's degree will depend in part on why the student leaves. The same goes for long-term educational aspirations and income: why the student leaves college will determine in part how these outcomes are affected. If the student leaves because of a good job offer, future income will actually be enhanced, regardless of whether or not the student eventually returns and finishes college. Conversely, if the student leaves because he or she "couldn't afford it," later income is adversely affected (again, regardless of whether the student ever completes the bachelor's degree). It is probably no surprise that the reason "I was tired of being a student" is negatively associated with educational aspirations five years later, given that fulfilling aspirations for higher degrees would require that the ex-student "be a student" once again.

Other Findings of Interest and Future Research

This section discusses additional findings related to issues of retention, students' post-college level of income, occupational prestige, and educational aspirations. Suggestions for future research are provided for findings that need further investigation and additional methodological controls.

Predicting Retention

These findings have once again demonstrated that retention depends on student "involvement" and good academic performance, replicating findings that have been reported in many earlier studies of college impact (Astin, 1993; Pascarella & Terenzini, 1991). Specifically, the more contact that students have with both students and faculty and the higher their gpas during college, the more likely they are to persist. Student-student contact and college grade point average have effects on persisting within nine years, even when four year retention is accounted for. The effect of student-faculty contact, on the other hand, seems to be only on four year retention. Finally, living off-campus in a private home during the first year in college seems to have a negative effect which operates both on four-year retention as well as on nine-year retention.

Additionally, there are some interesting findings on the effects of attending certain types of institutions on degree completion. From previous studies we know that attending a public university has a negative effect on college retention, whereas attending a selective institution has a positive effect. According to this study, the negative effects associated with enrolling at a public university appear to be mediated, at least partially, by gpa, student-student contact, and student-faculty contact during college. And once their effects on 4-year retention are controlled, there is no more significant negative effect of attending a public university. What this suggests is that public universities do not encourage dropping out as much as they extend the time that students take to graduate.

Students' concern with financing their college education also shows some adverse effects on the level of student involvement during college and thus, is a negative factor in retention. Students who are most concerned about financing their college education tend not to attend highly selective institutions and tend not to interact frequently with

students outside of the classroom setting. This suggests that students who worry the most about financing their college education may be involved in activities such as outside work that limit their degree of interaction with other students and prevent them from becoming full members of the college community. Interestingly, the more "objective" measure of financial aid, the total dollar amount of financial aid, shows no effect on retention--any apparent effect is wiped out by controlling for institutional type.

These fascinating findings pose an interesting question for future research: When exploring the effects of "financial aid" on students' chances of obtaining the bachelor's degree, is it enough simply to know what the student's "unmet need" is in simple dollar terms, or is it more important to have an understanding of how concerned students are about their ability to finance their college education? Since unmet financial need was not accounted for in this study, is it possible that concern with financing college education is a proxy for unmet need? Future research should explore the comparative effects of these two different types of financial aid measures: concern with finances ("perceptual") and dollar amount of unmet financial need ("objective").

Predicting Income

In the analysis of antecedent variables predicting income, a major finding has been the effect of gender on income after college. Being a woman tends to reduce post-college income. This finding supports previous research suggesting that men may get preferential treatment in the job market simply for being male (Astin, 1977; Sewell, Hauser, & Wolf, 1980). In this case the preferential treatment may show up in the form of increased income, presumably from preferential treatment in hiring, merit increases, promotions, or other conditions not controlled for in this study.

These speculations must be tempered with a recognition that the students' occupations (specific careers or career types) and the amount of "time on the job" (proxy for experience) were not controlled for in this study. These conditions limit our understanding of why women make less money than men do, even though the study did control for a host of student, institutional, and environmental characteristics. Could the differential gender effect observed here be wholly or in part attributable to the different types of occupations pursued by men and women after college? Future studies seeking to come to a better understanding of the relationship between gender and income should account for different types of careers and amount of time on the job, in addition to some of the other key predictors found in this study.

Predicting Occupational Prestige

The finding of a relationship between mother's low educational attainment and pursuit of high prestige occupations is not supported by the traditional literature on status attainment. According to most status attainment models, parental educational attainment (presumably of both parents) is expected to have a positive "direct" effect on students' occupational prestige. In this study, even when the effect of parental education is controlled for by the matching technique, having a mother with a low level of education is associated with pursuing a high-prestige occupation. Since there is no obvious explanation for this finding, future research should seek to explore this relationship further.

Predicting Educational Aspirations

There is a very clear pattern in the variables that predict the pursuit of graduate degrees. Academic success and high educational aspirations before and during college

all lead to the desire to pursue graduate degrees five years after college. Aspirations are also enhanced by having frequent contact with other members of the college community (students, faculty, members of campus organizations) during college. An interpretive assumption from this finding is that frequent contact which would most likely lead to increased educational aspirations for the student would be with individuals who have either obtained graduate degrees or believe in the importance of pursuing them.

Implications for Theory

The study's findings offer clear support for Astin's (1985) theory of student "involvement." According to this theory, students learn as a result of their "physical and psychological engagement" in the educational process (Astin 1985, p. 134). Likewise, institutions can assist in the retention effort by providing environments that offer the student various opportunities for active involvement (Astin 1977, 1982, 1985, 1990, 1993). The findings from this study suggest that the student's level of involvement during college is not only a major element in determining whether or not the student will eventually persist in college, but also a positive factor in post-college income, occupational prestige, and educational aspirations.

This study also helps to enhance our current understanding of the nature of student involvement. Astin has suggested that the act of "dropping out" can be seen as the "ultimate act of noninvolvement." However, the findings from this study suggest that leaving the first college may or may not constitute "an ultimate act of noninvolvement" in higher education, depending on why the student is leaving. For students who leave their first institution for reasons that can be resolved by transferring to another institution, the decision to leave may well symbolize a desire to get more involved by seeking opportunities for involvement that were not present at their first college.

Additionally, this study illuminates issues that need to be considered in future studies and in the design of future models of student retention and has potentially important implications for the status attainment literature. For example, the long-term implications of dropping out for the student are not fully reflected in the practical impediments that not having a bachelor's degree poses. On the contrary, the circumstances surrounding the dropout decision--good job offer, financial difficulties, etc.--have important implications for the student's subsequent income, occupation, and educational aspirations, independently of whether or not the student eventually obtains the degree.

In this same vein, the theoretical meaning and practical significance of "stopping out" has been clarified in the following manner: stopping out is not simply a matter of prolonging time-to-degree. On the contrary, stopping out has negative implications not only for eventual degree attainment, but also for the student's later income and occupation, independently of degree completion. And again, the meaning of stopping out, in terms of subsequent outcomes, depends heavily on the student's reasons for leaving college.

Understanding the phenomena of college retention and status attainment goes beyond our understanding of "dropouts" and "completors." Aside from the importance of obtaining the bachelor's degree, an understanding of the manner in which the degree is obtained and the reasons why people do not obtain it need to be taken into account in understanding the long-term implications for student retention for status attainment.

Additionally, findings from this study failed to demonstrate any effect of ethnic capital as traditionally defined (i.e. socioeconomic status of the ethnic group), over and above the traditional measures of social capital (i.e. socioeconomic status of the individual's and his/her parents). This raises the basic question as to whether ethnic

capital--as traditionally defined--has any meaning beyond the individual's family ses. Future research and theory development in the area of status attainment should seek to investigate these two measures of "capital" further, with the aim of determining whether "ethnic capital" may be a superfluous concept.

Finally, study results expand on our current understanding of the importance of financial aid for student retention and status attainment. It is clear that the educational implications of financial aid can not be adequately captured with simple "objective" aid measures. Is it possible that students' perceptions of their financial situation may in fact be more important than the actual finances? This argument needs to be tempered with a recognition that traditional financial need analysis (i.e. cost of the college, total financial need, total financial aid, unmet financial need, etc...) was not employed in this study. It is conceivable that by taking into account all of the objective measures in a more systematic way that the perception variable may wash out, but at this point there is no reason not to suppose that perceptions play an important role. It is important for future research and, subsequently, future model development to look in greater depth at the students' perceptions of their financial situation. Also, in this same vein, future research and theory development should allow for the possibility that students' perceptions of the role of finances in the decision to drop out of college may well prove to have important implications for status attainment.

Implications for Practice

The concept of "talent development" (Astin, 1991) asserts that educational excellence lies in the institution's ability to affect its students favorably, to make a positive difference in their lives. Talent development is of obvious importance for retention, but it is also an important prerequisite for attaining high-level and well-paying

jobs after college. Student involvement has repeatedly been shown to be a critical element not only in retention but also in developing one's talents, and the results of this study suggest that, among students who eventually transfer before graduating, involvement at the first institution can also enhance talent development and retention at the second institution.

The findings once again underscore the importance of encouraging students to get involved and of providing opportunities and environments that enhance the amount of contact that students have with each other and with faculty. Thus, the importance of living on campus during the first year, being involvement in sports, clubs, and organizations, and having frequent contact with campus faculty have been reinforced by this study. Similarly, the study has once again highlighted the value of investing time and resources in improving the academic performance of college students. Intervention programs that are centered around academic development, but that also include strategies for linking the students in academically meaningful interactions with other students and faculty, would probably prove to be most successful in an attempt to increase student retention.

A simple example would be an intervention program that targets historically difficult academic courses by offering, to all enrolled students, regularly scheduled, out-of-class, peer-facilitated review sessions. Key elements in this type of program would include regular opportunities for group interactions, the use of peer facilitators who have successfully completed these difficult courses, and faculty mentors who are "on call" to consult on particularly difficult content issues. This type of an arrangement would have great potential for the development of the "talents" of all involved, including student leaders and faculty mentors.

The findings from students' self-reported reasons for leaving college have several implications for recruitment, admissions, and student counseling practices. In the case of students who leave their first college because of problems that could be resolved by attending a different type of college (e.g. better social life, wider course selection, better academic reputation), it would not be an economical use of resources for an institution to invest heavily in trying to increase their retention rates. Such "dropouts" are good bets to go on to finish their undergraduate work at another institution. Institutions would be better advised in this case to invest their resources in better recruitment and pre-college counseling in order to minimize the number of students who will prove to be a poor "fit" in terms of such things as social life, course selection, and academic reputation.

Another area of practical application would be in dropout prevention counseling. By focusing on students who are considering leaving for reasons that cannot be resolved by transferring-- finances, family obligations, poor academic performance, change in goals & interests, boredom with courses--counselors and students may be able to find constructive solutions that do not require the student to leave. Counselors can also inform such students about the long-term consequences of leaving: reduced chances of ever finishing, low pay, lower level jobs, and so on.

Counselors and other institutional officials, not to mention students and their parents, should also be aware that transferring to another institution or stopping out does not merely prolong the time to the degree. Rather, these choices not only increase the student's risk of never obtaining the bachelor's degree (at least within nine years), but they also tend to have longer-term negative implications for occupational prestige and income.

Finally, those who might be concerned about the effects of taking longer to complete the bachelor's degree or the effects of getting that degree at an institution other

than their first one can be reassured by the knowledge that their long-term educational aspirations and pursuit of high-status occupations are unaffected. They will, however, tend to have lower annual incomes, at least in the near-term future.

Limitations and Future Research

There are three primary limitations associated with the design of this study, some of which are related to the nature of the nine-year longitudinal sample and others to the statistical controls employed in the study. The first limitation is the relatively short post-college time span. Due to this relatively short time span, the measures of occupational prestige and annual income reflect only early career choices and annual incomes instead of the individual's ultimate career and earning potential. Of particular importance is that a longer time span will permit those who are currently enrolled in graduate or professional school to complete their formal education and to begin working at the (presumably high-level and well-paying) occupations for which they are currently studying. This would probably allow for a much greater range of incomes and occupational status and would have prevented the additional restrictions on selection criteria for analyses predicting prestige and income. A longer time span would provide a more definitive measure of the effects of retention on our selected outcome measures, since individuals would have additional time to enter the world of work and to stabilize their earning potential.

The second limitation has to do with response bias. First of all, the nine year longitudinal sample is biased to the extent that it requires individuals to return the follow-up questionnaire. Individuals who responded to the survey may, in fact, differ in important ways from those who chose not to respond (one of which is a high nine-year bachelor's degree completion rate, 96%). This limitation forced this investigator to

use a specifically selected subsample in the analysis of factors influencing long-term retention. Second, although limited ethnic diversity in the composition of the respondent pool is a characteristic shared by many large databases, the nine-year longitudinal sample still has a relatively small number of students of color, especially given the conscientious efforts that were made to oversample members of underrepresented racial groups. This limitation obviously prevented any serious sub-group analyses by race.

Since gender and several of the "race" variables entered some of the regressions, future studies should explore these variables in greater depth. Why do women earn less than men do, and why do certain ethnic groups earn more than others, even after we control for input and environmental characteristics? It would also be interesting to see whether the effects of self-reported reasons for leaving college are the same for men and women and for different ethnic groups. It seems reasonable, for example, that these varying different categories of students may leave college for different reasons, and that these reasons, in turn, may have different implications for their long-term development.

The third set of limitations has to do with the way the definitions were operationalized within the scope of this study. Our dichotomous time to degree measure--degree completion by four years versus five-to-nine years--may not have allowed us to eliminate all of the variance associated with time to degree. This methodological limitation may account for the unexpected finding that the effects of stopping out on 1994 income and occupational prestige were not entirely mediated by time to degree. Future studies looking at time-to-degree completion should account for at least three time points (i.e. completion after four, six, and nine years). Adding the six-year mark would provide a better understanding of the effect of time to degree and help to clarify the true effects of stopping out.

Another factor that needs attention in future studies is the amount of time that stopouts take before returning to school. All we could do in this study was to look at students who interrupted their education and then returned, regardless of how long they were away from college. One would expect that negative effects of stopping out would be proportionate to the length of the stopout period. Yet another possible explanation for the effects of stopping out may be that there can be something useful in severing one's ties to higher education for a period of time. Students who stop out may go through a period of reevaluation and redefining of life goals and values that subsequently facilitates their educational development. On the other hand, it may well be that the simple act of "disinvolvement" from college (physical, academic, or emotional disassociation) may account for the negative effects of stopping out identified in this study. Our findings on the effects of transferring support such a conclusion, since college departures that involved transferring to another institution did not have negative long-term effects on students, as long as they eventually completed the bachelor's degree. The reason for this may be that the student who transfers, in contrast to the stopout, remains connected to academic work, even though at a different institution.

Finally, future analyses of transferring should attempt to obtain information on the characteristics of the second institution attended by the student. Such information would be useful in determining whether students are successful in overcoming the limitations that they perceived in their first institution, and whether the student actually becomes more involved at the second institution by virtue of achieving a better "fit." Having data on the second institution would also make it possible to determine whether such factors as student involvement with other students and with faculty continue to be important factors in student retention at the second institution.

Appendix A

1985 Student Information Form

2740355

PLEASE PRINT: YOUR NAME _____ (First / Middle or Maiden / Last)

When were you born? Month (01-12) / Day (01-31) / Year

HOME STREET ADDRESS _____

CITY / STATE / ZIP CODE / ( ) Area Code Home Phone No

1985 STUDENT INFORMATION FORM

DIRECTIONS

Your responses will be read by an optical mark reader. Your careful observance of these few simple rules will be most appreciated.

- Use only black lead pencil (No. 2 is ideal).
- Make heavy black marks that fill the circle.
- Erase cleanly any answer you wish to change.
- Make no stray markings of any kind.

EXAMPLE:

Will marks made with ballpoint or felt-tip marker be properly read? Yes . . ○ No . . ●

PLEASE USE #2 PENCIL

Dear Student:

The information in this form is being collected as part of a continuing study of higher education conducted jointly by the American Council on Education and the University of California at Los Angeles. Your voluntary participation in this research is being solicited in order to achieve a better understanding of how students are affected by their college experiences. Detailed information on the goals and design of this research program are furnished in research reports available from the Higher Education Research Institute at UCLA. Identifying information has been requested in order to make subsequent mail follow-up studies possible. Your response will be held in the strictest professional confidence.

Sincerely, Alexander W. Astin

Alexander W. Astin, Director
Higher Education Research Institute

MARK IN THIS AREA ONLY IF DIRECTED | GRP. CODE

1. Your sex: Male . . ○ Female . . ○

2. How old will you be on December 31 of this year? (Mark one)

16 or younger . . .	○	21-24	○
17	○	25-29	○
18	○	30-39	○
19	○	40-54	○
20	○	55 or older . . .	○

3. Are you a twin? (Mark one)

No . . . . . ○ Yes, identical . . ○ Yes, fraternal . . ○

4. In what year did you graduate from high school? (Mark one)

1985	○	Did not graduate but	
1984	○	passed G.E.D. test .	○
1983	○	Never completed	
1982 or earlier .	○	high school	○

5. Are you enrolled (or enrolling) as a: (Mark one) Full-time student? . . . ○ Part-time student? . . . ○

(Note: Please check that your pencil markings are completely darkening the circles. Do not use pen or make ✓'s or X 's. Thank you.)

6. Where did you get the money to pay for college this year? (Write in actual dollar amounts; write "0" if none)

Grants and scholarships	$
All loans	$
Work or savings	$
Parents and/or spouse	$
Other sources	$

7a. How many persons are currently dependent on your parents for support (include yourself and your parents, if applicable)?

1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 or more ○

7b. How many of these dependents other than yourself are currently attending college?

None ○ 1 ○ 2 ○ 3 or more ○

8. What was your average grade in high school? (Mark one)

A or A+	○	B	○ C ○
A-	○	B-	○ D ○
B+	○	C+	○

9. Where did you rank academically in your high school graduating class? (Mark one)

Top 20%	○	Fourth 20% .	○
Second 20% . .	○	Lowest 20% . .	○
Middle 20% . .	○		

10. Are you: (Mark one)

Not presently married	○
Married, living with spouse	○
Married, not living with spouse	○

11. Prior to this term, have you ever taken courses for credit at this institution?

Yes . . . . ○ No . . . . ○

12. Since leaving high school, have you ever taken courses at any other institution? (Mark all that apply in each column)

	For Credit	Not for Credit
No	○	○
Yes, at a junior or comty. college .	○	○
Yes, at a four-year college or university	○	○
Yes, at some other postsecondary school (For ex., technical, vocational, business)	○	○

13. What is the highest academic degree that you intend to obtain? (Mark one in each column)

	Highest Planned	Highest Planned at this college
None	○	○
Vocational certificate	○	○
Associate (A.A. or equivalent) . . .	○	○
Bachelor's degree (BA, BS, etc.) . .	○	○
Master's degree (MA, MS, etc.) . . .	○	○
Ph.D. or Ed.D.	○	○
M.D., D.O., D.D.S., or D.V.M. . . .	○	○
LL.B., or J.D. (Law)	○	○
B.D. or M.DIV. (Divinity)	○	○
Other	○	○

14. Where do you plan to live during the fall term? If you had a choice, where would you have preferred to live? (Mark one in each column)

	Plan To Live	Prefer To Live
With parents or relatives	○	○
Other private home, apt. or rm. .	○	○
College dormitory	○	○
Fraternity or sorority house . .	○	○
Other campus student housing . .	○	○
Other	○	○

15. Is this college your: (Mark one)

First choice? . . ○ Second choice? . . ○ Third choice? . . ○ Less than third choice? . . . . ○

16. How many miles is this college from your permanent home? (Mark one)

5 or less	○	11-50	○ 101-500 ○
6-10	○	51-100	○ More than 500 ○

17. To how many colleges other than this one did you apply for admission this year?

No other	1. ○	3. ○	5	○	
○	2. ○	4. ○	6 or more .	○	

Note: If you applied to no other college, skip to item 19 on the next page.

18. How many other acceptances did you receive this year? (Mark one)

None ○	1. ○	3. ○	5	○	
	2. ○	4. ○	6 or more .	○	

19. How much of your first year's educational expenses (room, board, tuition, and fees) do you expect to cover from each of the sources listed below? (Mark one answer for each possible source)

	None	$1-$499	$500-$999	$1,000-$1,499	$1,500-$1,999	$2,000-$2,999	Over $3,000
a. My Own or Family Resources							
Parents, other relatives or friends	○	○	○	○	○	○	○
Spouse	○	○	○	○	○	○	○
Savings from summer work	○	○	○	○	○	○	○
Other savings	○	○	○	○	○	○	○
Full-time job while in college	○	○	○	○	○	○	○
Part-time job while in college	○	○	○	○	○	○	○
b. Aid Which Need Not Be Repaid							
Pell Grant	○	○	○	○	○	○	○
Supplemental Educational Opportunity Grant	○	○	○	○	○	○	○
State Scholarship or Grant	○	○	○	○	○	○	○
College Work-Study Grant	○	○	○	○	○	○	○
College Grant/Scholarship (other than above)	○	○	○	○	○	○	○
Corporate Tuition Assistance	○	○	○	○	○	○	○
Other private grant	○	○	○	○	○	○	○
Your GI benefits	○	○	○	○	○	○	○
Your parent's GI benefits	○	○	○	○	○	○	○
Other government aid (ROTC, BIA, Social Security, etc.)	○	○	○	○	○	○	○
c. Aid Which Must Be Repaid							
Federal Guaranteed Student Loan	○	○	○	○	○	○	○
National Direct Student Loan	○	○	○	○	○	○	○
Other College Loan	○	○	○	○	○	○	○
Other Loan	○	○	○	○	○	○	○
d. Other Than Above	○	○	○	○	○	○	○

If you are receiving any form of aid indicated in sections b or c, please answer Question No. 20. Otherwise go on to Question 21.

