Stayers and Leavers among Newbies:
Influences on the Early Departure of HBCU Freshmen

by

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Dedication

Dedicated in loving memory

to my parents

Paul Eugene Crow
(1914-1989)

and

Frances Wilma [Soupene] Crow
(1917-1988)

Who came of age in the Great Depression,
Believed in the higher education they missed,
And placed hopes in their children and the future.
Their lessons echo through generations
Influencing many lives.

Acknowledgments

Stayers and Leavers among Newbies is the culmination of a near decade-long experience in collecting, massaging, and reporting information on behalf of SSU in the Institutional Research and Planning Office. The project has been aided and abetted by many individuals whose support and assistance is gratefully acknowledged.

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To these, and a host of other individuals contributing to my prior learning, I owe a deep debt of gratitude and a hearty thanks. Although the project could not have been undertaken and completed without them, they are absolved from limitations that remain.

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List of Acronyms

ACT "American College Testing" program is an independent corporation founded in Iowa in the 1950's and focused on developing tests to assess students' learning of the high school curriculum. Its tests are more strongly linked to instructional goals and designed to facilitate academic placement and planning. The program was developed to produce an alternative entrance test to the SAT, a test that was perceived to be oriented towards elite Eastern colleges. ACT was originally used most heavily in the Midwest. http://www.act.org/

AAHE "American Association for Higher Education", a professional organization of individuals in higher education, defunct after 2005.

CIRP "Cooperative Institutional Research Program" is a longitudinal study of the American higher education system, begun in 1966 and administered by HERI. http://www.gseis.ucla.edu/heri/cirp.html

CB "College Board" A New York educational corporation ("The College Entrance Examination Board") founded in 1900 by 12 Northeastern universities to facilitate high school students' transition to college, the board was originally an association of colleges that developed the concept and application of a single broad-scope college entrance examination that would be accepted by a wide variety of colleges. The Board commissions ETS, a separate corporation, to develop and manage the college entrance test. http://www.collegeboard.com/splash/

CSEQ "College Student Experience Questionnaire" is a survey instrument now in its fourth edition, begun over 15 years ago at UCLA when Robert Pace began to study "the amount, scope, and quality of student effort" as an "indication of the quality of the educational process, and a key to identifying the quality of the educational product." http://www.indiana.edu/~cseq/

ETS "Educational Testing Service" is a research organization, founded in Princeton, NJ (1947) and subsequently commissioned to produce and administer the SAT and other placement tests on behalf of the College Board as well as U.S. military tests. http://www.ets.org

FA "Factor Analysis" is a statistical technique for simplifying complex sets of data using correlation principles. FA generates a much smaller set of hypothetical "factors" that account for most of the variance found in the original variables. (Kline, 2002)

FTE "Full-time equivalent" is a term used to represent the participation level of an individual in an organization. An FTE of 1.0 indicates a full-time involvement; an FTE of 0.5 represents a half-time involvement. Differing agencies have different algorithms for calculating the number, based on different assumptions and purposes. It is, thus, not a stable number to be taken at face value across all situations for all purposes. It is always prudent to understand the way an FTE is calculated before accepting it for any purpose. Used in this study, FTE means students enrolled for 12 or more credit hours and faculty carrying a full teaching load—a load that varies by course level and other assignment complications.

GPA "Grade Point Average" is an average usually applied to the grades earned by a student in a single semester. The cumulative GPA (cum GPA) is the average of an individual's grades across all work in an educational program, either high school or college.

HBCU "Historically Black College and University" defined by the Higher Education Act of 1965 as "any historically black college or university that was established prior to 1964, whose principal mission was, and is, the education of black Americans…" http://www.edonline.com/cq/hbcu/

HERI "Higher Education Research Institute" housed in the Graduate School of Education at the University of California, Los Angeles, publisher and administrator of CIRP. http://www.gseis.ucla.edu/heri/heri.html

ID [Or "pidim"] A unique institution-generated identifier used to reference students at subject institution. It is gradually replacing the SSN as an internal student identifier within the UGS system.

IPEDS "Integrated Postsecondary Education Data System," a data collection program for NCES to which all American postsecondary educational institutions receiving federal aid are required to contribute and report on operations, including finances, students, and staff. http://nces.ed.gov/ipeds/

LOGIT The Log odds or probability of an outcome occurring; one output of MNLR software applications.

MNLR "Multinomial logistic regression" is an analytical statistical technique for assessing the influence of a wide variety of input variables or factors on a set of multiple unordered categorical outcomes. (Long, 1997, Chap. 6)

MLOGIT A STATA command for initiating a multinomial logistic regression analysis. (Long & Freese, 2006, p. 227)

NCES "National Center for Educational Statistics" is a division of the U.S. Department of Education charged with collecting and analyzing data related to education. http://nces.ed.gov/

NCHEMS "National Center for Higher Educational Management Systems" is a non-profit corporation located in Boulder, Colorado, founded 1969, whose purpose is to help institutions improve their management systems. http://www.nchems.org/index.htm

NSSE "National Study of Student Engagement" is a nationally recognized and widely used survey of freshman and senior students' collegiate experiences, administered each Spring since 2000 and housed in the Center for Postsecondary Research at Indiana University. http://nsse.iub.edu/html/origins.cfm

PAS "Peer Analysis Tool" is a portal on NCES's web site for accessing aggregate data collected by IPEDS for developing benchmark indicators and assessing peer institutions' attributes. http://nces.ed.gov/ipedspas/Expt/

PWCU "Predominantly White College & University" is an acronym often used in place of TWCU; it emphasizes the current ethnic composition of the institution rather than its original mission & purpose, as is implied by TWCU.

SACS "Southern Association of Colleges and Schools" is the regional accrediting agency recognized by the U.S. Department of Education for the Southern region of the United States. http://www.sacs.org/

SAT "Scholastic Aptitude Test" developed and administered for the College Board after 1900, the tests incorporated practices of the Army Alpha Tests and earlier IQ tests.

SES "Socio-economic status" is a generalized aggregate concept incorporating a subject's family income, education level, occupation level, and general social status in a community. As used by sociologists, the term takes on a variety of implications depending on the algorithm for its construction in any context.

SIRS "Student Information Record System". A data reporting process and data file used in common by all member institutions of the University System of Georgia.

SSN's Social Security Numbers; sometimes used at subject institution in lieu of ID's for referencing individual students.

SSU Savannah State University, a state supported HBCU of the University system of Georgia.

TWCU "Traditionally White College and University" is a category of American higher education institutions applied by default to all that are neither HBCUs nor American Indian Tribal Colleges.

USG "University System of Georgia"; a collection of 34 state-supported colleges and universities established throughout the state and supervised by a single state Board of Regents and a state Chancellor. The hierarchical "system" is organized in 4 tiers: the research universities (4); regional universities (2); state universities (13), state colleges (2), and two-year colleges (13). Among these are 3 HBCUs—all "state universities."

Glossary

Assets Statistical factors representing fixed attributes or permanent characteristics of Newbies and their origins at the time of matriculation. Among them are census-derived demographic and SES variables, characteristics of high schools attended, home community environments, prior behavioral records, and familial traits.

Drop Outs Leavers who do not return (so far as is known) to any higher education institution within two years from their original inclusion in the Newbie population. The Dropout construct is artificially constrained in the sense that some Leavers are known to return either to SSU or elsewhere in years beyond the time window confined by this study.

Experiences Articulated responses describing Newbies' personal experiences during their first year on campus. Experiences include both institution-based on-campus and community based off-campus influences. They are collected by the NSSE survey, taken in the spring of the first year on campus.

Leavers All Newbies who do not remain continuously enrolled (at least for one course) over three successive terms (excluding summer) following their first enrollment. Leavers is the general category often studied by default in attrition literature and referred to as "Drop Outs."

Mentality The collection of attitudes, beliefs, values, understandings, and expectations articulated by Newbies in the first month following matriculation by way of the CIRP survey conducted early in the Fall term. "Mentality" factors are suspected to reflect regional, class, gender, and racial distinctions arising from Newbies' store of "assets." In the sense used here, they might as well be labeled "mental outlook" or "mind set" except for brevity of expression.

Metropolarity A unique term used in this study to depict a region's degree of urbanity, its changing in population density, % black residents, and its proximity to a major urban center. The term specifically does not include or connote economic attributes of the community. It is the attribute characterized in discussions of Neighborhood Culture.

Newbies All new, first-time freshmen enrolling in a fall term, whether or not enrolled in the previous summer session and whether or not they are enrolled full-time. The category includes some students transferring in from another college.

Stayers Newbies who returned in each of the four subsequent terms (excluding summer) following their first freshman term for at least one course. By this definition, the category Stayers includes only those continuously enrolled over two years.

Stop Outs Leavers who are absent from the institution for at least a term after their first freshman term, but who return within two years for at least one course.

Transfer Outs Leavers identified as having enrolled within two years in another Georgia state institution subsequent to the first freshman term at SSU.

ABSTRACT

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By

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Chair: Marvin W. Peterson

Stayers and leavers among Newbies: Influences on the Early Departure of HBCU Freshmen investigates factors associated with three separate attrition behaviors of freshmen leaving a southern minority-serving institution within two years of matriculation. The exploratory quantitative investigation combines factor analysis with multinomial logistic regression (MNLR) analyzing attrition in a single state-sponsored institution serving African-American students. The study tracks freshmen entering through five years (2000—2005) to determine whether they remained enrolled, Stop Out and return again, Transfer elsewhere, or Drop Out from higher education.

Combining institutional data extracted from the registrar's files with survey data assembled from two prominent national freshman surveys (CIRP and NSSE) and census data from the Bureau of the Census, the study accounts for three distinctive types of departure relying on a variety of explanatory factors representing Freshmen's prior life

experience ("Assets"), entry level attitudes and beliefs ("Mentality") and first year college "Experiences."

Analytically, the study disaggregates freshmen using indicators for sex (m & f), race (black & minority), age (teen & adult), campus residency (resident & commuter), and participation levels (full-time & part-time). Different types of students were found to depart in different ways, influenced by different combinations of factors weighted differently. Accordingly, no single explanation accounted for all types of students departing in three different ways. One conclusion from the study is that the usual methodology investigating early college departure in aggregate masks important distinctions—distinctions deserving attention in explaining early departure in a minority institution.

Findings support, in part, earlier analyses where economic, motivational, and academic preparation factors were each found related to students' early departure. The study extends prior analysis finding that characteristics of students' home neighborhood and high school cultures as well as selected aspects of their college experiences also strongly influence early departure. Strongest influences on early departure for some types of students include the academic culture of their high schools, their achievement motivation and self-image at entry, and the quality of students' inter-personal relations on campus, their experience of success in college (as measured by first year GPA), and extramural demands for their time and attention.

Chapter 1
Introduction

In recent years, 1/4 million students have enrolled annually in U.S. Historically Black Colleges and Universities ("HBCUs"). HBCUs, located largely in the Old South, have a history exceeding 100 years and until recently served virtually all African-American students engaged in post-secondary education. Today their students constitute about 14% of the African-Americans engaged in post-secondary education nationally, but the proportion has been shrinking (Sissoko & Shiau, 2005; CNN.com, 9/25/06, http://www.cnn.com/2006/EDUCATION/09/25/black.colleges.ap/index.html). About a third of these African-American students enrolling as college freshmen complete their bachelor degrees within 6 years or less. While a third of those enrolled in HBCUs are freshmen, approximately a third of a typical entering HBCU freshman class does not return in the second year after matriculating (Brown, 2004).

Departure Issue In this context, the retention and attrition or student departure puzzle ("Who stays and who leaves and why?") becomes especially compelling. As in other types of institutions, HBCU freshmen more than other class level students are most likely not to return to campus the following year. And HBCU freshmen often do not return at rates as high as freshmen in colleges and universities generally. Further, male African-American freshman return less frequently than female counterparts. And male African-American freshmen return less frequently than male freshmen among other ethnic groups in majority institutions (Harvey, 2001; Hoffman, Snyder, Sonenberg, 1996). In short, a host of studies have found that minority students are more likely to drop out of college than whites and the retention rates appear to be no better in HBCUs than elsewhere (Astin, 1975; Lenning, Saver, & Beal, 1980; Pascarella, Duby, Miller, & Rasher, 1981; Ramist, 1981).

The HBCU situation is a special case in a long history of concern about freshman attrition in higher education. In very rough terms, about a third of entering freshmen have dropped out of college annually over the past 50—60 years. The ratio rises and falls depending on the type of institution, the general economic situation, and local community and institutional influences. Over the years, casual observers and scholars alike have sometimes dismissed the early student departure issue with cavalier reference to students' intelligence, aptitude or lackadaisical character traits (Schuman, 1956). Others (e.g.: Steve Jobs; Larry Ellison) have delivered prominent commencement addresses (Stanford, 2005; Yale, 2000) in which they have expounded on the positive value of an early drop out from college. In contrast, my own instinctive, practical, knee-jerk understanding is that the phenomenon is largely a context-bound interplay between individuals' prior educational and other experiences, their current expectations and needs along with frustrations and social pressures of one kind or another derived from the college experience coupled with the siren lure of extramural life involvements and opportunities pulling from outside the academy. Chalking "Drop Out" off to student intelligence and character traits is a convenient way to dismiss dealing with social and organizational sources of individual frustration and opportunity. In effect, the ostrich pose that stands for conventional wisdom constitutes a protective shield—a scapegoat—to avoid attending to social problems, institutional issue, or societal prospects by blaming the victim.[1]

Precarious HBCU Accordingly, in this study I propose to investigate the questions "What factors influence freshman student retention and attrition in an HBCU and do they affect different types of students differently?" The questions are particularly compelling for HBCUs since these institutions are situated precariously among a host of competitors. Their existence and the continuing need for this type of specialized institution is under scrutiny by some and doubted by others. Questions over the continued viability of HBCUs rose to special national prominence a quarter century ago when the well known sociologists, Christopher Jencks and David Riesman referred to them as "academic disaster areas" in their Harvard Educational Review article sparking rounds of debate (Jencks & Riesman, 1967; Gasman, 2006). Negative assertions

[1] A moving discussion of the relationship between minority students and establishment institutions is provided in case studies described by Charles Valentine in his (1971) "Deficit, Difference, and Bicultural Models of Afro-American Behavior," *Harvard Educational Review*, 41, 2; 137-157.

continue, armed with the further argument that HBCUs, given their racial identity, violate current public policy. Some believe that they are of low quality and lie outside the mainstream of higher education. There is concern that maintaining HBCUs is a costly public policy and is minimally productive. People argue that HBCUs largely serve lower SES[2] students who are not college-ready while failing to advance their interests. Some argue that the HBCU perpetuates racism and mediocrity (Foster, 2001; Jost, 2003).

While arguments over the merits of HBCUs continue, empirical knowledge of who is being served, how, and with what results is invaluable. Why do freshmen matriculate in and depart with such frequency from HBCUs and which ones do so? What values, attitudes, and beliefs are held by freshmen in HBCUs and what are their first-year experiences? How do HBCU freshmen values, attitudes, beliefs, and experiences compare with students elsewhere? A host of related questions lie relatively un-clarified by solid empirical investigation. Can research successfully plumb the depths behind sex and racial stereotypes and typologies to discover causal influences yielding the variety of freshman fates?

To investigate the issue of early student departure from the HBCU, a fresh in-depth study of freshmen in a single state-sponsored HBCU is undertaken here: "What factors influence freshman student early departure in a historically Black college?"

Setting Among the nation's 3500 accredited post-secondary institutions, 103 regionally accredited HBCUs provide service in the Southern region of the United States. Several others have lost accredited status and/or closed in recent years—most notably Morris Brown College in Atlanta (Washington Post, 9 Apr 2003, p. A03) and Edward Waters College in Jacksonville, FL. (SACS[3] Annual Convention, Atlanta, December 2004). Others have undergone heavy scrutiny by accrediting agencies: e.g., Atlanta Theological Seminary (Hale, 2004). And some among them, although historically Black, have experienced radical demographic shifts in recent years and largely lost their earlier Black identity. Bluefield State University, West Virginia, is perhaps the most glaring example of the later type (Brown & Freeman, 2004).

[2] SES = Socio-economic status; see Glossary.
[3] SACS = Southern Association of Colleges and Schools. See Glossary.

Among these 103 surviving HBCUs are 20 junior colleges (5 private and 15 public) and 54 privately sponsored institutions. Among the latter are many church-related and/or missionary founded entities often including a theological or ministerial focus. A few others are relatively selective or quite expensive serving the socio-economic elite of the African-American community.

But, among the surviving 103 HBCUs are 23 publicly sponsored[4] components of state college and university systems in Southeastern states.[5] Many of them were founded (or reformulated) as land grant institutions, generally in the 1890's, in response to the second Morrill Land Grant Act of 1890. In terms of enrollment, this group of institutions ranges in size from 2,251 to 14,605 students (unduplicated annual headcount, 2005), and their students are recruited through relatively lenient admission requirements. These institutions supported full-time faculties ranging in size from 94 to 729 in 2005. Their instructional expenditure per full-time equivalent student in 2004-5 ranged from $3,832 to $6,480 while their academic support expenditures ranged from $613 to $ 3,295 per student. Annual student tuition & required fees in these 23 HBCU's ranged between $2,800 and $6,400. While six of these institutions offered doctoral work and one was limited to bachelor's degrees, the others are categorized as masters level institutions (Carnegie classifications: Masters I or II). Generally these institutions may be regarded as "peers" with similar missions, levels of affluence, size, complexity, and resources with the site of the present study: Savannah State University. This is especially true of the smaller institutions attracting fewer than c. 5,000 students. (See Table 1.1) Therefore, findings at Savannah State may reasonably reflect and perhaps characterize other small, state-sponsored HBCUs (U.S. Department of Education, 1996).[6]

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[4] More accurately, "state assisted," since in many state appropriations provide less than half their operating budgets.

[5] NCES groups institutions by defined regions: the Southeast region includes 12 states: AL, AR, FL, GA, KY, LA, MS, NC, SC, TN, VA, WV. (Texas is considered in the Southwestern region by NCES although for accrediting purposes it is a member of the Southern Association of Schools and Colleges.)

[6] Comparative institutional data are extracted for the most recent year from IPEDS PAS, an on-line tool for extracting data directly from the Department of Education's annual data collections, located at http://nces.ed.gov/ipedspas/ The 10 small state HBCUs are Albany State, Alcorn State, Bluefield State, Elizabeth City State, Fort Valley State, Kentucky State, Mississippi Valley State, South Carolina State, University of Arkansas at Pine Bluff, and West Virginia State University. The 10 medium sized institutions are Alabama A & M, Alabama State, Fayetteville State, Grambling State, Jackson State, Norfolk State, North Carolina Central, Tennessee State, Virginia State, and Winston-Salem State

Savannah State University, venue for the present study, sits with 3000 students, 300 staff, and 150 faculty members housed in 43 buildings on 165 acres of picturesque, if hurricane threatened, marsh lands on Georgia's East coast. This, the tide-water region or "low country," adjacent to the Sea Islands, was in turn the infamous lair of swashbuckling Atlantic-Caribbean pirates in the 18th century, long-fiber cotton plantations in the ante-bellum period, followed by pine trees and paper mills with rum-runner's and bootleggers adding local color in the 1920's. Today the area is a tourist Mecca (Savannah being the self-proclaimed "Hostess City of the South") and shipping port featuring three competing state universities, two private colleges, and a technical college all located within a 50 mile radius. Accordingly, it is a highly competitive regional higher education environment.

Purpose The purpose of this study is to explore the condition, experience, and fate of recent freshmen in a state-sponsored HBCU, systematically and extensively. The study provides an example of the situation found in one type of HBCU—a Master's level, Carnegie II institution,[7] with a mission to serve African-American students, supported by public funds and integrated into a Southern state-wide system of higher education. In doing so, the study is intended to further the scholarly need identified in a recent monograph concerned with student departure research in which the challenge to study the college student withdrawal process in "outlier institutions" was laid down (Laden & Milem, 2000, pp. 252-3).[8]

The groups of new freshmen to be considered are labeled "Newbies" for this study rather than "first-time freshmen," in the simple interest of verbal parsimony. The study seeks to discover influences associated with Newbies who remain ("Stayers") in contrast with those who do not ("Leavers"). The categorical terms are employed naively and without covert theoretical, ideological, or prejudicial assumptions to discriminate between sets of students with diverging life paths: "Stayers" are simply those Newbies who remain consistently enrolled in the face of alternative life possibilities. "Leavers" do

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Universities. The three larger institutions are Florida A & M, North Carolina A & T, and Southern University & A & M.

[7] Under the 2000 classification system; see http://chronicle.com/stats/carnegie/carnegie_results.php3

[8] Earlier studies of HBCU freshman persistence have begun to explore the phenomenon in a large doctoral granting institutions and a small, elite private university.

not. The study identifies specific factors that help in understanding influences that relate to students staying or leaving the HBCU soon after matriculation.

This study is undertaken with both a utilitarian and theoretical purpose (Bensimon, Polkinghorne, Bauman, & Vallejo, 2004; Adelman, 1999; Braxton, 2000): to develop useful "information"—information that is, as Bateson once argued a "difference which makes a difference in some later event" (Bateson, 1972, p.381). From this wide investigation of the pre-college attributes ("Assets"), entry attitudes and views ("Mentality"), and collegiate experiences of Newbies in an HBCU, it is expected that important lessons may be drawn to better understand patterns and arrangements found to accompany Stayers' and Leavers' continued enrollment fates. These findings should be useful for:

~tailoring institutional and learning arrangements to more effectively and efficiently further the interests of an entering Newbie cohort

~assessing the role of HBCUs in engaging African-American students in contemporary post-secondary education

~developing empirical & theoretical dimensions of the college departure literature with respect to its application to minority students in minority institutions

Rationale Advocates for HBCUs argue that these institutions are particularly effective at fostering academic success for African-American undergraduate students (Roebuck & Murty, 1993, Chap. 1). They point to indicators like gross graduation numbers, graduate school matriculation numbers, and studies of psycho-social adjustment and satisfaction levels among African-American students and contrast these numbers and findings with benchmark numbers drawn from Traditionally White Colleges and Universities ("TWCUs") to sustain their argument (Constantine, 1994; Fleming, 1984). The success of lobbying efforts on behalf of this perspective is apparent: HBCUs, along with Tribal colleges and Hispanic-serving institutions in recent years, are the only specific post-secondary sector to have benefited from direct Federal assistance programs over a relatively long term (Wolanin, 1998).

Yet critics of HBCUs argue that they attain these outcomes by watering down curricula, academic standards, and processes and by ignoring hefty student attrition rates. Further, they argue that HBCUs require excessive infusions of governmental support in

the form of Title III allocations to sustain them. Finally, Federal Courts argue that tolerating the HBCU in the post-integration society runs counter to contemporary American public policy and/or law (Foster, 2001). Debates have led one observer (Redd, 1998) to argue that "three major issues threaten [HBCU] existence: inadequate funding, recent Supreme Court decisions (U.S. v. Fordice, 1992) and efforts by states to restrict admissions to public colleges" (Redd, 1998, p. 40). In the long run, perhaps most important among the threats, the Supreme Court posited in its Fordice decision that HBCUs can only be justified on educational grounds (Redd, 1998). While, as Brown and Freeman explained, "HBCU's have been excluded from the focus of mainstream historical and empirical higher education research" there is "an absence of an authentic, comprehensive body of research on HBCUs" and "few have accurately described or assessed their place" (Brown & Freeman, 2004, p. xi), the present Newbies study should provide additional findings towards fulfilling that Court-mandated requirement.

And, underlying all the debates is the reality that increasingly the public and experts are relying on and demanding documentation about graduation and retention rates to "prove" the effectiveness of institutions. The state of Georgia, for example, is currently developing a process to include these rates in its post-secondary funding formula. And so, many social and institutional issues today eventually boil down to the "retention rate" as a practical matter—depending on it as a sort of all-purpose effectiveness indicator for public dissemination.