20. Was the aid you are receiving awarded on the basis of: (Mark all that apply)

	Yes	No
Academic merit	○	○
Financial need	○	○
Athletic talent	○	○
Other talent (music, art, etc.)	○	○
Other	○	○

21. Were you last year, or will you be this year:

	1984 Yes	1984 No	1985 Yes	1985 No
Living with your parents (for more than five consecutive weeks)	Ⓨ	Ⓝ	Ⓨ	Ⓝ
Listed as a dependent on your parents' Federal Income Tax Return	Ⓨ	Ⓝ	Ⓨ	Ⓝ
Receiving assistance worth $600 or more from your parents	Ⓨ	Ⓝ	Ⓨ	Ⓝ

22. Are you: (Mark all that apply)

- White/Caucasian ○
- Black/Negro/Afro-American ○
- American Indian ○
- Asian-American/Oriental ○
- Mexican-American/Chicano ○
- Puerto Rican-American ○
- Other ○

23. Are you a U.S. citizen? . . ○ Yes ○ No

24. For the activities below, indicate which ones you did during the past year. If you engaged in an activity frequently, mark Ⓕ. If you engaged in an activity one or more times, but not frequently, mark Ⓞ (occasionally). Mark Ⓝ (not at all) if you have not performed the activity during the past year. (Mark one for each item)

	Frequently	Occasionally	Not at all
Used a personal computer	Ⓕ	Ⓞ	Ⓝ
Played a musical instrument	Ⓕ	Ⓞ	Ⓝ
Attended a religious service	Ⓕ	Ⓞ	Ⓝ
Participated in a speech or debate contest	Ⓕ	Ⓞ	Ⓝ
Elected president of one or more student organizations	Ⓕ	Ⓞ	Ⓝ
Was bored in class	Ⓕ	Ⓞ	Ⓝ
Had a major part in a play	Ⓕ	Ⓞ	Ⓝ
Won a varsity letter for sports	Ⓕ	Ⓞ	Ⓝ
Failed to complete a homework assignment on time	Ⓕ	Ⓞ	Ⓝ
Won a prize or award in an art competition	Ⓕ	Ⓞ	Ⓝ
Edited the school paper, yearbook, or literary magazine	Ⓕ	Ⓞ	Ⓝ
Tutored another student	Ⓕ	Ⓞ	Ⓝ
Asked a teacher for advice after class	Ⓕ	Ⓞ	Ⓝ
Participated in a science contest	Ⓕ	Ⓞ	Ⓝ
Did extra (unassigned) work/reading for a course	Ⓕ	Ⓞ	Ⓝ
Was a guest in a teacher's home	Ⓕ	Ⓞ	Ⓝ
Studied with other students	Ⓕ	Ⓞ	Ⓝ
Overslept and missed a class or appointment	Ⓕ	Ⓞ	Ⓝ
Smoked cigarettes	Ⓕ	Ⓞ	Ⓝ
Performed volunteer work	Ⓕ	Ⓞ	Ⓝ
Missed school because of illness	Ⓕ	Ⓞ	Ⓝ
Attended a recital or concert	Ⓕ	Ⓞ	Ⓝ
Drank beer	Ⓕ	Ⓞ	Ⓝ
Stayed up all night	Ⓕ	Ⓞ	Ⓝ
Felt overwhelmed by all I had to do	Ⓕ	Ⓞ	Ⓝ
Felt depressed	Ⓕ	Ⓞ	Ⓝ

25. Rate yourself on each of the following traits as compared with the average person your age. We want the most accurate estimate of how you see yourself. (Mark one in each row)

	Highest 10%	Above Average	Average	Below Average	Lowest 10%
Academic ability	○	○	○	○	○
Artistic ability	○	○	○	○	○
Drive to achieve	○	○	○	○	○
Emotional health	○	○	○	○	○
Leadership ability	○	○	○	○	○
Mathematical ability	○	○	○	○	○
Physical health	○	○	○	○	○
Popularity	○	○	○	○	○
Self-confidence (intellectual)	○	○	○	○	○
Self-confidence (social)	○	○	○	○	○
Writing ability	○	○	○	○	○

26. In deciding to go to college, how important to you was each of the following reasons? (Mark one answer for each possible reason)

	Very important	Somewhat important	Not important
To be able to get a better job	Ⓥ	Ⓢ	Ⓝ
To gain a general education and appreciation of ideas	Ⓥ	Ⓢ	Ⓝ
To improve my reading and study skills	Ⓥ	Ⓢ	Ⓝ
There was nothing better to do	Ⓥ	Ⓢ	Ⓝ
To make me a more cultured person	Ⓥ	Ⓢ	Ⓝ
To be able to make more money	Ⓥ	Ⓢ	Ⓝ
To learn more about things that interest me	Ⓥ	Ⓢ	Ⓝ
To prepare myself for graduate or professional school	Ⓥ	Ⓢ	Ⓝ
My parents wanted me to go	Ⓥ	Ⓢ	Ⓝ
I could not find a job	Ⓥ	Ⓢ	Ⓝ
Wanted to get away from home	Ⓥ	Ⓢ	Ⓝ

27. Do you have any concern about your ability to finance your college education? (Mark one)

- None (I am confident that I will have sufficient funds) ○
- Some concern (but I will probably have enough funds) ○
- Major concern (not sure I will have enough funds to complete college) ○

28. How would you characterize your political views? (Mark one)

- Far left ○
- Liberal ○
- Middle-of-the-road ○
- Conservative ○
- Far right ○

29. What is your best estimate of your parents' total income last year? Consider income from all sources before taxes. (Mark one)

- ○ Less than $6,000
- ○ $6,000-9,999
- ○ $10,000-14,999
- ○ $15,000-19,999
- ○ $20,000-24,999
- ○ $25,000-29,999
- ○ $30,000-34,999
- ○ $35,000-39,999
- ○ $40,000-49,999
- ○ $50,000-59,999
- ○ $60,000-74,999
- ○ $75,000-99,999
- ○ $100,000-149,9
- ○ $150,000 or mor

30. What is the highest level of formal education obtained by your parents? (Mark one in each column)

	Father	Mother
Grammar school or less	○	○
Some high school	○	○
High school graduate	○	○
Postsecondary school other than college	○	○
Some college	○	○
College degree	○	○
Some graduate school	○	○
Graduate degree	○	○

Mark only three responses, one in each column.

(Y) Your mother's occupation
(F) Your father's occupation
(M) Your probable career occupation

If your father or mother deceased, please indicate his or her last occupation.

	Y	F	M
Accountant or actuary	Y	F	M
Actor or entertainer	Y	F	M
Architect or urban planner	Y	F	M
Artist	Y	F	M
Business (clerical)	Y	F	M
Business executive (management, administrator)	Y	F	M
Business owner or proprietor	Y	F	M
Business salesperson or buyer	Y	F	M
Clergyman (minister, priest)	Y	F	M
Clergy (other religious)	Y	F	M
Clinical psychologist	Y	F	M
College teacher	Y	F	M
Computer programmer or analyst	Y	F	M
Conservationist or forester	Y	F	M
Dentist (including orthodontist)	Y	F	M
Dietician or home economist	Y	F	M
Engineer	Y	F	M
Farmer or rancher	Y	F	M
Foreign service worker (including diplomat)	Y	F	M
Homemaker (full-time)	Y	F	M
Interior decorator (including designer)	Y	F	M
Interpreter (translator)	Y	F	M
Lab technician or hygienist	Y	F	M
Law enforcement officer	Y	F	M
Lawyer (attorney) or judge	Y	F	M
Military service (career)	Y	F	M
Musician (performer, composer)	Y	F	M
Nurse	Y	F	M
Optometrist	Y	F	M
Pharmacist	Y	F	M
Physician	Y	F	M
School counselor	Y	F	M
School principal or superintendent	Y	F	M
Scientific researcher	Y	F	M
Social, welfare or recreation worker	Y	F	M
Statistician	Y	F	M
Therapist (physical, occupational, speech)	Y	F	M
Teacher or administrator (elementary)	Y	F	M
Teacher or administrator (secondary)	Y	F	M
Veterinarian	Y	F	M
Writer or journalist	Y	F	M
Skilled trades	Y	F	M
Other	Y		
Undecided	Y		
Laborer (unskilled)		F	M
Semi-skilled worker		F	M
Other occupation		F	M
Unemployed		F	M

32. Below are some reasons that might have influenced your decision to attend this particular college. How important was each reason in your decision to come here? (Mark one answer for each possible reason)

	Very Important	Somewhat Important	Not Important
My relatives wanted me to come here.	V	S	N
My teacher advised me	V	S	N
This college has a very good academic reputation	V	S	N
This college has a good reputation for its social activities	V	S	N
I was offered financial assistance.	V	S	N
This college offers special educational programs	V	S	N
This college has low tuition	V	S	N
My guidance counselor advised me	V	S	N
I wanted to live near home	V	S	N
A friend suggested attending	V	S	N
A college rep. recruited me	V	S	N
The athletic dept. recruited me	V	S	N
This college's graduates gain admission to top graduate/ professional schools	V	S	N
This college's graduates get good jobs.	V	S	N
Not offered financial aid by first choice college	V	S	N

33. Do you have a disability? (Mark all that apply)

None	○	Learning disability	○
Hearing	○	Health-related	○
Speech	○	Partially sighted or blind	○
Orthopedic	○	Other	○

BE SURE TO ANSWER QUESTIONS 34, 35, AND 36.

34. Current religious preference: (Mark one in each column)

	Yours	Father's	Mother's
Baptist	Y	F	M
Buddhist	Y	F	M
Congregational (U.C.C)	Y	F	M
Eastern Orthodox	Y	F	M
Episcopal	Y	F	M
Islamic	Y	F	M
Jewish	Y	F	M
Latter Day Saints (Mormon)	Y	F	M
Lutheran	Y	F	M
Methodist	Y	F	M
Presbyterian	Y	F	M
Quaker (Society of Friends)	Y	F	M
Roman Catholic	Y	F	M
Seventh Day Adventist	Y	F	M
Other Protestant	Y	F	M
Other Religion	Y	F	M
None	Y	F	M

35. Are you a born-again Christian?
Yes. . ○ No. . ○

36. During high school (grades 9-12) how many years did you study each of the following subjects? (Mark one for each item)

	None	½	1	2	3	4	5 or more
English	0	½	1	2	3	4	5
Mathematics	0	½	1	2	3	4	5
Foreign Language	0	½	1	2	3	4	5
Physical Science	0	½	1	2	3	4	5
Biological Science	0	½	1	2	3	4	5
History/Am. Govt.	0	½	1	2	3	4	5
Computer Science	0	½	1	2	3	4	5
Art and/or Music	0	½	1	2	3	4	5

37. Mark one in each row:

(1) Disagree Strongly
(2) Disagree Somewhat
(3) Agree Somewhat
(4) Agree Strongly

The Federal government is not doing enough to protect the consumer from faulty goods and services	4	3	2	1
The Federal government is not doing enough to promote disarmament	4	3	2	1
The Federal government is not doing enough to control environmental pollution	4	3	2	1
The Federal government should do more to discourage energy consumption	4	3	2	1
The Federal government should raise taxes to help reduce the deficit	4	3	2	1
Federal military spending should be increased	4	3	2	1
Nuclear disarmament is attainable	4	3	2	1
The death penalty should be abolished	4	3	2	1
A national health care plan is needed to cover everybody's medical costs	4	3	2	1
Abortion should be legalized	4	3	2	1
Grading in the high schools has become too easy	4	3	2	1
The activities of married women are best confined to the home and family	4	3	2	1
A couple should live together for some time before deciding to get married	4	3	2	1
Women should receive the same salary and opportunities for advancement as men in comparable positions	4	3	2	1
Wealthy people should pay a larger share of taxes than they do now	4	3	2	1
Marijuana should be legalized	4	3	2	1
Busing is O.K. if it helps to achieve racial balance in the schools	4	3	2	1
It is important to have laws prohibiting homosexual relationships	4	3	2	1
College officials have the right to regulate student behavior off-campus	4	3	2	1
Faculty promotions should be based in part on student evaluations	4	3	2	1
College officials have the right to ban persons with extreme views from speaking on campus.	4	3	2	1
Realistically, an individual person can do little to bring about changes in our society.	4	3	2	1
The chief benefit of a college education is that it increases one's earning power	4	3	2	1

38. Below is a list of different undergraduate major fields grouped into general categories. Mark only one circle to indicate your probable field of study.

ARTS AND HUMANITIES
- Art, fine and applied
- English (language and literature)
- History
- Journalism
- Language and Literature (except English)
- Music
- Philosophy
- Speech
- Theater or Drama
- Theology or Religion
- Other Arts and Humanities

BIOLOGICAL SCIENCE
- Biology (general)
- Biochemistry or Biophysics
- Botany
- Marine (Life) Science
- Microbiology or Bacteriology
- Zoology
- Other Biological Science

BUSINESS
- Accounting
- Business Admin. (general)
- Finance
- Marketing
- Management
- Secretarial Studies
- Other Business

EDUCATION
- Business Education
- Elementary Education
- Music or Art Education
- Physical Education or Recreation
- Secondary Education
- Special Education
- Other Education

ENGINEERING
- Aeronautical or Astronautical Eng.
- Civil Engineering
- Chemical Engineering
- Electrical or Electronic Engineering
- Industrial Engineering
- Mechanical Engineering
- Other Engineering

PHYSICAL SCIENCE
- Astronomy
- Atmospheric Science (incl. Meteorology)
- Chemistry
- Earth Science
- Marine Science (incl. Oceanography)
- Mathematics
- Physics
- Statistics
- Other Physical Science

PROFESSIONAL
- Architecture or Urban Planning
- Home Economics
- Health Technology (medical, dental, laboratory)
- Library or Archival Science
- Nursing
- Pharmacy
- Predental, Premedicine, Preveterinary
- Therapy (occupational, physical, speech)
- Other Professional

SOCIAL SCIENCE
- Anthropology
- Economics
- Ethnic Studies
- Geography
- Political Science (gov't., international relations)
- Psychology
- Social Work
- Sociology
- Women's Studies
- Other Social Science

TECHNICAL
- Building Trades
- Data Processing or Computer Programming
- Drafting or Design
- Electronics
- Mechanics
- Other Technical

OTHER FIELDS
- Agriculture
- Communications (radio, TV, etc.)
- Computer Science
- Forestry
- Law Enforcement
- Military Science
- Other Field
- Undecided

Prepared by the Higher Education Research Institute, University of California, Los Angeles, California 90024.

39. Indicate the importance to you personally of each of the following: (Mark one for each item) (N) Not Important, (S) Somewhat Important, (V) Very Important, (E) Essential

	E	V	S	N
Becoming accomplished in one of the performing arts (acting, dancing, etc.)	E	V	S	N
Becoming an authority in my field	E	V	S	N
Obtaining recognition from my colleagues for contributions to my special field	E	V	S	N
Influencing the political structure	E	V	S	N
Influencing social values	E	V	S	N
Raising a family	E	V	S	N
Having administrative responsibility for the work of others	E	V	S	N
Being very well off financially	E	V	S	N
Helping others who are in difficulty	E	V	S	N
Making a theoretical contribution to science	E	V	S	N
Writing original works (poems, novels, short stories, etc.)	E	V	S	N
Creating artistic work (painting, sculpture, decorating, etc.)	E	V	S	N
Being successful in a business of my own	E	V	S	N
Becoming involved in programs to clean up the environment	E	V	S	N
Developing a meaningful philosophy of life	E	V	S	N
Participating in a community action program	E	V	S	N
Helping to promote racial understanding	E	V	S	N
Becoming an expert on finance and commerce	E	V	S	N

40. What is your best guess as to the chances that you will: (Mark one for each item) (N) No Chance, (L) Very Little Chance, (S) Some Chance, (V) Very Good Chance

	V	S	L	N
Change major field?	V	S	L	N
Change career choice?	V	S	L	N
Fail one or more courses?	V	S	L	N
Graduate with honors?	V	S	L	N
Be elected to a student office?	V	S	L	N
Get a job to help pay for college expenses?	V	S	L	N
Work full time while attending college?	V	S	L	N
Join a social fraternity, sorority, or club?	V	S	L	N
Live in a coeducational dorm?	V	S	L	N
Play varsity/intercollegiate athletics?	V	S	L	N
Be elected to an academic honor society?	V	S	L	N
Make at least a "B" average?	V	S	L	N
Need extra time to complete your degree requirements?	V	S	L	N
Get tutoring help in specific courses?	V	S	L	N
Have to work at an outside job during college?	V	S	L	N
Seek vocational counseling?	V	S	L	N
Seek individual counseling on personal problems?	V	S	L	N
Get a bachelor's degree (B.A., B.S., etc.)?	V	S	L	N
Participate in student protests or demonstrations?	V	S	L	N
Drop out of this college temporarily (exclude transferring)?	V	S	L	N
Drop out permanently (exclude transferring)?	V	S	L	N
Transfer to another college before graduating?	V	S	L	N
Be satisfied with your college?	V	S	L	N
Find a job after college in the field for which you were trained?	V	S	L	N
Get married while in college? (skip if married)	V	S	L	N
Get married within a year after college? (skip if married)	V	S	L	N

The Higher Education Research Institute at UCLA actively encourages the colleges that participate in this survey to conduct local studies of their students. If these studies involve collecting follow-up data, it is necessary for the institution to know the students' ID numbers so that follow-up data can be linked with the data from this survey. If your college asks for a tape copy of the data and signs an agreement to use it only for research purposes, do we have your permission to include your ID number in such a tape? Yes No

41. (A) (B) (C) (D) (E)
42. (A) (B) (C) (D) (E)
43. (A) (B) (C) (D) (E)
44. (A) (B) (C) (D) (E)
45. (A) (B) (C) (D) (E)

The remaining circles are provided for items specifically designed by your college, rather than by the Higher Education Research Institute. If your college has chosen to use the circles, observe carefully the supplemental directions given you.

46. (A) (B) (C) (D) (E)
47. (A) (B) (C) (D) (E)
48. (A) (B) (C) (D) (E)
49. (A) (B) (C) (D) (E)
50. (A) (B) (C) (D) (E)

THANK YOU!

Appendix B

1989 Follow-up Survey of College Freshmen

UNIVERSITY OF CALIFORNIA, LOS ANGELES UCLA

BERKELEY · DAVIS · IRVINE · LOS ANGELES · RIVERSIDE · SAN DIEGO · SAN FRANCISCO SANTA BARBARA · SANTA CRUZ

HIGHER EDUCATION RESEARCH INSTITUTE

GRADUATE SCHOOL OF EDUCATION
405 HILGARD AVENUE
LOS ANGELES, CALIFORNIA 90024-1521
(213) 825-1925

FOLLOW-UP SURVEY OF COLLEGE FRESHMEN

June, 1989

You may recall that when you first entered college you participated in a national research project by completing a questionnaire at the beginning of your freshman year. We are now conducting a new survey to follow-up students who responded to this freshman survey in 1985 and 1987. We want to know about your experiences over the past few years, especially your experiences in college. The results of this survey will help to improve higher education programs at campuses across the country.

We ask that you help us by completing the enclosed questionnaire and returning it in the enclosed postage reply envelope. *Please complete the questionnaire even if you withdrew from college or changed schools.* We are very interested in learning about your experiences in college, no matter how long you attended. The information you provide is confidential and will be used only in group comparisons for research purposes.

Some of the colleges that participated in the original freshman surveys have asked us to include additional questions designed specifically for their students. If your college is among this group, you will find an additional page with supplemental questions enclosed in this envelope. Please mark your answers to these supplemental questions at the end of the survey form, as directed. Again, please be assured that your responses are confidential and will be used only for research.

We will be pleased to send you a summary of the findings when they become available. Just mark the appropriate box on the questionnaire.

Your participation is very important to the success of this project. We thank you in advance for your assistance and cooperation.

Sincerely,

Alexander W. Astin

Alexander W. Astin
Professor and Director

DIRECTIONS:

Your responses will be read by an optical mark reader. Your observance of these few directions will be most appreciated.

- Use only a black lead pencil (No. 2 is ideal).
- Make heavy black marks that fill the oval.
- Erase cleanly any answer you wish to change.
- Make no stray markings of any kind.

EXAMPLE: Will marks made with a ball-point or felt-tip pen be properly read?

○ Yes ● No ← USE NO. 2 PENCIL ONLY

1. If you could make your college choice over again, would you still choose to enroll at the college you entered as a freshman?

○ Definitely yes ○ Probably not ○ Don't know
○ Probably I would ○ Definitely not

2. Since entering college have you:

	YES	NO
Enrolled in honors or advanced courses	Y	N
Enrolled in an interdisciplinary course	Y	N
Joined or been a member of a fraternity or sorority	Y	N
Gotten married	Y	N
Had a part-time job on campus	Y	N
Had a part-time job off campus	Y	N
Worked full-time while attending school	Y	N
Participated in a study abroad program	Y	N
Participated in a college internship program	Y	N
Participated in campus protests/demonstrations	Y	N
Been elected to a student office	Y	N
Voted in the 1988 election	Y	N
Graduated with honors	Y	N
Taken reading/study skills classes	Y	N
Participated in intercollegiate athletics	Y	N
Worked on a professor's research project	Y	N
Played intercollegiate football or basketball	Y	N
Taken remedial or developmental courses	Y	N
Purchased a personal computer	Y	N
Enrolled in an ethnic studies course	Y	N
Enrolled in a women's studies course	Y	N
Assisted faculty in teaching a course	Y	N
Attended a racial/cultural awareness workshop	Y	N

3. Which option listed below best describes your enrollment status each year since you entered college?

(Mark one in each column)

	YEAR 1	2	3	4
Attended my first college full-time	1	2	3	4
Attended my first college part-time	1	2	3	4
Attended a different college full-time	1	2	3	4
Attended a different college part-time	1	2	3	4
Not enrolled	1	2	3	4

4. Your sex: Male ○ Female ○

5. Which option listed below best describes where you lived during each year you attended college?

(Mark one in each column)

	YEAR 1	2	3	4
With parents or relatives	1	2	3	4
Other private home, apartment, room	1	2	3	4
College dormitory	1	2	3	4
Fraternity or sorority house	1	2	3	4
Other campus student housing	1	2	3	4
Other	1	2	3	4

6. Since entering college as a freshman, have you taken a leave of absence, withdrawn from school, or transferred to another college? (If more than one applies, mark only the most recent)

○ No → Please go to question 8.
○ Took a leave of absence
○ Withdrew from school
○ Transferred before completing my program

} Please answer Question 7

7. How important were each of the reasons listed below in your decision to take a leave of absence, withdraw from school, or transfer?

(Mark one answer for each reason)

	Very Important	Somewhat Important	Not Important
Wanted to reconsider my goals and interests	V	S	N
Changed my career plans	V	S	N
Wanted practical experience	V	S	N
Didn't feel like I "fit in" at my first college	V	S	N
Was bored with my coursework	V	S	N
Wanted to go to a school with a better academic reputation	V	S	N
Wanted a better social life	V	S	N
Wanted to be closer to home	V	S	N
Had a good job offer	V	S	N
Wasn't doing as well academically as I had expected	V	S	N
Family responsibilities	V	S	N
Tired of being a student	V	S	N
Had money problems and could no longer afford to attend college	V	S	N
Wanted to go to a school that offered a wider selection of courses or more major field choices	V	S	N

8. What do you plan to be doing in the fall of 1989? (Mark all that apply)

○ Attending undergraduate college full-time
○ Attending undergraduate college part-time
○ Attending graduate or professional school
○ Attending a vocational training program
○ Working full-time
○ Working part-time
○ Serving in the Armed Forces
○ Traveling, hostelling, or backpacking
○ Doing volunteer work
○ Staying at home to be with (or start) my family

9. Mark the one circle that best describes your undergraduate grade average.

○ A (3.75-4.0)
○ A-, B+ (3.25-3.74)
○ B (2.75-3.24)
○ B-, C+ (2.25-2.74)
○ C (1.75-2.24)
○ C- or less (below 1.75)

10. Please rate your satisfaction with the college you entered as a freshman on each of the aspects of campus life listed below.

(Mark one for each item)

	Very Satisfied	Satisfied	Neutral	Dissatisfied	Can't Rate-No Experience
Science and mathematics courses	V	S	N	D	C
Humanities courses	V	S	N	D	C
Social science courses	V	S	N	D	C
Courses in your major field	V	S	N	D	C
General education requirements	V	S	N	D	C
Relevance of coursework to everyday life	V	S	N	D	C
Overall quality of instruction	V	S	N	D	C
Laboratory facilities and equipment	V	S	N	D	C
Library facilities	V	S	N	D	C
Computer facilities	V	S	N	D	C
Opportunities to take interdisciplinary courses	V	S	N	D	C
Opportunities to discuss coursework and assignments outside of class with professors	V	S	N	D	C
Opportunities to participate in extracurricular activities	V	S	N	D	C
Campus social life	V	S	N	D	C
Regulations governing campus life	V	S	N	D	C
Tutorial help or other academic assistance	V	S	N	D	C
Academic advising	V	S	N	D	C
Career counseling and advising	V	S	N	D	C
Personal counseling	V	S	N	D	C
Student housing	V	S	N	D	C
Financial aid services	V	S	N	D	C
Amount of contact with faculty and administrators	V	S	N	D	C
Overall relationships with faculty and administrators	V	S	N	D	C
On-campus opportunities to attend films, concerts, etc	V	S	N	D	C
Job placement services for students	V	S	N	D	C
Campus health services	V	S	N	D	C
Overall college experience	V	S	N	D	C

11. Compared with when you entered college as a freshman, how would you now describe your:

(Mark one for each item)

	Much Stronger	Stronger	No Change	Weaker	Much Weaker
General knowledge	5	4	3	2	1
Analytical and problem-solving skills	5	4	3	2	1
Knowledge of a particular field or discipline	5	4	3	2	1
Ability to think critically	5	4	3	2	1
Writing skills	5	4	3	2	1
Foreign language skills	5	4	3	2	1
Job-related skills	5	4	3	2	1
Religious beliefs and convictions	5	4	3	2	1
Interest in pursuing a graduate/professional degree	5	4	3	2	1
Preparation for graduate or professional school	5	4	3	2	1
Leadership abilities	5	4	3	2	1
Ability to work independently	5	4	3	2	1
Interpersonal skills	5	4	3	2	1
Cultural awareness and appreciation	5	4	3	2	1
Acceptance of persons from different races/cultures	5	4	3	2	1
Competitiveness	5	4	3	2	1
Confidence in your academic abilities	5	4	3	2	1
Public speaking ability	5	4	3	2	1
Ability to work cooperatively	5	4	3	2	1

12. Indicate the importance to you personally of each of the following:

(Mark one for each item)

	Essential	Very Important	Somewhat Important	Not Important
Becoming accomplished in one of the performing arts (acting, dancing, etc.)	5	4	3	2
Becoming an authority in my field	5	4	3	2
Obtaining recognition from my colleagues for contributions to my special field	5	4	3	2
Influencing the political structure	5	4	3	2
Influencing social values	5	4	3	2
Raising a family	5	4	3	2
Having administrative responsibility for the work of others	5	4	3	2
Being very well off financially	5	4	3	2
Helping others who are in difficulty	5	4	3	2
Making a theoretical contribution to science	5	4	3	2
Writing original works (poems, novels, short stories, etc.)	5	4	3	2
Creating artistic work (painting, sculpture, decorating, etc.)	5	4	3	2
Being successful in a business of my own	5	4	3	2
Becoming involved in programs to clean up the environment	5	4	3	2
Developing a meaningful philosophy of life	5	4	3	2
Participating in a community action program	5	4	3	2
Helping to promote racial understanding	5	4	3	2
Becoming an expert on finance and commerce	5	4	3	2

13. How many undergraduate courses have you taken that emphasized:

(Mark one for each item)

	None	1-2 Courses	3-5 Courses	6-8 Courses	9 or More Courses
Writing skills	1	2	3	4	5
Math/Understanding numerical data	1	2	3	4	5
Science/Scientific Inquiry	1	2	3	4	5
History/Historical Analysis	1	2	3	4	5
Foreign language skills	1	2	3	4	5

14. Indicate how well each of the following describes the college you entered as a freshman.

(Mark one for each item)

	Very Descriptive	Somewhat Descriptive	Not Descriptive
It is easy to see faculty outside of office hours	V	S	N
There is a great deal of conformity among the students	V	S	N
Most of the students are very bright	V	S	N
The administration is open about its policies	V	S	N
There is keen competition among most of the students for high grades	V	S	N
Course work is definitely more theoretical than practical	V	S	N
Faculty are rewarded for their advising skills	V	S	N
Students have little contact with each other outside of class	V	S	N
The faculty are typically at odds with the campus administration	V	S	N
Intercollegiate sports are overemphasized	V	S	N
The classes are usually informal	V	S	N
Faculty here respect each other	V	S	N
Most students are treated like "numbers in a book"	V	S	N
Social activities are overemphasized	V	S	N
There is little or no contact between students and faculty	V	S	N
The student body is apathetic and has little "school spirit"	V	S	N
Students here do not usually socialize with one another	V	S	N
Faculty are rewarded for being good teachers	V	S	N

15. Please indicate your agreement with each of the following statements.

(Mark one for each item)

	Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly
The Federal government is not doing enough to promote disarmament	4	3	2	1
The Federal government is not doing enough to control environmental pollution	4	3	2	1
The Federal government should raise taxes to help reduce the deficit	4	3	2	1
The death penalty should be abolished	4	3	2	1
A national health care plan is needed to cover everybody's medical costs	4	3	2	1
Abortion should be legalized	4	3	2	1
Grading in colleges has become too easy	4	3	2	1
The activities of married women are best confined to the home and family	4	3	2	1
Women should receive the same salary and opportunities for advancement as men in comparable positions	4	3	2	1
Wealthy people should pay a larger share of taxes than they do now	4	3	2	1
Marijuana should be legalized	4	3	2	1
Busing is O.K. if it helps to achieve racial balance in the schools	4	3	2	1
College officials have the right to regulate student behavior off campus	4	3	2	1
College officials have the right to ban persons with extreme views from speaking on campus	4	3	2	1
Realistically, an individual person can do little to bring about changes in our society	4	3	2	1
The chief benefit of a college education is that it increases one's earning power	4	3	2	1
Racial discrimination is no longer a major problem in America	4	3	2	1
Colleges should be actively involved in solving social problems	4	3	2	1
The best way to control the spread of AIDS is through widespread mandatory testing	4	3	2	1
Just because a man feels a woman has "led him on" does not entitle him to have sex with her	4	3	2	1

16. Below are some statements about the college you entered as a freshman. Indicate the extent to which you agree or disagree.

(Mark one for each item)

	Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly
Faculty here are interested in students' personal problems	4	3	2	1
Most faculty here are sensitive to the issues of minorities	4	3	2	1
The curriculum here has suffered from faculty over-specialization	4	3	2	1
Many students feel like they do not "fit in" on this campus	4	3	2	1
Faculty are committed to the welfare of this institution	4	3	2	1
Many courses include minority group perspectives	4	3	2	1
Administrators consider student concerns when making policy	4	3	2	1
Faculty here are strongly interested in the academic problems of undergraduates	4	3	2	1
There is a lot of campus racial conflict here	4	3	2	1
Students here resent taking required courses outside their major	4	3	2	1
Students of different racial/ethnic origins communicate well with one another	4	3	2	1
Campus administrators care little about what happens to students	4	3	2	1
There is little trust between minority student groups and campus administrators	4	3	2	1
Faculty here are positive about the general education program	4	3	2	1
Many courses include feminist perspectives	4	3	2	1
There are many opportunities for faculty and students to socialize with one another	4	3	2	1
Administrators consider faculty concerns when making policy	4	3	2	1
Faculty feel that most students here are well-prepared academically	4	3	2	1

17. During your last year in college, how much time did you spend during a typical week doing the following activities?

(Mark one for each item)

	Hours Per Week							
	None	Less than 1 hour	1-2	3-5	6-10	11-15	16-20	Over 20
Classes/labs	0	0	0	0	0	0	0	0
Studying/homework	0	0	0	0	0	0	0	0
Socializing with friends	0	0	0	0	0	0	0	0
Talking with faculty outside of class	0	0	0	0	0	0	0	0
Exercising/sports	0	0	0	0	0	0	0	0
Reading for pleasure	0	0	0	0	0	0	0	0
Using a personal computer	0	0	0	0	0	0	0	0
Partying	0	0	0	0	0	0	0	0
Working (for pay)	0	0	0	0	0	0	0	0
Volunteer work	0	0	0	0	0	0	0	0
Student clubs/groups	0	0	0	0	0	0	0	0
Watching TV	0	0	0	0	0	0	0	0
Commuting to campus	0	0	0	0	0	0	0	0
Religious services/meetings	0	0	0	0	0	0	0	0
Hobbies	0	0	0	0	0	0	0	0

18. For the activities listed below, please indicate how often—Frequently, Occasionally, or Not at all—you engaged in each during the past year.

(Mark one for each item)

	Frequently	Occasionally	Not at all
Worked on an independent research project	3	2	1
Discussed course content with students outside of class	3	2	1
Worked on group projects for a class	3	2	1
Been a guest in a professor's home	3	2	1
Took a multiple-choice exam	3	2	1
Tutored another student	3	2	1
Smoked cigarettes	3	2	1
Felt depressed	3	2	1
Felt overwhelmed by all I had to do	3	2	1
Stayed up all night	3	2	1
Gave a presentation in class	3	2	1
Participated in intramural sports	3	2	1
Discussed racial/ethnic issues	3	2	1
Attended a recital or concert	3	2	1
Missed classes because of illness	3	2	1
Felt like leaving college	3	2	1
Failed to complete a homework assignment on time	3	2	1
Drank beer	3	2	1
Drank wine or liquor	3	2	1
Received career/vocational counseling	3	2	1
Received personal/psychological counseling	3	2	1
Participated in campus protests/demonstrations	3	2	1
Took an essay exam	3	2	1
Received tutoring in courses	3	2	1
Read the student newspaper	3	2	1
Socialized with someone of another racial/ethnic group	3	2	1
Discussed political/social issues	3	2	1
Had a class paper critiqued by an instructor	3	2	1

19. Please indicate (A) the highest degree you have earned as of June 1989 and (B) the highest degree you plan to complete.

(Mark one in each column)

	Highest Degree Earned (A)	Highest Degree Planned (B)
None	A	B
Vocational certificate	A	B
Associate's degree (A.A. or equivalent)	A	B
Bachelor's degree (B.A., B.S., etc.)	A	B
Master's degree (M.A., M.S., etc.)	A	B
Ph.D. or Ed.D.	A	B
MD., D.O., D.D.S., or D.V.M.	A	B
LL.B., or J.D. (Law)	A	B
B.D. or M.DIV. (Divinity)	A	B
Other	A	B

20. How would you characterize your political views? (Mark one)

- Far left ○
- Liberal ○
- Middle-of-the-road ○
- Conservative ○
- Far right ○

21. Rate yourself on each of the following traits as compared with the average person your age. We want the most accurate estimate of how you see yourself.

(Mark one for each item)

	Highest 10%	Above Average	Average	Below Average	Lowest 10%
Academic ability	○	○	○	○	○
Artistic ability	○	○	○	○	○
Drive to achieve	○	○	○	○	○
Emotional health	○	○	○	○	○
Leadership ability	○	○	○	○	○
Mathematical ability	○	○	○	○	○
Physical health	○	○	○	○	○
Popularity	○	○	○	○	○
Self-confidence (intellectual)	○	○	○	○	○
Self-confidence (social)	○	○	○	○	○
Writing ability	○	○	○	○	○
Listening ability	○	○	○	○	○

22. Your current religious preference: (Mark one)

- Baptist ○
- Buddhist ○
- Congregational (UCC) ○
- Eastern Orthodox ○
- Episcopal ○
- Islamic ○
- Jewish ○
- Latter Day Saints (Mormon) ○
- Lutheran ○
- Methodist ○
- Presbyterian ○
- Quaker ○
- Roman Catholic ○
- Seventh Day Adventist ○
- Other Protestant ○
- Other Religion ○
- None ○

23. Are you a born-again Christian? ○ Yes ○ No

24. Are you: (Mark one)

- Not presently married ○
- Married, living with spouse ○
- Married, not living with spouse ○

25. Please mark your probable career/occupation below: (Mark one)

- Accountant or actuary ○
- Actor or entertainer ○
- Architect or urban planner ○
- Artist ○
- Business (clerical) ○
- Business executive (management, administrator) ○
- Business owner or proprietor ○
- Business salesperson or buyer ○
- Clergy (minister, priest) ○
- Clergy (other religious) ○
- Clinical psychologist ○
- College teacher ○
- Computer programmer or analyst ○
- Conservationist or forester ○
- Dentist (including orthodontist) ○
- Dietitian or home economist ○
- Engineer ○
- Farmer or rancher ○
- Foreign service worker (including diplomat) ○
- Homemaker (full-time) ○
- Interior decorator (including designer) ○
- Interpreter (translator) ○
- Lab technician or hygienist ○
- Law enforcement officer ○
- Lawyer (attorney) or judge ○
- Military service (career) ○
- Musician (performer, composer) ○
- Nurse ○
- Optometrist ○
- Pharmacist ○
- Physician ○
- School counselor ○
- School principal or superintendent ○
- Scientific researcher ○
- Social, welfare or recreation worker ○
- Statistician ○
- Therapist (physical, occupational, speech) ○
- Teacher or administrator (elementary) ○
- Teacher or administrator (secondary) ○
- Veterinarian ○
- Writer or journalist ○
- Skilled trades ○
- Other ○
- Undecided ○

26. How important are each of the following reasons for your career choice or career preference?

(Mark one for each item)

	Essential	Very Important	Somewhat Important	Not Important
Job opportunities are generally available	E	V	S	N
I enjoy working with the kind of people involved in this field	E	V	S	N
The work would be interesting	E	V	S	N
This is a well-paying career	E	V	S	N
This choice satisfies my parents' hopes	E	V	S	N
The work would be challenging	E	V	S	N
I feel this enables me to make a contribution to society	E	V	S	N
There are opportunities for rapid career advancement	E	V	S	N
There are opportunities for freedom of action	E	V	S	N

27. Indicate how important you believe each priority listed below is at the college or university you entered as a freshman.

(Mark one for each item)

	Highest Priority	High Priority	Medium Priority	Low Priority
To promote the intellectual development of students	4	3	2	1
To help students examine and understand their personal values	4	3	2	1
To increase the representation of minorities in the faculty and administration	4	3	2	1
To develop a sense of community among students and faculty	4	3	2	1
To develop leadership ability among students	4	3	2	1
To conduct basic and applied research	4	3	2	1
To raise money for the institution	4	3	2	1
To develop leadership ability among faculty	4	3	2	1
To increase the representation of women in the faculty and administration	4	3	2	1
To facilitate student involvement in community service activities	4	3	2	1
To help students learn how to bring about change in American society	4	3	2	1
To help solve major social and environmental problems	4	3	2	1
To maintain a campus climate where differences of opinion can be aired openly	4	3	2	1
To increase or maintain institutional prestige	4	3	2	1
To develop among students and faculty an appreciation for a multi-cultural society	4	3	2	1
To hire faculty "stars"	4	3	2	1
To economize and cut costs	4	3	2	1
To recruit more minority students	4	3	2	1
To enhance the institution's national image	4	3	2	1
To create a positive undergraduate experience	4	3	2	1
To create a diverse multi-cultural environment on campus	4	3	2	1

28. Below is a list of different major fields. (Mark only one in each column)

(U) Undergraduate major (final or most recent)
(G) Graduate major (omit if you do not plan to go to graduate school)

ARTS AND HUMANITIES
- Art, fine and applied (U) (G)
- English (language and literature) (U) (G)
- History (U) (G)
- Journalism (U) (G)
- Language and Literature (except English) (U) (G)
- Music (U) (G)
- Philosophy (U) (G)
- Speech (U) (G)
- Theater or Drama (U) (G)
- Theology or Religion (U) (G)
- Other Arts and Humanities (U) (G)

BIOLOGICAL SCIENCE
- Biology (general) (U) (G)
- Biochemistry or Biophysics (U) (G)
- Botany (U) (G)
- Marine (Life) Science (U) (G)
- Microbiology or Bacteriology (U) (G)
- Zoology (U) (G)
- Other Biological Science (U) (G)

BUSINESS
- Accounting (U) (G)
- Business Administration (general) (U) (G)
- Finance (U) (G)
- Marketing (U) (G)
- Management (U) (G)
- Secretarial Studies (U) (G)
- Other Business (U) (G)

EDUCATION
- Business Education (U) (G)
- Elementary Education (U) (G)
- Music or Art Education (U) (G)
- Physical Education or Recreation (U) (G)
- Secondary Education (U) (G)
- Special Education (U) (G)
- Other Education (U) (G)

ENGINEERING
- Aeronautical or Astronautical Engineering (U) (G)
- Civil Engineering (U) (G)
- Chemical Engineering (U) (G)
- Electrical or Electronic Engineering (U) (G)
- Industrial Engineering (U) (G)
- Mechanical Engineering (U) (G)
- Other Engineering (U) (G)

PHYSICAL SCIENCE
- Astronomy (U) (G)
- Atmospheric Science (incl. Meteorology) (U) (G)
- Chemistry (U) (G)
- Earth Science (U) (G)
- Marine Science (incl. Oceanography) (U) (G)
- Mathematics (U) (G)
- Physics (U) (G)
- Statistics (U) (G)
- Other Physical Science (U) (G)

PROFESSIONAL
- Architecture or Urban Planning (U) (G)
- Home Economics (U) (G)
- Health Technology (medical, dental, laboratory) (U) (G)
- Law (G)
- Library/Archival Science (U) (G)
- Nursing (U) (G)
- Pharmacy (U) (G)
- Predental, Premedicine, Preveterinary (U) (G)
- Therapy (occupational, physical, speech) (U) (G)
- Other Professional (U) (G)

SOCIAL SCIENCE
- Anthropology (U) (G)
- Economics (U) (G)
- Ethnic Studies (U) (G)
- Geography (U) (G)
- Political Science (gov't, international relations) (U) (G)
- Psychology (U) (G)
- Social Work (U) (G)
- Sociology (U) (G)
- Women's Studies (U) (G)
- Other Social Science (U) (G)

TECHNICAL
- Building Trades (U) (G)
- Data Processing or Computer Programming (U) (G)
- Drafting or Design (U) (G)
- Electronics (U) (G)
- Mechanics (U) (G)
- Other Technical (U) (G)

OTHER FIELDS
- Agriculture (U) (G)
- Communications (radio, TV, etc.) (U) (G)
- Computer Science (U) (G)
- Forestry (U) (G)
- Law Enforcement (U) (G)
- Military Science (U) (G)
- Other Field (U) (G)
- Undecided (U) (G)

29. If you have attended more than one undergraduate college, please write in the name and location of the current (or most recent) college attended. (Please print)

Institution _____ State _____

30. If you have been admitted to a graduate or professional school, please write in the name of the institution and its location. (Please print)

Institution _____ State _____

31. Please provide the following information about your scores on the tests listed below:

GRE: Verbal ☐☐☐ GRE: Quantitative ☐☐☐

LSAT ☐☐☐ MCAT ☐☐

32. Would you like to receive a copy of the results of this survey?

○ Yes ○ No

33. The Higher Education Research Institute at UCLA actively encourages the colleges that participate in this survey to conduct local studies of their students. If your college asks for a tape copy of the data and signs an agreement to use it only for research purposes, do we have your permission to include your ID number in such a tape?

○ Yes ○ No

34. Please provide your Social Security Number:

⓪	⓪	⓪	⓪	⓪	⓪	⓪	⓪	⓪
①	①	①	①	①	①	①	①	①
②	②	②	②	②	②	②	②	②
③	③	③	③	③	③	③	③	③
④	④	④	④	④	④	④	④	④
⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤
⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥
⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦
⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧
⑨	⑨	⑨	⑨	⑨	⑨	⑨	⑨	⑨

ADDITIONAL QUESTIONS: If you received an additional page of questions, please mark your answers below:

35. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	42. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	49. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
36. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	43. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	50. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
37. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	44. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	51. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
38. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	45. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	52. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
39. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	46. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	53. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
40. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	47. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	54. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
41. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	48. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	

55. Please update the name and address information printed on the front page of this questionnaire:

First Name: _____ MI: ☐

Last Name: _____

Street Address: _____

City: _____

State: ☐☐ ZIP Code: ☐☐☐☐☐

Area Code: ☐☐☐ Phone: ☐☐☐-☐☐☐☐

Birthdate: Month: ☐☐ Day: ☐☐ Year: ☐☐

THANK YOU!

Please return your completed questionnaire in the postage-paid envelope to:

Higher Education Research Institute
2905 W. Service Rd.
Eagan, MN 55121

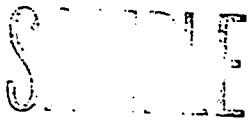
Appendix C

1994 Follow-up of the 1985 Freshman Class

HIGHER EDUCATION RESEARCH INSTITUTE

Graduate School of Education
University of California, Los Angeles

NINE-YEAR FOLLOW UP OF THE 1985 FRESHMAN CLASS



September, 1994

You may recall that when you first entered college in 1985 you participated in a national research project by completing an entering freshman questionnaire. We are now conducting a new survey to follow-up students who responded to the 1985 survey. We are interested in finding out what has happened during the past few years, especially with respect to your current job and/or your experiences in graduate school. The results of this survey will help to improve the way in which higher education prepares students for life after college.