Table 1.1 : Southeastern State HBCUs Compared to SSU (2005)--Selected Attributes

Attribute	SSU	10 HBCU <5,200			10 HBCU 5,200-11,000			3 HBCU > 11,000		
		Min	Median	Max	Min	Median	Max	Min	Median	Max
Unduplicated Head Count (12 mo.)	3,324	2,251	3,980	5,172	5,931	7,160	10,914	11,067	12,482	14,605
Black as % of all students	94	11	90	95	73%	87%	94%	89%	91%	91%
Women as % of all students	57	57	60	70	56%	64%	70%	54%	57%	63%
% Ft/Ft Under grads w Financial Aid										
Federal Grants	60	54	60	85	48%	72%	95%	39%	61%	61%
State/Local Grants	88	8	40	89	0%	32%	69%	19%	27%	61%
Institutional Grants	11	14	23	44	1%	19%	39%	16%	19%	30%
Loans	70	28	60	83	58%	74%	99%	59%	93%	85%
Req. Tuition/Fees, FT Undergrad/yr.	$3,056	$2,931	$3,724	$6,480	$2,805	$4,129	$4,835	$2,958	$3,114	$3,592
Retention Rate: Full-Time Frosh	70%	58%	63%	77%	57%	72%	76%	70%	73%	82%
Retention Rate: Part-Time Frosh	48%	7%	39%	100%	19%	44%	85%	40%	68%	70%
Graduation Rate, 1999 Cohort, Overall	28%	22%	39%	49%	23%	40%	48%	26%	40%	45%
Graduation Rate, 1999 Cohort, Black	30%	17%	38%	52%	23%	40%	49%	26%	41%	45%
Number Degrees Awarded										
Bachelor's	286	185	372	546	512	7	982	923	998	1317%
Master's	57	0	44	169	73	3	398	293	303	306%
Core Expense per FTE by function										
Instruction	4,351	3,983	5,748	7,237	3,832	5,552	6,964	5,231	5,716	6,201
Academic Support	1,672	613	1,524	2,695	1,099	1,459	2,673	2,039	2,667	3,295
Institutional Support	2,746	1,816	2,503	4,668	1,782	2,452	3,263	1,657	2,597	3,537
Student Services	1,070	737	1,481	3,917	714	895	1,766	425	476	527
Distribution of core revenue, by source										
Tuition & Fees	13%	7%	13%	27%	12%	20%	30%	15%	18%	21%
State Appropriations	42%	23%	35%	48%	28%	35%	47%	33%	38%	39%
Government Grants/Contracts	38%	20%	37%	43%	17%	26%	41%	19%	29%	31%
FTE Staff, by position										
Faculty	138	94	150	202	246	289	510	423	474	729
Administration	36	17	42	47	33	50	199	143	149	182
Avg. Salary, FT Faculty, 9 mo.										
All Faculty	52,832	45,517	49,058	56,741	49,353	56,586	62,658	49,371	62,983	66,210
Professor	64,500	55,501	61,047	67,830	62,152	69,304	85,129	64,867	77,738	82,180
Associate Professor	54,073	45,319	52,202	59,963	52,793	58,976	66,270	52,803	65,585	66,292
Assistant Professor	49,778	37,941	45,144	55,738	46,260	50,404	57,921	46,816	57,896	60,473

Source: NCES IPEDS Executive Peer Analysis Tool, http://nces.ed.gov/ipedspas/Expt/results.asp See NCES, glossary

Chapter 2
The Literary Tradition

What exactly is known or understood to date about factors associated with student departure and retention in colleges and universities generally and in HBCUs in particular? How have researchers applied dominant concepts, models, and theories to explain students' staying and leaving behavior? What techniques have been employed in doing so? While a truly massive literature[9] developed over more than a half century and extending across the whole realm of social science is ultimately connected to this complex set of heavily researched issues—far more than can be treated in depth here—a sketch of the more critical themes and main ideas is both possible and valuable.[10]

A. Conceptual Models and Theories

Academic Readiness: First, "conventional wisdom" (Galbraith, 1958) among higher education observers and practitioners assumes that academic "success" (whether measured by persistence, grades, or graduation) among college students results primarily from a kind of raw, undifferentiated student "quality", "ability", "talent", or "aptitude"—it having become unfashionable to refer any longer to this illusive and mysterious quality as "intelligence" or "IQ." The theoretical position, a mixed legacy descending from Alfred Binet [11](1857-1911), Lewis Termin[12] (1877-1956), Edward Thorndike (1874-

[9] There can be little disagreement with this judgment. Pascarella & Terenzini in their own monumental survey of the higher education literature reviewed only selectively "the vast body of evidence that deals with student persistence and withdrawal behavior" (Pascarella & Terenzini, 1991, p.370).
[10] In 1970, a prominent Canadian researcher indicated that the "dropout" issue had been "extensively researched" and that the literature was already "vast." Interest in and publication on the topic has not abated in the succeeding 35 years (Spady, 1970).
[11] Binet, trained as a lawyer, self-taught in Psychology, became Director of a psychology lab at the Sorbonne in Paris, 1894—1911.
[12] Termin's PhD dissertation, Clark University, 1905, was entitled: Genius and Stupidity: A Study of the Intellectual Processes of Seven "Bright" and Seven "Stupid" Boys

1949), and Charles Spearman (1863-1945), might be characterized as the **"academic readiness"** theory—or perspective?

The attitude has a tenacious grip on the public mind in the face of a huge quantity of countervailing theory and research demonstrating massively confounding complexities in human behavior arising from motivation (McClelland, 1987; Csikszentmihalyi, 1990), mental processing (Gardner, 1983, 1993; Seligman, 1990), contextualized self-efficacy (Bandura, 1978, 1997), finances, and a myriad of other organizational and contextual adjustment issues preoccupying a host of contemporary researchers (Eaton, 1995; Berger, 2000; Braxton, 2000). Research often documents that this quality together with accompanying academic aspirations arises prior to the college experience and college experiences have little impact on it (Pascarella, 1984).

Applied to the retention/attrition issue, the academic readiness perspective assumes that retention is due largely to inherent student intellectual or academic ability. Further, to maximize retention and minimize attrition, this quality can (and, it is often assumed, "should") be identified in advance of matriculation by using appropriate enrollment management (recruiting, testing, admitting and counseling) techniques, policies and procedures. Only students likely to stay engaged through completion should be admitted, the argument[13] runs. At very least, students lacking "aptitude" or adequate "preparation" should be discovered soon after matriculation and re-directed elsewhere—an example of the famous "cooling out function" assigned to junior colleges (Clark, 1960; Cope& Hannah, 1975).[14]

A typical "academic readiness" perspective was articulated, by one language professor who believed unqualified students might, with proper guidance, "have saved themselves a great deal of time and expense and, more important…spent a year happily succeeding at something for which they were fitted rather than grimly failing at a task for which they were ill-fitted" (Schurman, 1956). The professor advised institutions to "select only those applicants who present evidence of high capability" by making "more stringent the entrance requirements." If, somehow, undesirables did matriculate, staff

[13] Really an "assumption" as no "warrants" or evidence are or is typically offered. See: Toulmin, 1958.
[14] "Why" such barriers to admission should be established and maintained is a matter of public policy that is rarely addressed in light of its full and wide-ranging implications.

should "be on the lookout for potential Drop Outs" who are "easy to spot" as they can be identified by "frequent cuts, haphazard work, low grades, an indifferent attitude, and either social withdrawal or inordinate social activity." Once spotted, "advise the person to leave," he counseled[15] (Schuman, 1956). And a similar perspective informs many contemporary arguments amid the politicking for educational funding.[16]

Influenced by the academic readiness understanding, researchers strive to explain individual students' collegiate success or academic achievement (whether measured by outcome measures like grades, retention, persistence, or graduation), as determined in part by pre-college test scores (ACT/SAT), High School cumulative grade point average (GPA), and High School College Preparation Curriculum, and/or High School Rank (or percentile). The practice is ubiquitous in the study of retention and attrition although a lengthy literature has argued long over the merits, validity, reliability, stability, or utility of artifacts like either admission test scores or high school grades without reaching an unassailable consensus (Zwick, 2002; Owen, 1999; Mow & Nettles, 1990).

There are signs that the academic readiness perspective may be undergoing reconsideration in the first years of the 21st century as jurisdictions review the practice of including admissions test scores among admissions considerations (e.g.: University of California; University System of Georgia). But in Georgia at the present time, the concern for student quality continues its strangle-hold, dominating admissions practices state-wide in the public system.[17]

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[15] Interestingly, Schuman was echoed by an SSU science professor who shared a similar observation in 2004 when he approached the Institutional Research Office seeking information to "get a better handle" on students who "can't cut it" in a particular major program.

[16] The academic readiness view hauntingly echoes exclusionary anti-immigration arguments by Nativists in Congress (1880-1930) intent on limiting immigration by "undesirables." The argument is analogous to a hospital establishing entrance requirements such that one seeking medical care should be admitted only after demonstrating an inherent "health quality." Similar would be a prison requiring that criminals for whom incarceration is sought should be admitted only after first demonstrating some latent "civility quality." Likely these measures would, if enforced, improve outcome and effectiveness measures for and reputations of their institutions. Whether they would also raise the health and civility levels of the public or further the growth interests of the clients is another matter.

[17] By mandate of the Georgia State Board of Regents, all new freshman applicants to state institutions have their "Freshman Index Score" calculated arithmetically by combining admissions test grades with high school GPA's. Then, based on the Freshman Index, specific admissions "cut off" scores are fixed for each institution, and applicants whose score falls below "the bar" are not eligible for admissions and must be re-routed elsewhere. They lack, by common assumption and paradoxically, adequate intellectual "quality" to be further educated. Evidence supporting the utility of the elitist admission assumption is, of course, correspondingly weak.

The academic readiness perspective influences heavily without dominating the analytical research studying college departure. Clearly, contemporary investigations of student departure all attempt to "control" or account for academic readiness in their quantitative studies by including predictors as proxies for academic readiness or academic aptitude. Yet, the assumption for analytical purposes is no longer that academic readiness is the only or even, perhaps, the most important or useful determinant of academic success or student departure behavior.

Amenable Character: A second theoretical position, once fashionable, is no longer frequently encountered in its original formulation either. Moving beyond student academic readiness, aptitude, or mental intelligence, a wave of investigators have explored applicant character and personality seeking evidence of a "Drop Out" type or a goal-averse kind of individual who might, in spite of raw intelligence or ability, be re-channeled owing to an inherent character flaw or inappropriate personality style. Studies abound in which indecision, procrastination, avoidance, self-control, non-conformity, anxiety, maladjustment and the like figure prominently correlated with "dropping out" (See, for a review, Spady, 1970). The theoretical position might be labeled, for want of a better umbrella term, the **"amenable character"** tradition—although, truthfully, its advocates never called it this.

In the "amenable character" tradition, psychological understandings and typologies prevailed. There are references to "masculine" traits being ill-suited to "feminine institutions" (Sexton, 1965; Mead, 1951; Irvine, 1979) and "maternal dominance" supporting academic success (Ellis & Lane, 1963; Gist & Bennett, 1964). While "superego strength" has not been found, so far as is known, to associate with academic success, humility and submissiveness have (Pandey, 1973). Similarly, an "achievement syndrome" once predicted academic success (Stanfiel, 1973; Lavin, 1965) as has basic "commitment to college" (Hackman, 1970; Ford & Urban, 1965; Marsh, 1966), a concept yet pervasive. Participation in extra-curricular activities—especially sports—was investigated (inconclusively, as it turns out) as one investigator of student "peer status" sought to predict college success in a sort of Pygmalion way (Spady, 1970). A wide range of personality factors has been considered (Heilbrun, 1965).

Psychological theories, proposed in the 1960's and 1970's, originally emphasized that students' individual interior characteristics, including intellectual traits, personality factors, motivational constructs, and dispositional characteristics were responsible for their "Drop Out" from college (Summerskill, 1962; Marks, 1967; Heilbrun, 1965; Rose & Elton, 1966; Hanson & Taylor, 1970; Waterman & Waterman, 1972). Common among these views is that inherent attributes of students themselves accounted for the difference between Stayers and Leavers in the face of what were assumed to be similar institutional contexts and educational experiences. In these views, student departure, as Tinto explained (Tinto, 1986), was assumed to reflect a deficiency, limitation, weakness, or failure on the part of students and the institution was not responsible for their departure. Empirical study, however, has failed to document consistently that there ever was such a thing as a "Drop Out" personality (Sharp & Chason, 1974; Cope & Hannah, 1975).

One approach currently under investigation seeks to link a Jungian-derived categorical psychological typology (the MBTI; Keirsey & Bates, 1984) to the propensity to remain enrolled in college. Results, however, are not widely disseminated (http://www.apt-echapter.org/2_f2_MtgSummaries.htm#20060406_MtgSumm_Kroeger ; 2006).

Perhaps most robust of these student character traits to survive credibly in the contemporary literature treating college persistence are those treating students' "educational aspiration" and commitment to an institution or to higher education. These themes reflect the understanding that individual aspiration, or more generally, motivation, can often overcome or at least weigh in along with other factors leading to or explaining college persistence and achievement (Astin, 1975; Pascarella, Smart, Ethington, & Nettles, 1987).

And a newer field of process-oriented psychological conceptions now guides the study of student departure: attitude behavior (Fishbein & Ajzen, 1975), coping behavior (French, Rogers, & Cobb, 1974), self-efficacy (Bandura, 1978; 1997), and attribution theory (Weiner, 1985; 1986) are prominent. These psychological conceptions inform current conventions related to student departure (Bean & Eaton, 2000). Bandura's concern with self-efficacy may be the most widely used of these constructs as it has

experienced long utility together with a recent upsurge in interest (Bandura, 1978; 1986; 1997; Stage & Hossler, 2000).

And yet, most typically, these original psycho-social perspectives did not consider influences from the collegiate "situation" that might help explain why certain "types" of students reacted differently in similar and different situations (Tinto, 1986). Now, however, investigators periodically inquire about institutional influences on student persistence and withdrawal behavior. They have reviewed and considered in conjunction with student academic achievement the role of residence halls[18] and their various intervention programs and strategies (Blimling, 1989; Buffington, 1984), the influence of faculty and peer relationships and interactions (Pascarella & Terenzini, 1981; Astin, 1977), academic majors, sub-environments, different educational practices (Hearn, 1987), orientation and advising programs (Bron & Gordon, 1986), and the effects of supplemental instruction (Blanc, DeBuhr & Martin, 1983) or first-year seminars (Porter & Swing, 2006) together with the ubiquitous emphasis on the influence of financial support and financial aid. The most satisfactory of these studies now conceptualize the situation interactively in terms of student experiences resulting from the interaction of student attributes and institutional practices. The current formulaic approach is that regression studies attempt to control for students' prior attributes while describing and assessing the added affect of these various institutional interventions, processes, and contexts (Braxton, 2000).

Student Material Resources: A third general theoretical stance used for explaining continued collegiate involvement or departure focuses on finances and economics (St.John, Cabrera, Nora, & Asher, 2000). From this perspective, a student's probability of achieving success is thought largely a function of personal and familial resources moderated or influenced by aid in the form of grants, loans, or other subsidies based on need or merit in the face of real and always rising educational costs (Jensen, 1981).

Minimalist studies in this tradition consider personal student and family wealth and income while more intensive investigations include hard data reflecting financial aid

[18] Blimling's 1987 meta-analysis of refereed articles on the influence of residence halls on academic performance between 1966 and 1987 found that generally there was no significant difference in the academic performance level of undergraduate students living in residence halls and those living at home.

and may treat factors as complex as opportunity costs, price response measures, and employment levels or even general environmental workforce or economic issues. Sometimes investigations informed by this tradition extend to consider wider issues related to socio-economic class and caste. Collectively, the perspective might be regarded as the **"student material resource"** view. The most powerful studies in the tradition are the work of specialists with economic training and are typically used for long-range aggregate enrollment projections or issues of public policy rather than informing individual student behavior expectations (St. John, 1991; 1992; Olivas, 1985; Wing, 1989; Leslie & Brinkman, 1988). Yet, variables or factors standing as proxies for the perspective inform many, if not most, multivariate analyses by generalists (For example, Cabrera, Castenada, Nora & Hengstler, 1992). Such studies do not, however, often discriminate between family wealth and income nor do they typically consider larger contextual socio-economic forces in the extramural environment like employment rates, business cycles, or other community influences and pressures.[19]

Within this tradition, the *configuration* of financial aid packaging is considered by some to be especially important for explaining low college participation rates—especially among lower SES students. Relying on loans in contrast to grants, for example, is held to work severely against the interests of minorities whose families are at least twice as likely to have annual incomes below the poverty line, and are unable or unaccustomed to servicing loans, as are solidly middle-class families (Sudarkasa, 1988; Arbeiter, 1987). Thus, theories focusing heavily on students' finances and the influence of financial aid in fostering retention are common (Mansky & Wise, 1983; Iwai & Churchill, 1982; Jensen, 1981; Voorhees, 1985; Murdock, 1987). But, in general, according to Tinto, "their ability to explain departure in its various forms has thus far been quite limited" (Tinto, 1986, p. 363).

In autopsy or exit type studies, Black students (like others) very frequently cite "financial support" as the reason for withdrawing from an HBCU (Adams & Smith, 1987; Braxton, Brier & Hossler, 1988). Several studies have found that grants and work study awards are likely to be associated with persistence among low-income students

[19] Exceptional in this regard, DesJardins, Ahlburg, & McCall do consider several underutilized contextual variables in their recent study of student college choice, including both regional unemployment rates and competing tuition rates. (2006)

(Cross & Astin, 1981). Reliance on loans is associated with attrition among all types of students—except for Black males in TWCUs (Astin, 1975). The positive impact of any particular type of aid is maximized when de-coupled from other forms of aid (Cross & Astin, 1981). But, Spady (1970) cautioned long ago that students are simply more likely to "blame" finances, a socially respectable limitation, as a convenient and respectable scapegoat justification for departure rather than risk admitting or confronting other root proximate causes.

Sociological Theories: Today, among scholars actively researching collegiate attrition and retention, two related sociological theories overwhelmingly dominate empirical investigations and have done so for over a generation. The theories dominate both qualitative and quantitative investigations during this time. They might be characterized, generally, as the **"institutional acculturation"** and the **"societal re-direction"** models—although usually described more ambiguously (and perhaps confusingly) in "the literature" as the "student integration" (Tinto, 1987) and "student attrition" (Bean, 1983) models. The two models have elements in common such that one commentator suggests "as a common thread the notion that persistence… [is] largely a function of the student's fit or match with the college environment" (Pascarella & Terenzini, 1991; p. 387). And there are analytical reports of having successfully merged the two perspectives to achieve a somewhat greater level of predicting academic success than is possible using either of the original models alone as is discussed below (Cabrera, Castenada, Nora, & Hengstler, 1992).

But, at the most basic level, the common ground uniting the two intertwined sociological traditions is that they regard attrition as a form of academic failure that is, in some sense, an unfolding adjustment *process* rather than a specific, concrete attribute of students—a fact. And, to their credit, the more recent inquiries have gradually moved the discourse away from the cruder forms of "blame the victim" (Ryan, 1971) and the language of "Drop Out" that were more popular mid-century (Dorn, 1993; Pantages & Creedon, 1978).

Institutional Acculturation: The institutional acculturation (or student integration) model is associated generally with the extensive work of Spady (Spady, 1967; 1970; 1971) and Tinto (Tinto, 1975; 1982; 1986; 1987; 1988, 1997). The model is

the better known and more popular of the two dominant models. Berger called it "seminal." (Berger, 2000) Although many of its themes long pre-date Tinto in the literature, some researchers on student retention cite few other authorities than Tinto (Arrington, 1996). Spady's work, often cited in passing, is rarely explicated by recent scholars—possibly owing to the obscurity of the Interchange journal in which his major syntheses were published. But Spady's understanding foreshadowed to a remarkable extent much of the research and thinking about student departure for the next half century.

Extensive large-scale investigations by well known scholars are all congruent with this perspective. Astin, for example, emphasizes the importance of student participation in campus life for academic success including persistence. In this regard, involvement in sports, clubs, sororities, fraternities, etc. are held to be critical. This social participation, it is thought, aids students in bonding with the institution. They are thought to develop a close relationship with peers, faculty, and staff that results in their being more likely to remain matriculated until graduation (Astin, 1977; 1984). But Spady cautioned years ago about the possibility of negative correlations between excessive social integration and academic integration (Spady, 1970).

The positivist analytical outlook of the institutional acculturation model is, of course, comforting for vested interests: faculty, bureaucrats, and administrators. It casts little or no responsibility on institutions for student departure. Not surprising, therefore, its perspective underlies much consulting work with institutions' admissions officers and enrollment management staff striving to reduce attrition (Noel, Levits, et. al.; 1996 [20]). There are, accordingly, numerous annual conferences and workshops inculcating and popularizing "Tinto" among practitioners coast to coast.[21] As a result, practitioners guided by a profitable corporate influence, widely cite "Tinto" knowingly—if loosely.

Spady's construction (Spady, 1970; 1971), emulated and expanded by Tinto, understandably for a scholar whose undergraduate focus was anthropology, is ultimately an anthropological one heavily influenced by the concepts of alienation, anomie, and

[20] http://www.noellevitz.com/NLCOM
[21] See, for example, http://www.noellevitz.com/nlcom/Events/2005_National+Conference+on+Student+Recruitment+Marketing+and+Retention/National+Conference+on+Student+Recruitment+Marketing+and+Retention+overview.htm

social suicide (Durkheim, 1951) together with "rites of passage" (Van Gennep, 1960) In this view, departing college prior to completion represents an incongruence or misfit between students and institutions, possibly occasioned by students' failure to adequately disengage from pre-college life. Spady discussed it originally under the label "normative congruence" (Spady, 1970). The key idea here is that a student's life circumstance, including academic ability, motivation, and social reinforcement, forms attitudes that develop into underlying commitments towards both immediate and longer term educational goals and particular institutions—or not. The presumption is that structural relations exist between academic integration, social integration, and goal commitments. In short, for academic success, a student's outlook must be congruent with that of the institution in which he or she finds him or herself and the student should become detached or alienated from prior life interests—a concern especially important in thinking about minority students (Blacks; Hispanics) where maintaining ties with institutional and familial sub-cultures has been found to be particularly important (Hurtado & Carter, 1997).

Tinto's understanding and application of the anthropological concepts, though, have been severely criticized (Tierney, 1992) while his hypothesized relationships have garnered a spotty record of reliability in different contexts under close examination (Cabrera, Nora, & Castaneda, 1993; Cabrera, Castenada, Nora, & Hengstler, 1992). Much of the difficulty in applying the Spady-Tinto construct with compelling results may lie in a lack of precision in operationalizing the concept of "integration." Researchers have used diverse proxies for the concept and their findings are sometimes incongruent.

The Spady-Tinto's model has been amplified by a variety of subsequent researchers, each adding another predictor to the model (like a chef tossing another favored vegetable into a salad)—sometimes fogging the theoretical clarity if not purity, of the construct. Thus, for example, students' "self-efficacy" has been posited as an additional input factor (Grabowski, Call, & Mortimer, 2001) along with "social networks" (Thomas, 2000), "active learning" (Braxton, Milem, & Sullivan, 2000), and "life tasks" (Brower, 1992). A plethora of other "noncognitive factors" (Hood, 1992; Arbona & Novy, 1990; Tracey & Sedlacek, 1984; 1985; 1989; Pfeifer & Sedlacek, 1974; Sedlacek, 1989) along with the relationship between empirical reality and various actors'

perceptions of it have also been explored (Biddle, Bank, & Slavings, 1987; Terenzini, Theophilides, & Lorang, 1984).

Often studies are generally congruent with Spady-Tinto's model to some extent but have low predictive validity. Nettles and colleagues (Nettles, Theony, & Gosman, 1986) found that "student satisfaction, peer relationships, and interfering problems have a much greater impact upon Black students' cumulative college GPAs than they do upon White students' college grades." Students from small towns are persisting longer in smaller institutions (Astin, 1975). Higher grades and satisfaction levels have a positive effect on persistence (Dawkins & Braddock, 1982). Non-cognitive factors are more important for minority persistence than for White, while adjusting to the college environment and treatment by faculty and staff are more important for success or failure (Sedlacek, 1987). Positive self-image (in spite of attacks from the radical right) together with attitudes and coping abilities are positively related to persistence for Blacks, net of other attributes (Abatso, 1982). One study found that attitudinal and behavioral attributes were more significant predictors of Black students' performance than were background characteristics (Nettles, 1988). Others discovered that Black students living on campus and using campus facilities, with a strong self-concept, and realistic perceptions of the college were most likely to persist into a second year (DiCesare, Sedlacek, & Brooks, 1972; Sedlacek, 1987).

Intellectual competition among students has been found to have a generally larger positive effect on men than women (Pascarella, 1984). Ethington & Smart (1986) found that social integration or involvement had a significantly more positive impact on freshman persistence for women than for men while academic integration was more important for men. Donovan (1984) found academic integration to be a stronger positive influence on Black students than social integration. Yet, studies by others have been inconclusive (Mallinckrodt & Sedlacek, 1987, Mallinckrodt, 1988) or found no racial differences in the relative importance of academic and social integration (Pascarella, 1985). There is some evidence that college leadership experiences are more important for Black men than other groups (Stoecker, Pascarella, & Wolfle 1988).

Societal Re-direction: Bean's "attrition" model, or the "Societal Re-Direction" model, as I prefer to conceive it, is built atop an edifice of original organizational theory

treating worker participation and turnover (March & Simon, 1958). Here, following the tradition stemming from March & Simon, participation is seen as a business transaction in which a variety of financial and personal rewards are returned to workers by the organization in exchange for transitory productive participation.[22] In one stream of this literature, examining voluntary worker turnover in nursing, Price and others eventually identified 11 determinants of worker departure, including opportunity, routinization, participation, instrumental communication, integration, pay, distributive justice, promotional opportunity, professionalism, general training, and kinship responsibility (Price, 1977; Price & Mueller, 1981). But in Price's later work, following Porter and others (Porter, Crampon & Smith, 1976; Porter, Steers, Mowday, & Boulian, 1974) these primary determinants were found to be moderated by intervening variables reflecting "job satisfaction" and "intent to stay" or commitment.

Bean, leveraged work by Price and others, adapting their concepts to explain voluntary student withdrawal from college (Bean, 1983). From this perspective, participation in college appears as a transaction in which a variety of extrinsic rewards including course credits, grades, diplomas and the promise of future employment with the expectation of greatly enhanced financial compensation are returned to students by the college in exchange for students' continued engagement with the institution. Further, Bean posited that students' perceived personal development arising from the collegiate experience coupled with their anticipated practical value of the college experience would be considered a form of compensation. Bean's attrition construct then rests on the idea that student' beliefs about the value of a college education and their commitment to a particular college are attitudes arising from more basic prior influences and that these in turn directly influence their behavioral intents to stay or withdraw (Bean, 1983; Bentler & Speckart, 1979; 1981). Students' original beliefs, in turn, are affected by students' overall pre-college life experience—including exogenous or extra-institutional and endogenous or intra-institutional ones both pre-college and contemporary with college. And the intent to withdraw is found, unsurprisingly, to be highly correlated with the fact of withdrawing.