We ask that you help us by completing the enclosed questionnaire and returning it in the enclosed postage reply envelope. *Please complete the questionnaire even if you withdrew from college or changed schools.* We are very interested in learning about your experiences since leaving college, no matter how long you attended or whether you earned a degree. The information you provide is confidential and will be used only in group comparisons for research purposes.

Your participation is very important to the success of this project. We thank you in advance for your assistance and cooperation.

Sincerely,

Alexander W. Astin

Alexander W. Astin
Professor and Director

DIRECTIONS

Your responses will be read by an optical mark reader. Your careful observance of these few simple rules will be most appreciated.

- Use only black lead pencil (No. 2 is ideal).
- Make heavy black marks that fill the oval.
- Erase cleanly any answer you wish to change.
- Make no stray markings of any kind.

EXAMPLE:
Will marks made with ballpoint or felt-tip marker be properly read? Yes ○ No ●

1. If you could make your college choice over again, would you still choose to enroll in the undergraduate college you entered as a freshman? (Mark one)

- ○ Definitely yes
- ○ Probably I would
- ○ Probably not
- ○ Definitely not
- ○ Don't know

2. Are you: (Mark one)

- A. Currently enrolled in school ○
- B. Planning to return to school
  - within 1 year ○
  - within 2 years ○
  - in more than 2 years ○
- C. Not planning to return to school ○

3. How well did your undergraduate education prepare you for: (Mark one in each column)

	Graduate school	Your current or most recent job
Very well	○	○
Well	○	○
Somewhat well	○	○
Not well	○	○
Not applicable	○	○

○ ○○○○ ○○○○○○○○○○○○○○○○○○○○○○ ○○

4. Your current marital status: (Mark one)

- ○ Married
- ○ Separated
- ○ Single (with partner)
- ○ Single (no partner)

5. Are you (or have you ever been) divorced?

- ○ No
- ○ Yes

6. How many children do you have? (Mark one)

- ○ None
- ○ 1
- ○ 2
- ○ 3 or more

7. For the activities listed below, please indicate how often (Frequently, Occasionally, or Not at all) you have done the following during the past year. (Mark one in each row)

	Frequently	Occasionally	Not at all
Drank beer	F	O	N
Drank wine or liquor	F	O	N
Donated money to my undergraduate college	F	O	N
Discussed racial/ethnic issues	F	O	N
Socialized with someone of another racial/ethnic group	F	O	N
Received personal/psychological counseling	F	O	N
Felt depressed	F	O	N
Felt overwhelmed by all I had to do	F	O	N

8. How many of the people in each of the following groups are (were) of your race/ethnicity? (Mark one in each row)

	None	Some	About half	Most	All
High school classmates					
Neighbors where you grew up					
Close friends in college					
Current close friends					
Current neighbors					
Current work associates					

9. Have you ever attended graduate or professional school?

- ○ Yes
- ○ No → Please skip to question 16.

10. Name the university of your current or most recent graduate/professional school and your field/major at that school:

University: (please spell out)

_____

Field/Major: (please spell out)

_____

11. As a graduate or professional student, did (do) you: (Mark all that apply)

- ○ Hold a teaching assistantship
- ○ Hold a research assistantship
- ○ Hold a full-time job
- ○ Receive an institutional fellowship
- ○ Receive a private fellowship
- ○ Publish an article in a journal or other professional publication
- ○ Attend an academic/professional conference
- ○ Present a paper at an academic/professional conference
- ○ Help write a grant proposal
- ○ Conduct research that focused on gender issues
- ○ Conduct research that focused on racial/ethnic issues
- ○ Develop personal friendships with faculty

12. How satisfied are you with the following at your current (or most recent) graduate/professional school? (Mark one in each row)

	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied/No Experience
Job placement	V	S	N	D	T
Financial aid	V	S	N	D	T
Friendships with other students	V	S	N	D	T
Accessibility of faculty	V	S	N	D	T
Quality of instruction	V	S	N	D	T
Faculty support of your work	V	S	N	D	T
Your teaching assistantship	V	S	N	D	T
Your research assistantship	V	S	N	D	T
Intellectual community	V	S	N	D	T
Academic resources (library)	V	S	N	D	T
Overall experience	V	S	N	D	T

13. How did each of the following affect your admission to graduate school? (Mark one in each row)

	An asset	No effect	A liability
My undergraduate college			
My undergraduate major			
My race			
My gender			

14. Please indicate which of the following are/were sources of financial support during graduate/professional school: (Mark one for each type of support)

	Major source	Minor source	Not a source
Personal savings			
Teaching assistantship			
Research assistantship			
Other employment			
Parental, spousal, or other family aid			
Loan			
Scholarship, grant, or other gift			

15. How helpful is/was your graduate/professional school faculty in each of the following areas: (Mark one in each row)

	Very helpful	Somewhat helpful	Not helpful
Preparing me for exams			
Helping me select research topic(s)			
Finding me on-campus jobs			
Finding me summer employment			
Finding me financial support while in school			
Helping me find my first job after completion of degree			
Helping me with personal problems			
Recommending me for conference presentations			
Overall "mentoring"			

16. How would you characterize your political views? (Mark one)

- ○ Far left
- ○ Liberal
- ○ Middle-of-the-road
- ○ Conservative
- ○ Far right

17. What is the total amount that you have borrowed in student loans from all programs?

$ _____

18. How much do you currently owe in student loans from all programs?

$ _____

19. Since leaving your undergraduate college, have you been sexually harassed: (Mark all that apply)

- ○ By a supervisor at your current or most recent job?
- ○ By coworkers at your current or most recent job?
- ○ By faculty at your graduate/professional school?
- ○ By a staff member at your graduate/professional school?
- ○ By fellow students at your graduate/professional school?
- ○ By somebody else not listed above?
- ○ I have not been sexually harassed since leaving college.

20. Rate yourself on each of the following traits as compared with the average person your age. We want the most accurate estimate of how you see yourself. (Mark one in each row)

	Highest 10%	Above Average	Average	Below Average	Lowest 10%
Academic ability	○	○	○	○	○
Artistic ability	○	○	○	○	○
Drive to achieve	○	○	○	○	○
Emotional health	○	○	○	○	○
Leadership ability	○	○	○	○	○
Listening ability	○	○	○	○	○
Mathematical ability	○	○	○	○	○
Physical health	○	○	○	○	○
Popularity	○	○	○	○	○
Self-confidence (intellectual)	○	○	○	○	○
Self-confidence (social)	○	○	○	○	○
Writing ability	○	○	○	○	○

21. Please indicate: (Mark one in each column)

	(A) the highest degree you now hold	(B) the degree you are now working toward	(C) the highest degree you plan to receive	(D) the highest degree your spouse/partner holds
None	Ⓐ	Ⓑ	Ⓒ	Ⓓ
High school diploma (or equivalent)	Ⓐ	Ⓑ	Ⓒ	Ⓓ
Vocational certificate	Ⓐ	Ⓑ	Ⓒ	Ⓓ
Associate's degree (A.A. or equivalent)	Ⓐ	Ⓑ	Ⓒ	Ⓓ
Bachelor's degree (B.A., B.S., etc.)	Ⓐ	Ⓑ	Ⓒ	Ⓓ
Master's degree (M.A., M.S., etc.)	Ⓐ	Ⓑ	Ⓒ	Ⓓ
Ph.D. or Ed.D.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
M.D., D.O., D.D.S., or D.V.M.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
LL.B., or J.D. (Law)	Ⓐ	Ⓑ	Ⓒ	Ⓓ
B.D. or M.DIV. (Divinity)	Ⓐ	Ⓑ	Ⓒ	Ⓓ
Other	Ⓐ	Ⓑ	Ⓒ	Ⓓ
Not applicable				Ⓓ

22. I am currently: (Mark one)

- ○ Employed full-time
- ○ Employed part-time, looking for full-time work
- ○ Employed part-time, by choice
- ○ Unemployed, looking for work
- ○ Unemployed, not looking for work

23. (A) What is your current annual income before taxes? If self-employed, indicate your annual earned income after adjusting for business expenses.

(B) What is your spouse/partner's income?

	You	Spouse/partner
Less than $10,000	○	○
$10,000-14,999	○	○
$15,000-19,999	○	○
$20,000-29,999	○	○
$30,000-39,999	○	○
$40,000-49,999	○	○
$50,000-59,999	○	○
$60,000-74,999	○	○
$75,000-99,999	○	○
$100,000-149,999	○	○
$150,000 or more	○	○
No spouse/partner		○

24. Please mark your current or most recent career/occupation below:

- Accountant or actuary ○
- Actor or entertainer ○
- Architect or urban planner ○
- Artist ○
- Business (clerical) ○
- Business executive (management, administrator) ○
- Business owner or proprietor ○
- Business salesperson or buyer ○
- Clergy (minister, priest) ○
- Clergy (other religious) ○
- Clinical psychologist ○
- College teacher ○
- Computer programmer or analyst ○
- Conservationist or forester ○
- Dentist (including orthodontist) ○
- Dietitian or home economist ○
- Engineer ○
- Farmer or rancher ○
- Foreign service worker (including diplomat) ○
- Homemaker (full-time) ○
- Interior decorator (including designer) ○
- Interpreter (translator) ○
- Lab technician or hygienist ○
- Law enforcement officer ○
- Lawyer (attorney) or judge ○
- Military service (career) ○
- Musician (performer, composer) ○
- Nurse ○
- Optometrist ○
- Pharmacist ○
- Physician ○
- School counselor ○
- School principal or superintendent ○
- Scientific researcher ○
- Social, welfare or recreation worker ○
- Statistician ○
- Therapist (physical, occupational, speech) ○
- Teacher or administrator (elementary) ○
- Teacher or administrator (secondary) ○
- Veterinarian ○
- Writer or journalist ○
- Skilled trades ○

Other _____ ○

25. How satisfied are (were) you with the following aspects of your current (most recent) job? (Mark one in each row)

	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Not Relevant/No Experience
Income	Ⓥ	Ⓢ	Ⓝ	Ⓓ	Ⓥ	Ⓝ
Fringe benefits	Ⓥ	Ⓢ	Ⓝ	Ⓓ	Ⓥ	Ⓝ
Variety of activities	Ⓥ	Ⓢ	Ⓝ	Ⓓ	Ⓥ	Ⓝ
Working conditions (hours, location)	Ⓥ	Ⓢ	Ⓝ	Ⓓ	Ⓥ	Ⓝ
Decision-making power, responsibility	Ⓥ	Ⓢ	Ⓝ	Ⓓ	Ⓥ	Ⓝ
Competency of people you work with	Ⓥ	Ⓢ	Ⓝ	Ⓓ	Ⓥ	Ⓝ
Opportunities for promotion	Ⓥ	Ⓢ	Ⓝ	Ⓓ	Ⓥ	Ⓝ
Job security	Ⓥ	Ⓢ	Ⓝ	Ⓓ	Ⓥ	Ⓝ
Opportunity to be creative	Ⓥ	Ⓢ	Ⓝ	Ⓓ	Ⓥ	Ⓝ
Opportunity to use training or schooling	Ⓥ	Ⓢ	Ⓝ	Ⓓ	Ⓥ	Ⓝ
Opportunity to contribute to society	Ⓥ	Ⓢ	Ⓝ	Ⓓ	Ⓥ	Ⓝ
Intellectual challenge	Ⓥ	Ⓢ	Ⓝ	Ⓓ	Ⓥ	Ⓝ
Child care services	Ⓥ	Ⓢ	Ⓝ	Ⓓ	Ⓥ	Ⓝ
Overall	Ⓥ	Ⓢ	Ⓝ	Ⓓ	Ⓥ	Ⓝ

26. To what extent is your current or most recent job related to your major: (Mark one in each column)

	Undergraduate major	Graduate major
Closely related	○	○
Somewhat related	○	○
Not related	○	○
Not applicable	○	○

27. How have each of the following affected your job/employment prospects? (Mark one in each row)

	An asset	No effect	A liability
My undergraduate college	○	○	○
My undergraduate major	○	○	○
My race	○	○	○
My gender	○	○	○

28. During the past year, how much time did you spend during a typical week doing the following activities? (Mark one in each row)

	Hours Per Week								
	None	Less than 1 hour	1-2	3-5	6-10	11-15	16-20	21-39	40 or more
Socializing with friends	○	○	○	○	○	○	○	○	○
Exercising/sports	○	○	○	○	○	○	○	○	○
Reading for pleasure	○	○	○	○	○	○	○	○	○
Using a personal computer	○	○	○	○	○	○	○	○	○
Working (for pay)	○	○	○	○	○	○	○	○	○
Volunteer work/community service	○	○	○	○	○	○	○	○	○
Watching TV	○	○	○	○	○	○	○	○	○
Commuting	○	○	○	○	○	○	○	○	○
Religious services/meetings	○	○	○	○	○	○	○	○	○
Hobbies	○	○	○	○	○	○	○	○	○
Recreation/leisure	○	○	○	○	○	○	○	○	○
Household/childcare duties	○	○	○	○	○	○	○	○	○
Classes/labs	○	○	○	○	○	○	○	○	○
Studying/doing homework	○	○	○	○	○	○	○	○	○

29. Mark one in each row:

	Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly
The Federal government is not doing enough to control environmental pollution	1	2	3	4
The Federal government should raise taxes to help reduce the deficit	1	2	3	4
The death penalty should be abolished	1	2	3	4
A national health care plan is needed to cover everybody's medical costs	1	2	3	4
Abortion should be legal	1	2	3	4
The activities of married women are best confined to the home and family	1	2	3	4
Women should receive the same salary and opportunities for advancement as men in comparable positions	1	2	3	4
Wealthy people should pay a larger share of taxes than they do now	1	2	3	4
Marijuana should be legalized	1	2	3	4
Realistically, an individual person can do little to bring about changes in our society	1	2	3	4
The chief benefit of a college education is that it increases one's earning power	1	2	3	4
Busing is OK if it helps to achieve racial balance in the schools	1	2	3	4
Federal military spending should be increased	1	2	3	4
A couple should live together for some time before deciding to get married	1	2	3	4
It is important to have laws prohibiting homosexual relationships	1	2	3	4
Racial discrimination is no longer a major problem in America	1	2	3	4
Colleges should be actively involved in solving social problems	1	2	3	4
Just because a man feels a woman has "led him on" does not entitle him to have sex with her	1	2	3	4

30. Indicate the importance to you personally of each of the following:
(Mark one in each row)

	Essential	Very Important	Somewhat Important	Not Important
Being accomplished in one of the performing arts (acting, dancing, etc.)	E	V	S	N
Being an authority in my field	E	V	S	N
Obtaining recognition from my colleagues for contributions to my special field	E	V	S	N
Influencing the political structure	E	V	S	N
Influencing social values	E	V	S	N
Raising a family	E	V	S	N
Having administrative responsibility for the work of others	E	V	S	N
Being very well off financially	E	V	S	N
Helping others who are in difficulty	E	V	S	N
Making a theoretical contribution to science	E	V	S	N
Writing original works (poems, novels, short stories, etc.)	E	V	S	N
Creating artistic work (painting, sculpture, decorating, etc.)	E	V	S	N
Being successful in a business of my own	E	V	S	N
Being involved in programs to clean up the environment	E	V	S	N
Developing a meaningful philosophy of life	E	V	S	N
Participating in a community action program	E	V	S	N
Helping to promote racial understanding	E	V	S	N
Being an expert on finance and commerce	E	V	S	N

31. During the past five years, which of the following community service/volunteer activities have you participated in:
(Mark all that apply)

- ○ Tutoring/teaching
- ○ Counseling/hotline
- ○ Medical/health services
- ○ Office/clerical work
- ○ Recreational (e.g., coaching)
- ○ Campaigning/political activities
- ○ Religious activities
- ○ Leadership/organizational position
- ○ Physical labor/construction
- ○ Other personal service
- ○ Fund raising
- ○ Other
- ○ None → **Please skip to question 34**

32. Where have you performed the service?
(Mark all that apply)

- ○ A church or other religious organization
- ○ An educational institution
- ○ A sport or recreational organization
- ○ A hospital or other health organization
- ○ A social or welfare organization
- ○ Other public organization
- ○ A political organization
- ○ Other private organization

33. How important are the following reasons for participating in community service/volunteer activities?
(Mark one in each row)

	Very Important	Somewhat Important	Not Important
To give me a chance to work with people different from me	V	S	N
To improve society as a whole	V	S	N
To improve my community	V	S	N
Because it was expected of me to fulfill a job/employment requirement	V	S	N
To fulfill an academic/school requirement	V	S	N
To enhance my resumé	V	S	N
To fulfill my social responsibility	V	S	N
Because it makes me feel good	V	S	N

34. How important are each of the following in your life today?
(Mark one in each row)

	Essential	Very Important	Somewhat Important	Not Important
General knowledge	E	V	S	N
Analytical and problem-solving skills	E	V	S	N
Knowledge of a particular field or discipline	E	V	S	N
Ability to think critically	E	V	S	N
Writing skills	E	V	S	N
Foreign language skills	E	V	S	N
Job-related skills	E	V	S	N
Religious beliefs and convictions	E	V	S	N
Leadership abilities	E	V	S	N
Ability to work independently	E	V	S	N
Interpersonal skills	E	V	S	N
Cultural awareness and appreciation	E	V	S	N
Acceptance of persons from different races/cultures	E	V	S	N
Competitiveness	E	V	S	N
Public speaking ability	E	V	S	N
Ability to work cooperatively	E	V	S	N

THANK YOU!

Please return your completed questionnaire in the postage-paid envelope to:

Higher Education Research Institute
5900 Baker Road, Minnetonka, MN 55345-9952

Appendix D

Factors Influencing College Student Retention

Factors Influencing Student Retention

Retention Variables	Relationship	Supporting Literature
1. Student Demographic		
Returning learners (older)	-	Lenning 1982[1] ; Noel et al 1985
Sex (Female)	+	Astin 1993; Peng 1977
Socioeconomic status	+	UC Office 1989, Sewell & Shah 1967; Eckland 1964; Bowles & Gintis 1976; Jencks 1972, 1979; Carroll 1988; Porter 1989, 1990; Peng 1977; Mingle 1987; Duran 1986; Mestre 1986; Wolfe 1983; Noel et al 1985; Lenning 1982; Laden 1993; Werner & Smith 1982; Alva 1988
Parental education	+	Lenning, Sauer & Beal 1980; Beal & Noel 1980; Astin 1993; Laden 1993; Werner & Smith 1982; Alva 1988
Ethnic background	-	Mingle 1987; Nettles 1988; Thomas 1988; Green 1989; Eckland and Henderson 1981; Porter 1989, 1990; UC Office 1989; Stampen & Cabrera 1987; Peng 1977; Lenning 1982; Laden 1993
African-American	-	Lenning, Sauer & Beal 1980
Native-American	-	Lenning, Sauer & Beal 1980
Asian or Jewish	-	Lenning, Sauer & Beal 1980

[1]Lenning's (1982) predictor variables for attrtition studies are based on research syntheses of Cope & Hannah 1975; Lenning, Beal & Sauer 1980; Lenning, Sauer & Beal 1980; Pantages & Creedon 1978; and Ramist 1981.