[22] See especially, March & Simon, 1958, Chapter 4 on the "Decision to Participate."

Bean's theoretical model and discussion, then, considers organizational, personal, and environmental influences—the latter given little attention by the Spady-Tinto model. And extensive testing of this model has found non-intellectual factors do play a major role in student disengagement. For students, it appears that grades can be treated as academic rewards—quasi-wages. Sedlacek, for example, has devoted the better part of a long career to explicating these non-intellectual and non-cognitive influences on minority participation in a largely majority institution (Pfeifer & Sedlacek, 1974).

But one might take issue with Bean on methodological if not theoretical grounds. First, as I argue more fully below, Bean discriminates simply between "Stayers" and "Drop Outs"—ignoring that there may be several distinct classes of leavers each responding to manifestly different agendas. The formulation in one of his landmark studies is: "The criterion variable, Drop Out, is defined as the cessation of individual student enrollment in a particular institution" (Bean, 1983, p.131). While this bivariate design as a criterion variable may be justified when predicting or explaining the behavior of "Stayers" as a group (and it certainly is pervasive in the literature), it falters badly when the intent is to predict or explain the disparate decisions and behaviors of several distinctly different types of Leavers, as is investigated in the present study.

Secondly, and perhaps equally serious, while Bean breezily discussed environmental *influences* on "Drop Out" at a theoretical level, he operationalized this expansive theory for concrete investigation by admitting for consideration only two specific variables! He considered first "marriage" as a proxie for "kinship responsibility" as used by Price. But, upon close scrutiny, one discovers that "marriage" as he considered it was further reduced in practice to students' anticipatory expectation of the probability of a marriage sometime before completing a college degree as revealed by response to a survey question—thus, a "hypothetical." And he also considered "opportunity" (a notion derived from Price relating to the opportunity to disengage from one job to get another). But, again, one finds that "opportunity" as employed by Bean was limited to the opportunity to transfer to another college—ignoring thereby a vast assortment of other attractive opportunities a student might identify for affiliation in the extramural world (Bean, 1983, p. 135).

There is a serious limitation, one might argue, to a research methodology that reduces the universe of possible environmental influences outside of a collegiate institution to (1) a student's expectation that he or she might likely be married before completing college and (2) a student's expectation of the probability of an opportunity to Transfer Out to another college. Other routes abound through the complexities of a modern society than is reflected by these two courses of action. For example, economic conditions, employment opportunities, warfare, terrorism, or dependent family responsibilities other than marriage might equally redirect a student from institutional or educational commitment to some other compelling life course altogether. Considerations such as these reflect possible "pull" factors emanating from the external environment.

More recent developments in the study of employee turnover might help to address Bean's consideration of a limited number of external pull factors (Hom & Griffeth, 1995). Building on intentional behavior theory (Fishbein & Ajzen, 1975), Van Breukelen and Associates (2004) found that predicting workers' voluntary departure is far more difficult than predicting workers' retention. But, drawing a distinction between attitudes about the organization itself and attitudes about future self-behavior, they did find that attitudes about behavior were by far the better predictor of turnover. Thus it was a worker's *intention to leave* rather than opinions about the employer that were found to best predict worker departure. To operationalize this concept, these researchers asked subjects to estimate the probability that they will leave rather than asking them whether they intend to leave. One might begin to test this concept in college departure studies by inquiring of students about the probability of their engaging in a variety of extra-college activities (rather than about their commitment to the college)—activities that might pull them, over time, away from the college.

Fortunately, college departure theory has begun to expand and consider myriad "pull" factors available in the social environment that might redirect a student's attention and commitment away from a college organization—an affiliation that may have sprung from the transient influence of a more recently discarded referent group or authority figure's expectations. The influence of former guides, mentors, and/or family members may be discarded or reinforced as an individual matures and develops his or her own

identity, direction, and agenda[23] (Erikson, 1959; London, 1989). Further, ongoing organizational affiliation can be considered in the light of realistic opportunity costs—as has been instinctive for economists since Adam Smith and his famous musings arising from an hypothesized pin factory.[24] Thus, an alert and well-informed minority student might question the degree to which a college education really provides adequate pay off in light of actual employment possibilities available following the college experience or in light of sacrifices necessary to attain a collegiate education—the more so as college costs rise and corporations "downsize" to the greater disadvantage of minorities. This is an important perspective in light of studies suggesting that a well-trained blue-collar craftsman might attain far greater return from labors than do modestly educated white-collar bureaucrats chained to their middle-income, information processing tasks (Stanley & Danko, 1996; Crawford, 2006). These questions are especially poignant for either minority or first generation college students in minority institutions lacking direct network-enabled entry to more lucrative employment circles. Opportunity cost of a college education may be considerably greater, in light of expected costs and outcomes, for minority students from lower socio-economic backgrounds than for majority students from middle-class backgrounds.

Nora and others have begun to flesh out this line of argument with empirical research. They candidly draw attention to the failure of Tinto's theory to address the role of external factors in shaping students' perceptions, commitments, and persistence (Nora, Cabrera, Hagedorn, & Pascarella, 1996, p. 429). While much of this work remains locked in unpublished papers (Nora & Cabrera, 1994; Nora & Wedham, 1991; Nora, Castaneda, & Cabrera, 1992), their published materials are promising. Among minority students, they found, for example, that pre-college factors do <u>not</u> improve models predicting departure when those models also include "pull" factors from the contemporary environment (Nora, Cabrera, Hagedorn, & Pascarella, 1996). Strongest pull factors they have identified are associated with diverse family and off-campus work responsibilities.

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[23] Carl Jung long ago described in great detail the process of "individuation" as "becoming a single, homogeneous being", or "becoming one's own self". See his <u>Collected Works</u>, "Two Essays on Analytical Psychology", "Individuation", Vol. 7, Part Two.

[24] Apparently, he never saw one (Warsh, 2006, p. 40).

The model they developed in one study (1996) considered four categories of "factors" in a stepwise logistic regression treatment: background characteristics, institutional-related factors; environmental factors, and cognitive abilities and affective gains. In particular, they tested whether the probability of retention was comparable for the four different groups of students formed by the intersection of sex and minority status. While their findings rested on a large group of college students (3900) drawn from diverse institutions, none apparently were HBCUs. And, while their development of predictor variables was creative and instructive (reducing continuous data to bivariate data for conceptual reasons, for example), it must be observed that their input variables were cherry-picked based on *a-priori* theoretical grounds. Factors were not derived empirically as a result of factor analysis nor other statistical or empirical processes. Most interesting among their findings: "Only environmental factors, cognitive abilities, and affective gains associated with attending college were found to contribute to the persistence behavior among minority students" (Nora, Cabrera, Hagedorn, & Pascarella, 1996, p.441). Most specifically, having children or being married, for minority students, reduced the probability of persistence by 87% and 83% respectively. Sadly, their criterion variable did not discriminate between Stop Outs, Transfer Outs, or Drop Outs among their departing students. One wonders, would they have found better predictions using a more discriminating criterion variable?

Student Voice (Cultural Capital): A student-centered multi-cultural construct is the last general conceptual view that is now beginning to inform thinking about college retention and attrition, although it has informed only a hand full of studies to date. Associated with the empirical work of Tierney (Tierney, 1993; 1992; 1992) in American Indian colleges and Hurtado and Carter with Hispanic students (Hurtado & Carter, 1997), the perspective adheres to a "social constructionist view of reality" in which institutions are conceived "as multicultural entities" that encourage diverse views and values instead of pressing students to conform to the dominant American-Eurocentric culture.

Tierney appealed to critical theory (McLaughlin, 1989) and feminist approaches (Holland & Eisenhart, 1990) for support and suggests "giving voice" to, "emancipating," and "empowering" students rather than seeking to socialize and/or acculturate them into the dominant class structure and socio-economic system. The general perspective has

begun to inform empirical research by attending to issues like "active learning" (Braxton, Milem, & Sullivan, 2000), students' "life tasks" (Brower, 1992), and personal goals (Stark, Shaw, & Lowther, 1989). For purpose of the present typology, the view will be labeled the **"student voice"** perspective. Several important critiques of Spady and Tinto's integration model have arisen from this perspective, particularly regarding its applicability to minority groups and cultures (Braxton, 2000; Attinasi, 1989; Hurtado & Carter, 1997; Rendon, Jalomo, & Nora, 2000).

The perspective shows promise for correcting a notable deficiency in mainstream research. Suggested above, a remarkable reluctance to focus on either student goals or institutional experiences as significant contributors to stay/leave decisions characterizes the literature. The avoidance is unfortunate for, as Stark and others have observed:

> "Goals are not fixed: they change as individuals develop different self-views, and acquire new methods of regulating their behavior. In fact, helping students to revise their goals and to improve the extent to which they control their behavior are valid educational goals" (Stark, Shaw, & Lowther, 1989).

And, institutions vary widely in terms of their "cultural capital," operating procedures, and social arrangements (Horvat, 2001). Thus, individuals adjusting their personal behavior so that it is congruent with shifting goals and institutional realities might logically be considered as acts of integrity and maturity, not failure. Such personal adjustments in attitude, goals, and behavior could, quite logically, be viewed as "value added" quite as much as the typical constructs of "academic success" (Astin, 1993).

Closely allied with both the "student voice" and "societal re-direction" perspectives is a grand theoretical panorama derived from the French scholar Pierre Bourdieu (Bourdieu, 1973; 1977; 1980; 1984; Bourdieu & Wacquant, 1992). Articulated in several discussions of American higher education (DiMaggio, 1982; DiMaggio & Mohr, 1985; Berger, 2000; McDonough, 1994), the view holds that students will be most successful when their "cultural capital" is congruent with an institution's "cultural capital" and the student's and institution's "habitas" (analogous to "world views") are in harmony. Reduced to basics, the idea here is that students belong to a social/cultural class and are most successful when they attend a college that functions congruently with

the norms of that class. Unfortunately, the perspective, intriguing in theory, has produced no empirical research of note bearing directly on student departure (in HBCU's or elsewhere) owing, perhaps, to difficulties in operationalizing relevant constructs—or even defining clearly the jargon (Horvat, 2001).

Yet, findings among more conventional analyses generally support or reinforce the language of Bourdieu's "cultural capital" hypothesis. For example, Wilson asserted that poverty and membership in a growing "underclass" is a primary cause of low enrollment and attrition (Wilson, 1987). And Allen asserted that further causes of attrition among Blacks include poverty and lack of role models, uneven quality of secondary school preparation, toughening of college enrollment requirements, increased admissions reliance on standardized tests and alterations in financial aid packaging (Allen, Epps, & Haniff, 1991; Allen, 1985). Holman, focusing on public school preparation, argued that too many Black students move away from college preparatory track in elementary grades "resigned to societal norms of inequity and avoid developing the skills, habits, and content necessary for continued study at the college level" (Holman, 1985). Hammond argued that inner city school officials "direct" Black students towards lower status occupations not requiring collegiate level work (Hammond, 1985). And Blacks are often routed generically off into general studies rather than into college-track algebra, geometry, trigonometry, or calculus (Sudarkasa, 1988). High school GPA[25] and class rank are sometimes found to be partial indicators of student persistence along with the income level of parents, pre-college environment, and student personality characteristics (Ramist, 1981). But Astin (1975) and Freters (1977) both report that the educational levels of parents are more influential than their income level.

Works in this newer tradition serve, in the main, to add subtlety to the general understanding reached long ago that "family socioeconomic status has an impact on college attendance beyond ability or achievement" (Pascarella & Terenzini, 1991, p.369). It has long been understood, after all, that a connection bonds students' college attendance, persistence, and achievement beyond what can be accounted for by personal talent, qualities, and family wealth alone (Christensen, Melder & Weisbrod, 1975; Bean, 1985).

[25] GPA = Grade point average (cumulative); see Glossary.

Conceptual Overview: Thus, empirical investigations of students' staying and leaving colleges have generally relied on some mix of six conceptual views or models. Beginning with the idea of "raw student quality," investigators have considered students' "amenable character," their academic readiness, and more recently dynamic psychological processes. These understandings have been amplified using the notions "student material resources" together with issues related to "institutional acculturation" and "societal re-direction"—sometimes merged together. Then, most recently, these constructions have been challenged by the multicultural perspective attending to students' "own voice" and "cultural capital."

Underlying these six conceptualizations, perhaps tying them together like great girders supporting a massive edifice are two primary themes—themes addressed by all researchers alike of whatever other preoccupation: sex and ethnic status. They affect understandings of the intellectual tone, the psycho-social fiber, the acculturation experiences, the financial support mechanisms, the societal re-direction lures, and most especially the voice, self-image, and culture of contemporary Newbies and their proclivity to continue or disengage from their college experiences.

Sex and Race: The themes, sex and race, have been investigated explicitly in their own right in relation to college persistence—net of other factors. It has been long known that the sexes are differently affected by many of the factors that have commonly been used to explain college persistence (Pascarella & Terenzini, 1983). And, a similar understanding is common for differences among minority vs. non-minority students (Pascarella, Edison, Nora, Hagedorn, & Terenzini, 1996). Most recently, for example, an important logit study of a national sample of students developed separate persistence equations for males and females. The study found some unique differences in factors that affect the persistence rates of undergraduate men and women (Leppel, 2002). Aging, marriage, and work involvement all had a negative impact while increasing income and cumulative GPA or being Asian each had positive impacts on the persistence of male and female undergraduates. Having children or being Black had a negative influence on the persistence of men while having a positive impact on the persistence of women. Leppel's findings corroborated those of an earlier study.

A similar prominent study of a national sample of undergraduates in 1996 had posed a surprising challenge to the on-going study of persistence. This study found that generally "no pre-college factors were found to improve the persistence model fit for any ethnic or sex groups when community pull factors were taken into account along with direct collegiate experiences" (Nora, Cabrera, Hagedorn, & Pascarella, 1996). The elaborate model for this study included four categories of factors: background characteristics, institutional-related factors, environmental factors, and cognitive abilities and affective gains. The study was notable for explicitly testing the "suspected but rarely tested belief that the conceptual model of persistence would not be the same for different groups of students" [i.e.: (Male/Female, Minority/Non-minority] (Nora, Cabrera, Hagedorn, & Pascarella, 1996, p. 431). And the tests proved positive: different factors did indeed influence male and female, minority and non-minority student persistence. Most striking, "the presence of children for minorities reduces the probability of persisting in college by a startling 87%" (p.446) and "the probability of working off-campus reduced the chance of persisting by 36%" (p.447). Finally, the positive influences of the college experience were not enough to offset the negative "pull" influences of the environment for these students (p.447).

The findings of these two studies contrast markedly with findings in prominent studies that omit consideration of environmental "pull" factors. For example, one prominent earlier study of students' self-concepts, a study that did not consider environmental pull factors, found that "factors influencing academic and social self-concept were quite similar for race and gender" (Pascarella, Smart, Ethington, & Nettles, 1987). And in an early study of persistence to graduate education it was found that "what differences did exist…were found largely in those variables assessing the academic and social experience of college." Among other influences, the size of an institution figured importantly in females progressing to graduate school whereas the selectiveness of the undergraduate institution heavily influenced the proclivity of men to continue on to graduate school (Ethington & Smart, 1986; p. 298). And female progression to graduate school was influenced most heavily by social engagement factors in the undergraduate experience whereas male progression was influenced most heavily by academic engagement factors (p.298).

Taken together then, these six conceptualizations and two issues form a general paradigm within which the contemporary understanding of collegiate persistence is being furthered by empirical research. The abundant and useful work undertaken in the shadow of these concepts is reviewed, critiqued, and assessed in detail by four prominent book-length works as well as several lengthy bibliographic reviews. Most recently, Braxton collected a set of important essays designed to encourage new thinking on the topics (Braxton, 2000). Before that, Tinto published what has easily become the most influential single item in a long tradition (Tinto, 1975; 1987). Pascarella conveniently collected a set of useful practical essays (Pascarella, 1982) while earlier, Cope & Hannah published what was, at the time, a prominent synthesis but has since been all but forgotten and is now infrequently cited (Cope & Hannah, 1975). Between these major works, lengthy reviews by Spady (1970), Pantages & Careedon (1978), Tinto (1986), Mow & Nettles (1990), and Braxton, Sullivan, & Johnson (1997) reflect the state of the literature in encyclopedic fashion. Mow & Nettles' is noteworthy in focusing on minority access, persistence, and performance and reflects the paucity of empirical work on HBCU student departure.

Given the state of contemporary theory and empirical research—particularly with respect to disengagement from minority institutions—one is persuaded to avoid becoming overly ensnared in a massive theoretical quagmire. Rather than being constrained by the limits of six research domains outlined above, one might heuristically consider just three general sources of influences pressing on college retention and attrition behavior: pre-college student attributes ("assets"), entrance-level student attitudes, beliefs, and values ("mentality") and first-year student experiences (both collegiate and extra-collegiate). As the physicist Richard Feynman once explained, "very often models do help" but "it always turns out that the greatest discoveries abstract away from the model and the model never does any good" (Feynman, 1992). Feynman's view is occasionally echoed by others: "it is intuition not statistics that will determine whether we are to make a discovery of substance or merely demonstrate an obvious connection" (Tal, 2001). Thus one useful way to "abstract away" from the dominant models is to focus sharply on methodology and data—a course advocated by Bourdieu himself and for which he relied principally on "correspondence analysis" as his own usual technique,

explaining that he did so, in part, to avoid having to identify in advance any causal direction between predictors and outcomes[26] (Bourdieu, 1977; Bourdieu & Wacquant, 1992).

B. Methods & Practices

Thus, while the social theories, models, and conceptual constructions outlined above are helpful for guiding empirical analysis in this student departure realm, attention also needs to be given to how exactly the investigations are operationalized and pursued. And the first methodological issue to be confronted imposes a particularly inconvenient complication. It is a problematic issue because gathering "true" or reliable data about it proves complex, expensive, and time consuming. Most convenient collections of college data do not include this consideration as a specific variable. Yet, the issue is basic: population definition. The problem is: "What exactly is a "withdrawing" student and how does one know when and where to count him/her as a true 'attrition' case?" Before beginning a research journey in this realm in support of any theory, one must define exactly what it is that one is trying to explain. Is the object of investigation a proper set of valid categories or a continuous variable? And herein lies a great difficulty. Accordingly, Tinto in his theoretical reformulation has advised expanding current theory in practice by discriminating between forced and voluntary departure and also considering the timing of withdraw behavior (Tinto, 1986).

Withdrawals or Leavers: There are, simply, several types of distinct student behaviors typically aggregated as "departure," and some researchers argue (but infrequently enact their argument with empirical research) that they should be treated as categorically different (Tinto, 1975; Simpson, Baker, & Mellinger, 1980) and requiring individual analytical explanations. Many continue to argue that college success or failure (i.e.: "withdrawal") should only be construed as a bivariate variable in models predicting attrition in aggregate (Pantages & Creedon, 1978). Danger lurks in the later approach, though, because such aggregate treatments may obscure important differences that the present study investigates.

[26] See especially the discussion in "The Logic of Fields" related to "correspondence analysis" (Bourdieu & Wacquant, 1992, pp.94-98).

Regardless of the theoretical framework, for face validity it is reasonable that explanations for forced withdrawal occasioned by academic failure surely should be thought to differ somewhat from, for example, explanations of students transferring to find more suitable major programs. And these cases should differ distinctly from cases where students stop out for a period only to return later. And these cases may differ greatly, in turn, from "normally" progressing students who either can't or prefer not to adjust to college life for one reason or another or who are "pulled" away from college experiences by alternate life trajectories crying out for time and attention—pursuits with, perhaps, greater comparative advantage. And, then, there are always students repelled because of specific or general personal irritants or bureaucratic frustrations found within a specific institution—whether systematic or random chance (Simpson, Baker & Mellinger, 1980). Thus, methodology and theory inevitably intertwine over matters of definition.[27] And of critical importance here is a candid discussion of the basis for researcher judgment in applying any classification convention or scheme to raw data: categories and continuums do need to be employed with care and not assumed without demonstrated warrant.

Timing: Allied with this issue, is the equally confounding issue of "timing." At what point in a student's progression should "attrition" be taken as a fact and not simply be regarded as an interregnum or temporary lapse ("Stop Out") in an otherwise continuous long-term involvement? If a student disengages for a single term or two and returns, should that brief hiatus represent attrition and worse, be regarded as evidence of failure? Or if a student leaves for a decade only to return eventually, should that lapse be considered to represent attrition? Timing issues like these are most often ignored in the literature and there is no convenient comprehensive standard available for tracking individual cases beyond the six years mandated by current Federal Reporting (IPEDS) standards. Eckland long ago treated this whole issue as one of "stability" explaining that many predictive factors have an unstable relationship with graduation itself owing to the tenuous nature of the outcome variable (Eckland, 1964). In his view, many students

[27] Of course, it is possible to carry the thirst for definition so far that other work would cease. What, for example, other than establishment practice and power arrangements, justifies using "Black" as an ethnic category rather than a color continuum—given shades of meaning resulting from miscegenation and the influence of color gradations on status arrangements within "the Black community" itself?

originally "presumed" lost to an institution do eventually return and complete programs if the time scale for the study is sufficiently elongated to capture the relevant evidence.[28] But most studies of this genre, perhaps due to expendience, consider a time window of only a year or two at most.

Significance: Once the subject population under investigation is clarified and carefully classified, a further area of concern is the question of analytical significance. How much variation in retention or attrition needs to be explained by a model for the finding to add useful robustness to one's understanding? One finds studies, for example of Blacks attending HBCUs, where the combination of SES and high school grades is related to persistence but accounts for less than 20% of the variation in persistence (Braddock, 1981). Is this level of explanation really useful when 80% of the variation rests unexplained while chance alone might explain 50% of it? While "error is always present when a decision maker generalizes from a measurement to a behavior in the universe" (Shavelson & Webb, 1991, p.3), there is considerable cause for concern when the "error" exceeds understandings by orders of magnitude as in many attrition studies.[29]

While questions are posed and researches are undertaken in the realm of student departure with expectation of positive findings, there is always a possibility of no real finding. The "error" masked by a model—whether due to erroneous theory, faulty definitions, or rough implementations—may exceed the "truth" it unfolds. It may be that in studying college persistence, like in studying the Wall Street securities market, "our brain sees the world as less, far less, random [and more patterned] than it actually is." Retention may be a "randomness trap" where "luck plays a very large role" and findings are filled with "logical fallacies" because researchers, enraptured with complex technical tools, "underestimate the share of randomness in about everything," projecting patterns where none inhere as in a Rorschach ink test (Taleb, 2004; Rescher, 1995; Kahneman, Slovic, & Tversky, 1982).

Variable Stability: Equally important with careful definition of the subject population and its characterization, is care with the reliability and stability of various

[28] This concern rightly underlies DesJardins' admonition against using cross-sectional data in studies of attrition (DesJardins, 2003).

[29] Recently Pike brought a line of thinking to my attention that may warrant incorporating into departure studies, perhaps in lieu of the more usual reliability theory: "generalizability theory" (Cronbach, Gleser, Nanda, & Rajaratnam, 1972; Shavelson & Webb, 1991; Pike, 1994).

other variables. Grades, in the form of cumulative grade point averages, for example, are often used either as predictor or criterion variables in attrition studies. Yet it is well known that grades are highly unreliable measures across instructors and curriculum and class level (Pollio & Beck, 2000; Milton, Pollio, & Eison, 1986; Milton & Edgerly, 1976). Thus, the use of specific grades in empirical studies could be a source of considerable instability or ambiguity in findings. When considering grades, it might prove more serviceable to use quartile rank or other categories rather than specific grades. Alternatively, studies relying on firmly grounded objective behaviors or events would seem to offer far greater opportunity for definitive findings.

Then, too, as Spady cautioned, use of simple bivariate research must be avoided lest spurious results be mistaken for normative patterns (Spady, 1970). For example, a recent mini-inquiry at Savannah State University undertaken by mandate of the Student Support Services staff found that, in general and exactly contrary to their expectations, students with limited personal and familial financial means, but receiving Pell grant support (not controlling for other factors), were retained in the institution longer and earned higher cumulative GPAs than students emerging from richer economic backgrounds (Crow & Lauffer, 2004). But, what did this finding actually explain, lying alone in a field of doubt? It may be that we just demonstrated with a classic application of circular reasoning that students who are more involved with institutional processes (for involvement is surely necessary to secure scholarship monies) are really more involved with the institution. Eureka!

Methodologies: The formal *methodologies* used in studying student retention vary widely: ranging from *ad hoc* interviews among continuing and leaving students to various popular statistical techniques for coping with larger numbers of cases constituting single-institution, state system, and national sample investigations. Within this literature, one finds plausible if not compelling arguments for virtually any approach or treatment. Logistic analysis has its advocates (Tinto, 1975; Stage, 1989; Caberera, Stampen, & Hansen, 1990), concerned especially with technical issues relating to the categorical nature of both dependent and independent variables used in the analysis. Discriminant analysis is suggested by others (Huberty & Lowman, 1998; Huberty, Wisenbaker, Smith,

& Smith, 1986) similarly concerned with relying on and analyzing the contribution of multiple categorical independent variables to a nominal outcome.

Dey and Astin (1993) once investigated empirically the relative efficacy of alternative statistical approaches (logit, probit, & OLS regression) and summarized their comparisons observing that "despite the theoretical advantages offered by logistic regression and probit analysis, there is little practical difference between either of these two techniques and more traditional linear regression" (Dey & Astin, 1993, p. 579). They observed, further, that "the 'fit' of predictions based on linear regression to cross-validated data appears to be at least as good as the fit obtained with either logistic regression or probit analysis" even commenting that linear regression "does not seem to be at a disadvantage in those areas—the extremes—where one would expect logistic regression and probit analysis to produce a better prediction" (Dey & Astin, 1993, p.579). Noting that linear regression "is much more widely used and better understood" they did question whether "differences among the methods become more pronounced as the predictability of the dependent variable increases"(Dey & Astin, 1993, p. 580)? Stopping short of recommending linear regression wholesale for general use with bivariate dependent variables, they did encourage "researchers who have data resources with which to examine such questions" to "experiment with alternative methodologies" and share their results.

Others take issue with the wholesale use of multiple regression analysis in postsecondary educational research on methodological grounds. Ethington and associates, for example, primly remind readers that the "use of stepwise techniques in developing explanatory models is always improper." Further, multiple indicators of single constructs of a theory "often lead to statistical problems" and "meaningful interpretation of results" is precluded. Control variables should be used only in light of overarching theory, not just because they are available odds and ends.[30] The outcome should be measured on a continuous level; when it is not, probit or multinominal logit techniques should be used. Finally, the size of the sample used in regression "impacts the

[30] On the other hand, instructing for use of exploratory factor analysis, Kline advises "the rule is to put in as many variables as possible and see what loads on the relevant factor" (Klein, 1994, p. 9). While he cautions that samples of less than 100 cases "could produce misleading results" (p. 180) and advocates a "high ratio of subjects to variables" (p.174), he nonetheless insists that a minimum of 10 items is necessary "even for a [single] narrow factor." (p.165).

stability of the results." They support other authors in arguing that one needs at a minimum 15 subjects per variable or a sample size > 100 for five or fewer independent variables (Ethington, Thomas, Pike; 2002). Yet, extant studies using regression techniques often do not satisfy many or all of these basic criteria.

Other advocates interested in specific research issues and questions opt for other techniques as well. DesJardins, for example, advocates Event History methods (DesJardins, 2003) for "modeling the time to Drop Out" in situations where the timing of the departure event, a longitudinal process, is itself the primary issue of importance. He cautions that regression methods using cross-sectional data "are no longer appropriate" and joins Box-Steffensmeir & Jones (1997) in asserting that "the traditional regression approach breaks down in an important way when we have a dynamic process."

Most recently, another investigator (a scholar-practitioner) has plowed new ground by applying multinomial logistic regression (MNLR) to the puzzling student return-dropout-stopout-transfer issue in a mainstream state university (Herzog, 2005). Unique in this investigation is the use of MNLR, the identification of a 4-part criterion variable, and the unusual selection of explanatory variables employed. Herzog included among his predictors students' first year college math experiences, their simultaneous enrollment in a second institution, and their second-year financial aid offers—arguing that an institution's aid offers for the second year, "inducements," were more germane to students' return decisions than were their first year packages already in hand. But also notably novel, Herzog argued that student success with college math was a far better measure of academic success than were either their first-year grades or their prior high school grades. Among his findings, "student performance in first-year math courses is the strongest retention predictor for new freshmen in their first semester" (Herzog, 2005, p. 915). In contrast, he found that remediation in English did not "jeopardize retention."

Herzog is on solid ground observing that most past and present theories of student departure "conceptualize student departure largely from the [self-interested] vantage point of the institution—either a student is retained or not—thereby ignoring transfer to another institution…" (Herzog, 2005, p. 885). He is especially focused on the growing trend of students "swirling" in and out of different institutions and argues perceptively

that this trend "is not adequately accounted for in the retention literature" (Adelman, 2004; Borden, 2004).

For present purposes, the careful definition and disagregation of the student population to form a reasonable criterion variable together with identifying those appropriate and relevant influences that do discriminate between Stayers and various types of Leavers in an HBCU is the primary objective. Refining statistical techniques for higher level analysis must await this investigation in a minority institution. Findings to date are not compelling with regard to the theoretical level and, consequently, first reviewing and identifying particular factors of possibly unique interest in the HBCU context is critically important.

C. HBCU Inquiries:

While theoretical concepts, hypotheses, and perspectives for studying college student departure in general together with the principal methodological issues and techniques generally are set out above, it is also instructive to consider what empirical investigations of Stayers and Leavers now have been completed in HBCUs themselves. If these institutions are, as has been claimed, "outlier" institutions (Laden, Milem, & Crowson, 2000), it is reasonable to suspect that they may harbor unique influences impacting persistence decisions by Newbies not so pressing upon the clientele of first-tier institutions. There may be some question, however, about whether or not HBCUs will long remain "outliers" given the forces for isomorphism and conformity now pressing in upon them.[31]

FAMU's CSEQ Study: A few contemporary studies have investigated student departure in HBCUs directly. A 1995 study of student involvement at Florida Agricultural & Mechanical University (FAMU), a state supported HBCU (Ralph, 1996) utilized Pace's CSEQ[32] to investigate students' campus experiences and judge their degree of involvement and quality of effort with the college—an inquiry in keeping with the Spady-Tinto & Pace models for academic success. A goal of Ralph's study was to "bridge the gap in the research literature" between research on student involvement

[31] A step-up in the rate of college integration following the appellate court decision, Adams v. Richardson (1973) has, for example been blamed for a disproportionate decrease in enrollment among HBCUs.(Smith, 1981; Thomas & McPartland, 1984)

[32] CSEQ = College Student Experience Questionnaire; see Glossary

(largely undertaken in TWCUs) and the HBCU experience. Ralph noted erroneously that "no prior empirical studies" of student progress using the CSEQ had been undertaken in an HBCU (Ralph, 1996, p.99). Nonetheless, among Ralph's findings, several student characteristics were identified as highly related to students' college involvement:

On-campus residential status
Full time attendance status
Level of academic achievement
Plans for graduate school

Ralph's study did not directly consider any independent indicators either of persistence or academic achievement and so was unable to discriminate between responses of Stayers and Leavers to any of the inputs. Here, independent predictor and criterion variables were essentially all student attitudes collected conveniently on a single CSEQ survey and the study simply reported on relationships between and among self-reported survey items internally.

Ledbetter's CSEQ Study: Despite Ralph's assertion of no relevant prior HBCU studies, an earlier study had been undertaken in four HBCUs using the CSEQ to investigate students' institutional integration—again in support of the Spady-Tinto hypothesis (Ledbetter, 1991). Unlike Ralph's inquiry, Ledbetter was interested specifically in the relationship between involvement and persistence and he was aiming in particular to determine the extent to which the Spady-Tinto hypothesis is valid in an HBCU. Further, Ledbetter was sensitive to differences in success patterns for male and female students.

Ledbetter found a significant mean difference in grade point averages for "departers" compared to "non-departers." But there were "no other significant differences in mean academic integration scores reported by non-departers as compared to those scores reported by the departers" (Ledbetter, 1991, p. 120). Similarly, he found no significant differences in mean scores on Pace's academic integration scales by male and female students. There was, however, a significant difference between men and women on the sub-scale relating to writing experience. Overall, Ledbetter found the results of his study "discouraging." Paradoxically, in his view, "even when [HBCU] institutions are successful in integrating most of their students into the academic and social sub-domains which relate to departure behavior, it does not assure a reduction in

the number of departers" (Ledbetter, 1991, p.138). One important issue, however, may seriously confound Ledbetter's findings. He lumped into a single category all types of "departers"—even though several sub-sets may be shown to be categorically different: Transfer Outs, Stop Outs, and genuine Drop Outs. His masking of these differences may account for some limitations in and his discouragement with his own findings.

Clark Atlanta Psychosocial Study: Then in 1997, Watkins tested a modified Spady-Tinto psychosocial model of student attrition on 232 freshmen at Clark Atlanta University, a private HBCU. He declared (*apriori*) that evidence suggests "variables predicting and the processes leading to African-American student attrition differ from those for white students" (Watkins, 1996, pp.5-6). Watkins integrated financial aid and cultural integration variables along with the general Spady-Tinto's formulation. His factor analysis extracted six factors underlying attrition: finances, academic integration, social integration, cultural integration, goal commitment, and institutional commitment. Then, using a path analytic and hierarchical regression methodology, he found "moderate support" for his hypothesis that among African-American students at an HBCU, the collection of causal variables "accounted for 12% of the variance in persistence behavior" (Watkins, 1996).

Watkins' main contribution was his successful assertion that a financial construct might be added to the Spady-Tinto variables to measurably improve the predictive validity. But there are limitations to the general utility of his findings. His institution is atypical for HBCUs: it is an elite organization with rigorous admission standards, a high tuition cost with abundant financial aid, and a 75%-80% retention rate for new freshmen. His findings may represent "elite" institutions with African-American students rather than HBCUs more generally. And, like Ledbetter, Watkins' non-persisting students' category included Transfer Outs, Stop Outs, and Drop Outs alike. And he made no provision for possibly important distracting extramural experiences and influences on student lives and decisions.

Woods' College Impact Study: In a more recent study, Woods applied the college impact concept (Pascarella & Wolfe, 1985; Franklin, 1995) to a group of 517 freshmen in a single small, private HBCU responding to a locally developed survey instrument (Woods, 1999). Her study concluded vaguely that "each of the variables

included in study--background characteristics, racial identity, the ratio of same-race to other-race matching of students and faculty, faculty-student interactions, learning strategies, quality of effort, and peer learning--help to explain factors that contribute significantly to freshman students' academic success."

A variety of other studies in HBCUs, more tangential to the present investigation, develop suggestive ideas although not directly investigating explanations or causes of freshman persistence. For example Astin found in a large-scale study based on national CIRP[33] data that Black students were less likely to drop out of HBCU's than TWCU's (Astin, 1975) and he later identified some personal and environmental characteristics impacting the departure of students from HBCUs (Astin, 1982). Others have argued that Black students in HBCU's experience a more supportive social, cultural, and racial environment enhancing their academic progress (Nettles, Thoeny & Gosman, 1986; Willie & Cunnigen, 1981).

Fleming's Academic Readiness Findings: For two decades Fleming has focused on the relationship between standardized test scores and African-American student success in college and found only light correlation (11-12%) with college grades (Fleming, 1984, 1990, 2002; Fleming & Garcia, 1998).

For Black students generally, Fleming suggests that the relationship between test scores and college grades is inconsistent; sometimes they correlate positively and sometimes negatively. Some researchers find that test scores underestimate college grades while others find them over-predicting grades. In general, Fleming agrees with Jenks & Phillips (Jencks, 1998) that test scores have a moderate correlation with grades and predict a little better for Whites than for Blacks. Not discussed by Fleming (or others enlisting grades in studies of student departure) is the unreliability and meaninglessness of course grades themselves, given instructors' many diverse practices across knowledge domains, course levels, pedagogy, or personal idiosyncrasies, in measuring and reporting on student growth in an even-handed way (Pollio & Beck, 2000; Milton, Pollio, & Eison, 1986; Milton & Edgerly, 1976). Yet, in one study of five HBCUs, Fleming found "SAT[34] predicts success better for Black students attending historically Black colleges

[33] CIRP = Cooperative Institutional Research Project; see Glossary.
[34] SAT = Scholastic Aptitude Test; see Glossary

and universities" where they predict 20—22% of the variation in college grades (Fleming, 1990). Interestingly, her analysis concluded that "college environment makes a considerable difference: being at a Black college facilitates the SAT—GPA correlation among Black students" and "differential adjustment to the college environment has an influence on SAT predictive validity."

These studies cap a long tradition that has found African-American students on HBCU campuses experiencing greater psycho-social comfort in contrast to peers enrolled in TWCUs. The findings may be congruent with, if not directly supportive of, Spady-Tinto's hypothesis. Sometimes these findings are as specific as they are all-encompassing:

> The HBCU provides a "unique student-teacher relationship and teaching methodology" in which the "teaching methodology… embraces cooperative learning by doing in an accepting classroom setting" (Roebuck & Komnduri, 1993).

But, as Mow and Nettles describe, the "large body" of this HBCU research is descriptive or comparative, showing rate of access, success, or background characteristics in contrast to Whites or contrasting Black institutions with White institutions (Mow & Nettles, 1990, p. 48-49). And, there is no literature supporting the assertion with empirical evidence to demonstrate just how instructional methodologies in HBCUs do differ systematically (or in any respect) from TWCUs. And without such evidence, the *a priori* assertion lacks even face validity.

While a number of scholars believe HBCUs deserve greater study because they occupy a "unique cultural position among postsecondary institutions" (Davis, 1998; Rendon, Jalomo, & Nora, 2000), there are also cautions about the dangers of applying standard evaluation strategies from mainstream culture to situations dominated by diverse student populations where the institutional climate may be a major contributor to "both student and institutional outcomes," accounting for the persistence, progress and academic achievement of students (Jones, 1989; Nettles, 1994; Baird, 2000; Freeman, 1998).

Freeman's Channeling Explanation: Also, Freeman has examined the paradox of Blacks with higher postsecondary aspirations than other groups and yet participating at

a lower rate in higher education (controlling for socioeconomic factors). It is a fact on which she claims "there is widespread agreement among researchers" (Freeman, 1998). Understanding this paradox, in her view, requires understanding the role of "channeling," brought about by family (especially maternal) influences, peer pressures, financial realities, and student expectations coupled with a variety of school "factors" including curriculum, faculty, and general environment.

Fries-Britt's High Achiever Issue: Most recently, Fries-Britt explored experiences of "high achieving" Black students in HBCUs. Concerned that high achiever Blacks are both "understudied" and "presumed nonexistent" (Fries-Britt, 2004, p. 161) she undertook personal conversations with Black participants in honors programs and/or maintaining a 3.0+ GPA in several institutions and observed that Black students demonstrate academic potential and intelligence in ways not captured by conventional achievement tests" (Fries-Britt, 2004, p.163). Even so, she concluded, they are profoundly aware of two sources of stress not faced by less talented peers either in HBCUs or TWCUs. First, is a "pervasive stereotype that the HBCUs were considered less rigorous." Secondly, high achieving Blacks are often accused of "acting White" when excelling in school and are accordingly excluded from "in crowds". Both experiences create stress [a disincentive] for the high achieving Black who often reports "a degree of isolation in college" even in allegedly more supportive HBCUs. And yet in HBCUs Black students develop a stronger sense of "self esteem" and "confidence" than in TWCU. The HBCU, she explains, offers greater exposure to Black culture, an exposure that solidifies identity claims.

Freeman & McDonald's College Choice: Freeman & McDonald earlier reported on college choice among Blacks in HBCUs compared to TWCUs but found they were not distinguishable, in terms of background characteristics, from those attending TWCUs. Instead, influences they found that inclined Black students to attend HBCUs:

~Knowing someone attending an HBCU
~Seeking cultural roots
~Financial support (i.e.: less gap between cost and support)

And a surprising new finding in the 1990's is that students from predominantly Black high schools were more likely to attend TWCUs while students from predominantly

White high schools were more likely to attend HBCUs. The counter-intuitive finding is explained by the idea that students from White schools were seeking out Black culture and a stronger connection to the African-American community whereas students from Black high schools were interested in socialization with mainstream cohorts found in majority-dominated post secondary institutions (Freeman & Thomas, 2002).

One important piece by Outcalt & Skews-Cox investigating satisfaction with college experiences based on CIRP survey data concluded simply that "after controlling for individual measures of satisfaction," "HBCU enrollment retained a significant positive effect on overall satisfaction" (Outcalt & Skewes-Cox, 2002).

Ross Narratives: Several qualitative participant interview studies among HBCUs add "thick description" to an otherwise highly structured research tradition. (Geertz, 1973) Ross, for example, studied two convenient small samples of African-American males and females in a pair of "naturalistic inquiries" seeking to identify in personal student narratives factors to account for their successes in Black colleges (Ross, 1998; 2003). Her findings are interesting but the extent to which they may be applicable to other HBCUs or "successful" HBCU students generally remains to be seen.

Interviewing just *17* highly successful "President's Men" at Florida Memorial College, Ross identified eight themes in student narratives to account for success and achievement:

1. tight bond with mother or grandmother "set a positive example" for youth growing up demonstrating "hard work" and "perseverance"

2. emphasis on "religious-spiritual orientation" connected to a specific Black church and influence of a pastor often serving as a father figure

3. extended family provided support system to keep growing students "in line;" members served as role models, reinforced mother's guidance, and protected youth from hostile influences in environment.

4. high level expectations for the youth typified a "close-knit" extended family full of "love" and "unity"

5. 40% of participants with fathers living in home indicated that "fathers provided stability," were "role models," and stayed on their "case" with a warm close personal relationship

6. 60% of respondents with fathers absent expressed a strong need for a father and sometimes asserted that fathers were negative role models[35]

7. specific caring mentor or role model had emerged for the youth from among church contacts, coaches, and teachers

8. strong individual achievement orientation is group-centered, not individualistic; ethic emphasizes cooperation & consensus for decision-making.

Ross' study of 20 women college students identified similar success factors. But women's narratives emphasized more their individual determination to stay in school to overcome shortcomings and limitations they otherwise would expect from life. Their "constancy and drive to better themselves through education" was a dominant theme and their "determination to achieve upward mobility" most noteworthy. From their stories, Ross found that, compared to men, the women:

1. had stronger coping skills and motivation
2. did not feel as discriminated against
3. had higher expectations of being hired for decent jobs
4. 75% spent "significant portions of their childhood" without a father in the home (Ross, 2003)

Ross' observations were criticized by Lee (Lee, 2002) who pointed out that "the study [of males] did not clearly address any institutional role in fostering the success of African-American males, thus leaving the impression that their academic success was purely self-motivated." The same observation could be leveled against Ross' subsequent study of African-American females (Ross, 2003). In a way, Lee's criticism of Ross' study could be leveled against most of the literature focused on HBCUs. Studies are absent that identify any specific or particular contribution made by institutions to explicitly support student success, persistence, or learning.

TWCU & HBCU Comparative Studies: Studies comparing HBCUs and TWCUs are frequent and interesting—if puzzling. Black students are more likely to get better grades in HBCUs than in other institutions. Grades and satisfaction levels are

[35] Whether it is either reasonable or informative to imply a central tendency as Ross does by relating a percentage for a convenient sample containing only 17 cases remains extremely problematic. Similarly, to discover 8 themes arising from just 17 cases also skates on very thin ice—certainly violating key assumptions of factor analysis! The Ross exercise actually may serve only to under gird a random error with a misleading aura of certitude.

related to persistence (Dawkins & Braddock, 1982). HBCUs have higher attrition rates than TWCUs but Black students are more satisfied and earn higher grades in HBCUs. Mow & Nettels note "what factors cause these differences... is still not clear" (Mow & Nettles, 1990, p. 75) Some studies, not all, find that Black students in HBCUs receive higher grades and enjoy higher retention and persistence rates than Black students in TWCUs (Allen, 1987; Nettles, et. al., 1986). Other studies find Black students more comfortable, satisfied, engaged, and well adjusted in HBCUs than in TWCUs (Fleming, 1984; Gurin & Epps, 1975). Students have a better chance of completing studies successfully if their social background resembles that of their peer students (Astin, 1975). An apparent paradox not resolved in the literature is that Black students are more comfortable at and receive better grades in HBCUs but are still retained less well there than students in TWCUs.

Astin's work emphasizes that several practices have "negative impacts on students' cognitive and affective development: "watching television, taking multiple-choice exams, working full-time, working off campus, and commuting." Minimizing these activities Astin emphasizes, "will enhance learning and reduce drop out." In contrast, the "degree to which students are actively engaged or involved in the undergraduate experience" is a crucial factor in educational development. Institutional practices apparently strongly associated with enhancing student development include allocating resources to student services, awarding merit financial aid to students, and supporting multiculturalism and diversity.

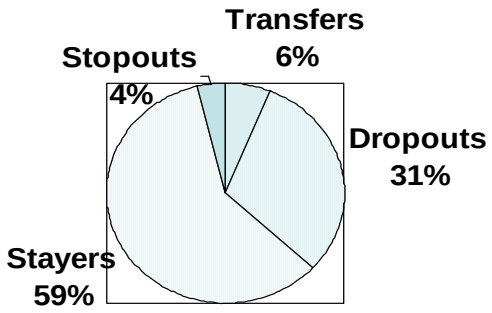
Observations from the Literature: Overall, HBCU literature lacks intensive analytical treatment of internal operations, processes, or arrangements of the colleges as well as students' actual experiences with them. Studies focus on student inputs, outputs, and consequent assumptions, not findings, about effectiveness or impact. A few works treat issues of leadership and governance among senior administrators and faculty. A few studies of specific and relatively minor issues and situations are available, usually of a case-study variety and heavily dependent on narrative and lacking a strong theoretical base or rigorous analytical methodology. Student departure has been examined a few times by employing constructs and instruments adopted wholesale from elsewhere.

Meanwhile, college persistence and departure literature as a whole—a multitude of studies over a half century—employs particular theories selected from among six conceptual realms to explore a poorly constructed and misleading criterion variable inside specific institutions, generating findings with relatively low reliability. There is no theoretical or substantive basis available on which to conclude that student background attributes, economic forces, student psychological or educational attitudes, or concurrent college and life experiences are of *relatively* greater importance in influencing institutional departure behaviors. It is as if researchers have determined what to study based randomly on the interaction of personal preferences, limited interest in alternative theoretical constructs, or limitations inherent in data lying conveniently at hand or easily gathered in a few weeks with a quick snap shot. Consequently, the tradition is marred by limited perspectives and reliance on convenient data with convenient methods—bringing to mind the cartoon where a hapless victim searches for lost keys under a convenient street lamp rather than in the vicinity where they were lost because the light is better there.

Chapter 3
Theoretical Framework & Research Design

Introduction*:* Ultimately the study of "Stayers and Leavers Among Newbies: Influences on the Early Departure of HBCU Freshmen" is an empirical cross-sectional exploratory inquiry within a single institution into the departure behavior of HBCU freshmen over four semesters following an original term of matriculation. The study is timely because at SSU over a recent five year period (2000-2005), approximately 41% of the Newbies have not remained continuously enrolled over the two year period. Further, this overall aggregate behavior masks considerable group variation. Continuation rates are distinctly unequal for various types of students, as defined by sex, ethnicity, age (< 20 vs. =/>20), college residency (on/off campus), and levels of involvement (full-time/part-time).

Figure 1: SSU Newbie Response
(3413 Newbies 2000-2005)



To describe briefly the highly significant group types on this campus (greater detail will be presented in Chapter 4), a review of Table 3.1, based on 3413 entering freshmen for the half decade 2000—2005 is instrumental:

Table 3.I: Enrollment Outcome by Newbie Type (3413 Newbies, 2000-2005)

Newbie Category	Outcome by %				Total	Level of Association	
	Stayer	Stop Out	Transfer Out	Drop Out	"N"	X^2	p-value
Ethnicity							
Black (majority)	61.0	3.7	6.0	29.3	3198	80.23	0.000
Non-Black (minority)	32.1	5.1	5.6	57.2	215		
Sex							
Male	53.7	4.0	5.9	36.4	1513	40.06	0.000
Female	63.6	3.6	6.1	26.7	1900		
Age Group							
Teens (<20)	63.68	3.4	7.1	25.8	2690	188.57	0.000
Adult (20+)	42.60	5.3	1.7	50.5	723		
Residence							
Resident (on-campus)	66.2	2.4	7.7	23.7	2157	208.09	0.000
Commuter	47.2	6.1	3.0	43.6	1256		
Participation Level							
Full-time (12+ cr)	63.11	3.25	6.34	27.3	2982	189.01	0.000
Part-time (<12 cr)	32.25	7.42	3.48	56.84	431		
Total	59.21	3.78	5.98	31.03	3413		

An overview of the simple univariate X^2 tests tabulated in Table 3.1 reveals the five categorical groupings of students that are manifestly highly associated with a variation in enrollment outcome or departure. Whether and how Newbies depart (Stop Out, Transfer Out, or Drop Out) is highly associated with ethnicity, sex, age, residence, and participation level. Reviewing the X^2 values in Table 3.1, it is clear that an impressive order of magnitude difference separates the levels of association arising from race and sex from those arising from age, residence, and participation level.

Further, these findings suggest that even in an HBCU that has long prided itself on having no formal racial barriers to admission, race appears to have more than twice the affect on persistence behavior that sex does. And yet, it is apparent also that housing arrangements (whether a student resides on campus or commutes), age cohort, and enrollment levels each have strikingly more association with early departure behavior than race. In short, living off campus, beginning college as an adult, and enrolling in a part-time load appear to be far more strongly associated with departure than are either race or sex. Clearly, based on this preliminary view, there is more influencing departure behavior of HBCU Newbies than the sex and racial categories on which much contemporary attention focuses. In reality, therefore, one must ultimately account for

departure behavior of Newbies classified into 10 specific types arising from the five pairs of dichotomies described.

While the college, the state, and others are interested to understand why departure rates are as they are and why they vary as they do, their focus has been on a hypothetical average, not the actual group variations arising from a reasonable student typology. Stakeholders, vitally interested to understand what might be done to increase persistence rates, move ahead to limit future annual appropriations based, in part, on how overall campus average rates compare to state averages or "norms." As yet, little popular interest has attended to the very real differences among student sub-groups.