(Factors, Con't)

Retention Variables	Relationship	Supporting Literature
Native language Spanish speaking	-	Lenning, Sauer & Beal 1980
Religious persuasion Jewish	+	Astin 1993
Catholic	+	Astin 1993
Marital status (married) For men	+	Lenning 1982
For women	-	Lenning 1982
Hometown location (rural) & size	-	Lenning 1982
2. Student Academic		
Academic preparation	+	Lenning, Sauer & Beal 1980; Beal & Noel 1980; Dey & Astin 1989; Fields 1988; Walker 1988; Rendon & Nora 1988; Rendon & Taylor 1990; Noel et al 1985; Lenning 1982
Academic aptitude	+	Lenning, Sauer & Beal 1980
Study skills	+	Lenning, Sauer & Beal 1980; Lenning 1982
Study habits	+	Lenning, Sauer & Beal 1980; Lenning 1982
Quality of High School Attended	+	Lenning 1982; Lenning, Sauer & Beal 1980

(Factors, Con't)

Retention Variables	Relationship	Supporting Literature
High school achievement		
High school grades	+	Lenning, Sauer & Beal 1980; Beal & Noel 1980; Dey & Astin 1989; Pantages & Creedon 1978; Fetters 1977; Astin 1975, 1977, 1985, 1993; Summerskill 1962; Ramist 1981; UC Office 1989; Porter 1989, 1990; Demitroff 1974; Nettles 1984, Mingle 1987; Peng 1977; Laden 1993; Werner &Smith 1982; Alva 1988
High school rank	+	Pantages & Creedon 1978; Fetters 1977; Astin 1975, 1977; Summerskill 1962; Ramist 1981; UC Office 1989
College prep courses taken	+	Lenning 1982
Admission test scores	+	Dey & Astin 1989; Lenning, Sauer & Beal 1980; Beal & Noel 1980; Pantages & Creedon 1978; Fetters 1977; Astin 1975, 1977, 1985, 1993; Summerskill 1962; UC Office 1989; Porter 1989, 1990; Demitroff 1974; Nettles 1984, Mingle 1987; Lenning 1982
College performance		
Overall gpa	+	Lenning 1982
Self-report of problems	+	Lenning 1982
First year grades	+	Lenning, Sauer & Beal 1980
College Major		
Science orientation	-	Astin 1993

(Factors, Con't)

Retention Variables	Relationship	Supporting Literature
3. Student Personality and Values		
Maturity and Responsibility	+	Lenning 1982
Self-Concept	+	Lenning 1982
Anxiety (a little bit is good)	+	Lenning 1982
Assertiveness	+	Lenning 1982
Concern About Finances (perceptual)	Mixed	UC Office 1989; Lenning 1982
Financial aid	+	Lenning, Sauer & Beal 1980; Rendon & Nora 1988, 1989; Nora 1990; Fields 1988; Walker 1988; Beal & Noel 1980
	N/A	Brinkman 1987; Wenc 1977; Starks 1988; Tinto 1987
4. Initial Aspirations and Motivation		
Commitment to College	+	Nora, 1987; Nora, Attinasi, & Matonak, 1990; Cabrera, Nora, & Castaneda, 1992; Nora & Cabrera, 1993; Cabrera, Castaneda, Nora, & Hengstler, 1992; Cabrera & Nora, 1994; Pascarella & Terenzini, 1992; Pascarella, 1980; Terenzini, Lorang, & Pascarella, 1981; Lenning 1982; Tinto, 1993
Student aspirations for college	+	Lenning, Sauer & Beal 1980; Lenning 1982

(Factors, Con't)

Retention Variables	Relationship	Supporting Literature
Family aspirations for college	+	Lenning, Sauer & Beal 1980; Lenning 1982
Intend to graduate	+	Lenning, Sauer & Beal 1980; Lenning 1982
Intend to leave	-	Lenning, Sauer & Beal 1980; Lenning 1982; Bean 1980, 1982a, 1982b; Bean & Metzner (1985)
5. Institutional Characteristics		
Prestige	+	Lenning, Sauer & Beal 1980; Lenning 1982
Quality	+	Cope & Hannah 1975; Lenning, Beal and Sauer 1980; Porter 1990
Selectivity	+	Dey & Astin 1989; Lenning, Sauer & Beal 1980; Beal & Noel 1980; Lenning 1982
Size	-	Astin 1975, 1977, 1993; Tinto 1975; Lenning 1982
Con'trol (private)	+	Dey & Astin 1989; Lenning, Sauer & Beal 1980; Beal & Noel 1980; Lenning 1982
Type (four-year)	+	Lenning 1982
Affiliation Religious	+	Lenning, Sauer & Beal 1980; Lenning 1982
Catholic	+	Lenning, Sauer & Beal 1980

(Factors, Con't)

Retention Variables	Relationship	Supporting Literature
Housing (residential)	+	Lenning, Sauer & Beal 1980; Beal & Noel 1980; Astin 1993; Lenning 1982
Student Services (availability, quality and use)	+	Lenning, Sauer & Beal 1980; Lenning 1982
Clear mission statement	+	Lenning, Sauer & Beal 1980; Lenning 1982
High cost of institution	+	Lenning, Sauer & Beal 1980
Peer Group Measures		
Degree of science prep in h.s.	+	Astin 1993
Socio-economic status	+	Astin 1993
Intellectual self-esteem	+	Astin 1993
% of Catholics	+	Astin 1993
% with need-based aid	+	Astin 1993
% majoring in physical sci. fields	+	Astin 1993
Scientific orientation	-	Astin 1993
Lack of community	-	Astin 1993
Value materialism and status	-	Astin 1993
Greater than 80% male stnt body	-	Astin 1993

(Factors, Con't)

Retention Variables	Relationship	Supporting Literature
Faculty Measures		
Student orientation	+	Astin 1993; Lenning 1982
Humanities orientation	+	Astin 1993
Diversity orientation	+	Astin 1993
Morale	+	Astin 1993
Liberalism	+	Astin 1993
% of Ph. D's	+	Astin 1993
% of women	+	Astin 1993
Curricular Variables		
Core curriculum	+	Astin 1993
Gender course requirement	+	Astin 1993
Senior comp. exam requirement	+	Astin 1993
"Involving Colleges" (O/class Exper.)	+	Kuh et al, 1991

(Factors, Con't)

Retention Variables	Relationship	Supporting Literature
6. Student-Institution Interaction		
Leadership	+	Allen, 1992; Wilson, 1988; Sedlacek, 1987
Student Satisfaction	+	Lenning 1982
Family-College Relationship	+	Lenning 1982
Responsiveness to Student needs	+	Lenning, Sauer & Beal 1980; Lenning 1982
Comfortable Environment (bareable)	+	Lenning 1982
Inst. Generated Student Devo.	+	Lenning 1982
Advising & Counseling	+	Lenning, Beal, Sauer 1980; Beal & Noel 1980; Mingle 1987; Porter 1990
Adjustment to College	+	Cope and Hannah 1975; Kissler 1980; Blanc et al 1983; Tinto 1987; Terenzini 1987; UC Office 1989; Porter 1989
Incorporation Into Campus Life	+	Spady 1970, 1971; Simpson et al 1980
Student-Institutional Fit	+	Spady 1970, 1971; Lenning 1971, 1982; UC Office 1989; Lenning,Sauer & Beal 1980
Value orientation	+	Lenning 1982
Intellectual orientation	+	Lenning 1982

(Factors, Con't)

Retention Variables	Relationship	Supporting Literature
Creativity	+	Lenning 1982
Independance & Autonomy	+	Lenning 1982
Learning-Pref. & Teaching-Meth.	+	Lenning 1982
Academic Involvement/Integration	+	Lenning, Sauer & Beal 1980; Beal & Noel 1980; Astin 1985, 1993; Tinto 1975, 1987, 1993; Pervin & Rubin 1967; Demitroff 1974; Steele 1978; Boyer 1987; Lenning 1982
Student-faculty interaction	+	Astin 1975, 1982, 1985, 1993; Pantages & Creedon 1978; Husband 1976; Bligh 1977; Tinto 1975, 1987; Terenzini & Pascarella 1977; Pascarella & Terenzini 1979a, 1983; Munro 1981; Neumann 1985; Lara 1980; UC Office 1989; Porter 1990; Lenning, Sauer & Beal (1980); Lenning 1982; Pascarella 1980
Hrs/wk talking w/ fac. out of class	+	Astin 1993; Pascarella & Terenzini 1977, 1979b; Pascarella 1980; UC Office 1989; Lenning 1982
Being a guest at professor's house	+	Astin 1993
Being in honors program	+	Astin 1993; Lenning 1982
Giving class presentations	+	Astin 1993
Taking essay exams	+	Astin 1993
Doing Individual research project	+	Astin 1993

(Factors, Con't)

Retention Variables	Relationship	Supporting Literature
Participation in Student Services	+	Lenning 1982
Recieving carreer counseling	+	Astin 1993
Social Involvement/Integration	+	Lenning, Sauer & Beal 1980; Beal & Noel 1980; Astin 1985, 1993; Tinto 1975, 1987, 1993; Pervin & Rubin 1967; Demitroff 1974; Steele 1978; Boyer 1987; Lenning 1982
Student involvement	+	Lenning, Sauer & Beal 1980; Beal & Noel 1980; Lenning 1982; Astin, 1985, 1993; Rendon, 1993; Beyer & Cuseo 1991; Brewer 1990
Student-student interaction	+	Astin 1993
Hrs/wk socializing w/ friends	+	Astin 1993
Hrs/wk partying	+	Astin 1993
Membership in greek system	+	Lenning, Sauer & Beal 1980; Astin 1993
Recieving psych. counseling	-	Astin 1993; Lenning 1982
# science and math courses taken	-	Astin 1993
Hr/wk communting	-	Astin 1993; Noel et al 1985
Hr/wk reading for pleasure	-	Astin 1993

(Factors, Con't)

Retention Variables	Relationship	Supporting Literature
Commitment to Higher Education	+	Cope & Hannah 1975; Tinto 1975, 1987, 1993; Lenning, Sauer & Beal 1980; Beal & Noel 1980; Lenning 1982; UC Office 1989
Occupational goal	+	Chickering & Hannah 1969; Cope & Hannah 1975; Panos & Astin 1968; Rossmann & Kirk 1970; Astin 1975; Weingartner 1981
Educational goal	+	Kowalski 1977; Cope & Hannah 1975; Noel et al 1985; Gordon 1985
7. Sense of Mattering/ Validation (As person, scholar, human being, etc.)	+	Rendon 1994; Allen, 1992; Hossler, Bean & Assoc. 1990; Undergraduate 1989; Schlossberg, Lynch, & Chickering, 1989; Rosenberg & McCullough, 1981
Protective Factors/ Support Systems (emotional, Intel. & Personal guidance)	+	Laden 1993; Natriello 1990; Anderson 1985; Alva 1988; Werner & Smith 1982; Allen, 1992; Wilson, 1988; Sedlacek, 1987
Personal Self-Concept/Self-Esteem	+	Laden 1993; Alva 1988; Shaffer, 1994; Allen, 1992; Wilson, 1988; Sedlacek, 1987
Strong Locus of Con'trol	+	Laden 1993
Desire to Improve Self	+	Laden 1993
Well Developed Coping Skills	+	Laden 1993

(Factors, Con't)

Retention Variables	Relationship	Supporting Literature
Environmental		
Support in Home Envir.	+	Laden 1993; Alva 1988; Werner & Smith 1982
Formal & Informal Support	+	Laden 1993; Alva 1988; Werner & Smith 1982
Institutional		
Commitment to Students	+	Nora & Cabrera 1994; Laden 1993
Encouragement and Support from Significant Others (words/perception)	+	
Family & Friends	+	Nora & Cabrera 1994; Cabrera et al , 1992a, 1992b; Cabrera et al., 1990, Bean, 1985; Bean & Metzner, 1985; Nora & Rendon, 1990; Stage & Hossler, 1988; Sewell and Hauser 1980; Trent 1970
Faculty & Staff	+	Nora & Cabrera 1994; Nora & Wedham, 1991;
Institution (commitment)	+	Nora & Cabrera 1994; Laden 1993

Appendix E

Study Variables

Study Variables

I. Inputs Characteristics	(Variable Name)
A. Student Demographic	
1. Ethnicity	
•White	(RACE1)
•African-American	(RACE2)
•American-Indian	(RACE3)
•Asian	(RACE4)
•Chicano	(RACE5)
•Puerto Rican	(RACE6)
2. Gender (Female)	(SEX85)
3. Parental Education	
•Father's Education	(FATHEDUC)
•Mother's Education	(MOTHEDUC)
4. Parental Occupation (Converted to Prestige Scores--PRESTIGE)	(PRESTIGE)
5. Parental Income	(INCOME)
6. Ethnic Capital [1]	(ETHCAP)
7. First Generation College Student[2]	(FRSTGEN)
8. Nativity Status (Native-born)	(CITIZEN)
9. Concern About Financing College Education[3]	(FINCON)
10. Dollar Amount of Aid from Many Sources[4]	(TOTALAID)

[1] Computed mean ses (educational attainment and occupation prestige) of parents for each racial group.
[2] Measure of students whose mother and fateher never attended college.
[3] Measure of students' perception of their ability to finance their college education.
[4] Computed total dollar amount of financial resources for the student's freshman year. This measure accounts for twenty-one possible sources, ranging from: personal savings, parental contribution, state, federal, institutional, private, earnings through work, loans etc.

B. Student Academic

1. High School GPA	(HSGPA)
2. Academic Rank in High School	(HSRANK)
3. Score on SAT Math	(SATM)
4. Score on SAT Verbal	(SATV)

C. Student Personality and Values

1. Intellectual Self-Confidence (self-rating)	(RATE8509)
2. Social Self-Confidence (self-rating)	(RATE8510)
3. Leadership Ability (self-rating)	(RATE8505)
4. Scholar Typology[5]	(TSCRESCH)

D. Initial Aspirations and Motivation

1. Educational Aspiration (Collapse into 4pt.)	(DEGASP85)
2. Occupational Aspiration (Student Majors) (Converted to Prestige Scores--PREST85)	(PREST85)
3. Self-Estimates on the Possiblility of:	
•Making at least a "B" average	(FUTACT12)
•Getting a bachelor's degree	(FUTACT18)
•Dropping out temporarily	(FUTACT20)
•Dropping out permanently	(FUTACT21)
•Transferring to other college before graduating	(FUTACT22
4. Parental support for attending college	(REASON09)

[5] Computed from the following six variables: degree aspirations in 1985, possibility of graduating with honors, possibility of being elected to honor society, self-rated academic ability, self-rated math ability and intellectual self-confidence.

II. Environment (1989)

A. Institutional Characteristics

1. Size (TOTENRT)

2. Selectivity (SELECT)

3. Control/Type/Affiliation (STRAT)
   -Recode (1, 2, 3, 40=2) (else=1) into PUBUNIV
   -Recode (7, 8, 9, 10, 34=2) (else=1) into PUB4YR
   -Recode (4, 5, 6, 41=2) (else=1) into PRIUNIV
   -Recode (11, 12, 13, 14, 15, 35=2) (else=1) into NONS4
   -Recode (16, 17, 18, 19, 39=2) (else=1) into CATH4
   -Recode (20, 21, 22, 23, 24, 38=2) (else=1) into PROT4

B. Individual Collegiate Experiences

1. Living Arrangements Freshman Year (Recode LIVEARR1)

   •Lived at home (1=2) (else=1) (HOME)
   •Lived in college dorm (3=2) (else=1) (DORM)
   •Other private living arrangement (2=2) (else=1) (PRIHOME)

2. Academic Involvement

   •College GPA (COLLGPA)
   •Student-Faculty Interaction[6] (ISTDFAC)

3. Social Involvement

   •Extracurricular Activities
   -Hrs/Wk Student Clubs/Groups (in last year) (HPW8911)

   -College Act Since Entering College
   *Member of fraternity or sorority (COLACT03)
   *Participate in campus protests (COLACT10)
   *Elected to student office (COLACT11)
   *Participate in intercollegiate athletics (COLACT15)

[6] Computed from eight variables that measure degree of "student-faculty" contact. Focuses on things like: being a guest at a prof.'s house, working on a prof.'s research, was a teaching assistant, impression that faculty accessible outside of class, hr/wk spent talking with faculty outside of class, satisfaction with the opportunity to talk to professors, satisfaction with the college's ability to provide contact between students and faculty/administrators, and view that there are many opportunities for students and faculty to socialize.

•Student-Student Interaction[7] (ISTDSTD)

III. Intermediate Outcomes

A. Retention-Related Variables

1. Time to degree (Degree within four years) (WTHN4YR)
2. Stopping out[8] (STOPOUT)
3. Changed institution (by 1989) (TRANSFER)

B. Self-Reported Reasons for Leaving College

1. Reconsider goals & interests (TIMOFF01)
2. Changed career plans (TIMOFF02)
3. Wanted practical experience (TIMOFF03)
4. Didn't "fit in" (TIMOFF04)
5. Was bored with course work (TIMOFF05)
6. Wanted better academic reputation (TIMOFF06)
7. Wanted better social life (TIMOFF07)
8. Wanted to be closer to home (TIMOFF08)
9. Had good job offer (TIMOFF09)
10. Wasn't doing well academically (TIMOFF10)
11. Family responsibilities (TIMOFF11)
12. Tired of being a student (TIMOFF12)
13. Couldn't afford college (TIMOFF13)
14. Wanted wider course selection (TIMOFF14)

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[7] Computed from eleven variables that measure degree of "student-student" contact. Focuses on things like: discussed course content with students, worked on group project, tutored another student, participation in sports, clubs, organizations, protests, or student government, impressions about the college's ability to provide opportunities for student interactions, and personal satisfaction of their ability to interact with students on campus.

[8] Individuals who took time off prior to 1989 (TIMEOFF=1 or TIMEOFF=2) and were planning on being enrolled at least part-time in the fall of 1989 (PLAN8901=2 or PLAN8902=2).

IV. Outcomes (1994)

A. Educational Aspiration	(DEGAP1)
B. Occupational Prestige	(PREST94)
C. Income	(INCOME94)
D. Nine-Year Retention (degree within nine years)	(WTHN9YR)

Appendix F

Regression Results:
Step-by-Step Beta Coefficients

Appendix F.1

Predicing Income:
Step-by-Step Beta Coefficients

11:19:09 RESPONDENT'S INCOME IN 1994
DV: INCRESP RESPONDENT'S CURRENT INCOM N= NCOUNTERED Missing= MEAN SUB 12 out of 52 IVs were significant

Name	Step	MultR	SimpR	Beta at Step 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
RACE4	1	.0999	.10	10	10	09	09	09	08	08	08	08	07	08	08													
INCOME	2	.2291	.21	21	21	20	18	21	18	17	16	16	15	14	14													
SEX85	3	.2824	-.18	-17	-17	-17	-14	-15	-14	-13	-13	-13	-13	-16	-15													
SATM	4	.3063	.18	17	15	12	12	12	13	13	13	13	11	07	08													
PRESTIGE	5	.3173	-.01	-01	-08	-09	-09	-09	-10	-10	-10	-11	-12	-12	-11													
FINCON	6	.3297	-.16	-15	-09	-07	-09	-10	-10	-10	-10	-10	-10	-10	-08													
RATE8505	7	.3405	.11	11	09	08	08	09	09	09	08	09	08	08	08													
NONS4	8	.3507	.09	09	08	08	08	08	09	08	08	12	15	15	14													
TOTENRT	9	.3678	.10	10	09	08	08	08	08	08	12	12	13	14	14													
PRIUNIV	10	.3817	.11	11	08	09	06	07	07	07	09	11	11	11	09													
COLLGPA	11	.4067	.14	15	13	16	14	14	14	14	15	15	15	15	10													
WTHN9YR	12	.4247	.20	20	19	19	18	18	17	17	17	17	16	13	13													

NOTE: Decimals omitted from BETA coefficients. BetaView 1.8b

Name	*NOT IN EQUATION*	Beta at Step 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
RACE1		00	-03	-04	-05	-05	-05	-04	-02	-02	-02	-03	-03													
RACE2		-04	-01	00	02	01	01	00	-02	-01	-02	00	-01													
RACE3		-03	-01	00	00	00	00	00	00	00	01	01	01													
RACE5		05	06	06	06	06	07	06	07	07	06	06	05													
RACE6		01	01	01	02	01	01	00	00	00	00	00	01													
ETHCAP		-02	-03	-03	-03	-02	-02	-02	-02	-01	-01	-02	-02													
FRSTGEN		-03	02	02	03	02	03	04	03	04	04	03	03													
FATHEDUC		06	-02	-03	-05	-02	-03	-04	-04	-05	-05	-05	-04													
MOTHEDUC		12	06	05	05	07	06	05	05	05	04	04	04													
CITIZEN		03	02	02	02	02	02	02	01	02	02	03	04													
TOTALAID		01	04	04	01	01	04	03	01	03	-00	-01	-02													
HSGPA		03	02	05	02	02	02	01	02	02	02	-04	-02													
HSRANK		03	03	05	02	02	03	02	03	03	03	-01	-01													
SATV		09	07	06	-03	-03	-02	-02	-02	-03	-02	-04	-03													
RATE8509		07	03	01	-01	-01	-01	-04	-05	-06	-07	-08	-07													
RATE8510		10	06	07	07	07	07	04	03	03	03	02	02													
TSCRESCH		16	13	11	08	08	08	06	05	04	04	02	03													
DEGASP85		08	06	07	05	06	06	05	04	04	03	03	04													
PREST85		-09	-08	-08	-08	-07	-06	-06	-07	-07	-08	-07	-07													
FUTACT12		03	02	03	01	02	02	01	00	01	01	-01	00													
FUTACT18		-06	-06	-05	-07	-07	-07	-07	-07	-07	-06	-08	-08													
FUTACT20		-06	-04	-05	-06	-06	-05	-04	-05	-04	-04	-04	-04													
FUTACT21		-05	-04	-04	-04	-04	-04	-03	-03	-02	-02	-02	-02													
FUTACT22		-02	-03	-04	-04	-03	-04	-03	-03	-03	-02	-01	-01													
REASON09		01	00	-00	00	00	00	00	00	00	-01	01	-01													
SELECT		12	08	07	04	05	05	05	06	04	03	03	02													
PUBUNIV		02	01	00	00	00	00	01	03	-13	-08	-08	-06													
PUB4YR		-10	-08	-08	-07	-07	-08	-08	-07	-04	-01	-02	-01													
CATH4		-03	-03	-03	-02	-02	-02	-02	-00	03	06	06	05													
PROT4		-10	-08	-07	-06	-07	-07	-07	-06	-02	01	02	01													
HOME		-04	-03	-03	-03	-03	-03	-02	-01	-02	-03	-04	-02													
DORM		07	05	06	05	05	06	05	05	06	07	06	05													
PRIHOME		-07	-06	-07	-06	-05	-05	-05	-05	-05	-05	-04	-03													
ISTDFAC		04	04	04	04	04	03	03	02	05	05	02	-02													
HPW8911		01	00	01	01	01	01	-00	-01	00	00	-02	-05													
COLACT03		05	03	03	03	03	02	01	01	01	01	01	-00													
COLACT10		04	02	02	02	01	01	00	-01	-01	00	-01	-02													
COLACT11		-02	-02	-01	-02	-02	-02	-03	-04	-03	-03	-05	-06													
COLACT15		05	05	03	04	04	04	03	03	04	05	04	03													
ISTDSTD		07	06	05	05	05	04	02	02	03	04	01	-04													

NOTE: Decimals omitted from BETA coefficients.

Appendix F.2

Predicting Occupational Prestige: Step-by-Step Beta Coefficients

19-APR-96 U L T R A F U S I
11:19:51 OCCUPATIONAL PRESTIGE IN 1994
DV: PREST94 OCCUPATION IN 1994--PRESTI

N= NCOUNTERED Missing= MEAN SUB 6 out of 52 IVs were significant

Name	Step	MultR	SimpR	Beta at Step 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
PREST85	1	.1448	.14	14	13	13	14	14	15																			
HSGPA	2	.1809	.13	11	11	11	11	11	10																			
MOTHEDUC	3	.1988	-.08	-09	-08	-08	-10	-10	-10																			
FINCON	4	.2168	-.05	-06	-07	-09	-09	-08	-07																			
ISTDFAC	5	.2312	.08	09	09	08	08	08	02																			
WTHN9YR	6	.2967	.20	21	21	21	20	20	20																			

NOTE: Decimals omitted from BETA coefficients.