The Newbies study is timely further because an accumulating mountain of evidence related to retention and departure at SSU (as elsewhere) cries out for scholarly analysis. In the absence of careful analytical review, artifacts of wholesale data-dumping are gradually attracting (like flies to garbage) a plethora of tacit assumptions, attitudes, and beliefs supporting views and decisions that appear solid as a result of the flotsam and jetsam of datum on which they rest—without warrant. Mark Twain's advice is judicious: "Get your facts first, then you can distort them as you please."

Accordingly, this study seeks to answer the question: "What factors influence early freshman departure in an HBCU?" The study builds on preceding literature that has established and explored six theoretical constructs to explain student departure, as follows:

a. Academic Readiness
b. Amenable Character (Psychological Processes)
c. Material Resources
d. Institutional Acculturation
e. Societal Re-direction
f. Student Voice (Cultural Capital)

Understandings derived from an extensive literature are re-categorized here in terms of four general alternative explanatory constructs identified simply in terms of their temporal order in relationship to a possible departure decision:

a. student prior college attributes ("Assets")
b. student attitudes, beliefs, & views at matriculation ("Mentality")
c. on-going student college experiences ("College Experiences")
d. on-going extra-college environmental influences ("Extramural Demands")

While the study lies within the positivist analytical research domain (Popper, 1959; Kaplan, 1964) and relies upon statistical analysis of potentially relevant explanatory factors characterizing students, it is informed by and sympathetic to the critical inquiry and Bourdieu perspectives described in Chapter 2 as "student voice" and "cultural capital." Yet, in spite of the history of theoretical and empirical investigation into student departure, certain limitations are apparent with the current understanding with reference respect to a minority serving HBCU that this study seeks to address.

Conceptual Framework: A conceptual framework is hypothesized (see Fig. 2, below) in which factors drawn from four influence domains are explored to account for three types of early departure by Newbies within two years after matriculation. Components of the framework derive from the literature and are discussed in greater detail below. But in brief outline, the simple framework consists of four logical response categories (Stayer & Leaver with the Leaver category seen as masking three real categorical alternatives: Transfer Out, Stop Out, and Drop Out). The framework incorporates four sets of explanatory factors grouped in terms of their temporal proximity to a response behavior (Assets, Mentality, College Experiences, and Extramural Demands).

Under this framework, a Newbie is conceived as matriculating at the university having already internalized an accumulated a set of established "Assets," where "Assets" is understood to be a broad amalgam of social and cultural capital derived from prior biographical experiences. The Newbie's established asset base includes both core demographic identity attributes (sex, race, age, marital status, social class, economic level, language, citizenship, & geographical origin) together with a variety of unique family and social influences in addition to prior high school experiences.

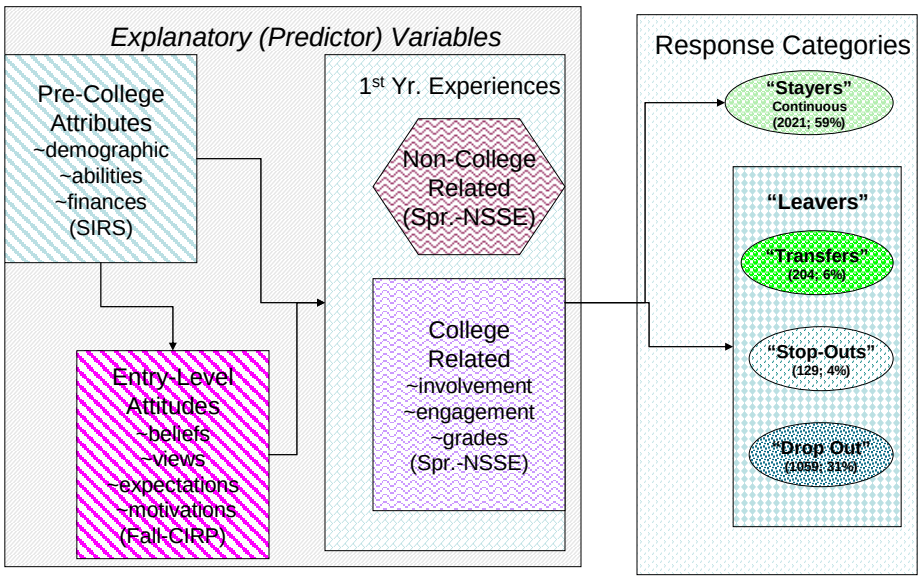
Largely as a result of these Assets, the Newbie is conceived as having developed a set of personal attitudes or a mental outlook (a combination of assumptions, beliefs, views, expectations, & motivations) that guides, to some extent, the Newbie's purposeful or intentional behavior. For the purposes of this study, these attitudes are seen as relatively "fixed" before confronting college experiences directly. Collectively they are labeled (without intending to imply any exogenous connotations) "Mentality" for purposes of brevity in this study.

Then, during the Newbie's first year exposure to the University, those prior Assets and Mentality interact with the University setting, its internal culture, climate, & processes (College Experiences) together with the external social context (Extramural Demands) to help define the Newbie's felt experiences overall in the first year of college. It is critical to understand that these first-year experiences are derived from a combination of both University-centered influences and extramural social and community-centered influences—influences that may impinge upon the Newbie as a result of off-campus housing, work, or other family and community involvements.

Eventually, in any event, the interaction of Newbie Assets, Mentality, College Experiences, and Extramural Demands results in the Newbie achieving one of four eventual enrollment outcomes. Either the Newbie:

a. stays enrolled continuously in the same institution, or
b. transfers out to another institution, or
c. stops out temporarily, for a term or more, returning later for another term, or
d. drops out of higher education altogether in pursuit of a different life track.

Figure 2: Conceptual Model of Factors Influencing Newbie Stay/Leave Behavior (2000-05)



M. Crow, 2006

The conceptual model described here differs from that usually assumed in previous college persistence and departure studies and theories in three vital ways.

First, the modeled departure outcome is disaggregated into three distinctly different types of departures: Transfer Out, Stop Out, and Drop Out. The model requires that factors associated with each different type of departure, be assessed separately. The usual practice of aggregating all three departure behaviors into a single outcome results in glossing over important distinctions. The three types of departures are believed to be qualitatively different, are motivated differently, and need be analyzed separately for maximum validity.

Second, the Newbie's pre-college background is culled for influential input factors of a considerably broader array than are usually considered in college departure studies. The model includes, beyond the usual demographic variables, consideration of a broader-based home neighborhood social and economic culture as well as the academic culture of the high school attended.

Third, the model incorporates non-college-related social and/or community influences not usually considered in typical studies guided by the ubiquitous institution-centered Tinto model, fixated on internal college experiences.

Research Questions: The framework gives rise to three research questions that guide inquiry:

a. What factors most influence the response outcomes (Stayer, Stop Out, Transfer Out, and Drop Out) in an HBCU?

b. Do discriminating influences differ for different types of students (males and females, Blacks and non-Blacks, full-timers and part-timers, teens and older students, and commuters and campus residents) in an HBCU?

c. Are student's Assets, Mentality , college Experiences or Extramural Demands *relatively* more robust for predicting students' enrollment persistence at an HBCU?

Observations/Assumptions: Several important observations serve as working assumptions for the present study.

Theory Development: Overwhelmingly, research on college freshman attrition has been undertaken in mainstream traditionally or predominantly white colleges and universities (TWCU or PWCU). Landmark studies and major theories were formulated and tested in relatively selective world-class research universities and state flagship, doctoral granting institutions serving a highly selective clientele. Further, this tradition has inclined

towards identifying a *single* overarching monolithic explanation for *all* student departure for all types of students in all types of institutions—a tradition fast becoming canonical in the literature.

Often the studies have been framed as studies of persistence based on a bivariate outcome using a dummy variable (where 0=departed; 1=retained) facilitating calculations with the popular OLS regression analysis or basic logistic regression. Studies of this type mask differences between Stop Out, Transfer Out, and Drop Out departures by lumping them into a single category. Recent work using multinomial regression analysis suggests that these older approaches may not provide the most valuable insights.

Thus, there is room at least to test the utility of the dominant single-explanatory motif when, at least in the HBCU, it is clear that the persistence behavior of different types of students appears to differ by orders of magnitude. Put simply: "Is it logical that different types of departure for different kinds of students all should be thought to be influenced by the same set of explanatory factors?"

Unsatisfactory HBCU Applications: Only a small handful of analytical studies of retention and departure have been undertaken, primarily as rarely-cited dissertations, among the 107 historically Black colleges and universities. And these studies have had "disappointing" findings of modest and conflicting explanatory or predictive power. Therefore, it may be premature to locate HBCU investigations squarely in the Spady-Tinto tradition and/or any other established methodology without further exploratory work. And further, in light of issues highlighted by researchers from the "student voice" and "cultural capital" perspectives, as well as the limited success of standard predictive models when applied in HBCU contexts, extensive exploratory analysis badly needs undertaking in an HBCU.

Contrasting Group Retention Rates: Different types of HBCU Newbies, at least in the SSU case with over 3000 students over a half-decade, have been retained continuously for two years in markedly different proportions: 64% for female and 54% for male; 61% for Blacks and 32% for non-Blacks; 64% for teen-agers and 43% for adults; 66% for residents and 47% for commuters; 63% for full-time participants (enrolled for 12 or more credit hours) and 32% for part-time participants. These differing rates of continuing enrollment raise the real possibility that sexes, races, age groups,

residences, and participation levels are really influenced by or responding to different proximate and distal explanatory influences and thus different theories may be needed to adequately explain the contrasting response patterns of different types of students.

Different Types of Leavers: Three categorically different types of Leavers are measurable at SSU: Drop Outs from higher education (31%), Stop Outs who leave for a while before returning (4%), and Transfer Outs who leave and are found to have matriculated at another state institution (6%).[36] These outcomes may be influenced by and respond to radically different inputs congruent with different theoretical understandings—variables well beyond sex, race, and age. Accordingly, it may be an error to examine them in aggregate (as is the usual practice) and seek an overarching explanation for what may be, in fact, radically different departure decisions and behaviors for different types of leavers—each deserving a different explanation.

Institution-Student Interaction: The HBCU may not fill the same role or function in Newbies' lives as TWCUs serving radically dissimilar populations. The relationship between minority-serving institutions and students therefore may not replicate national patterns. Understanding the interaction between these organizations and their students requires and deserves local empirical inquiry rather than a facile mimic of TWCU theories. The assumption is suggested by an apparent basic paradox observed in the research literature: Black students in HBCUs are seen as more comfortable than in TWCUs; yet their aggregate attrition rates remain high.

Definitions: For clarity, key terms utilized in the Newbies study are defined explicitly and operationalized here before proceeding.

Newbies. "Newbies" are <u>all</u> new, first-time freshmen enrolling in a fall term, whether or not they may have enrolled in the previous summer session and whether or not they are enrolled "full-time." The category includes some students transferring in from another college. This definition differs intentionally from that required by the Federal Department of Education (DOE) for data collected *via* IPEDS. IPEDS data is designed to reflect only "traditional" new freshmen attending full-time during their freshman year. As a consequence, DOE collects and reports retention and graduation

[36] It is, of course, possible that some Newbies may leave and matriculate at other than Georgia state institutions, but tracking those few cases lies beyond the capacity of this investigation.

rates only on "traditional" freshmen. Data based on DOE definitions is, to that extent, class-biased from the outset because there is an obvious class bias to the very concept of a "traditional, new, full-time" freshman. Accordingly, this study considers the fates of the full population of 3413 Newbies arriving between 2000 and 2005.

Stayers: "Stayers" are Newbies who returned in each of the four subsequent terms (excluding summer) following their first freshman term for at least one course. By this definition, the category Stayers includes only those continuously enrolled over two years. At SSU, Stayers constitute approximately 59% of the Newbies (N=3,413) in aggregate over five years. Here, as elsewhere, these Stayers, having survived two years of continuous enrollment, are most likely to continue on through to successful graduation. Tracing their subsequent fate, however, lies beyond the confines of the present study.

Leavers: "Leavers" are all other Newbies who did not remain continuously enrolled (at least for one course) over three successive terms (excluding summer). Leavers constitute the general category usually studied by default in attrition literature and often referred to as "Drop Outs"—but conceptually it really includes three identifiable sub-sets at SSU: Drop Outs, Stop Outs, and Transfer Outs—three groups, it is hypothesized, of highly dissimilar student types. At SSU, Leavers between 2000 and 2005 constituted approximately 41% of the Newbies.

Stop Outs: "Stop-outs" are those relatively few Leavers who, absent from the institution for at least a term after their first freshman term, returned within two years for at least one course. In the subject institution, 129 individual "Stop-outs" have been identified and account for approximately 4% of the Newbie cohort over the period.

Transfer Outs: "Transfer Outs" meanwhile are Leavers identified as having enrolled within two years in another institution subsequent to the first freshman term at SSU.[37] At SSU Transfer Outs are known to account for approximately 6% of the Newbies who leave. Among Transfer Out some moved to more "upscale" institutions (flagship and doctoral-granting, for example); others moved to less prestigious community or technical colleges institutions; most moved to parallel institutions within

[37] An independent analysis of the Registrar's transcript-sending pattern has established that approximately 75% of SSU transfer students do transfer to another institution within the state system and these have been accurately tracked into their transfer institution through state-level system enrollment data for the present study. Operationally, however, the category may understate all Transfer Out by approximately 25%.

the Georgia state system. Thus, approximately 40% of transferring Leavers are found to re-matriculate at a non-HBCU state college or university while 30% move on to a community or technical college. Roughly 10% transfer to another state HBCU (Albany or Fort Valley State), 10% to a larger regional university (Valdosta or Georgia Southern), and 10% to one of the three major flag-ship research universities (Ga. Tech, UGA, or Ga. State).

Drop Outs: "Drop Outs" then are Leavers who do not return (so far as is known) to any higher education institution within two years from their original inclusion in the Newbie population. The Drop Out construct is artificially constrained in the sense that some Leavers are known to return either to SSU or elsewhere in years beyond the time window confined by this study. But, approximately 31% of SSU Newbies over the past decade are calculated, by this definition, to be "Drop Outs" from higher education. The actual number is somewhat less as some would become in time legitimate Stop Outs or Transfer Out—were the time dimension not truncated artificially by the temporal confines of the study.

Assets: "Assets" are defined as the fixed attributes or permanent characteristics of Newbies and their origins at the time of matriculation to SSU, rather in the sense of "capital" as popularized by Bourdieu-studies (Bourdieu, 1990; Bourdieu & Wacquant, 1992). Among them are demographic and SES variables, high schools attended, home community environments, prior behavioral records, and familial traits. Evidence for Assets is reflected largely in factors derived from the Registrar's data variables. For the present analysis, "Assets" is considered a separate panel of factors to be considered first independently and later in conjunction with the two other panels of relevant explanatory factors. (See: Figure 2: Newbie Study File Scheme, below)

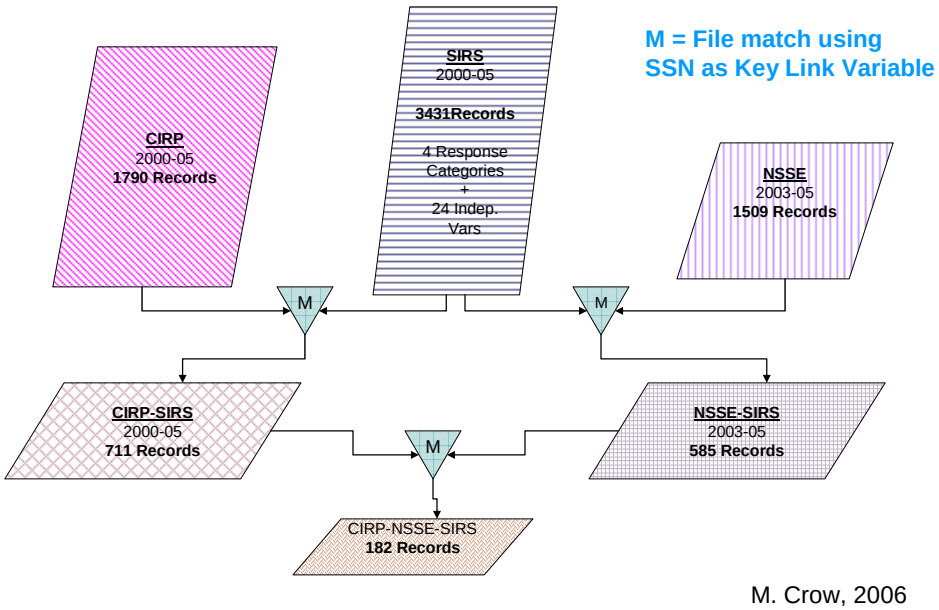
Mentality: "Mentality," also more or less in the sense conveyed by the French term "mentalitie," is defined here as the collection of attitudes, beliefs, values, understandings, and expectations articulated by Newbies in the first month following matriculation by way of the CIRP survey conducted early in the Fall term.[38] "Mentality" factors are suspected to reflect regional, class, sex, and racial distinctions arising from

[38] The study of "Mentalitie" has been described as a field synthesizing feelings and institutions, cultural anthropology, psychohistory and textual theory. (Simms, 1992)

Newbies' store of "Assets." For the present analysis "Mentality" factors are considered a separate panel of influences to be considered first independently and later in conjunction with the two other panels of relevant explanatory factors. (See: Figure 2: Newbie Study File Scheme, below)

Experiences: "Experiences" are Newbie's self-disclosed responses describing their personal experiences during their first year on campus. Experiences include both on-campus and academic interactions together with various off-campus attractors pulling at or influencing them behaviorally during the year. Derived from variables sampled via the NSSE[39] survey, administered late in the Spring term of the freshman year, Experience factors are dominated by institution-related issues depicting involvement, engagement, and quality of effort (Astin, Spady-Tinto, Pace, & Kuh) and vastly under-represent, unfortunately, Extramural or external influences or societal pulls (or "Demands") possibly attracting students' attention (Bean). For this study, Experiences are considered a separate panel of factors to be considered first independently and later in conjunction with two other panels of relevant explanatory factors. (See: Figure 3: Newbie Study File Scheme, below)

Figure 3: Newbie Data File Schema



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[39] NSSE = National Survey of Student Engagement; see Glossary.

A brief explanation relating to treating the three sources of input factors (Assets, Mentality, and Experiences) is warranted. The usual practice in exploratory studies of this type would be to include all factors related to the research framework in a single regression analysis and analyze them jointly. Here, however, owing to the nature of the data and the varying size of the subject population and samples available for each set of factors (as depicted in Fig 3 above), an alternative 2-stage treatment is necessary to maximize the impact of available information while ensuring that findings are based on as many cases as can be mustered. Using a two stage approach, described later, served to accommodate the gradual loss of data experienced as a result of merging asynchronous data files.

Population & Survey Samples: The population from which the data is drawn and on which the study is based is recent new freshmen matriculating at SSU, the state-supported small institution described in Chapter 1. Newbies from five years were aggregated to achieve sample sizes adequate both to reliably support statistical inquiries into sub-groups and to provide reasonably strong estimates of parameters of interest. Although the survey samples are not random, they do constitute a large enough percentage of the freshman class that they are deemed to be minimally biased. (See Fig. 3: "Newbie Study File Schema" above.)

SIRS Newbies: Data supporting the study is drawn from three separate files, each developed with differing protocols: SIRS, CIRP, and NSSE. Among these, SIRS[40] is institutional data and is available for the full population of Newbies for all years since 1998. It contains, in addition to important explanatory variables described hereafter for want of a better term as "Assets", the essential criterion variable for the study as is described in detail below.

CIRP Survey: CIRP survey data is available for a sample totaling 2654 students, approximately 77% of the Newbies. The CIRP survey is taken among Newbies enrolled in a freshman orientation class in their first term. The survey was administered in each of the five years, 2000-2005. But among the 2654 records gathered in the file, only 704 (27%) can be matched by student ID against the outcome of interest contained in the

[40] SIRS = Student Information Reporting System; see Glossary.

SIRS file.[41] CIRP data provides insight into Newbie Mentality factors as they may help explain early departure behavior.

NSSE Survey: NSSE data is available for a sample totaling 1509 students, approximately 44% of the Newbies. The NSSE survey is taken among Newbies enrolled in a required general education English class in the second semester of their freshman year. NSSE data is available for participating Newbies only for three recent completed academic years: 2002-3, 2003-4, and 2004-5. And among the 1509 records gathered together in the file, only 585 (39%) can be matched by student ID against the outcome contained in the SIRS file. NSSE data provides insight into Newbie experience factors as they may help explain early departure behavior.

Composite Study Sample: Consequently, by the time the full collection of data contained in three files is merged into a single file, using Newbie's social security numbers as the "key" matching variable, the resultant collection is reduced to just 181 records drawn from the academic years 2002-3, 2003-4, and 2004-5. And, in total the merged summary file contains 21 explanatory factors interest [Assets (SIRS)=4; Mentality (CIRP)=8; Experience (NSSE)=9]—resulting from the factor analytic method, as described below). Since a data file of such dimensions would not support a solid exploratory factor analysis (because factor analysis is recommended to include at least 10 cases for each predictor), let alone a more complex analytical treatment, a two stage procedure has been devised and is described below. But first, substantive description of the data itself is in order.

Institutional Data: The "Assets" of entering Newbies are those usual attributes relied on heavily, sometimes exclusively, by researchers in studying college departure. They are modeled here as assets accumulated by students prior to and beyond the immediate reach of the institution to influence or affect directly—although there may have been a more distant structural influence through community linkages (reputation, recruitment & marketing activity, or cooperative agreements, for example) and socio/cultural contact between the institution and prospective students. Importantly,

[41] Why 73% of the CIRP records and 61% of the NSSE records cannot be matched by ID to the Registrar's student records are, of course, questions deserving a whole separate study. Why such a large block of students are reluctant to provide a valid ID on institutional surveys and why the ratio should differ markedly across two surveys is an intriguing matter.

assets are an influence on mentality, behavior, and experience--dimensions that are often treated as if they do not change over time as a result of maturation or exposure to the institution or other societal pressures. Available source data reflecting "Assets" originates (for purposes of this study) with high school records and other materials submitted to or derived from material submitted to the university with admission applications. These records are amplified by subsequent financial aid information, often verified with tax record evidence supplied by families, submitted at matriculation. Included are the usual SES and demographic variables along with students' academic preparation, reflected by high school grades and entrance test scores.[42]

While "Asset" type attribute information can be and often is collected via survey instruments (with some studies even relying on this student-supplied self-report data as their criterion measures), analytical experience and historiography have long concurred (Barzun & Graff, 1957; Gottschalk, Kluckhorn, & Angell, 1945) that it usually is more reliable to use institutional data derived from contemporary records and housed in the Registrar's official student record file than recently collected student testimony in survey data. For example, financial aid records may more accurately reflect family financial conditions than will Newbie perceptions, impressions, and recollections depicted on surveys administered later. Or students' retrospective perceptions of high school grades, recalled under the halo and excitement of a freshman college year may diverge materially from actual high school records contained in official institutional records. Consequently, the Newbie study relies on institutional records as the authority for Asset data to the extent possible, amplified and expanded where necessary by survey data. Institutional data is drawn from archived copies of the University's Registrar's and Financial Aid Officer's official files and is merged with available survey data using student identifiers as the "linking" variable.

One consequence of this procedure merging survey and institutional data is that comparisons across variables representing key attributes held in both survey data and institutional records will permit assessing the degree of bias arising either as a result of missing data or bogus responses in survey material. Survey respondents in the sample

[42] For purposes of the study, accumulating grades, credits, and financial aid are regarded as aspects of the college "experience," not student "attributes"—although their reliable record exists in institutional data, not the NSSE or CIRP survey collections.

can be compared with the population of all freshmen, for example. The process of multiple file concatenation enables a degree of triangulation and validity check on students' responses to survey items that is otherwise not possible.[43]

To incorporate institutional data in the summary data set for the second stage analysis, a Fall snapshot of the Registrar's official student data file (the "Student Information Reporting System" or "SIRS") based upon the University's annual October census date extraction for the fall terms in the years 1999—2004, is merged with and amplified by variables indicating whether or not Newbies returned in any subsequent term following their first one and indicating their cumulative GPA at the end of their first year. The SIRS file contains 67 variables, in all, drawn from official student records to describe students demographically, summarizing students' academic standing, and indicating geographic origins, entrance test scores along with matriculation data and program of study. From this collection, 11 variables are culled directly (term, sex, age, ethnicity, home zip code, high school code, cumulative high school GPA, entrance test scores (SAT or ACT[44]), declared major, credit hours enrolled, and 1st term GPA). Further, other variables of interest are derived and incorporated by associating public census data with the high school and its local environment (by zip code) together with financial aid records.

Meanwhile, Tinto and others have advocated expanding current research practices by attending to the "organizational subculture" a student is experiencing in the institution. The subculture is an aspect of the institution that a student encounters on a daily basis: the patterns, beliefs, practices and views encountered in daily interactions. The subculture may differ dramatically from one segment to another across the university. The advice is congruent with the perspective of cultural capital derived from Bourdieu—but it has not much influenced student departure study.

Unfortunately, the only proxies available in institutional records to represent viable sub-cultures are academic major, sporadic documentation of extra-mural student groups, including sport affiliation, if any, housing arrangements, and extent of involvement with remedial curriculum. But, the major field indicator may be spurious

[43] Naturally, in using institutional data, individual student privacy is protected. Individual identifiers are used only as necessary to link institutional data with survey data for purposes of analysis.
[44] ACT = American College Test. See Glossary.

and likely misleading among Newbies as many Newbies will not have had meaningful exposure to their major courses, instructors, and departments during the first year of school owing to typical curricular tracking that requires a focus on meeting general education core requirements prior to engaging major field course work and faculty. Therefore, for this study, principal academic sub-cultures are not considered. Even though in recent years nearly 20% of entering Newbie cohorts have been involved with remedial learning, these Newbies have not been treated in this study as a separate sub-culture.

Survey Data: Beyond institutional records reflecting Newbie Assets, the scope of the investigation requires incorporating information reflecting Newbie "Mentality" and "Experiences." As described above, "Mentality" is a characteristic of Newbies at entry to the University—reflections of beliefs, values, expectations, goals, understandings and commitments documented in CIRP data. Experiences are conceived as both collegiate and Extramural events or transactions described by Newbies in the spring NSSE survey.

CIRP Data: For the CIRP data, focusing on student Mentality, Newbies have been regularly surveyed during the first month of fall class sessions in required freshman orientation courses annually since 1997. Newbies are invited, but not required, to enter student ID's in the survey forms and then are asked to check a box indicating whether or not they permit HERI[45] to report student identity back to the home institution. Substantial numbers (58%) do not check the box in the affirmative—although it has been learned directly from HERI that far more do insert their SSN on the response sheets. Thus, while 2657 Newbies have responded to the CIRP survey, only 1126 have given permission for HERI to share their identity with SSU thus enabling a match to the criterion variable.

CIRP data and studies are among the most cited collections by higher education researchers, according to one scholar (Budd, 1990). Astin has published a long list of research based upon the collection while HERI itself has produced 40 annual statistical reports, "The American Freshman: National Norms" for the fall term, that have come to be regarded as essential standards in the industry. The most recent major study from this collection (Astin & Oseguera, 2005) is designed to allow institutions to compare their

[45] HERI = Higher Education Research Institute; see Glossary

actual degree attainment rates to expected rates using the results of Astin & Dey's preferred regression analysis.

Although not truly representative of "student voices" as understood and preferred by critical theorists (since the survey items are designed and imposed from outside the immediate context rather than derived from HBCU students) the attitudes sampled will of necessity serve that role for the present study. These expressed "attitudes" may be conceived as proxies for states of mind ("Mentalities") of Newbies entering upon their first experience at the HBCU.

These entry-level espoused Mentalities, given the data collection procedures, conceivably could be subject to some influence from the HBCU, depending on the nature and intensity of early HBCU contacts. More likely they are largely fixed and determined in advance since at the time of collection Newbies have not yet had extensive experience inside the HBCU. Consequently, Mentality is treated as largely independent of college experience contamination.

In all, the CIRP data file contains 275 variables indicating student perceptions of personal and family background, demographic attributes, high school experiences, prior personal and social habits, motivation to attend college, and attitudes about a range of social, political, and educational issues. These variables are collected variously at the nominal, ordinal, and scale level—although many of the scalar level variables are Likert-type attitudinal responses that some practitioners and theorists do not consider truly valid scalar data. Many of the nominal variables are unquestinably categorical in nature (e.g.: religion, county of origin, major field, or occupational plans).

The intention of the CIRP instrument is to question respondents about possible input measures, self-predictions about possible future outcomes, and personal characteristics. The original intention behind this data collection was to provide controls for studying outcomes of the college experience. (Astin, 1993) A huge national data collection and many studies and data sets are available for comparing local findings with national norms. This collection has been one of the most extensively used in studying higher education for years.

NSSE Data: Increasingly researchers of college departure advise incorporating "quality of student effort" (Pace) and "involvement in learning" (Tinto; Tierney) in

studies and explanations of student departure (Tinto, 1986, p.380). Therefore, in this study Newbies' perceived experience with the flow of events, internal and external, during the first year of college will be examined using NSSE survey data. These experiences, representing an interaction between the HBCU and society on one hand and individual Newbies' Assets and Mentality on the other, are potentially important moderators on the influence of Assets and Mentality in departure decisions and behavior. But their relative importance and links with stay/leave behavior has not yet been tested in an HBCU so far as is known.

The NSSE survey is a recently devised and popular survey instrument, supported and/or sponsored collectively by the Carnegie Foundation, the Pew Forum, the Lumina Foundation, NCHEMS[46], ETS[47], AAHE,[48] and HERI. NSSE counts among participant-adopters 437 separate colleges and universities (over 12% of American higher education institutions) reinforcing an observation that it represents today's "conventional wisdom" in the higher education establishment. During the academic year 2005-6, NSSE enjoyed its 6th year of activity. But its roots extend back much further. In its formulation, the instrument inherited, condensed, and incorporated basic material from Pace's earlier College Student Experiences Questionnaire (CSEQ). The CSEQ, a fruitful instrument now in its fourth edition, began supporting college impact research over 15 years ago at UCLA when Pace began to study "the amount, scope, and quality of student effort" as an "indication of the quality of the educational process, and a key to identifying the quality of the educational product." (http://www.indiana.edu/~cseq/)

Altogether, the NSSE survey file contains 135 variables, with a combination of nominal, ordinal, and scale data types. Many of the scalar items are subject to the same caution as applies to the CIRP data above. The items collected are advertised as relating to six general benchmarks or "themes:"[49]

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[46] NCHEMS = National Center for Higher Education Management Systems; see Glossary
[47] ETS = Educational Testing Service; see Glossary
[48] AAHE = American Association for Higher Education; see Glossary. An impressive collection of supporters and advocates has been enlisted. The instrument was designed by a national team of prominent scholars chaired by Peter Ewell, of NCHEMS.
[49] These "themes" are not, technically speaking, "factors" that have been derived from the data themselves. Rather they are *apriori* conceptions imposed by a panel of experts on the instrument's items from the outset—a procedure that should make cultural anthropologists somewhat suspicious (Kuh, 2004, personal communication).

1. level of academic challenge
2. active and collaborative learning
3. student-faculty interaction
4. enriching educational experience
5. supportive campus environment
6. technology

NSSE is typically administered to cohorts of freshmen and seniors near the end of the academic year. Studies underway compare freshmen with seniors, disciplines, colleges, and many other sub-groupings of students and institutions in terms of variables thought associated with principals of good undergraduate education (Chickering & Gamson, 1987 & 1991; Kuh, Kinzie, Schuh, Whitt, & Associates, 2005; Pike, 2004).

At SSU Newbies were surveyed during class sessions in required freshmen English courses in the last month of the second (or Spring) semester over three years (2003-5). Available therefore are 1509 Newbie responses from the Spring terms in 2002, 2003, and 2004 and fully 39% of these respondents (N=585) are freshmen providing SSNs enabling a match to institutional records and, consequently, the study's criterion variable.

Survey Bias: Survey procedures themselves have biased survey results at SSU in several respects. First, students not enrolled in freshman courses as required or students not present on survey days are clearly omitted from the sample. Hence, students more fully integrated into the expected college experience are over-sampled in both surveys relative to those less conforming. Further, NSSE respondents (surveyed in the Spring) represent a considerable survivor bias. Students leaving the University during or immediately following their fall term do not remain matriculated long enough into Spring terms to enable participating in the NSSE survey. Thus, NSSE data is completely lacking for any students who withdraw immediately following their first fall matriculation term—a time frame subject to considerable early departure. Unknown, consequently, are the self-reported experiences of Newbies who withdraw earliest—the very information that perhaps would be most interesting of all. The number of Newbies who departed by the conclusion of the fall term and were lost, thus, and not available for collecting NSSE data was 372 or 11% of the full Newbie population. Therefore, NSSE data includes responses by only about ¾ of Newbies who were not Stayers.

Beyond these institutionally structured biases, Newbie response patterns themselves are another source of evident bias. Newbies not entering ID's cannot be matched directly against the criterion variable for the study, although they have completed the surveys otherwise. And the propensity of Newbies to provide SSNs diverges substantially on the two surveys in Fall and Spring, as described above. Several explanations may account for missing SSNs: concern over identify theft and reluctance to provide personal information to institutional authorities possibly for fear of reprisal or the possible tainting of permanent official student records. But, also suspected here, as a result of the discrepancy between NSSE and CIRP respondents' rate of providing SSNs is that there may be confusion generated by the CIRP survey instrument itself that artificially inhibits providing useful SSNs.[50]

Preliminary Steps: Before proceeding, several preliminary steps were necessary to ensure proper treatment and analysis of the data.

Sample Comparisons & Response Bias: First, it was important to assess carefully how well the various groups of Newbies with data available for analysis compared to each other and to all freshmen for the years under consideration.[51] The comparison is reported in a descriptive Chapter IV where frequency distributions and group means are analyzed to compare key attributes of respondents, as follows:

CIRP respondents with ID vs. all freshmen
CIRP respondents with ID vs. all CIRP respondents
NSSE respondents with ID vs. all freshmen
NSSE respondents with ID vs. all NSSE respondents

[50] The CIRP survey instrument may artificially depreciate the number of SSNs reported as an artifact of the instrument. On the CIRP form students are provided space to enter their SSN at the top of the first page. Four pages of tiny print later, they are invited (suffering as they may be from basic survey fatigue) to check a box giving HERI permission to release their SSN to the home institution. Since 90% of essentially the same population does provide their SSN on the NSSE survey in Spring terms, it is possible that only 42% of the respondents notice that they need to also check this little box to enable the institution to know their identity. In short, the lack of usable SSNs in CIRP data may be unintended by respondents. It is also possible that students are more reluctant to reveal their identity in relation to personal attitudes and goals (CIRP items) than in relation to institutional experiences (NSSE items). It is also, alternatively, possible that students more reluctant to be identified with their views and perceptions disengage the institution between the fall and spring survey administrations.

[51] The four sample groups are: (1) all freshmen responding to CIRP, (2) freshmen responding to CIRP and providing ID's to link their responses to the criterion variable, (3) all freshmen responding to NSSE, and (4) freshmen responding to NSSE and providing ID's to link their responses to the criterion variable.

Results from these comparisons (in which ID/No ID is the criterion variable) reveal the degree to which survey findings reflect all freshmen or only freshmen surveyed and providing ID's. In any event, bias possibilities were investigated with simple X^2 and Anova F-statistics to compare responses, item by item, along with frequency distributions, of all freshmen, all survey respondents, and survey respondents entering ID's, to identify and further assess anomalies between and among them. Preliminary inquiry of this nature suggests that the CIRP responses including valid SSN's are slightly biased in favor of female respondents but in no other identifiable direction. NSSE responses with valid SSN's are biased in favor of Newbies more actively involved in class discussions, but other meaningful biases have not come to light.

Missing Values Analysis & Correction: A second preliminary step was to scrub the data sets to either repair or eliminate missing values among items to be considered. MNLA, the statistical treatment of choice for the study, requires there to be no missing values in any predictors. To satisfy this requirement it would once have been popular, as Huberty recommended in preparing data for Discriminant Analysis, to follow one of two alternative strategies (Huberty, 1994). Variables or factors in which the number of cases with missing values is greater than 10-15% of the cases were to have been deleted from consideration, as their use would confound results. Subsequently, missing values for variables or factors with fewer than 10-15% missing should be imputed by replacing them with variable means for the purpose of subsequent analysis.[52] To these older classic approaches, the unique context for the present study also permitted and facilitated manually revising and updating some of the data elements through review of ancillary data and documents.[53]

In the present case, neither traditional alternative was attractive. The study depends on merging asynchronous data sets and there are unavoidably extensive voids in the resulting master file. Deleting cases owing to missing data (either listwise or

[52] Whether imputing values is substantively appropriate for survey data, even though generally regarded as statistically valid for other types of data, may be problematical, given what is known about response bias and different characteristics among and between respondents and non-respondents. See, for example, Porter & Umbach, 2006.

[53] Indeed, months of researcher time (May-July, 2006) was invested pawing through paper files in the Registrar's archives, seeking to fill null cells contained in the Registrar's electronic data. It became clear that over the years, various data entry clerical staff followed differing procedures regarding which data is entered for which groups of students.

pairwise—either easily accomplished with any current statistical software) would have reduced the set (data attrition) to such a small number of surviving cases ("loss of power") that adequate statistical treatments would be compromised. And replacing missing values with means has always been viewed as untenable when the missing values in a variable exceeded a very small percentage of the cases—as is the situation here for some variables.

Therefore, one of two more recently popularized statistical approaches was warranted to impute a reasonable approximate value to missing cells before proceeding to analysis. The two alternative approaches are "maximum likelihood" and "multiple imputation" as discussed by several definitive works (Rubin, 1987; Little & Rubin, 2002; Allison, 2002; and Howell, 2006). In either case, an estimate of the missing values is computed statistically and imputed to the data.[54] As a general rule, analysis of these methods generally has found that they do underestimate somewhat the variation of the imputed values and do cluster the resulting imputed values somewhat toward the mean.[55] With this process, variables with less than 65% known real values were discarded so that in no case does the study depend on variables where the majority of the values are not real, empirical points of information. For most variables, however, imputed values were calculated for no more than 10-15% of the variable in question.[56]

Variable Reduction by FA: Third, while the study begins with a large number of items (approaching 500) that might, based upon the survey of relevant prior research, be expected to plausibly affect Newbie responses to the freshman year, it is clear that incorporating useless or spurious variables in a complex statistical analysis would serve only to cloud issues with noise and befuddle results with degree of freedom concerns.

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[54] As either technique is quite technical, details are avoided here and interested readers are encouraged to consult publications indicated.

[55] For this study, the necessary imputations were accomplished using STATA's *impute* routine, a multiple imputation process based upon regression principles and permitting up to 31 independent variables for each estimation. (See: "Impute", STATA Data Management, 2005, p. 217-221)

[56] A very recent addition to STATA analysis is the "ICE" treatment, developed by Patrick Royston of the Cancer Group in the MRC Clinical Trials Unit of London. "Ice" is thought to improve upon STATA's original "impute" by combining the findings of multiple imputations to introduce a degree of randomness into the imputations. ICE also has an advantage in that it will simultaneously produce imputations for a number of relevant variables rather than require each variable to be imputed separately as do other treatments. It was found, however, that in the present application, ICE failed to produce appropriate imputations where both group and individual level independent, explanatory variables were included in the model (Royston, 2004, 2005a, 2005b, personal communication).

Therefore, preliminary to applying MNLR, factor analysis (FA) was applied to each set of items to identify a more limited set of explanatory "factors" to include in the final analytical model. Doing so dampened the impact of multicolinearity that so often confounds regression-type studies. The approach also, unfortunately, masks the independent contribution of some individual variables that might be of special interest.

Factor Analysis: While several alternative procedures are available for data reduction and are sometimes advocated to maximize the influence of prior researcher experience and judgment (see, for example, Pike, 2004; Kuh, 2004) this study employed classic Factor Analysis ("FA") to reduce the number of and group variables into latent hypothetical and congruent constructs explaining much of the variance found in the input variables. FA in this fashion allowed "extracting" a relatively modest sub-set of "themes" from many items (or, to use FA discourse conventions, "load" variables on factors and "locate" the variables in "factor space")[57] (Klein, 1994). Each of the resulting factors has the property that its components inter-correlate so that the factors are mathematical constructs of variables that "hang together" (Smith & Glass, 1987; Klein, 1994; Gorsuch, 1983). Oblique oblimin was selected for the rotation procedure (in lieu of the more usual orthogonal rotations) as it most effectively produced sets of factors with the simplest structure most easily interpreted (Klein, 1994, p.71).[58]

Informed opinions vary over how exactly to determine the appropriate number of factors to extract and what load to require in selecting variables to guide interpretations (Gorsuch, 1983; Kline, 1994). To judge the number of factors to consider for this study, two rules of thumb were considered. A screeplot was drawn for each set of factors[59] (ie: SIRS, CIRP, and NSSE) and the mean eigenvalue computed and drawn on the plot. The number of factors above the mean or above an extended straight line formed by the "scree" was considered the maximum number of factors to consider. And the number of factors above eigenvalue 1 was considered the minimum number of factors to consider. Separate factorial studies were then computed for each possibility lying between the

[57] Factor Analysis was performed in STATA, Release 9, with an oblique oblimin rotation.
[58] The more common Varimax rotations were also calculated and reviewed heuristically, but found, generally, to produce factor outcomes less able to be interpreted easily. The downside of oblimin rotations is that the resulting factors may be somewhat more correlated than is the case with orthogonal varimax; but the degree of correlation among oblimin factors was found to be generally below .25.
[59] Using STATA's *screeplot, mean* command.

minimum and maximum. Upon investigation, the minimum factor solution was selected in each case because alternative larger sets of factors were revealed to include factors that had too few highly-loading variables. Many of these factors with few highly loading variables might be considered, as Kline explained (following Cattell, 1978) to be nothing but "bloated specifics"—factors with no more than one or two highly loading variables (Kline, 1994, p.12).

As far as determining an appropriate factor "load", opinions also vary considerably. Some counsel a sharp cut-off of 0.4 whereas others are content to include 0.2 for interpretation, where useful. Among the factor analysis undertaken here, the practice was to include for interpretive utility any load value > 0.25 so long as the uniqueness of the relevant variable did not exceed the level of 0.85. In general, for this study, any factors that did not include at least three reasonably highly loaded variables, factors that did not have at least one highly loading variable, or factors that lacked a reasonable interpretation were not employed in subsequent analytical work.

Standardized Values: A fourth preliminary step was necessary, however, given the wide range of data types and measurement ranges to be considered, prior even to the factor analysis. The actual values of all items of interest were first transformed into Z-scores—values on a standardized measure with a mean of 0 and a standard deviation of +/-1 to enable various items to enter statistical treatments (both Factor Analysis and MNLR) without undue influence accruing to items having larger measurement scales. The procedure normally is advised as a preliminary step in order to reduce difficulties associated with skewed data and highly differential means (Gorsuch & Yagel, 1981; Gorsuch, 1983, pp. 292-5; Kachigan, 1991, pp. 48-53).[60]

Factor Analysis Data Reduction: Accordingly, variables from each of the three sets of data (SIRS, CIRP, NSSE) were explored to identify a limited number of factors from each data set that parsimoniously characterize Newbies at SSU. Thus, 3413 available records were examined to isolate the relatively important prior student Asset factors that characterize Newbies. Separately, 2654 records in CIRP data were examined to isolate relatively important student Mentality factors. Finally, 1509 records in the NSSE data were examined independently to extract important Experience factors.

[60] STATA's *zscore* command was employed for the necessary calculations on all variables of interest.

The factors, extracted from each set of available data characterizing Newbies, represent communalities (h^2) for later use as input predictors for MNLR. Factor scores derived from each of the three exercises were retained for each Newbie case and these factor scores, in turn, were used for discriminating among and between the four Newbie outcomes of interest in the second stage of analysis. Summary findings from FA are displayed below with detailed presentations from these exercises reserved for the appendix.

Panel I: Asset Factors (SIRS Student Record): Sixteen separate SIRS items and derivatives were factor analyzed to extract 4 factors accounting for much variation in the Newbie population, based on institutional level, federal census, and school system data. The extraction converged to simple structure using a principal factors treatment with an oblique oblimin rotation. The four emergent factors are characterized in Table 3.2:

Table 3.2: Asset (SIRS) Panel Factors (principal factors, oblique oblimin rotation)

Fac. #	Assigned Name	Variance Explained	Theoretical Literature Perspective
F1	Neighborhood Capital	0.5612	Material Resources
F2	HS Academic Culture	0.5012	SES
F3	Neighborhood Culture	0.2176	SES
F4	Academic Preparation	0.1849	academic readiness

Individual item loadings on the Asset factors are depicted in Appendix Table A2.

Panel II: Mentality Factors (CIRP Survey): One hundred and fifty nine CIRP items were factored and calculated for various sets of factors ranging from 8 through 21—the minimum and maximum number of reasonable factors identified, as described above. Table 3.3 presents the factors ultimately extracted and selected for use together with the variation in Newbie experiences each factor accounts for and the aspect of theoretical literature that each factor represents.

Table 3.3: Mentality (CIRP) Panel Factors (principal factors, oblique oblimin rotation)

Factor # (8 Factor Solution)	Assigned Name (Crow interpretation)	Variance Explained	Theoretical Literature Perspective
F1	Achievement Motivation (Goals)	8.773	Amenable character
F2	Confident Self-image	7.221	Cultural capital
F3	Social Engagement	6.607	Acculturation
F4	Substantive College Choices	6.105	Amenable character
F5	Hedonism	3.266	Societal redirection
F6	Remedial Preparation	2.962	Intellectual power
F7	Other Directed	2.931	Societal redirection
F8	Informal College Experience	2.528	Acculturation

Individual item loadings on the Mentality factors are displayed in Appendix Table A3.

Panel III: Experience (NSSE) Factors: Seventy five NSSE items were factored in a single iteration and re-run for sets of factors ranging from 9 through 14—the minimum and maximum number of reasonable or appropriate factors, as described above. Presented in Table 3.4 are the factors ultimately extracted together with the variation in SSU Newbie experiences each factor accounts for and the aspect of theoretical literature that each factor represents.

Table 3.4: Experience (NSSE) Panel Factors (principal factors, oblique oblimin rotation)

Factor # (9 Factor Solution)	Assigned Name (Crow interpretation)	Variance Explained	Theoretical Literature Perspective
F1	Institutional contribution (value added)	10.253	Amenable character
F2	Cognitive coursework	7.225	Intellect power
F3	Stakeholder relationships quality	6.744	Amenable character
F4	School emphasis	6.423	Acculturation
F5	Social interactive learning	6.013	Acculturation
F6	Substantive informal dialogues	4.252	Intellect power
F7	Literature focus	3.835	Intellect power
F8	Academic work focus	2.060	Amenable character
F9	Community time demands	1.786	Societal redirection

Individual item loadings on the Experience factors are displayed in Appendix Table A4.

Stage II: Statistical Procedures and Analysis: With preparatory work solidified, it was appropriate to turn to the object of the study: discriminating among and

making sense of the possible outcomes of the freshman year experience—for that is the effect that the study seeks to explain.

Criterion Variable: Using 21 explanatory factors, and five indicator variables (dichotomous student categories; sometimes labeled "dummy" variables) of special concern, the outcome or criterion to be explained was Newbies' early departure, as reflected by a multinomial variable with alternatives Stayer, Stop Out, Transfer Out, Drop Out construct depicted in Table 3.1.

While theoretical literature dealing with retention & attrition has occasionally discussed various possibilities with respect to the most appropriate criterion variable, in practice student departure is usually investigated at the empirical level in terms of just two categories: Stayer and Leaver (whatever the labels employed). Stop-Outs and Transfer Outs are typically aggregated with the Drop Outs and analyzed in terms of either a logistic regression treatment or an OLS regression analysis using Stay/Drop Out as a dummy criterion variable.

A further complication worthy of consideration, but not addressed here, is that among Transfer Outs themselves, the Transfer Out impulse may be a response to greatly different influences depending on whether the Transfer Out is "across" to parallel institutions, "up" to more selective institutions, or "down" to less selective institutions. One might well expect that those transferring to parallel institutions are either seeking particular majors not available at the first institution or seeking school locations more convenient for personal reasons; those transferring "up" may be seeking more challenging academic environments; those transferring "down" may be seeking less challenging academic environments. These distinctive alternatives are not pursued here owing to the limited population dimension.

Predictors: Then, in terms of explanatory inputs, 21 factors were identified, each associated with various themes discussed in the preceding literature review, available for inclusion in further analysis. These represent Newbie Assets, Mentality, school Experiences and Extramural Demands.[61] The available explanatory factors summarize 159 separate items of special interest and constitute the inputs for further analysis.

[61] Bear in mind that it is commonly argued that most of the variability in a student's overall college success (as measured by graduation) can be accounted for by just four variables: students' high school grade point

The key methodological issue, as suggested above, is balancing relevant factor inclusiveness with tight focus. Most statistical procedures require at least several times more records than variables. For example, standard regression analysis assumes 4-5 x the number of cases as variables (Ethington, Thomas, & Pike, 2002) while a multinomial logistic regression treatment requires 5-6 x the number of cases as variables, with a minimum of 100 (Long, 1997). Even with discriminant analysis it is asserted that any number discriminating variables might be entertained so long as they do not exceed two less than the total number of cases (Klecka, 1980, p.11). Hence, the summary sample of students containing both NSSE and CIRP data keyed to the criterion variable (n=181) would support using no more than two dozen variables for most treatments—if the cases were distributed fairly evenly across the criterion variable. Unfortunately, as is clear from Table 3.5, the composite data file for SIRS/CIRP/NSSE contains empty cells for the Stop Out and Transfer Out categories, when examined at the level of each of the 32 relevant student sub-types. Clearly, in light of these empty cells, no predictions or explanations can be calculated or explicated for these sub-types of students.

Stage Two: Newbie Response Explanation: With the set of factors developed in Stage One to characterize SSU Newbies, further statistical treatment was undertaken to develop a model for explaining the full range of Newbie departure responses—a model developed, consequently, without imposing findings from studies in other types of institutions on a minority institution. This model maximizes the "voice" of a minority student culture consistent with survey research.

Factors abstracted in Stage One are examined jointly in Stage Two in two phases. First, detailed models using the largest possible number of factors are applied to the SIRS (file=3413 records), the SIRS-CIRP (file=704 records) and to SIRS-NSSE (file=585 records) files separately. Results are presented in Chapters 5-7. Subsequently, a more parsimonious model drawing on a smaller number of factors was applied to the Integrated SIRS-CIRP-NSSE file (a merged file containing 181 records) and presented in Chapter 8. This presentation is especially valuable for helping to understand whether assets, mentality, or experience appear to be *relatively* more useful in explaining early departure

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averages, cumulative SAT scores, sex, and ethnicity (Astin & Oseguera, 2005 #1153, p.20). Preliminary analysis here suggests, on the other hand, that college persistence can best be explained, at least in the case of an HBCU, by high school attended, level of academic participation, and location of college residence.

in an HBCU. Unfortunately, it cannot provide a robust and definitive model for HBCU Newbie departure owing to limitations in the data set, as will become clear in Chapter 8.