BetaView 1.8b

Name *NOT IN EQUATION*	Beta at Step 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
RACE1	-04	-06	-05	-05	-05	-04																			
RACE2	-03	-00	-00	-00	-00	-01																			
RACE3	03	03	02	03	03	03																			
RACE4	00	00	00	-01	-01	-00																			
RACE5	04	04	04	04	04	03																			
RACE6	03	02	01	01	01	03																			
ETHCAP	00	-01	-01	-01	-01	-02																			
SEX85	05	04	04	05	04	05																			
FRSTGEN	06	05	02	03	04	03																			
FATHEDUC	-03	-02	03	02	02	02																			
PRESTIGE	00	00	03	02	02	02																			
INCOME	-03	-03	-00	-03	-03	-03																			
CITIZEN	-04	-06	-05	-05	-05	-03																			
TOTALAID	06	04	04	07	06	05																			
HSRANK	05	-04	-04	-04	-04	-06																			
SATM	05	02	03	04	03	02																			
SATV	02	-01	-00	00	-00	-01																			
RATE8509	01	-01	00	-00	-01	-00																			
RATE8510	-08	-07	-07	-08	-08	-08																			
RATE8505	-05	-06	-05	-05	-06	-05																			
TSCRESCH	05	01	03	02	02	02																			
DEGASP85	05	05	06	06	05	07																			
FUTACT12	-00	-04	-04	-04	-04	-03																			
FUTACT18	06	05	05	05	05	05																			
FUTACT20	-05	-06	-06	-05	-05	-05																			
FUTACT21	-05	-05	-05	-04	-04	-04																			
FUTACT22	02	03	03	03	03	03																			
REASON09	01	01	01	01	01	-00																			
TOTENRT	00	-00	00	-00	03	01																			
SELECT	-02	-04	-03	-03	-02	-04																			
PUBUNIV	-03	-03	-03	-03	-01	-01																			
PUB4YR	-04	-03	-04	-05	-04	-04																			
PRIUNIV	02	01	02	02	02	00																			
NONS4	04	05	05	05	04	04																			
CATH4	04	05	05	05	04	04																			
PROT4	-02	-02	-03	-03	-04	-03																			
HOME	02	02	01	01	02	03																			
DORM	01	01	01	02	01	-01																			
PRIHOME	-06	-05	-05	-05	-04	-03																			
COLLGPA	11	08	09	08	06	00																			
HPW8911	02	02	02	02	-00	-05																			
COLACT03	-03	-03	-03	-04	-05	-07																			
COLACT10	02	02	02	02	01	00																			
COLACT11	01	00	01	01	-01	-01																			
COLACT15	-02	-02	-02	-02	-04	-05																			
ISTDSTD	06	06	06	05	01	-04																			

NOTE: Decimals omitted from BETA coefficients. BetaView 1.8b

Appendix F.3

Predicting Educational Aspirations: Step-by-Step Beta Coefficients

19-APR-96 U L T R A F U S I
11:18:28 EDUCATIONAL ASPIRATIONS IN 1994
DV: DEGAP1 DEGREE ASP 4 PT

N= NCOUNTERED Missing= MEAN SUB

15 out of 52 IVs were significant

Name	Step	MultR	SimpR	Beta at Step 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
RACE1	1	.1376	-.14	-14	-12	-10	-11	-11	-10	-10	-10	-11	-13	-13	-13	-13	-12	-10										
TSCRESCH	2	.2755	.25	24	24	16	13	10	15	11	12	12	12	11	11	11	11	09										
DEGASP85	3	.3066	.25	24	16	16	16	15	13	14	14	13	12	12	12	11	11	14										
SATV	4	.3212	.15	16	10	10	10	11	12	12	11	09	07	07	06	06	06	06										
RATE8505	5	.3343	.17	16	10	09	10	10	09	09	09	09	09	06	05	06	06	06										
HSGPA	6	.3439	.00	01	-10	-08	-10	-09	-09	-10	-10	-11	-20	-19	-18	-18	-18	-14										
FUTACT12	7	.3532	.16	16	06	08	08	08	09	09	08	09	09	09	10	10	11	13										
PUBUNIV	8	.3695	-.12	-11	-13	-13	-12	-12	-11	-11	-11	-13	-11	-09	-09	-06	-05	-05										
SELECT	9	.3776	.11	13	09	07	05	04	05	06	09	09	08	08	07	07	07	04										
COLLGPA	10	.4624	.26	28	25	25	24	24	29	29	29	29	29	26	26	25	25	15										
ISTDSTD	11	.4837	.25	24	22	22	22	21	21	21	20	20	15	15	12	07	03	-05										
HOME	12	.4905	-.17	-16	-17	-17	-16	-15	-15	-15	-14	-13	-13	-09	-09	-10	-10	-11										
ISTDFAC	13	.4985	.26	26	24	23	23	22	22	23	21	21	15	10	11	11	13	07										
COLACT03	14	.5028	.12	11	12	11	11	10	10	11	10	10	10	05	05	07	07	07										
WTHN9YR	15	.5708	.41	41	40	40	40	40	40	40	40	39	34	32	33	32	32	32										

NOTE: Decimals omitted from BETA coefficients.

BetaView 1.8b

Name	*NOT IN EQUATION*	Beta at Step 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
RACE2		05	03	03	05	04	03	03	02	03	04	04	04	04	04	03										
RACE3		-00	-00	-01	-00	00	00	00	-00	00	02	03	03	03	03	03										
RACE4		-06	-06	-06	-07	-07	-06	-05	-05	-06	-04	-05	-05	-04	-05	-04										
RACE5		03	04	03	03	02	03	03	04	03	02	02	02	02	02	02										
RACE6		-02	-03	-03	-03	-03	-03	-03	-03	-03	-03	-04	-04	-03	-04	-03										
ETHCAP		-01	-01	-02	-01	-01	-00	00	-00	-01	-01	-01	-01	-00	-01	-01										
SEX85		-00	03	02	02	03	04	04	03	03	01	02	01	01	02	03										
FRSTGEN		-08	-05	-04	-03	-02	-01	00	-01	00	-00	01	01	01	01	01										
FATHEDUC		09	06	04	02	01	-00	-01	01	-01	-00	-01	-02	-02	-02	-01										
MOTHEDUC		08	06	04	04	03	02	02	03	02	00	00	-00	00	00	01										
PRESTIGE		11	09	06	06	05	04	04	04	03	03	03	02	03	03	03										
INCOME		07	04	04	03	02	02	02	03	01	00	00	00	00	00	01										
CITIZEN		-02	-03	-03	-03	-04	-03	-03	-03	-03	-00	00	00	01	00	02										
TOTALAID		08	06	06	04	04	05	06	03	02	02	01	00	00	01	02										
FINCON.		-02	-01	-01	-01	-01	00	00	00	01	03	05	04	03	04	06										
HSRANK		05	-04	-02	-03	-03	04	05	06	05	03	04	04	04	03	03										
SATM		14	06	06	01	02	02	03	02	01	-00	-01	-01	-01	-01	-03										
RATE8509		12	-04	-01	-01	-04	-06	-05	-06	-05	-05	-05	-05	-05	-04	-04										
RATE8510		11	07	07	09	06	05	05	05	05	03	02	02	02	02	02										
PREST85		12	09	06	06	07	08	07	07	07	09	09	09	09	09	10										
FUTACT18		08	04	04	03	03	03	02	02	01	-01	-01	-01	-01	-02	-02										
FUTACT20		-02	-00	-01	-01	-01	-01	00	01	00	02	02	02	02	03	03										
FUTACT21		-05	-03	-03	-03	-03	-03	-02	-02	-02	-02	-02	-03	-03	-03	-01										
FUTACT22		05	06	07	06	06	05	05	06	06	06	06	06	06	06	06										
REASON09		-05	-03	-02	-02	-02	-02	-01	-02	-02	01	00	01	02	01	-01										
TOTENRT		-09	-11	-11	-11	-10	-10	-10	-02	-02	-02	-01	-00	03	02	-01										
PUB4YR		-04	-03	-02	-01	-01	-01	-02	-07	-05	-06	-06	-06	-05	-05	-05										
PRIUNIV		11	09	08	07	06	07	07	04	03	02	04	05	06	06	05										
NONS4		09	06	06	06	06	05	05	02	01	01	01	00	-01	-01	-01										
CATH4		01	03	02	02	03	03	02	00	00	-00	-00	01	00	01	01										
PROT4		-00	03	03	02	03	03	03	01	02	03	01	01	-00	-01	01										
DORM		14	14	14	13	12	12	12	11	10	10	05	-06	-05	-05	-09										
PRIHOME		-02	-00	00	00	00	00	00	00	00	-01	02	01	01	00	03										
HPW8911		16	15	14	14	13	13	13	13	12	08	-01	-01	01	-00	-01										
COLACT10		15	11	10	09	08	08	08	07	06	04	01	01	01	01	01										
COLACT11		18	16	14	14	13	14	13	13	13	10	06	06	06	06	07										
COLACT15		08	09	08	09	08	08	09	08	08	08	04	04	03	03	01										

NOTE: Decimals omitted from BETA coefficients. BetaView 1.8b

Appendix F.4

Retention-Related Issues: Educational Aspirations
Step-by-Step Beta Coefficients

29-APR-96 U L T R A F U S I
18:14:52 EDUCATIONAL ASPIRATION IN 1994
DV: DEGAP1 DEGREE ASP 4 PT

N= NCOUNTERED Missing= MEAN SUB 15 out of 54 IVs were significant

Name	Step	MultR	SimpR	Beta at Step 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
RACE1	1	.0810	-.08	-08	-05	-01	-01	-02	-02	-02	-02	-02	-02	-02	-02	-02	-03	-03										
RACE2	2	.0924	.08	05	05	05	07	07	07	07	07	07	07	06	07	08	07	07										
DEGASP85	3	.3772	.37	37	37	37	34	33	30	30	30	30	29	29	28	28	28	27										
SATV	4	.3936	.19	19	20	12	12	11	09	09	08	08	08	08	06	04	05	04										
PRESTIGE	5	.3992	.13	14	14	08	07	07	07	05	05	05	05	05	04	04	04	03										
TSCRESCH	6	.4024	.26	26	26	10	06	06	06	06	06	05	04	05	04	01	01	02										
MOTHEDUC	7	.4048	.15	15	15	08	06	05	05	05	05	05	05	05	04	04	04	04										
TOTALAID	8	.4063	.09	09	09	05	04	04	03	04	04	04	03	02	02	01	01	01										
RATE8505	9	.4074	.11	11	11	05	05	04	03	03	03	03	03	03	03	03	03	03										
PREST85	10	.4085	.15	15	15	05	05	03	03	03	03	03	03	03	03	04	04	04										
PUBUNIV	11	.4107	-.09	-09	-09	-06	-05	-05	-05	-05	-04	-04	-04	-04	-05	-04	-02	-02										
SELECT	12	.4130	.19	19	20	11	07	06	06	06	05	05	05	05	05	06	06	05										
COLLGPA	13	.4245	.17	18	18	13	11	11	10	10	10	10	11	10	11	11	10	10										
ISTDFAC	14	.4296	.14	14	14	10	10	10	09	09	09	09	09	08	09	07	07	07										
COLACT10	15	.4332	.15	15	15	09	08	08	08	08	07	07	07	07	07	06	06	06										

NOTE: Decimals omitted from BETA coefficients.

BetaView 1.8b

29-APR-96 U L T R A F U S I
18:14:52 EDUCATIONAL ASPIRATION IN 1994
DV: DEGAP1 DEGREE ASP 4 PT

N= NCOUNTERED Missing= MEAN SUB 15 out of 54 IVs were significant

Name	*NOT IN EQUATION*	Beta at Step 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
RACE3		01	01	01	01	01	01	01	01	01	01	01	01	01	01	01										
RACE4		-02	00	-01	-02	-03	-03	-03	-03	-03	-03	-03	-03	-03	-03	-03										
RACE5		01	01	02	02	02	02	03	03	03	03	03	03	03	03	03										
RACE6		00	00	-00	00	00	00	00	00	00	00	00	-00	00	00	00										
ETHCAP		02	02	01	01	00	00	00	00	00	00	00	00	00	00	00										
SEX85		-01	-01	01	01	01	02	02	02	02	02	02	02	01	01	00										
FRSTGEN		-11	-11	-05	-04	-03	-03	-01	-01	-01	-01	-02	-01	-02	-02	-02										
FATHEDUC		14	15	07	05	03	03	01	02	01	02	02	01	01	01	01										
INCOME		10	10	05	04	02	02	01	02	02	02	02	01	01	01	01										
CITIZEN		02	01	02	02	02	02	01	02	01	01	01	01	01	01	01										
FINCON'		-01	-01	00	01	02	02	02	01	02	01	02	02	02	02	02										
HSGPA		12	13	06	03	03	00	01	00	00	00	00	-00	-04	-04	-04										
HSRANK		07	08	03	00	00	-02	-02	-02	-02	-02	-02	-02	-04	-04	-04										
SATM		13	14	07	00	-00	-03	-03	-03	-03	-03	-03	-05	-05	-04	-04										
RATE8509		14	14	07	05	05	02	02	02	02	02	02	02	03	03	03										
RATE8510		04	04	02	02	02	01	01	01	00	00	00	00	01	01	00										
FUTACT12		11	11	05	04	04	02	02	02	02	02	02	03	02	02	02										
FUTACT18		05	05	03	02	02	02	02	01	01	01	02	01	01	01	01										
FUTACT20		-01	-01	01	00	00	01	00	00	00	00	00	00	-00	-00	-01										
FUTACT21		-04	-04	-01	-02	-02	-01	-01	-01	-01	-01	-01	-01	-02	-02	-02										
FUTACT22		01	01	01	02	01	02	02	02	02	02	02	03	02	02	02										
REASON09		-02	-02	-00	-00	-00	00	-00	-00	00	00	-00	00	00	01	01										
TOTENRT		-07	-06	-04	-04	-03	-04	-04	-03	-03	-03	01	01	02	05	06										
PUB4YR		-08	-08	-03	-01	-01	-01	-01	00	00	00	-01	-01	00	01	01										
PRIUNIV		10	10	05	03	03	03	03	02	02	02	00	-00	-00	01	02										
NONS4		09	08	04	03	03	03	03	02	02	02	01	00	00	-01	-02										
CATH4		-02	-02	-00	01	01	01	01	01	01	01	00	01	00	-00	-00										
PROT4		-02	-02	-01	-00	-00	00	00	-00	-00	-00	-01	00	-00	-01	-01										
HOME		-07	-07	-04	-03	-02	-02	-02	-01	-01	-01	-01	-01	-01	-00	-00										
DORM		05	05	03	02	02	02	01	01	01	01	00	-00	-00	-01	-01										
PRIHOME		-01	-01	-01	-01	-01	-01	-01	-01	-01	-01	-00	-00	-00	00	00										
HPW8911		08	08	05	05	05	04	04	04	04	04	03	03	03	02	02										
COLACT03		-01	-01	-01	00	00	00	-00	-00	-00	-00	-01	-01	00	01	01										
COLACT11		07	07	05	05	05	05	05	04	04	04	04	04	04	03	03										
COLACT15		05	05	03	04	04	04	04	03	03	03	03	02	03	03	03										
ISTDSTD		08	08	05	05	05	05	04	04	04	04	04	03	03	01	00										
WTHN4YR		12	12	08	06	06	06	06	05	05	05	05	04	02	01	01										
STOPOUT		00	00	00	00	00	00	00	00	00	00	01	01	01	02	02										
TRANSFER		-05	-05	-03	-02	-02	-02	-02	-02	-02	-02	-02	-02	-02	-01	-00										

NOTE: Decimals omitted from BETA coefficients.

BetaView 1.8b

Appendix F.5

Retention-Related Issues: Occupational Prestige
Step-by-Step Beta Coefficients

29-APR-96 U L T R A F U S I
18:16:03 OCCUPATIONAL PRESTIGE IN 1994
DV: PREST94 OCCUPATION IN 1994--PRESTI

N= NCOUNTERED Missing= MEAN SUB 13 out of 54 IVs were significant

Name	Step	MultR	SimpR	Beta at Step 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
RACE4	1	.0444	.04	04	04	03	02	02	02	02	02	02	02	02	02	02												
PREST85	2	.2165	.21	21	21	17	17	17	17	16	16	16	16	16	16	16												
TSCRESCH	3	.2682	.21	20	16	16	12	14	11	08	07	07	07	05	05	05												
SATM	4	.2777	.17	16	14	08	08	07	06	07	06	05	05	04	04	05												
RATE8510	5	.2839	-.04	-04	-04	-07	-06	-06	-05	-05	-05	-06	-06	-05	-05	-05												
HSGPA	6	.2883	.18	17	14	08	07	06	06	07	08	08	08	05	05	05												
DEGASP85	7	.2923	.16	16	11	04	05	05	06	06	06	06	06	06	07	07												
SEX85	8	.2956	-.07	-07	-06	-04	-03	-03	-04	-05	-05	-04	-04	-05	-05	-05												
FINCON	9	.2976	-.04	-04	-04	-03	-03	-04	-04	-04	-04	-04	-04	-03	-03	-03												
PRIUNIV	10	.3002	.10	10	08	06	05	05	04	04	04	04	04	04	04	04												
COLLGPA	11	.3078	.15	15	14	10	09	08	07	07	08	08	08	08	08	08												
COLACT10	12	.3102	-.03	-03	-03	-04	-04	-04	-04	-04	-04	-04	-04	-04	-04	-04												
STOPOUT	13	.3115	-.04	-05	-04	-04	-04	-04	-04	-04	-04	-04	-03	-03	-03	-03												

NOTE: Decimals omitted from BETA coefficients.

BetaView 1.8b

Name	*NOT IN EQUATION*	Beta at Step 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
RACE1		01	01	01	00	00	-00	00	00	-00	00	-01	-01	-01												
RACE2		-00	-01	-00	01	01	01	01	01	01	01	02	02	02												
RACE3		-02	-01	-02	-01	-01	-01	-01	-01	-01	-01	-01	-01	-01												
RACE5		-01	-01	-01	-01	-01	-01	-01	-01	-01	-01	-01	-01	-01												
RACE6		-02	-02	-02	-02	-02	-01	-02	-02	-02	-02	-01	-01	-01												
ETHCAP		01	-01	-00	-01	-01	-01	-00	-00	-00	-00	-00	-01	-01												
FRSTGEN		-03	-02	-01	-00	-01	-01	-00	-00	00	00	00	00	00												
FATHEDUC		05	04	02	01	01	02	01	01	00	00	00	00	00												
MOTHEDUC		05	04	02	01	02	02	01	01	01	01	01	01	01												
PRESTIGE		07	01	00	-01	-00	-00	-00	-00	-01	-01	-01	-01	-01												
INCOME		05	04	03	02	03	03	03	03	02	01	01	01	01												
CITIZEN		-00	-00	-00	-00	-00	-00	-00	-00	-00	-00	-00	-00	-00												
TOTALAID		03	01	-01	-02	-02	-03	-03	-03	-02	-02	-03	-02	-02												
HSRANK		12	10	04	03	02	-01	-01	-00	00	00	00	00	00												
SATV		13	11	06	03	02	02	01	01	01	01	-01	00	00												
RATE8509		07	05	-08	-07	-05	-04	-03	-04	-04	-04	-04	-04	-04												
RATE8505		02	01	-04	-03	-01	-01	-01	-01	-01	-01	-01	-01	-01												
FUTACT12		07	05	-02	-01	-01	-01	-01	-01	-01	-01	-01	-01	-01												
FUTACT18		03	02	00	-00	-00	-00	-00	00	-00	-00	-00	-00	-00												
FUTACT20		-02	-00	01	00	00	00	00	-00	00	00	-00	00	00												
FUTACT21		-04	-03	-01	-02	-02	-02	-02	-02	-02	-02	-02	-02	-02												
FUTACT22		-04	-03	-02	-02	-02	-02	-02	-02	-02	-02	-02	-02	-02												
REASON09		-00	00	01	01	01	02	02	02	01	01	01	01	01												
TOTENRT		02	02	02	02	02	02	03	03	03	03	03	03	03												
SELECT		10	08	04	02	02	02	01	01	00	-00	00	01	01												
PUBUNIV		-01	-01	-00	00	00	00	01	01	00	02	02	02	02												
PUB4YR		-05	-03	-01	-01	-01	-01	-00	-00	-00	00	01	00	00												
NONS4		-01	-01	-02	-02	-02	-02	-02	-02	-02	-01	-01	-00	-00												
CATH4		-03	-03	-02	-01	-02	-01	-01	-01	-01	-01	-01	-01	-01												
PROT4		-03	-03	-02	-02	-02	-02	-02	-02	-02	-02	-02	-02	-02												
HOME		-01	-00	00	01	00	00	01	01	01	01	00	00	00												
DORM		02	01	01	-00	00	00	-00	-00	-00	-00	-00	00	00												
PRIHOME		-01	-01	-02	-01	-01	-01	-01	-01	-01	-01	-01	-01	-01												
ISTDFAC		-00	-01	-02	-01	-01	-01	-02	-02	-02	-02	-03	-02	-03												
HPW8911		03	03	01	01	02	01	01	01	01	01	01	02	01												
COLACT03		02	02	02	02	03	03	03	02	02	02	03	03	03												
COLACT11		03	03	02	02	02	02	02	02	02	02	02	02	02												
COLACT15		-02	-02	-02	-02	-01	-01	-01	-01	-01	-01	-01	-01	-01												
ISTDSTD		03	03	01	01	02	01	01	01	01	01	01	02	02												
WTHN4YR		03	03	01	01	01	01	00	01	00	00	-01	-01	-02												
TRANSFER		-03	-02	-01	-01	-01	-01	-01	-01	-01	-00	-01	-01	-01												

NOTE: Decimals omitted from BETA coefficients. BetaView 1.8b

Appendix F.6

Retention-Related Issues: Income
Step-by-Step Beta Coefficients

29-APR-96 U L T R A F U S I
17:42:10 RESPONDENT'S INCOME IN 1994
DV: INCRESP RESPONDENT'S CURRENT INCOM

N= NCOUNTERED Missing= MEAN SUB 22 out of 54 IVs were significant

Name	Step	MultR	SimpR	Beta at Step 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
RACE4	1	.0451	.05	05	03	04	04	04	03	03	03	03	03	03	02	02	02	02	02	02	03	02	02	02	02			
TSCRESCH	2	.1835	.18	18	18	16	15	14	09	07	05	05	04	04	04	04	04	04	04	04	04	04	04	04	04			
SEX85	3	.2379	-.18	-18	-15	-15	-15	-15	-16	-17	-15	-15	-15	-14	-14	-14	-14	-14	-13	-14	-14	-14	-14	-14	-14			
INCOME	4	.2669	.15	15	13	12	12	12	13	12	11	12	11	10	10	10	09	09	08	08	08	08	08	08	08			
FUTACT20	5	.2774	-.08	-08	-07	-08	-08	-08	-08	-07	-08	-07	-07	-07	-07	-07	-07	-07	-06	-06	-06	-06	-06	-06	-06			
HSGPA	6	.2861	.13	12	04	07	08	09	09	10	08	09	09	08	08	08	07	07	06	04	04	04	04	04	04			
RATE8510	7	.2926	.10	10	07	07	06	05	06	06	07	07	05	05	05	04	04	04	04	04	04	04	04	04	04			
SATM	8	.2992	.18	17	12	09	07	08	06	08	08	11	12	11	10	10	09	09	08	08	08	08	08	08	08			
SATV	9	.3037	.08	07	01	-00	-02	-01	-02	-01	-07	-07	-07	-08	-08	-08	-09	-08	-07	-08	-08	-08	-08	-08	-08			
RATE8505	10	.3065	.12	12	08	07	06	06	06	04	05	05	05	04	04	04	04	03	03	03	03	03	03	03	03			
PRIUNIV	11	.3233	.16	16	14	13	12	12	11	11	10	11	11	11	11	10	10	11	10	10	10	09	09	09	09			
TOTENRT	12	.3323	.08	08	08	08	08	07	07	07	07	07	07	08	08	06	07	08	07	07	07	07	06	07	07			
PROT4'	13	.3354	-.11	-11	-10	-10	-09	-09	-09	-08	-08	-08	-08	-07	-05	-05	-04	-05	-05	-05	-05	-06	-05	-05	-05			
SELECT	14	.3374	.15	14	10	09	07	07	06	07	05	06	06	05	05	04	04	04	06	06	06	07	07	06	06			
ISTDSTD	15	.3476	.12	12	10	10	09	08	08	08	08	07	07	07	08	09	09	09	10	10	08	07	08	07	07			
COLACT10	16	.3543	-.06	-06	-06	-06	-06	-06	-05	-05	-06	-05	-06	-05	-04	-04	-05	-07	-07	-07	-07	-07	-07	-07	-07			
COLLGPA	17	.3575	.09	09	03	05	05	06	04	04	04	04	04	04	05	05	06	05	06	06	06	06	07	05	05			
COLACT03	18	.3611	.09	10	10	09	08	08	08	08	08	08	07	07	07	08	08	06	05	06	06	06	05	05	05			
COLACT11	19	.3627	.06	06	05	05	05	05	05	05	05	05	05	05	05	06	06	03	04	03	04	04	04	04	04			
ISTDFAC	20	.3642	-.03	-03	-05	-04	-04	-04	-04	-04	-04	-04	-04	-04	-01	-00	-00	-04	-04	-05	-04	-04	-04	-05	-05			
WTHN4YR	21	.3696	.10	10	08	09	08	08	07	07	07	07	07	06	08	08	08	07	07	06	06	06	07	07	06			
STOPOUT	22	.3709	-.07	-07	-06	-07	-06	-06	-06	-06	-06	-05	-05	-05	-06	-06	-06	-05	-05	-05	-05	-05	-05	-03	-03			

NOTE: Decimals omitted from BETA coefficients.