Analytical Modeling: While discriminant analysis is a traditional tool for modeling studies of this type where the outcome is categorical and multiple, (Klein, 1994; Huberty, 1994; Huberty & Lowman, 1998) the procedure has more recently become *de classe* among statisticians and researchers. Principle objections to its use are described (Press & Wilson, 1978; Bull & Donner, 1987) particularly in cases where input variables may be not normally distributed—cases that include inevitably, by default, all dichotomies and other categorical predictors. Press & Wilson observed in their conclusion that DA is not "preferable" especially "when many of the independent variables are qualitative." (Press & Wilson, 1987, p.705) Others have observed that "discriminant estimates may be biased if there is a mixture of binary and continuous explanatory variables" (Bull & Donner, 1987, pp.1118). Since important inputs for this study are qualitative rather than genuinely quantitative, and often binary—although in many cases they may be justifiably regarded as legitimately ordered interval level items, DA was ruled out as the most appropriate treatment.

Accordingly, for this study multinomial logistic regression analysis (MNLR)[62] became the treatment of choice (Agresti, 2002; Long, 1997; McCullaugh & Nelder, 1989). This technique now has become, it is fair to say, the preferred method for coping with multiple unordered categorical outcomes as well as a nearly infinite variety of input variables in the scientific community (Chkao-Ying, Tak-Shing, Stage & St. John, 2002). Among its few absolute limitations are that it is unforgiving relative to missing data—no cell in the analysis is permitted a "null" value. But a clear advantage over DA for the present study, MNLR permits (even "invites") the use of categorical as well as continuous data among the inputs—hence easily allowing the separate consideration of sex, race, age categories, participation level, and resident/commuter status among the predictors.

MNLR effectively discriminates between several categorical groups constituting the outcomes in terms of the inputs. Additionally, it provides probability estimates (or odds) for future Newbie outcomes in terms of the four response categories based upon

[62] Also known as "polychotomous logistic regression" (Bull & Donner, 1987). See Glossary.

known predictor variables. Thus, for this exercise, multinomial logistic regression (MNLR) was an ideal technique since it permitted a number of unordered categorical values for the dependent variable as well as a variety of measurement types among the input variables. The end result of MNLR was that it yielded percentages to describe probability that a particular set of input variables would result in a given outcome (Long, 1997, Chap. 7).

Concerns remain with this approach however. First, it has been argued that the treatment is subject to some error and misleading findings when there are highly dissimilar sized "N's" among the several outcomes (Norusis, 2004, p. 56; referencing Hosmer & Lemeshow, 2000). Of concern: a greatly skewed distribution of cases across the outcomes may throw probabilities awry before the impact of inputs themselves can be felt—especially in the case of the smaller categories. Models otherwise adequate may appear to ill-fit the data and misclassify predictions because of the gross probability that a given outcome may be plausible owing to the great numerical imbalance. So, given that the outcomes in this study do include highly dissimilar numbers of cases (Stayers=59%; Drop Outs=31%; Stop-outs=4%; Transfer Outs=6%), the treatment entails risk—but a solid consensus about the appropriate level of concern does not appear to have formed yet among the experts: Long, for example, does not mention this potential problem (Long & Freese, 2006, 2005; Long, 1997). Nonetheless, it is clear that order of magnitude differences do separate the four response categories in this study.

Second, calculations and interpretations necessary to make sense of MNLR are sufficiently complex that they have rarely been used to evaluate more than a handful of predictors—a limitation of concern here in the face of 21 surviving factors and the five indicator categories of special interest.

Third, since gross dissimilarity in outcomes cannot be avoided, and the complexity of multiple inputs remains, the treatment risked resulting in clearly communicable findings with important statistical significance for sharing with other than statistical experts. Few indeed are those would derive great satisfaction from hearing a recondite finding like "the *logit* increases by B units for every unit increase in X holding d constant." From a practical perspective, such a finding—however sound from a theoretical perspective—would have little hope of impacting the way people think of

student departure—as is desirable from the perspective of an "action research" advocate.[63] Accordingly, this presentation relies heavily on a new graphic representation of findings, enabled by a recently developed STATA treatment, and devotes considerable attention to describing graphic output rather than presenting detailed, though accurate, parameter estimates (Mitchell, 2004).

Limitations: It goes without saying that no study is complete of itself. Several limitations attend the present investigation and motivate future investigations.

Collateral Exogenous Experiences & Maturation: Most notably, sadly unaccounted for in this study are an adequate variety of Extramural collateral experiences or demands that Newbies encounter during their first college years that may influence personal persistence decisions by pulling attention away from collegiate life. These experiences have nothing to do with the university and from the institutional perspective are generally regarded as attractive nuisances (or distracting sirens) but likely they do have much to do with students' real life choices and behaviors. Included among such collateral experiences might be a range of exogenous developments including, for example, acquiring new dependents (marriage, children, and aged parents), developing financial hardship (loss of job, change in employment), change in military or missionary status, hurricane or other catastrophic events impacting on family and properties, crime and underworld influences, church and religious impacts, and the like.[64] These exogenous influences are omitted, not on theoretical but practical grounds. Data for reanalysis was unavailable in existing collections to address them adequately at this time.

Furthermore, changes in Newbie interests, personality, or character may derive from simple maturation having nothing to do with specific experiences, collegial or otherwise. Since there are no extra-college control groups available for comparison,

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[63] It is, in the experience of this writer, easy to greatly overestimate the level of sophistication among college professional staff. Two cases in point—both from faculty with PhD's awarded by accredited institutions. One faculty member seeking to liberate some data recently (and seriously) opened a request with "This is the office that does means and modes and stuff, right?" And an Assistant Dean once rebuked her IRP officer for using the term "mean" in communicating with faculty about data arguing that most folks didn't know what was meant. If "means" and "modes" are overwhelming, imagine what damage a "logit" might do to a college habitas!

[64] See, for examples of potential societal influences, Young, 2004; McWhorter, 2006; Jones, 2002; Brown, et al, 2004; and even Frazier, 1957, for discussions about possible external influences impinging on college students—an area, to repeat, greatly understudied but essential for understanding minority-serving institutions.

there is no way to guard against this possible influence. As Pascarella & Terenzini explain in their monumental work, whether students' personal gains are "due to the college experience, to normal maturation, or to other influences remains an open question" (Pascarella & Terenzini, 1991, pp. 230-232).

Random Internal Experiences: Equally unaccounted for by this study are any random internal experiences that individual students may have encountered in the institution that do not happen to have been included among variables collected in conjunction with existing data sets. Likewise, experiences that have not similarly affected relatively large numbers of Newbies can not emerge as objects of investigation. The very nature of statistical analysis requires variables to similarly influence important numbers of a cohort in order to emerge and be identified as influential. Idiosyncratic experiences, no matter how profound in individual cases, that influence only a very limited number of Newbies, will inevitably be neutralized by statistical analysis.

Response Validity/Reliability: One assumes at face value that data collections employed contain valid and reliable student responses to survey items. Whether they are genuine indicators of student views and experiences is difficult to judge. There is no known reliable safeguard against contamination occasioned by, for instance, either survey fatigue or disinterest. Researchers typically ignore such issue—although practitioners are well aware anecdotally of their influence. To some extent and in some cases reliability can be estimated by comparing self-report data on surveys to institutional data that has been cross-validated with source documents. Occasionally surveys are constructed with internal controls for bad data. But it is ultimately little more than naïve faith to assume that other variables are equally reliable as those that might be thus validated.

External Survey Instrument Limitations: This study presents a picture of freshman "reality" informed by student perspectives measured by two current and well-known professional survey instruments (CIRP & NSSE)—instruments congruent in their methodology and arising from a single empirical research tradition. The methodology employed in gathering and interpreting data has not afforded controls to guard against survey fatigue or insure individual response validity nor reliability. More importantly, in relying on external national surveys, the survey instruments themselves have not undergone local pre-testing, editing, and validating. Thus survey wording itself is not

adjusted in light of local understandings. The issue is potentially serious here given the role of bi-culturalism in the Black student community within an HBCU (Valentine, 1971). Consequently, to the extent that local students may share a sub-culture and language conventions differing systematically from national freshmen (a strong possibility in the face of regional Gullah language and Southern Black dialect influences), the findings may lack the level of validity locally that is attributed to them nationally.

Student Perspective: Fourth, the study does not consider other perspectives or perceptions of the freshman "reality" and Newbie stay/leave decisions beyond those articulated by freshmen themselves in highly structured form along with the official track record left reflecting their personal experience on campus and their prior attributes. The study does not pretend to present faculty, staff, administrator or any other stakeholders' view of the freshman attributes, attitudes, or experiences nor of any other stakeholders' planned or unintended expectations and/or influences. To this extent, the study is both informed and limited by a student-centered perspective.

Convenience Sample: Fifth, Savannah State University has not been selected for this study in response to any arcane scientific sampling strategy. The institution is, ultimately, a convenient site with relatively rich, accessable data in which to conduct a study and thus its freshmen may not necessarily be representative of any other HBCU freshmen. Newbies studied here may differ in unknown but systematic ways from all HBCU freshmen or even from freshmen in other State HBCU institutions as a result of important local or regional variations. Therefore, findings may not necessarily reflect conditions and experiences associated with other settings. Yet, because of similarities in institutional mission, governance, size, complexity, funding, admission criteria and student cost, it is thought likely that findings from this study will be similar to those that would emerge from similarly studying Newbies in the 20 other small and medium sized State-operated HBCUs listed in footnote 6 above.

Use of Census Data: Sixth, in order to develop solid proxies to represent the nature of social communities and cultures outside the university that potentially influence Newbies, various extractions were made from the 1990 and 2000 Federal census collections. These extractions were designed to represent demographic, economic, and

cultural norms of communities from which students originated—either their homes or their high school areas. This data is included among SIRS data and is taken into account in order to better contextualize individual student responses to college.

Unfortunately, this type of data is typically aggregated at either zip code or county level and thus is far broader or more general than would be preferred. Far more precision would be gained were it possible to focus and locate this data to specific 9-digit zip code neighborhood precision rather than the customary 5-digit zip codes. At the present level of aggregation, the data does not reflect as fine grained variation by individual Newbie as would be desirable.

Secondly, a considerable percentage of Newbies come from "unknown" origins by these measures. The Registrar's data does not contain either home or high school identification for out-of-state students, non-traditional students, or GED students. Thus it was necessary to interpolate and/or impute origins for Newbies at a level discomforting to a researcher raised in the classic historiographic tradition. With most of the Registrar's paper files stashed beyond access in archives, even extensive manual research proved unable to adequately update and fill in a large portion of missing variables. Ideally, one would like to have 9-digit zip codes for all students' original home addresses as well as known relevant high school identities for all students—even those not completing high school; unfortunately, that ideal lies far from reality in this institution and could not be addressed within the resources and logistics available for this study. In the end, imputation reigned most heavily on the institutional data files, far more so than on the survey items.

Structured Survival Bias in Outcomes Arising from Reanalysis Methodology: Most serious of all, the data sets available for reanalysis in this study themselves served to greatly bias the outcomes as a result of survival bias. Recall that the three data sets were drawn from the Registrar's official record (full population), an early Fall term survey (CIRP), and a late Spring term survey (NSSE). Each data set, accordingly, reflects a diminishing number of cases and those diminishing numbers serve to seriously over-emphasize the ratio of "Stayers" and under-emphasize the ratio of "Stop Outs," "Transfer Outs" and "Drop Outs" for each cohort, as the samples are drawn at progressively later times during the freshman year. It is clear from Table 3.5 (Actual

Outcomes: Four Separate Data Sets) that the Stop Out category, affecting nearly 4% of the full population is reduced to a single case by the time all three data sets are combined for testing a fully integrated model. Clearly it is not possible to apply valid statistical tests of central tendency and develop confidence intervals around the influence of various explanatory factors on a sample of a single case where influences must be purely random in a statistical sense. Further, as will become clear in later chapters, the greatly dissimilar incidence or greatly imbalanced ratios of the various outcomes themselves prove to be significant issues for MNLR.

Table 3.5: Actual Outcomes: Four Separate Data Sets

	SIRS (population) Asset Models		CIRP (Fal Sample) Mentality Models		NSSE (Spr Sample) Experience Models		Combination (Sample) Integrated Models	
	n	%	n	%	n	%	n	%
Stayer	2021	59.2%	505	71.7%	436	74.5%	146	80.7%
Stopout	129	3.8%	11	1.6%	8	1.4%	1	0.6%
Transferout	204	6.0%	47	6.7%	35	6.0%	10	5.5%
Dropout	1059	31.0%	141	20.0%	106	18.1%	24	13.3%
Total	3413	100.0%	704	100.0%	585	100.0%	181	100.0%

Expected Contribution: In spite of these many limitations, this empirically derived understanding of Newbie departure responses from an HBCU is intended to provide a contribution to both HBCU and general college retention and departure literature. In doing so, it clearly highlights key influences on Newbie departure behaviors in a state-supported HBCU at the inception of the 21st century. Whereas past such studies have adopted frameworks originally developed in other types of institutions and imposed them *a priori* on the HBCU institution, this framework emerges internally—satisfying to some extent the valid concerns of the multicultural and student-voice oriented. And the method employed for data reduction considers and either employs or discards a wide range of explanatory variables (each of which has been utilized in other contexts and other theories) based on empirical evidence, not external practices—satisfying those who may be interested to understand HBCUs on their own terms rather than through a filter established in mainstream institutions.

Chapter 4:
Newbie Description, Trends & Factors

With the student departure literature reviewed (Chapter 2) and the theoretical framework delineated (Chapter 3), one further set of tasks remains before engaging the analytical work of the project. Descriptive in nature, these tasks are important for grounding the analysis in reality and perhaps substantiating its importance.

First, a brief aggregate descriptive sketch of Newbies, although tangential to the main analytical work of the project, serves to keep the study grounded in phenomenal reality. Accordingly, several basic summary attributes of Newbies over the years of the study are described, providing a conceptual base line.

Second, since several years' data has been aggregated in support of the study, it is instructive and useful to compare the data for key variables across academic years to see to what extent the Newbie population itself may have changed across time in response to various pressures impacting the university and or events occurring within it. While the annual dimension can be accommodated within the analytical framework that follows (Chapters 5-8), a useful precaution is to underscore at the outset that the Newbie population did change somewhat over the years of the study—partly in response to intentional admission selectivity and other practices by and in the University and partly in response to exogenous societal pressures. Readers deserve to understand from the outset that in aggregating Newbies over five years, some annual variation is masked.

Third, it is important to compare SIRS population data with the CIRP, and NSSE survey data to see to what degree the CIRP and NSSE survey samples may differ from the full Newbie population along critical dimensions of both the explanatory factors and outcomes. These comparisons enable seeing to what extent findings based on these survey samples provide instructive indicators and metrics for the Newbie population and what limitations they may suffer.

And, fourth, it is useful to see to what extent each of the analyzed factors themselves, considered individually, appear to relate systematically to variations in the outcomes. This knowledge will provide further grounding for readers faced with the relatively more complicated analytical material that follows.

Aggregate Description: Who are the Newbies? In aggregate, a population of 3413 Newbies engaged SSU classes as freshmen during the academic years 2000-2005 (actually, the fall terms, 1999—2004). 55.7% of these Newbies were female and 93.7% were Black. Approximately 96% were unmarried at the time of matriculation and most had no dependents—unless one considers automobiles as dependents.

Overwhelmingly, our Newbies were a young population with a mean age of 20.4, a median of 18.8, and the strongly predominant mode (18) containing fully 57.4% of the group. Just 39% of the Newbies were over the age of 18 at matriculation; 16% were over the age of 20. Four percent were under the age of 18.

SSU's Newbies arrived on campus having gained an average high school grade point average of 2.68 (on a four-point scale; sd: .51) and an average cumulative SAT score of 880 (sd: 103).[65] These averages masked considerable variation, though. High school GPA's ranged from less than one to more than four while SAT's ranged from a low of 530 to a high of 1450. Clearly the highest scoring in the ranges were among the "best" freshmen students nationally while the lowest in the ranges were, frankly, unprepared academically for college-level work. The wide range in academic preparation among these Newbies is comparable to what one finds in a typical community college rather than a state flagship university or an ivy where the range in prior preparation is typically more constrained.

Yet, there was not as much correlation between high school grades and SAT scores for the Newbies as one might expect: the correlation ("r")was a bare 0.28. Generally statisticians regard a correlation below 0.30 as "low;" indicating little if any relationship between the variables. Ultimately, this modest level of correlation suggests that just 8% (.28 x .28 = .078) of the variation in one score is related to or associated

[65] Since average combined SAT scores (verbal + math) over these years ranged from 1017—1025 nationally, it is apparent that SSU Newbies enjoyed somewhat less academic preparation than the national benchmark—falling below the national mean by 141 points. (http://www.infoplease.com/ipa/A0883611.html; Sept, 2006)

with variation in the other score. In part, this low degree of correlation between high school grades and SAT scores can be explained by significant variations in the academic quality of the high schools from which the Newbies arrived, as is demonstrated with the following factoid.

Within Georgia, public high school seniors were (during these years) obliged to sit for a battery of achievement tests geared to the state's high school curriculum. Some of our Newbies arrived from tiny high schools where as few as 34 students on average sat for the achievement tests annually to other huge schools where as many as 738 students on average sat for the tests. More dramatically, some of the Newbies came from schools where as few as 35% of the seniors sitting for the tests, actually passed them; others came from schools where fully 98% of the seniors taking the tests regularly passed them. Rocket science is unnecessary to see that the meaning of individual school grades is only relevant to the specific competitive context in which they are earned and/or awarded.

But in part the low correlation between high school grades and SAT scores is also explained by the unreliability of single test scores (the SAT's or ACT) in accurately indicating a level of deep learning among the subjected population. Indeed, the Southern Regional Accrediting body constantly presses its member institutions about the unreliability of any single measures as valid for judging anything and the importance of using multiple measures (SACS, 1998). In the case of SSU Newbies, the standard deviation in their entrance test scores (103) is almost as great as the amount a student might expect to "gain" by cramming for the test in one of the ubiquitous test preparation workshops.[66]

In round numbers, 27% of Newbies came from homes in the immediate Chatham county area with another 5% from suburban and rural counties surrounding and contiguous to SSU's home county. Fully 25% of the Newbies journeyed to the seacoast from the Atlanta metropolitan area—an area lying some 250 miles inland and distant from the coastal "low country." For the rest, another 27% came from elsewhere inside Georgia and 8% from other states outside Georgia but yet in the South. Northern states contributed 4% "Yankees" to the Newbie mix; 2% hailed from Western states in the US

[66] Kaplan, for example, "guarantees" a higher score on the SAT to those who complete their study program. http://www.kaptest.com/hsg/index.jhtml;jsessionid=ALXAXX5AY1ND5LA3AQJHBNVMDUCBG2HB

and another 2% were international students. On average, SSU Newbies traveled an extraordinary 175 miles from their homes to attend college in Savannah.

On average Newbies came from neighborhoods (zip code areas) where average home values in 2000 were $96,097. 25% came from neighborhoods with average home values exceeding $98,000 and 25% came from neighborhoods with average home values below $75,000. In support of these homes, the average family income in home neighborhoods in 2000 was $39,324—just below the median in the South: $39,800. A quarter of the neighborhoods boasted average family incomes exceeding $42,875; but a quarter suffered average annual family incomes below $31,750. (Federal guidelines suggest that an income of $30,000 for a family of 4 lies within the poverty level.)

Ten percent of the Newbies came from neighborhoods where more than 72% of the population is Black. At the other extreme, 10% came from neighborhoods where less than 12% of the population is Black. On average, Newbies came from neighborhoods with 44% Black residents; a quarter from neighborhoods more than 58% Black and a quarter from neighborhoods less than 30% Black.

Barely 11% (N=274) of these Newbies had ever experienced college previously, and transferred to SSU with some number of college course credits. As they enrolled at Savannah, 73.4% of the Newbies could be classified as full-time students, carrying 12-15 credit hours. 14.0% were more than full-time, carrying in excess of 15 credit hours and 13% could be classified as part-time, carrying less than 12 credit hours. On average, Newbies carried 13.1 credit hours. By the end of their freshman year, the Newbies collectively earned an average college GPA of 2.4 in their college coursework.

Attributes by Academic Year: But the Newbie population was not constant in either attributes or experiences across the five years of this study. The five-year averages mask some variations and trends. Table 4.1 displays key attributes by year along with the sum over five years and the "slope" of change in the relevant values. The slope (or standardized linear regression coefficient) represents the overall trend of Newbie attributes across the years of the study. In this table, the data depicted suggest that for every year subsequent to 2000, each attribute increases or decreases by the "slope" of the measured "attribute units" per year.

Table 4.1: Newbie Attributes by Academic Year

Attribute	2000	2001	2002	2003	2004	2005	Total	Slope
Newbies--number of	400	497	587	592	672	665	3413	53.00
***Basic demographics**:*								
% Female	52.5	56.14	56.56	55.07	58.78	53.83	55.67	0.37
% Black	86.25	86.92	94.72	97.64	96.73	95.79	93.7	2.29
% Married	6.25	4.02	3.92	1.86	1.49	1.65	2.93	-0.93
mean Age	21.79	21.45	21.45	20.14	19.56	19.41	20.49	-0.54
***Academic Preparation**:*								
mean SAT (comp)	862.56	872.34	881.33	875.50	879.44	897.27	879.54	5.40
mean HSGPA	2.47	2.55	2.70	2.74	2.72	2.80	2.68	0.06
# Sr.class tested/class	244.71	248.58	251.69	261.65	260.35	262.76	256.01	3.87
% HS sr. pass tests	54.76	55.43	54.91	55.11	56.98	57.21	55.86	0.49
Geographic Origins:								
Chatham County %	33.75	31.39	33.39	23.14	22.47	21.35	26.87	-2.83
Chatham County Ring%	3.25	5.84	5.45	4.90	3.87	5.41	4.83	0.12
Atlanta Metro Counties%	20.00	17.71	17.21	31.08	30.21	29.92	25.05	2.88
Other Georgia%	20.00	24.55	25.72	27.03	30.51	30.53	26.99	2.05
Other Southern%	10.75	11.47	8.52	7.94	6.70	6.02	8.26	-1.10
Northern US%	4.50	5.63	4.26	3.38	3.42	2.86	3.90	-0.45
Western US%	4.25	1.61	1.19	1.18	1.34	2.86	1.96	-0.22
International %	3.25	1.21	2.90	0.00	0.74	0.45	1.29	-0.52
Bahama/Carribean%	0.00	0.60	1.36	1.35	0.74	0.60	0.85	0.10
Home Environments (Zip):								
mean home values	94,185	93,435	92,171	98,986	98,725	97,476	96,097	$1,118
mean family income	38,181	38,351	38,213	39,932	39,973	40,524	39,324	$523
mean % Black population	44.2%	42.6%	43.9%	46.7%	45.1%	44.3%	44.5%	0.00
***College Experiences**:*								
mean hours enrolled	12.16	12.35	12.79	13.19	13.90	13.63	13.10	0.35
% living off campus	53.5	48.69	44.29	30.41	27.23	26.62	36.8	-6.08
mean Fin. Aid Total	4610	5635	6345	6636	7091	7050	6373	$482
mean miles home-campus	144.1	142.3	144.4	198.7	194.6	206.6	175.5	14.97
mean 1st yr GPA	2.31	2.43	2.50	2.37	2.37	2.42	2.40	0.01
***Declared Majors**:*								
Math/science	7.50	9.26	7.33	14.53	15.18	13.38	11.60	1.55
Applied Sci/engineering	13.25	12.88	17.72	12.50	13.54	9.62	13.18	-0.61
Humanities	5.25	7.65	6.47	8.45	9.08	8.12	7.68	0.59
Business	22.25	18.71	20.44	25.34	21.58	19.25	21.24	-0.04
Social Science	8.25	11.27	14.31	10.41	13.10	11.13	11.57	0.46
Undeclared	43.50	40.24	33.73	19.05	27.53	38.50	34.72	-2.22
***Enrollment Outcomes**:*								
Stayer	48.50	55.94	65.08	63.01	60.42	58.35	59.21	1.73
Stop Out	5.25	5.23	4.43	2.53	1.79	4.63	3.78	-0.44
Transfer Out	4.75	6.04	3.58	6.25	5.36	9.17	5.98	0.65
Drop Out	41.50	32.80	26.92	28.21	32.44	28.12	31.03	-1.91

Sources: SIRS data file, SSU Registrar; U.S. Census Bureau; GA office of Public Instruction

Thus, the total Newbie headcount increased by 53/year while the percent of Newbies who were female increased by 0.37% per year and the percent who were Black increased by 2.29% per year. Meanwhile, the percent married decreased by 0.92% per year—just under a 1%/year decrease as the age of Newbies decreased by over a half percent per year (-.539). Taken together, these trends suggest that the Newbie population was becoming more exclusively Black, more female dominant, and more "traditional" (i.e.: younger and less married) as time wore on over the five years of the study.

As these changes were underway, Newbie SAT scores gradually increased by 5.40 points per year, on average, and both their high school and college average grade point averages slowly increased as well: slope = 0.06 and 0.01 respectively.