BetaView 1.8b

Name	*NOT IN EQUATION*	Beta at Step 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
RACE1		02	02	02	-00	00	-01	-01	-02	-02	-02	-01	-01	-01	-01	-01	-02	-03	-02	-02	-02	-03	-03			
RACE2		-02	-01	-01	01	01	02	01	02	02	02	02	02	02	02	02	03	04	04	04	04	04	04			
RACE3		-02	-02	-02	-02	-02	-02	-02	-02	-02	-02	-02	-02	-02	-02	-02	-02	-01	-01	-01	-01	-01	-01			
RACE5		-02	-02	-02	-01	-02	-01	-01	-01	-01	-01	-02	-02	-02	-02	-02	-02	-02	-02	-02	-02	-01	-01			
RACE6		-01	-00	-00	-00	-01	-00	-00	-00	-00	-00	-01	-01	-01	-01	-01	-01	-01	-01	-01	-01	-01	-01			
ETHCAP		03	03	03	03	03	02	02	02	02	02	02	02	02	03	03	02	02	03	03	03	03	02			
FRSTGEN		-06	-05	-05	-01	-02	-02	-02	-01	-01	-01	-01	-01	-01	-01	-00	-00	-01	-01	-01	-01	-01	-01			
FATHEDUC		07	04	04	-01	-01	-01	-01	-02	-01	-01	-02	-01	-01	-02	-03	-02	-02	-02	-02	-02	-02	-02			
MOTHEDUC		04	01	01	-03	-02	-02	-02	-03	-03	-03	-03	-03	-03	-03	-04	-03	-03	-03	-03	-03	-03	-03			
PRESTIGE		02	01	01	-02	-02	-02	-02	-03	-02	-02	-03	-02	-02	-03	-03	-03	-03	-02	-02	-02	-02	-02			
CITIZEN		-01	-01	-01	-02	-02	-02	-02	-02	-02	-02	-02	-02	-02	-01	-02	-02	-02	-02	-02	-02	-02	-02			
TOTALAID		02	-01	-01	02	03	02	02	02	02	02	00	01	02	01	01	01	01	01	01	01	01	01			
FINCON		-10	-08	-07	-03	-02	-02	-01	-01	-01	-02	-02	-02	-02	-02	-02	-02	-02	-01	-02	-02	-02	-02			
HSRANK		09	01	03	04	05	00	01	00	00	00	00	-00	-00	-00	-00	-00	-00	-00	-00	-00	-00	-00			
RATE8509		12	01	-01	-01	-02	-01	-05	-04	-04	-04	-04	-05	-04	-04	-04	-04	-04	-04	-04	-04	-04	-04			
DEGASP85		07	-03	-03	-04	-04	-03	-03	-02	-02	-02	-03	-02	-02	-03	-03	-03	-02	-02	-03	-02	-02	-02			
PREST85		05	01	01	01	01	01	01	01	01	01	01	00	01	00	01	01	01	01	01	01	01	01			
FUTACT12		07	-01	-00	-00	-01	-01	-01	-01	-01	-01	-01	-01	-01	-00	-01	-01	-01	-01	-01	-01	-01	-01			
FUTACT18		03	01	02	01	01	00	00	00	01	00	01	00	00	00	00	00	00	00	00	00	00	00			
FUTACT21		-05	-03	-04	-04	01	01	01	01	01	01	01	01	01	01	02	01	01	01	01	01	01	01			
FUTACT22		-04	-03	-03	-03	-01	-00	00	00	00	00	01	01	01	01	02	02	02	02	01	01	02	02			
REASON09		-02	-01	-00	-01	-01	-01	-01	-01	-01	-01	-01	-01	-01	-00	-00	-00	-00	-00	-00	-01	-00	-00			
PUBUNIV		01	02	01	02	02	02	02	02	01	01	06	-04	-04	-05	-04	-04	-04	-04	-04	-04	-03	-03			
PUB4YR		-06	-04	-04	-03	-03	-03	-03	-03	-03	-03	-01	00	-01	-00	-01	-01	-01	-01	-01	-01	-01	-01			
NONS4		-03	-03	-03	-04	-03	-03	-03	-03	-03	-03	01	05	03	02	02	03	03	03	02	03	03	03			
CATH4		-05	-04	-03	-03	-03	-03	-03	-02	-02	-02	-01	01	00	01	01	01	00	01	01	01	01	01			
HOME		-04	-04	-04	-03	-03	-03	-03	-02	-02	-02	-02	-03	-03	-03	-01	-01	-01	-01	-01	-01	-01	-01			
DORM		05	04	04	03	03	03	03	02	03	02	02	03	04	03	01	01	01	01	01	01	01	01			
PRIHOME		00	-00	-00	00	00	00	-00	00	00	00	00	-00	-00	-00	00	00	00	00	00	00	00	00			
HPW8911		07	06	06	05	05	05	05	05	05	04	04	05	05	05	-01	-01	-01	-01	-02	-02	-03	-03			
COLACT15		04	04	03	03	02	03	02	02	02	02	02	03	03	03	02	01	02	02	02	02	02	02			
TRANSFER		-06	-04	-04	-04	-04	-04	-04	-03	-04	-03	-03	-03	-03	-03	-01	-01	-01	-01	-02	-02	-00	-01			

Appendix F.7

Predicting Nine-Year Retention: Step-by-Step Beta Coefficients

29-APR-96 U L T R A F U S !
17:38:35 NINE-YEAR RETENTION (1994)
DV: WTHN9YR RETENTION WITHIN 9 YEARS A

N= NCOUNTERED Missing= MEAN SUB 13 out of 54 IVs were significant

Name	Step	MultR	SimpR	Beta at Step 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
FINCON	1	.1088	-.11	-11	-11	-11	-12	-12	-11	-06	-05	-05	-05	-03	-03	-03												
CITIZEN	2	.1437	-.10	-09	-09	-10	-09	-10	-09	-08	-07	-07	-06	-04	-04	-04												
SATM	3	.1660	.08	08	08	08	07	07	05	02	-01	-01	-01	00	00	00												
TOTALAID	4	.1797	.06	09	09	07	07	05	03	-00	-01	-01	-02	-01	-01	-01												
PUBUNIV	5	.1992	-.10	-10	-10	-10	-09	-09	-11	-07	-07	-02	-02	05	05	04												
SELECT	6	.2172	.10	10	09	07	06	10	10	10	08	08	08	-04	-05	-04												
ISTDSTD	7	.4065	.38	37	37	36	36	35	35	35	31	24	23	10	10	10												
COLLGPA	8	.4786	.33	32	32	32	31	31	31	26	26	24	24	09	10	10												
ISTDFAC	9	.4997	.35	35	34	34	34	34	34	22	17	17	17	02	02	02												
PRIHOME	10	.5050	-.13	-13	-13	-12	-12	-11	-11	-07	-07	-07	-07	-05	-05	-05												
WTHN4YR	11	.7476	.73	72	72	72	72	73	74	69	67	66	66	66	64	62												
TRANSFER	12	.7502	-.24	-24	-23	-23	-23	-23	-23	-20	-23	-22	-22	-07	-07	-08												
STOPOUT	13	.7524	-.25	-24	-24	-24	-24	-24	-24	-19	-16	-15	-15	-04	-06	-06												

NOTE: Decimals omitted from BETA coefficients.

BetaView 1.8b

Name	*NOT IN EQUATION*	Beta at Step 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
RACE1		-01	01	00	-01	00	-01	-00	-04	-03	-03	-04	-04	-05												
RACE2		03	02	03	03	03	04	04	07	06	06	04	04	05												
RACE3		-03	-03	-03	-02	-03	-02	01	01	01	01	01	01	02												
RACE4		-03	-03	-04	-04	-03	-04	-04	-02	-01	-00	01	01	02												
RACE5		01	-01	-00	-00	-00	-00	-00	00	-01	-01	-01	-01	-01												
RACE6		-02	-02	-02	-02	-02	-02	-04	-05	-03	-03	00	00	00												
ETHCAP		01	02	02	01	01	00	02	00	01	01	00	00	00												
SEX85		-02	-02	-00	-00	-01	-02	01	-04	-04	-04	-02	-02	-02												
FRSTGEN		01	00	02	02	02	03	05	04	04	04	01	01	01												
FATHEDUC		-03	-02	-04	-04	-03	-05	-07	-06	-05	-05	-04	-04	-04												
MOTHEDUC		-02	-01	-02	-02	-02	-03	-03	-03	-03	-03	-03	-02	-02												
PRESTIGE		-03	-02	-03	-03	-03	-04	-05	-05	-04	-04	-02	-02	-02												
INCOME		-04	-03	-04	-04	-04	-06	-05	-07	-06	-05	-07	-06	-06												
HSGPA		01	01	-01	-01	-00	-01	-02	-13	-12	-12	-06	-07	-07												
HSRANK		06	07	05	04	05	04	04	-04	-04	-05	-01	-02	-02												
SATV		05	05	00	-01	-01	-03	-02	-05	-05	-05	-06	-07	-07												
RATE8509		02	02	01	01	01	01	-02	-03	-03	-03	-02	-02	-01												
RATE8510		03	04	04	04	04	04	-01	-02	-01	-01	00	01	01												
RATE8505		04	04	04	04	04	03	-05	-05	-04	-03	-02	-02	-02												
TSCRESCH		03	04	01	00	01	01	-02	-05	-06	-06	-03	-03	-03												
DEGASP85		-01	-02	-03	-03	-03	-04	-06	-07	-09	-09	-07	-08	-07												
PREST85		-04	-05	-05	-06	-05	-06	-04	-04	-05	-05	-00	-00	-00												
FUTACT12		-03	-02	-04	-03	-04	-04	-04	-07	-07	-07	-04	-03	-03												
FUTACT18		03	02	02	02	02	01	00	-02	-02	-02	-01	-01	-01												
FUTACT20		03	03	03	02	03	02	02	03	03	03	03	03	04												
FUTACT21		01	01	01	01	00	00	00	-00	-00	-00	-00	00	00												
FUTACT22		00	00	00	-00	00	00	00	02	02	01	-00	00	00												
REASON09		03	03	03	04	03	03	02	04	05	05	06	06	06												
TOTENRT		-06	-06	-07	-06	03	04	07	07	12	12	09	09	08												
PUB4YR		-03	-03	-02	-01	-06	-05	-05	-06	-03	-02	-01	-00	-00												
PRIUNIV		08	08	07	05	03	02	05	05	06	05	00	00	00												
NONS4		07	07	06	05	03	03	01	02	00	-00	04	04	04												
CATH4		02	02	02	02	00	01	02	01	01	01	-01	-01	-01												
PROT4		01	01	02	01	-01	-00	-03	-02	-04	-04	-03	-03	-03												
HOME		-11	-10	-10	-09	-08	-08	04	02	01	-00	01	01	01												
DORM		15	15	14	14	13	12	02	03	04	02	-00	-00	00												
HPW8911		27	26	26	26	25	25	05	04	06	06	03	02	02												
COLACT03		09	10	09	10	09	09	-06	-04	-01	-01	02	02	02												
COLACT10		13	12	11	11	10	09	00	-00	-00	-01	-03	-03	-03												
COLACT11		14	13	13	12	12	12	00	-01	-02	-02	-01	-01	-00												
COLACT15		13	13	13	13	13	12	03	05	04	04	02	02	02												

NOTE: Decimals omitted from BETA coefficients.

Appendix F.8

Reasons: Nine-Year Retention
Step-by-Step Beta Coefficients

13-MAY-96 U L T R A F U S I
08:39:06 BACHELOR'S DEGREE WITHIN NINE YEARS (1994)
DV: WTHN9YR RETENTION WITHIN 9 YEARS A

N= NCOUNTERED Missing= MEAN SUB 19 out of 68 IVs were significant

Name	Step	MultR	SimpR.	Beta at Step 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
HSGPA	1	.2027	.20	20	20	20	19	19	13	13	13	03	03	03	02	02	02	01	01	01	02	03						
FATHEDUC	2	.2614	.17	17	17	16	14	11	11	11	10	09	08	07	06	06	06	06	06	06	07	07						
FUTACT22	3	.2786	.09	10	10	10	10	10	10	10	10	08	07	06	06	06	05	04	04	05	04	03						
DEGASP85	4	.2911	.15	12	09	09	09	08	08	08	07	07	06	06	06	06	06	06	06	05	06	05						
INCOME	5	.3013	.14	14	09	09	09	09	09	09	09	07	07	07	04	04	04	04	04	03	03	02						
HSRANK	6	.3070	.18	08	09	08	08	08	08	09	09	08	08	08	09	09	09	09	09	09	09	07						
CITIZEN	7	.3117	-.04	-04	-05	-05	-05	-05	-05	-05	-06	-05	-06	-06	-06	-06	-05	-06	-06	-06	-06	-06						
NONS4	8	.3184	.09	09	07	07	06	06	06	07	07	05	04	03	04	03	03	03	03	02	03	04						
COLLGPA	9	.3746	.30	26	25	24	24	23	23	23	22	22	21	21	19	19	18	18	17	15	13	11						
ISTDSTD	10	.4029	.22	20	19	18	18	17	17	17	17	15	15	15	15	17	17	16	16	14	14	13						
TIMOFF09	11	.4292	-.18	-17	-16	-15	-15	-15	-15	-15	-15	-15	-15	-15	-13	-13	-13	-12	-12	-11	-10	-08						
TIMOFF13	12	.4480	-.22	-20	-18	-18	-19	-18	-18	-18	-18	-15	-15	-14	-14	-12	-13	-13	-13	-11	-11	-09						
TIMOFF07	13	.4563	.11	11	10	10	10	09	09	09	09	08	11	10	09	09	10	08	08	07	05	03						
TIMOFF01	14	.4653	-.10	-09	-09	-09	-09	-09	-09	-08	-08	-08	-08	-07	-08	-09	-09	-10	-09	-07	-07	-07						
TIMOFF14	15	.4709	.15	14	13	12	12	12	13	13	12	10	11	09	08	06	08	08	08	07	03	03						
TIMOFF05	16	.4748	-.10	-08	-10	-10	-10	-10	-09	-10	-09	-08	-07	-06	-06	-08	-06	-06	-06	-06	-05	-05						
WTHN4YR	17	.4908	.30	28	26	25	25	24	24	24	24	20	19	18	17	16	15	14	14	14	14	22						
TRANSFER	18	.5033	.21	21	22	21	22	21	21	22	22	19	19	17	15	14	15	14	13	13	13	32						
STOPOUT	19	.5503	.00	01	01	01	01	01	01	00	01	03	03	04	05	06	06	07	08	12	30	30						

NOTE: Decimals omitted from BETA coefficients.

BetaView 1.8b

13-MAY-96 U L T R A F U S I
08:39:06 BACHELOR'S DEGREE WITHIN NINE YEARS (1994)
DV: WTHN9YR RETENTION WITHIN 9 YEARS A

N= NCOUNTERED Missing= MEAN SUB

19 out of .68 IVs were significant

Name	*NOT IN EQUATION*	Beta at Step 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
RACE1		-00	-01	-02	+01	-01	-01	00	00	-03	-03	-03	-03	-03	-03	-03	-03	-03	-04	-03						
RACE2		-02	-00	00	-01	00	00	-00	-01	01	00	-00	01	01	01	01	00	01	01	00						
RACE3		-00	00	00	-00	-00	-00	-00	-00	00	00	01	01	01	01	01	01	01	01	01						
RACE4		02	01	01	00	00	00	-01	-01	01	02	01	01	01	01	01	01	01	02	00						
RACE5		-01	01	01	01	01	01	01	01	02	03	03	03	03	03	03	03	03	03	02						
RACE6		-01	-01	-01	-01	-01	-01	-01	-01	-00	00	-00	00	00	00	00	00	00	00	00						
ETHCAP		-01	-01	-01	-00	-00	-01	-01	-01	-01	-01	-01	-01	-01	-01	-01	-02	-02	-02	-02						
SEX85		-02	-02	-01	-01	-01	-01	-01	-01	-02	-02	-02	-03	-02	-02	-02	-03	-04	-04	-02						
FRSTGEN		-14	-06	-06	-06	-05	-05	-05	-06	-05	-04	-04	-05	-05	-04	-04	-04	-04	-04	-03						
MOTHEDUC		15	08	08	07	06	06	06	06	05	05	05	05	04	04	05	05	04	05	04						
PRESTIGE		10	03	03	03	02	02	02	02	01	01	01	01	01	00	00	00	00	00	00						
TOTALAID		02	02	02	02	04	03	04	02	02	00	01	03	02	02	03	03	01	01	01						
FINCOM		-09	-06	-06	-06	-04	-04	-04	-04	-03	-03	-03	01	02	01	01	01	01	01	00						
SATM		08	04	04	04	04	03	03	02	01	01	01	01	01	01	01	02	02	03	03						
SATV		09	04	04	03	03	02	02	02	-00	-00	00	01	01	01	02	02	02	03	04						
RATE8509		01	-01	-01	-02	-02	-02	-02	-02	-03	-04	-03	-02	-03	-03	-03	-02	-03	-02	-03						
RATE8510		06	04	05	04	04	04	04	04	04	02	02	02	02	02	02	02	02	01	01						
RATE8505		05	03	03	02	02	02	02	02	02	-01	01	01	01	01	02	02	01	02	02						
TSCRESCH		09	05	06	01	01	00	00	00	-01	-02	-00	-01	-01	-01	-01	-00	-01	-01	-01						
PREST85		-00	-00	-00	-02	-02	-03	-03	-02	-01	-02	-02	-02	-02	-02	-01	-01	-01	-01	-02						
FUTACT12		03	02	02	01	01	01	01	01	-00	-00	-00	-01	-01	-01	-01	-00	-01	-01	-01						
FUTACT18		06	05	06	05	05	05	05	05	04	03	03	03	03	03	03	03	03	03	02						
FUTACT20		04	03	00	01	01	01	01	00	-00	-00	-00	00	00	00	01	01	01	03	02						
FUTACT21		02	02	-01	00	00	00	00	00	-01	-01	-01	-00	-01	-01	-01	-01	-01	00	00						
REASON09		06	05	04	05	04	04	04	04	05	05	05	04	04	04	04	04	05	04	03						
TOTENRT		-05	-05	-04	-04	-04	-04	-05	-03	-01	-00	01	00	01	01	02	03	04	04	02						
SELECT		13	09	10	08	07	07	06	06	06	05	05	04	04	05	06	06	05	07	07						
PUBUNIV		-05	-04	-04	-04	-04	-04	-05	-03	-01	00	01	-00	00	01	01	01	03	03	01						
PUB4YR		-09	-08	-07	-07	-06	-06	-06	-05	-05	-06	-06	-07	-07	-07	-07	-07	-06	-07	-05						
PRIUNIV		05	04	05	04	03	03	03	05	05	05	05	06	05	06	06	06	05	05	05						
CATH4		-01	-00	-01	-00	-00	00	00	01	01	01	-00	01	00	00	-01	-01	-01	-01	-01						
PROT4		-01	00	-00	00	01	01	01	02	01	00	00	01	01	00	-01	-01	-01	-01	-00						
HOME		-12	-09	-09	-09	-09	-09	-09	-08	-08	-04	-03	-03	-03	-02	-03	-03	-02	-02	-02						
DORM		12	10	10	10	09	09	09	08	08	04	03	03	03	03	03	04	03	02	03						
PRIHOME		-07	-07	-06	-06	-07	-06	-06	-06	-06	-05	-04	-04	-04	-05	-04	-04	-05	-04	-04						
ISTDFAC		16	14	14	13	13	13	13	12	10	05	05	05	05	05	04	03	02	03	04						
HPW8911		15	14	13	13	13	13	13	12	11	04	03	02	00	00	00	00	-00	00	01						
COLACT03		06	06	06	05	05	05	05	05	06	01	01	00	-00	-00	-00	-00	-01	-00	-01						
COLACT10		10	07	07	06	06	05	05	04	03	00	-00	00	-00	00	00	01	00	02	02						
COLACT11		07	07	07	06	06	06	06	06	05	01	01	00	-01	-01	-01	-01	-01	-01	-02						
COLACT15		09	08	08	07	07	07	08	07	08	05	06	06	05	06	05	06	05	05	05						
TIMOFF02		-10	-09	-08	-08	-08	-08	-07	-07	-07	-07	-07	-07	-08	-04	-05	-05	-04	-06	-06						
TIMOFF03		-04	-05	-06	-05	-05	-05	-05	-05	-05	-06	-02	-02	-03	-01	-02	-01	-01	-00	-00						
TIMOFF04		02	02	02	02	02	02	02	02	01	05	04	03	-01	00	-00	01	00	-02	-02						
TIMOFF06		12	13	12	12	11	12	12	12	10	11	10	08	06	07	04	05	04	02	01						
TIMOFF08		01	02	02	02	03	03	03	03	02	03	03	03	02	02	02	02	01	-01	-01						
TIMOFF10		-16	-15	-14	-14	-14	-14	-14	-13	-07	-06	-06	-05	-05	-03	-02	-01	00	-00	-02						
TIMOFF11		-12	-10	-10	-10	-10	-10	-10	-10	-08	-09	-07	-05	-04	-04	-04	-04	-03	-03	-03						
TIMOFF12		-13	-15	-14	-14	-14	-14	-14	-14	-11	-10	-08	-07	-07	-05	-04	-02	-01	03	03						

NOTE: Decimals omitted from BETA coefficients.

BetaView 1.8b

Appendix F.9

Reasons: Income
Step-by-Step Beta Coefficients

13-MAY-96 U L T R A F U S I
23:12:51 RESPONDENT'S INCOME IN 1994
DV: INCRESP RESPONDENT'S CURRENT INCOM

N= NCOUNTERED Missing= MEAN SUB 13 out of 66 IVs were significant

Name	Step	MultR	SimpR	Beta at Step 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
TSCRESCH	1	.1719	.17	17	16	15	15	15	15	15	11	11	10	11	11	10												
INCOME	2	.2202	.15	14	14	13	13	13	12	12	11	11	10	11	11	09												
SEX85	3	.2486	-.13	-12	-12	-12	-12	-12	-11	-11	-13	-12	-12	-12	-11	-11												
FUTACT20	4	.2605	-.08	-08	-07	-08	-08	-10	-10	-10	-11	-11	-11	-10	-10	-09												
FUTACT22	5	.2706	.04	05	05	05	08	08	08	09	08	08	08	08	08	08												
PRIUNIV	6	.2845	.12	10	09	08	08	09	09	09	09	10	10	10	10	10												
TOTENRT	7	.2914	.07	07	06	06	05	06	06	06	07	09	09	09	08	08												
COLLGPA	8	.3186	.15	11	10	13	14	13	13	14	14	14	13	13	14	12												
COLACT15	9	.3339	.10	10	10	09	08	08	09	10	10	10	09	09	08	08												
ISTDSTD	10	.3418	.12	11	10	10	10	10	10	10	09	08	08	09	09	09												
COLACT10	11	.3477	-.02	-04	-05	-04	-04	-04	-04	-04	-04	-04	-07	-07	-06	-06												
TIMOFF09	12	.3649	.13	12	13	12	12	12	12	11	12	11	11	11	11	13												
TIMOFF13	13	.3806	-.15	-14	-11	-12	-12	-12	-12	-12	-10	-10	-10	-10	-11	-11												

NOTE: Decimals omitted from BETA coefficients.

BetaView 1.8b

13-MAY-96 U L T R A F U S I
23:12:51 RESPONDENT'S INCOME IN 1994
DV: INCRESP RESPONDENT'S CURRENT INCOM

N= NCOUNTERED Missing= MEAN SUB 13 out of 66 IVs were significant

Name *NOT IN EQUATION*	Beta at Step 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
RACE1	-01	-02	-02	-01	-01	-01	-01	-03	-03	-03	-04	-04	-04												
RACE2	-02	-01	00	01	01	01	01	03	03	03	04	04	04												
RACE3	-04	-03	-03	-03	-03	-03	-03	-03	-03	-03	-03	-03	-03												
RACE4	02	02	02	02	02	01	01	01	02	02	03	03	02												
RACE5	-03	-02	-02	-02	-02	-02	-02	-01	-01	-01	-01	-01	-00												
RACE6	-01	-01	-01	-01	-01	-01	-01	-01	-02	-01	-01	-01	-01												
ETHCAP	00	00	00	00	00	00	00	-01	-00	-00	-01	-01	-00												
FRSTGEN	-05	-02	-02	-02	-02	-02	-01	-01	-01	00	-01	-01	-00												
FATHEDUC	08	02	03	03	03	03	03	03	02	01	02	03	02												
MOTHEDUC	02	-03	-02	-01	-01	-02	-01	-02	-02	-02	-01	-01	-02												
PRESTIGE	03	-01	-00	00	00	-00	00	-00	-01	-00	-00	00	00												
CITIZEN	-02	-03	-02	-02	-02	-01	-01	-00	-01	-01	-01	-01	-01												
TOTALAID	-02	01	02	02	02	00	01	01	00	-01	00	-00	01												
FINCON	-09	-04	-03	-02	-02	-03	-03	-02	-02	-02	-01	-01	02												
HSGPA	00	01	05	06	06	05	05	-01	-01	-01	-01	-01	-01												
HSRANK	-00	01	03	04	04	03	03	-00	-01	-01	-01	-00	-00												
SATM	08	07	06	06	07	06	06	04	03	03	03	03	03												
SATV	00	-01	-02	-01	-00	-01	-01	-04	-03	-03	-02	-02	-02												
RATE8509	01	-00	-02	-02	-02	-01	-02	-01	-00	-01	-01	-02	-01												
RATE8510	08	06	06	05	05	06	06	07	06	05	05	05	05												
RATE8505	09	07	07	07	07	06	06	08	06	05	06	05	06												
DEGASP85	-02	-04	-03	-03	-03	-04	-03	-03	-03	-03	-02	-02	-01												
PREST85	00	00	00	00	01	00	00	01	00	00	00	01	01												
FUTACT12	03	03	03	02	02	02	02	01	01	01	01	01	02												
FUTACT18	-03	-03	-03	-03	-03	-03	-03	-04	-04	-04	-04	-04	-03												
FUTACT21	-03	-02	-02	02	02	01	02	01	01	01	01	00	-00												
REASON09	02	01	00	01	00	00	00	00	01	01	01	01	01												
SELECT	08	05	05	06	07	06	05	04	04	03	05	06	05												
PUBUNIV	02	02	02	01	01	04	-03	-03	-02	-01	-01	-01	-03												
PUB4YR	-04	-03	-02	-03	-03	-01	-00	-01	-00	-00	-01	-01	-02												
NONS4	-01	-02	-01	-01	-01	02	05	05	04	04	05	05	05												
CATH4	-02	-01	-01	-01	-01	-00	01	01	01	01	01	01	02												
PROT4	-09	-07	-07	-07	-07	-06	-04	-04	-04	-05	-05	-05	-04												
HOME	-05	-03	-04	-04	-04	-04	-05	-05	-04	-02	-02	-03	-02												
DORM	06	04	05	04	04	04	06	05	04	03	03	03	03												
PRIHOME	-01	-01	-00	-00	-00	00	-01	-00	00	01	01	00	00												
ISTDFAC	01	01	01	02	01	02	05	04	03	-01	-01	-01	-01												
HPW8911	08	08	08	08	08	08	08	07	07	03	04	04	03												
COLACT03	09	07	07	07	07	07	07	07	06	04	04	04	03												
COLACT11	07	06	07	07	06	06	06	05	05	03	03	03	02												
TIMOFF01	-01	-01	-01	-01	-01	-01	-02	-01	-01	-01	-01	-01	-02												
TIMOFF02	03	05	04	04	04	04	03	03	03	03	03	02	01												
TIMOFF03	06	07	06	06	07	07	06	06	06	05	06	02	02												
TIMOFF04	-05	-05	-05	-05	-05	-06	-06	-06	-06	-04	-04	-03	-03												
TIMOFF05	-03	-03	-04	-04	-04	-04	-05	-04	-04	-03	-03	-04	-04												
TIMOFF06	07	06	06	06	05	06	06	05	05	05	05	05	04												
TIMOFF07	05	04	04	04	04	04	04	04	04	05	05	06	05												
TIMOFF08	-01	-01	01	01	01	01	00	00	01	01	01	01	01												
TIMOFF10	-05	-05	-06	-07	-06	-07	-08	-04	-03	-03	-03	-03	-02												
TIMOFF11	-04	-03	-02	-02	-02	-02	-02	-01	-01	-01	-01	-02	00												

NOTE: Decimals omitted from BETA coefficients.

BetaView 1.8b

13-MAY-96 U L T R A F U S I
23:12:51 RESPONDENT'S INCOME IN 1994
DV: INCRESP RESPONDENT'S CURRENT INCOM

N= NCOUNTERED Missing= MEAN SUB 13 out of 66 IVs were significant

Name	*NOT IN EQUATION*	Beta at Step 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
TIMOFF12		-05	-05	-06	-05	-04	-05	-05	-02	-03	-02	-02	-04	-04												
TIMOFF14		04	03	04	04	03	03	04	03	02	02	03	04	03												
WTHN9YR		12	10	10	11	10	10	10	07	06	05	05	08	06												

NOTE: Decimals omitted from BETA coefficients.

BetaView 1.8b

Appendix F.10

Reasons: Occupational Prestige
Step-by-Step Beta Coefficients

13-MAY-96 U L T R A F U S I
23:11:48 RESPONDENT'S OCCUPATIONAL PRESTIGE IN 1994
DV: PREST94 OCCUPATION IN 1994--PRESTI

N= NCOUNTERED Missing= MEAN SUB 5 out of 66 IVs were significant

Name	Step	MultR	SimpR	Beta at Step 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
PREST85	1	.1321	.13	13	12	12	12	12																				
HSGPA	2	.1760	.13	12	12	11	10	08																				
ISTDSTD	3	.1897	.08	08	07	07	06	04																				
TIMOFF13	4	.2242	-.13	-13	-12	-12	-12	-10																				
WTHN9YR	5	.2522	.17	17	15	14	12	12																				

NOTE: Decimals omitted from BETA coefficients.

BetaView 1.8b

13-MAY-96 U L T R A F U S I
23:11:48 RESPONDENT'S OCCUPATIONAL PRESTIGE IN 1994
DV: PREST94 OCCUPATION IN 1994--PRESTI N= NCOUNTERED Missing= MEAN SUB 5 out of 66 IVs were significant

Name	*NOT IN EQUATION*	Beta at Step 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
RACE1		01	01	00	-00	00																				
RACE2		-01	00	-00	01	01																				
RACE3		02	01	01	02	02																				
RACE4		03	02	03	02	02																				
RACE5		-00	-00	-00	00	-00																				
RACE6		-00	-00	00	00	00																				
ETHCAP		02	01	01	01	01																				
SEX85		-02	-04	-04	-04	-04																				
FRSTGEN		-01	-01	00	01	02																				
FATHEDUC		05	05	04	02	01																				
MOTHEDUC		00	00	-01	-02	-03																				
PRESTIGE		-02	-02	-03	-03	-05																				
INCOME		02	03	02	-00	-02																				
CITIZEN		01	01	01	01	01																				
TOTALAID		-01	-03	-04	-01	-02																				
FINCON		-03	-04	-03	01	01																				
HSRANK		06	-04	-03	-03	-04																				
SATM		05	01	01	00	-00																				
SATV		04	00	00	-00	-01																				
RATE8509		00	-02	-02	-02	-02																				
RATE8510		-03	-02	-03	-03	-03																				
RATE8505		-02	-03	-04	-04	-04																				
TSCRESCH		09	05	04	04	04																				
DEGASP85		05	03	03	03	02																				
FUTACT12		02	-00	-01	-01	-01																				
FUTACT18		02	01	01	01	-00																				
FUTACT20		01	00	00	01	01																				
FUTACT21		-02	-02	-02	-02	-02																				
FUTACT22		02	02	02	02	01																				
REASON09		-01	-00	-00	-01	-02																				
TOTENRT		-03	-03	-03	-03	-03																				
SELECT		04	01	01	-00	-01																				
PUBUNIV		-03	-03	-02	-03	-03																				
PUB4YR		-01	-01	-01	-02	-00																				
PRIUNIV		01	00	00	01	00																				
NONS4		02	02	01	01	01																				
CATH4		-00	00	00	01	01																				
PROT4		03	03	02	04	03																				
HOME		-03	-03	-01	-00	00																				
DORM		03	03	01	01	-00																				
PRIHOME		-02	-02	-02	-02	-02																				
COLLGPA		11	07	07	05	02																				
ISTOFAC		06	05	03	03	02																				
HPW8911		04	03	-01	-02	-03																				
COLACT03		02	02	-01	-01	-02																				
COLACT10		-02	-02	-04	-04	-05																				
COLACT11		02	01	-01	-02	-02																				
COLACT15		04	04	03	03	02																				
TIMOFF01		-04	-03	-03	-04	-03																				
TIMOFF02		-01	-01	-01	-02	-00																				

NOTE: Decimals omitted from BETA coefficients.

BetaView 1.8b

13-MAY-96 U L T R A F U S I
23:11:48 RESPONDENT'S OCCUPATIONAL PRESTICE IN 1994
DV: PREST94 OCCUPATION IN 1994--PRESTI N= NCOUNTERED Missing= MEAN SUB 5 out of 66 IVs were significant

Name	*NOT IN EQUATION*	Beta at Step 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
TIMOFF03		05	05	04	05	06																				
TIMOFF04		-02	-02	00	-01	-01																				
TIMOFF05		-02	-01	-00	-01	01																				
TIMOFF06		05	06	06	04	03																				
TIMOFF07		01	01	02	00	-01																				
TIMOFF08		01	01	02	02	01																				
TIMOFF09		-03	-02	-02	-01	01																				
TIMOFF10		-07	-04	-04	-02	-01																				
TIMOFF11		-07	-07	-07	-05	-04																				
TIMOFF12		-03	-03	-02	-01	00																				
TIMOFF14		02	02	01	00	-01																				

NOTE: Decimals omitted from BETA coefficients.

BetaView 1.8b

Appendix F.11

Reasons: Educational Aspirations
Step-by-Step Beta Coefficients

13-MAY-96 U L T R A F U S I
23:10:57 RESPONDENT'S EDUCATIONAL ASPIRATIONS IN 1994
DV: DEGAP1 DEGREE ASP 4 PT N= NCOUNTERED Missing= MEAN SUB 14 out of 66 IVs were significant

Name	Step	MultR	SimpR	Beta at Step 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
RACE2	1	.0943	.09	09	07	09	09	09	09	09	09	10	11	11	11	11	10											
DEGASP85	2	.3322	.32	32	32	29	28	27	26	26	26	25	24	24	23	23	22											
SATV	3	.3530	.17	19	12	12	12	11	10	10	09	07	04	04	04	06	05											
RATE8505	4	.3624	.14	13	09	08	08	08	07	07	07	07	07	05	05	06	05											
MOTHEDUC	5	.3699	.16	16	10	08	08	08	08	08	07	06	06	05	05	06	03											
FUTACT12	6	.3763	.13	13	08	08	07	07	07	07	07	08	06	06	06	05	06											
FUTACT22	7	.3812	.05	05	06	06	06	06	06	06	06	07	05	05	04	04	03											
PUBUNIV	8	.3898	-.11	-11	-09	-08	-08	-08	-08	-08	-08	-09	-08	-07	-05	-04	-05											
SELECT	9	.3951	.18	19	11	07	07	05	06	06	08	08	07	06	07	07	05											
COLLGPA	10	.4189	.21	22	19	17	17	16	16	15	15	15	15	14	13	11	05											
ISTDSTD	11	.4309	.18	18	15	15	14	13	13	13	12	12	10	10	08	07	04											
ISTDFAC	12	.4352	.19	19	15	15	14	14	14	13	12	12	10	07	07	07	05											
TIMOFF12	13	.4438	-.09	-09	-11	-12	-13	-13	-13	-12	-12	-12	-10	-09	-09	-09	-06											
WTHN9YR	14	.5191	.39	39	36	35	34	34	34	34	33	33	31	30	30	29	29											

NOTE: Decimals omitted from BETA coefficients.

BetaView 1.8b

Name *NOT IN EQUATION*	Beta at Step 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
RACE1	-06	-03	-03	-04	-04	-05	-05	-06	-05	-07	-07	-08	-07	-05											
RACE3	02	01	01	01	01	01	01	01	01	01	01	01	02	01											
RACE4	02	-01	-01	-01	-01	-01	-01	00	-01	00	00	00	00	-01											
RACE5	03	02	02	02	03	03	03	03	03	04	04	04	04	03											
RACE6	01	-01	00	-00	-00	-00	-00	-00	-00	-00	00	00	00	00											
ETHCAP	-03	-02	-02	-02	-03	-03	-03	-03	-03	-03	-03	-03	-04	-03											
SEX85	01	01	02	02	02	02	02	02	02	00	01	00	00	01											
FRSTGEN	-13	-08	-07	-06	-04	-03	-03	-04	-04	-04	-03	-03	-03	-02											
FATHEDUC	17	10	08	07	04	04	03	03	02	02	02	02	02	00											
PRESTIGE	13	08	06	06	04	04	04	04	03	03	03	03	03	02											
INCOME	12	08	07	06	04	04	03	04	03	03	02	02	02	00											
CITIZEN	-01	01	01	00	-00	-00	-00	-01	-01	-00	-01	-01	-01	01											
TOTALAID	09	06	04	04	04	05	05	03	02	01	00	01	00	01											
FINCON	-01	-01	-00	00	01	02	01	01	02	02	02	02	02	04											
HSGPA	12	07	04	04	04	03	03	03	02	-04	-04	-04	-04	-06											
HSRANK	09	05	02	02	02	02	02	02	02	-02	-02	-02	-03	-04											
SATM	14	08	01	01	00	-01	-00	-00	-02	-03	-04	-03	-03	-04											
RATE8509	12	06	04	02	02	00	00	00	01	00	-00	00	-00	00											
RATE8510	08	07	07	05	04	03	04	04	04	05	04	04	04	03											
TSCRESCH	26	12	09	07	07	04	04	05	04	01	01	02	01	00											
PREST85	12	05	04	05	05	05	05	05	05	06	05	05	05	05											
FUTACT18	09	06	04	04	04	03	03	03	02	02	02	02	02	00											
FUTACT20	05	05	04	04	03	05	03	03	02	02	02	01	03	03											
FUTACT21	01	03	03	03	03	03	02	01	01	00	00	00	01	02											
REASON09	-01	01	01	01	00	01	01	00	01	01	01	01	01	-01											
TOTENRT	-07	-07	-06	-07	-06	-06	-06	02	02	03	03	06	06	05											
PUB4YR	-07	-03	-02	-02	-02	-02	-02	-05	-04	-04	-04	-03	-03	-02											
PRIUNIV	09	06	04	04	03	04	04	02	01	01	02	03	03	02											
NONS4	12	08	07	07	06	07	07	04	03	03	02	01	01	01											
CATH4	-01	01	02	02	02	02	02	01	01	01	01	01	01	01											
PROT4	-03	-01	-01	-00	00	00	-00	-02	-01	-01	-01	-02	-02	-02											
HOME	-12	-10	-10	-09	-09	-09	-09	-08	-07	-07	-04	-05	-05	-04											
DORM	09	07	06	06	06	06	06	04	04	04	01	01	01	-00											
PRIHOME	-00	00	00	01	01	00	01	01	01	01	02	02	02	04											
HPW8911	13	10	10	09	08	08	08	08	07	06	00	01	01	00											
COLACT03	06	04	05	04	04	04	04	04	04	04	01	02	02	01											
COLACT10	16	11	09	08	08	08	07	07	06	06	04	04	05	05											
COLACT11	08	07	07	06	06	06	06	05	05	04	01	02	01	01											
COLACT15	08	07	07	06	06	06	06	05	04	05	03	03	03	02											
TIMOFF01	-08	-07	-07	-08	-07	-07	-07	-07	-07	-07	-07	-06	-05	-04											
TIMOFF02	-10	-07	-06	-06	-05	-05	-05	-05	-04	-05	-05	-04	-04	-02											
TIMOFF03	-02	-02	-02	-03	-03	-03	-03	-03	-03	-04	-04	-04	-03	-01											
TIMOFF04	-01	-01	-02	-01	-01	-01	-01	-02	-02	-02	00	01	01	-01											
TIMOFF05	-03	-03	-04	-05	-05	-05	-05	-05	-05	-03	-02	-01	01	03											
TIMOFF06	02	03	04	04	04	04	03	03	04	03	03	03	02	-02											
TIMOFF07	05	04	04	04	03	03	03	02	02	01	03	03	03	-01											
TIMOFF08	-03	-02	-02	-02	-02	-02	-02	-02	-02	-02	-02	-02	-02	-02											
TIMOFF09	-07	-06	-06	-07	-06	-06	-06	-06	-05	-05	-05	-05	-03	00											
TIMOFF10	-11	-10	-09	-09	-09	-08	-08	-07	-07	-01	-01	00	01	03											
TIMOFF11	-04	-03	-02	-02	-02	-02	-02	-01	-01	-01	-01	-01	-00	02											

NOTE: Decimals omitted from BETA coefficients. BetaView 1.8b

13-MAY-96 U L T R A F U S I
23:10:57 RESPONDENT'S EDUCATIONAL ASPIRATIONS IN 1994
DV: DEGAP1 DEGREE ASP 4 PT N= NCOUNTERED Missing= MEAN SUB 14 out of 66 IVs were significant

Name	*NOT IN EQUATION*	Beta at Step 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
TIMOFF13		-06	-06	-05	-06	-05	-05	-04	-05	-04	-02	-02	-02	-01	04											
TIMOFF14		06	05	06	-06	06	05	05	04	04	02	02	02	01	-02											

NOTE: Decimals omitted from BETA coefficients.

BetaView 1.8b

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