In terms of origins, the Newbie population as a whole gradually came further and further to attend college—the average distance increasing by almost 15 miles/year from 144 to 206 miles over the half decade. The change in average distance is explained by a significant reduction in local Chatham county Newbies (down by 2.29%/year) and out of state Newbies together with notable increases in Newbies from the Atlanta-metro area (2.9%/year) and the rest of Georgia (2%/year). By these measures, the institution was gradually becoming more a regional and less a local drawing establishment.

The change in student origins is reflected in a gradually increasing percentage of Newbies living on-campus over the five years. Indeed, in 2000, 54% of the Newbies lived off-campus. By 2005, doubtless lured by a combination of stylish new residence halls constructed on campus and a decreasing ratio of local-resident students, the percentage of Newbies living off-campus declined to just 27%--almost exactly half the rate experienced five years earlier. Over the five years, the numbers of off-campus-residing Newbies declined, on average, at the rate of 6%/year. The campus was becoming ever more traditional and residential by these measures.

While Newbies came from further away and tended to reside ever more on campus, their financial aid packages generally increased over the period as did the numbers of credit hours enrolled and the eventual first-year GPA earned. Financial aid packages rose, on average, by $482/year; hours enrolled increased by over a third of a credit hour per year; the mean college GPA earned rose ever so slightly by 0.007/year. With these trends underway, the percent of undeclared majors among Newbies declined

by 2.22/year; the largest gainer was math/science majors: growing somewhat less at the rate of 1.55%/year, on average.

Yet, in a sense, declared majors among first term Newbies were more nominal than real; reflective of eventual expectations rather than current studies. In their first term most students did not really engage their major field course work to any great extent, constrained as they were to meet various lower-division breadth and general education requirements first. Withal, accompanying these changes, Newbies were gradually arriving from high schools with increasingly academic cultures; they came from schools with ever more seniors sitting for senior achievement tests (the number rising by nearly 4/year, on average) and an ever larger ratio of them passing the senior tests (the rate rising by half a percent/year).

Given the above demographic shifts in Newbie attributes, it is unsurprising that the ratio of "Stayers" to other categories also showed an increasing trend. At the beginning of the period, 49% of the Newbies remained on campus continuously for two years following matriculation. By the end of the period, the rate had risen to 58%; increasing by 1.73%/year. This average increase was paralleled by an increase in the ratio of Transfer Out students: up from 5% to 9% over the same period. These increases came at the expense of Stop Out and Drop Out students—categories declining at the overall annual rate of 0.44% and 1.9% respectively during the period.

Population and Survey Samples: In part, it was in attempting to account for and explain these changes that the present study was conceived. Accordingly, as described in Chapter 3, two collections of survey data were employed to see if additional explanatory power could be gained by using students' mentality and experiences in addition to basic institutional data reflecting prior assets for understanding Newbie persistence behavior. Review of data displayed in Table 4.2 demonstrates the two primary difficulties encountered.

Table 4.2: Selected Population and Survey Sample Data Comparisons

Data Variable	SIRS		CIRP	NSSE	SIRS /CIRP	SIRS /NSSE	SIRS /CIRP /NSSE
Date Collected	Sept AY		Sept AY	Apr AY	Sept AY	Apr AY	Apr AY
Number of cases	3413		2654	1509	704	585	181
		(n)					
% Female	55.67	1900			60.2	62.22	67.4
% Black	93.7	3198			96. 5	96.41	98.34
% Off-Campus Res.	36.8	1256			24.6	22.91	20.99
Mean Age	20.5				19.3	19.4	19.1
Mean HS GPA	2.68				2.79	2.85	2.92
Mean hrs enrolled	13.1				13.9	14.1	14.3
Enrollment Pattern:							
y-y-y-y	59.21	2021			71.73	74.53	80.66
y-y-y-n	8.12	277			7.53	8.38	7.73
y-y-n-y	2.17	74			0.85	1.37	0
y-y-n-n	19.6	669			15.34	15.04	10.5
y-n-y-y	0.76	26			0.43	0	0
y-n-y-n	0.41	14			0.28	0	0
y-n-n-y	0.47	16			0	0	0
y-n-n-n	9.26	316			3.84	0.68	0.55

While the survey samples collected (CIRP and NSSE) do not reflect dramatically different demographic sets in terms of the usual age, sex, and ethnicity by which survey data is generally validated, two other issues did emerge. And these two issues were especially important because they intruded along the logical "fault line" of the issue that the study attempts to illuminate—departure.

The first issue is one of censoring, occasioned by lost (or unreported) ID fields in the survey samples. 74% of the CIRP respondents and 61% of the NSSE respondents did not voluntarily include student identification numbers as provided for in the surveys. So even though relatively strong samples (78% and 44% of the class, respectively) of students were surveyed by each exercise over the five years, relatively small minorities (26% and 39% respectively) could be matched up with institutional data in order to relate survey responses to the outcomes indicating, thereby, departure behavior.

Quite possibly, Newbies' proclivity to provide identification numbers correlated with their responses on the survey or with the probability of their electing one or another of the enrollment patterns (stay/leave behavior) over the period studied. The first

possibility is easy to check. For CIRP data, x^2 tests were run between a random set of responses and a variable indicating whether or not respondents provided their identity.[67] The only statistically significant correlation found was a minor relationship in the case of sex: male students were less likely to provide their id numbers than female students and the difference was statistically significant ($x^2 = 10.4$; $p = 0.001$).

The case is more complex in the case of the NSSE survey. Here very modest but statistically significant relationships are noticed between students not providing their ID and students having discussed class work with faculty outside class ($x^2 = 8.1$; $p = 0.045$) as well as students' judgment of the quality of academic advising ($x^2 = 9.1$; $p = 0.028$). (A paradox: the more students discussed class work with faculty outside of class, the less likely they were to provide their IDs on the survey. But the higher they rated the quality of academic advising, the more likely they were to provide their id's on the survey.) The strongest relationship discovered was between whether or not an IDs was provided and students' evaluation of the quality of relationships with administrative offices: the more helpful students judged offices, the more likely they were to provide IDs on the survey. ($x2= 18.33$; $p = 0.005$) The fact suggests the possibility that Newbies may be suspicious of or intimidated by Administrative offices? But generally and for most NSSE items there was neither a strong nor statistically significant relationship between those who provided IDs and those who did not and their response to individual items.

The second issue was less easily resolved. It is the classic one of longitudinal respondent (Newbie) survival related to the conventions of the survey methodology in the context of Newbie's actual behavior. Since the NSSE survey is conducted nationally near the end of the spring term, Newbies who may have bolted from the institution at anytime in the academic year between September and April, were not available for this survey, by default. Thus, no NSSE data was available to document perceived experiences of those very students whose experiences may have most quickly inclined them to depart the institution. In terms of the present study, NSSE data is clearly biased towards the experiences of Stayers. As can be seen in the "enrollment pattern" data in Table 4.2, 372 Newbies who departed the University prior to April in these years, were not included in the NSSE survey. These Newbies represent 11% of the full Newbie

[67] Throughout the balance of this paper, chi^2 will be referenced in text as x^2.

population and 36% of the Newbies who turned out to be Leavers. NSSE data, therefore, clearly under-documents the experiences of early Leavers. Sadly, it is reasonable that early Leavers hold some of the strongest views with respect to institutional experiences sampled by the NSSE instrument. And these views remain unknown in this study.

Factor Distribution by Outcome: As described, factors were extracted from CIRP and NSSE data to explain responses to continued enrollment. The factors represent a reasonable synthesis describing Newbie mentality and experience. A oneway analysis of variance for each factor against the criterion variable demonstrates which factors individually "explain" differences between the outcomes. Table 4.3 displays these findings, with the mean score for each on each outcome together with the F-score and probability measure for each.

Table 4.3: Mean Response and Analysis of Variance between Explanatory Factors & Outcome Categories

		Outcome Categories						Prob		Prob
SIRS	**(5 factor solution)**	**Stayer**	**Stop Out**	**Trans-fer**	**Drop Out**	**Total**	**F**	**>4**	**chi²**	**ch²**
F1	Neighborhood Capital	0.010	-0.176	0.333	-0.062	0.000	11.780	**0.000**	32.01	0.000
F2	High School Culture	0.114	-0.273	0.303	-0.242	0.000	63.280	**0.000**	12.75	0.005
F3	Neighborhood Culture	0.077	-0.164	0.055	-0.137	0.000	23.980	**0.000**	30.87	0.000
F4	Academic Preparation	-0.024	0.047	0.148	0.012	0.000	4.180	**0.006**	5.85	0.119
							103.220			
CIRP	**(8 factor solution)**									
F1	Achievement Motive	0.023	-0.308	-0.185	-0.185	0.027	1.930	0.123	8.06	0.045
F2	Self-Image	0.013	0.045	-0.166	0.036	0.006	0.550	0.650	5.68	0.001
F3	Social Engagement	0.268	0.030	0.224	-0.127	0.182	6.880	**0.000**	2.57	0.046
F4	College Choice	0.136	-0.446	-0.294	-0.059	0.059	5.350	**0.001**	1.37	0.713
F5	Hedonism	-0.060	0.012	0.253	0.098	-0.006	2.510	**0.058**	5.18	0.159
F6	Remedial Preparation	-0.080	-0.137	-0.120	0.072	-0.053	1.240	0.293	12.10	0.007
F7	Other Directed	-0.164	-0.374	-0.127	0.102	-0.111	3.730	**0.011**	7.12	0.068
F8	Prior non-credit work	-0.046	0.048	0.024	-0.592	-0.042	0.140	0.936	1.150	0.765
						0.061	22.330			
NSSE	**(9 factor solution)**									
F1	College Value Added	-0.012	-0.372	-0.361	-0.269	-0.084	3.300	**0.020**	1.70	0.637
F2	Cognition Required	-0.056	-0.058	-0.218	-0.144	-0.082	0.560	0.644	0.88	0.829
F3	Quality Relations	-0.050	-0.467	-0.602	-0.375	-0.148	8.480	**0.000**	8.44	0.038
F4	Scholarly Emphasis	0.128	-0.188	-0.136	-0.100	0.066	2.800	**0.040**	1.21	0.750
F5	Interactive Learning.	-0.218	-0.201	-0.390	-0.386	-0.259	1.640	0.179	5.31	0.150
F6	Informal Dialogues	-0.093	-0.358	-0.196	-0.194	-0.121	0.730	0.537	1.47	0.689
F7	Literature Focus	-0.160	-0.472	-0.368	-0.216	-0.187	1.350	0.257	6.11	0.106
F8	Academic Work	0.097	-0.015	0.151	0.092	0.098	0.110	0.955	2.67	0.446
F9	Extramural Demands	-0.201	-0.585	-0.437	-0.116	-0.205	2.550	**0.055**	5.57	0.134
ZGPA	Z-Freshman GPA	0.233	-0.479	-0.008	-0.384	0.000	107.000	0.000		
GPA	*Freshman GPA*	*2.587*	*2.019*	*2.395*	*2.096*	*2.401*	*107.000*	*0.000*		
							21.520			

First, based on this view, the cluster of factors associated with prior "assets"—factors related to Newbie's academic preparation, high school academic culture, neighborhood culture, and family economic class appear to discriminate the most between the four outcomes: Stayer, Transfer Out, Stop Out, & Drop Out. Here the largest F-scores are found together with the greatest statistical confidence levels. Further, collectively, the discriminating power for each set of factors declined as the sample size declined. So that the CIRP factors, taken together, explained more variation than the NSSE factors did. But most likely, these apparent differences are merely an artifact of the decreasing sample size. SIRS data, after all, enjoys a substantial order of magnitude advantage over the survey data (i.e.: 3413 SIRS vs. 704 CIRP vs. 585 NSSE).

Second, from these univariate analysis of variance studies, it appears that in general, those factors that related to social interaction, stakeholder relationship quality, student motivations, perceived value added by the institution, hedonistic activity, and non-college time pressures were most strongly involved in discriminating between the four enrollment outcomes. But the ultimate test relies on the findings of multi-logistic analysis in Chapters 5-8, below.

Chapter 5
The Asset Model

Introduction: The exploratory analysis of influences on HBCU Newbie early college departure began by testing the role of Newbie's original Assets (in the sense of their accumulated life's lessons or prior experiences) on their early departure from the institution. To this end, four Asset factors were regressed against the outcome using a multinomial logistic regression model (MNLR).[68] In addition to these Asset factors, five Indicator variables[69] were used in the model to account for Newbies' sex, race, age, participation level, and residency—distinctions strongly associated with college departure patterns, as observed in Chapter 4.

Typically, in MNLR studies the outcome with the greatest frequency is presumed by default to be the "base outcome" against which the probabilities of the other outcomes are compared. The traditional default approach fit the present case well, since the goal here was to assess the probabilities of the three early departure patterns in contrast to the Stayer outcome—the outcome experienced by most Newbies.

The Asset models described here test whether incoming Newbies' prior history and personal record, including prior academic preparation together with the high school academic culture, the home neighborhood culture, and the socio-economic class from which they came might effectively predict early college departure. These items were available for exploration based on the high schools and home zip codes of record, as reflected in census data.

[68] In STATA, the MNLR command used is *mlogit*.
[69] Often called "dummy" variables.

The question was, can one predict from these four factors with confidence whether a Newbie would likely be a Stayer, a Stop Out, a Transfer Out, or a Drop Out from the HBCU—as the concepts were developed in Chapter 3? How much does a student's general background really matter in predicting future alternatives? These four independent Asset factors stand apart from and prior to any individual Newbie's own particular Mentality, collegiate Experiences, or concurrent Extramural Demands as they develop during the freshman year.

Understanding the influence of these Asset factors could prove extremely useful for advanced recruiting or enrollment analysis since they easily can be anticipated early in a recruiting period. Further, they also could serve as critical control variables for any post facto analysis of institutional effectiveness, based on retention rates, since they are unaffected by the institution. They represent student condition *prior to* the University's intervention in their lives. Accordingly, these factors, to the extent that they are influential and significant, do represent a strong base line against which an institution's own impact on Newbie early departure reasonably might be assessed.

Outcomes Observed: As demonstrated in Table 3.5 detailed in Chapter 3, among the full population of 3413 Newbies, 4% were Stop Outs, 6% were Transfer Outs, and 31% were Drop Outs within two years of matriculation at the HBCU. The distribution pattern underscores that 59% of the Newbie population overall were Stayers over an initial two years of college. Since this population is the full population of Newbies, statistical tests of findings are unnecessary (tautological, really) for estimating characteristics of a full population. Nevertheless, statistical tests were employed and are relayed among the results in order to suggest an appropriate level of confidence when transferring the findings to expectations for future Newbies or perhaps even to other venues or sites.

Newbie Types & Sub-Types in Population: Among the Newbie population, 1,523 males and 1,900 Females were categorized by four additional bivariate classifications, as described in Chapter 3, yielding 10 primary categories or types of Newbies. Among the types, the available data includes 3,198 Blacks and 215 minorities; 723 adults aged 20+ and 2,690 teen-agers; 431 part-time students and 2,982 full-time students; with 1,256 commuters and 2,157 campus residents. The types could be nested,

producing 32 Newbie sub-types, as displayed in Table 5.1. The various sub-types are formed by all the possible combinations of the primary categories, each represented in a "cell" containing one or more counts. Viewed this way, the cell designating part-time, on-campus, adult, female minority residents is empty. There were none of this Newbie sub-type in the years of the study. Table 5.1 displays counts of the number of Newbies for each of sub-type.

Table 5.1: Newbie Population, Types and Sub-Types
(Sex, Race, and Age Cohorts by Participation Level & Residency)

Sex	Race	Age Grp.	Part.Lvl	Residency	
male 1513	black 1388	teen 1155	fulltime 1088	resident	856
				commuter	232
			parttime 67	resident	38
				commuter	29
		adult 233	fulltime 171	resident	52
				commuter	119
			parttime 62	resident	8
				commuter	54
	minority 125	teen 58	fulltime 48	resident	23
				commuter	25
			parttime 10	resident	2
				commuter	8
		adult 67	fulltime 30	resident	2
				commuter	28
			parttime 37	resident	1
				commuter	36
female 1900	black 1810	teen 1450	fulltime 1378	resident	1085
				commuter	293
			parttime 72	resident	35
				commuter	37
		adult 360	fulltime 226	resident	39
				commuter	187
			parttime 134	resident	2
				commuter	132
	minority 90	teen 27	fulltime 21	resident	11
				commuter	10
			parttime 6	resident	2
				commuter	4
		adult 63	fulltime 20	resident	1
				commuter	19
			parttime 43	resident	0
				commuter	43

Alternative Asset Models: To test the influence of original Newbie Assets on early departure from the institution, several multinomial logistic regression models were examined using the four-part variable as the outcome to be explained.[70] (Table 5.2) The MNLR procedure essentially estimates a separate binary logistical regression for each pair of outcomes, but does so for each pair simultaneously. The procedure identifies the probability of each outcome, as the model varies one input at a time, holding the other explanatory factors constant at a designated level—conventionally the mean value. The resulting collection of graphs displayed below (Figures 5.1—5.8) clearly show how each independent factor or variable affects the predicted probability of each separate Newbie type achieving each of the four alternative outcomes, holding the other independent factors and variables constant at their mean, a procedure recommended by leading practitioners of MNLR (Long, 1997, p. 77).[71]

In addition to the selected model, two alternative models were investigated to explore the validity of the four outcomes themselves, as discussed in Chapter 3. To this end, the analysis was run repeatedly testing two further configurations of the outcome. In the first version, Stop Out and Transfer Out Newbies were dropped from consideration owing to their relatively small number of cases leaving a smaller sample of 3080 Newbies for consideration who were either clearly Stayers or Drop Outs. In this version of the model, Stop Outs and Transfer Out cases were removed from consideration so as to not compromise the integrity of the Stayer and Drop Out categories. With this bivariate outcome, convergence was reached in three iterations at a log pseudolikelihood of -1785.527 (Wald x^2, 332.82, prob > x^2 = 0.000; Pseudo R^2 = 0.0099).

Then, a second bivariate model was run in which the Stayer and Transfer Out categories were recoded together as "Continuing" while the Stop Out and Drop Out

[70] The models were implemented with STATA software (version 9.2) using the *mlogit* command, amplified by the additional *coefficient, percent*, *prtab*, *prchange*, and *prgen* instructions to develop both solid parameters and to enable extensive graphic output. The graphs are generally considered more effective for supporting a visual interpretation and communication of the complex and detailed findings. This is particularly true when the probabilities are other than linear (Long & Freese, 2006, Chapter 6; UCLA Academic Technology Services, Stata Webbook, MNLR).

[71] An earlier pilot study focused on Newbie sub-types generated 128 images contained in 32 combined graphs illustrating the effect of each factor on each possible combination of the five identity variables (e.g.: adult, *male*, minority, full-time, campus resident vs. adult, female, minority, full-time, campus resident). That larger collection of graphs has been omitted from this study in the interests of brevity. Interested readers may contact the author for separate copies of these graphics.

categories were recoded together as "Not-Continuing." Using this bivariate dependent variable, convergence was similarly reached in three iterations at a log pseudolikelihood of .1976.89 (Wald x^2 = 386.26; prob > x^2 = .0000; Pseudo R^2 = 0.1037). This second alternative model has a somewhat greater predictive power and somewhat more discriminating power than the first, reflected in the higher Pseudo R^2 score.

But, in contrast to the above two alternative models, the model selected for the present study (using a 4-category dependent variable) reached conversion in four iterations with a log pseudolikelihood of -3030.62 (Wald x^2 = 448.88; Prob > x^2 = 0.000; Pseudo R2 = 0.0804). Thus, on the basis of the increased discriminatory power suggested by the Wald x^2 statistic, it is confirmed that the Stop Out and Transfer Out categories do reflect valuable distinctions to be accounted for in departure analysis. It appears that the preferred 4-outcome model has, in effect, 35% more discriminatory power than alternative #1 [(448.88-332.82)/ 332.82] and 16% more discriminatory power than model #2 [(448.88-386.26)/386.26)]. Thus, it may be concluded that there is adequate justification for a departure analysis depending on a 4-part outcome.

Explanatory Factors: In these Asset models, four independent explanatory "factors" are employed, each an ordered continuum summarizing a theme generated from several independent variables, described in Chapter 3. The continuums are ordinal, rather than numerical, ranging along a Z-score scale (a standardized number with 0 as the mean) resulting from a factor analysis and without meaningful origins, minimums or maximums. Accordingly, Newbies are viewed here as coming from more or less academic high school cultures; from more or less urban, Black neighborhoods; from more or less wealthy neighborhoods; and as having gained more or less academic preparation. These four factors are summarized with the collective noun "Assets" for the present discourse.

Table 5.2: MNLR "Asset" Models

			Model 1	Model 2	Model 3
Parameters:					
	Stayer Outcome		2021	2021	2021
	Stopout Outcome		129	0	0
	Transfer Outcome		204	204	0
	Dropout Outcome		1059	1059	1059
	Total Observations		3413	3284	3080
Wald Test, Combining Categories			df=9	df=9	*
	Stopout/Transfer	Chi2	82.61	*	*
		P>Chi2	0.000	*	*
	Stopout/Dropout	Chi2	13.67	*	*
		P>Chi2	0.135	*	*
	Stopout/Stayer	Chi^2	94.61	*	*
		P>Chi2	0.000	*	*
	Transfer/Dropout	Chi2	146.67	146.64	*
		P>Chi2	0.000	0.000	*
	Transfer/Stayer	Chi2	47.02	47.04	*
		P>Chi2	0.000	0.000	*
	Dropout/Stayer	Chi2	337.18	334.30	*
		P>Chi2	0.000	0.000	*
Characteristics:					
	# Iterations to Converge		4	4	3
	Log pseudolikelihood		-3030.63	-2506.67	-1785.53
	Wald Chi2 (49)		448.88	408.09	332.82
	Prob > Chi2		0.000	0.000	0.000
	Pseudo R2		0.080	0.087	0.099
Inputs:			(Wald Test, Independent Contribution)		
Indicators:	Sex (male)	chi2	32.60	33.27	33.64
		P>chi2	*0.000*	*0.000*	*0.000*
	Race (black)	chi2	14.75	14.08	11.91
		P>chi2	*0.002*	*0.001*	*0.001*
	Residence	chi2	24.50	11.48	11.97
		P>chi2	*0.000*	*0.003*	*0.001*
	Age Group (adult)	chi2	18.49	14.80	3.79
		P>chi2	*0.000*	*0.001*	*0.051*
	Participation Level (fulltime)	chi2	44.62	39.72	38.68
		P>chi2	*0.000*	*0.000*	*0.000*
Asset	Neighborhood Capital*	chi2	16.90	16.07	0.03
Factors:		*P>chi2*	*0.001*	*0.000*	*0.865*
	Neighborhood Culture*	chi2	51.81	55.41	42.95
		P>chi2	*0.000*	*0.000*	*0.000*
	High School Culture*	chi2	60.81	55.41	40.55
		P>chi2	*0.000*	*0.000*	*0.000*
	Academic Preparation*	chi2	14.02	12.01	2.10
		P>chi2	*0.003*	*0.002*	*0.148*

* *Test requires 3+ outcomes*

Model Tests: Separate *post hoc* tests were performed on the models to determine whether the four alternative outcomes are distinguishable in terms of the available data and whether each of the separate inputs had important effect on those outcomes.[72] These tests were unable to confirm that the categories Stop Out and Drop Out are not indistinguishable in the Asset model. All other distinctions between pairs of outcomes were found to be significant at 0.000. Accordingly, the categories Stop Out and Drop Out *could* be combined—in terms of the influences present in the model—without negatively impacting the overall fit of the model. Further, the tests confirmed that the four Asset factors and each of the five indicator variables do have clear, distinct effects on the outcome significant at the .005 level. These factors and indicators are not redundant. Results of the test are also displayed in Table 5.2.

General Findings: Unsurprisingly, given the size of the cohort, the overall Asset Departure model was statistically significant at .000. (Wald x^2 (27) = 448.88; Prob > x^2 = 0.000; Psuedo R2 = 0.08) Within the model, in contrast to Staying, Stop Out is influenced most by commuter status, part-time participation level, less robust high school culture and the neighborhood culture. Prior academic preparation, the neighborhood capital level, and age, sex, and race categories each were <u>not</u> significant influences on Stop Out at the 95% confidence level (0.05). Data displaying the general findings is displayed in Table 5.3: Asset Departure Model Details.

On the other hand, contrasted with the Stayer outcome, the Transfer Out departure was influenced most by minority race, younger age, neighborhood capital levels, high school culture, and greater academic preparation. Sex, residence, participation level, and neighborhood culture each were <u>not</u> significant influences on Transfer Out at the 95% confidence level (0.05) (Table 5.3).

And finally, contrasted with the Stayer outcome, the Drop Out departure was influenced most by male sex, minority race, off-campus residence, part-time participation, weaker high school culture, and weaker neighborhood culture. Age level, neighborhood capital level, and individual academic preparation each were not significant influences on Drop Out at the 95% confidence level (Table 5.3).

[72] The STATA test for combining outcome categories is "*mlogtest, combine*" and a test for the effect of the explanatory factors on the outcome is "*mlogtest, wald*".

Table 5.3: Asset Departure Model Details

MNLR 3413 Obs; Log pseudolikelihood=-3030.627; Wald $x^2(27)$= 448.88; Prob >x^2=0.0
Pseudo R^2 = 0.0804

outcome	Coef.	Rob.Std.Err.	z	P>|z|	[95% Conf.	Interval]
Stop male	0.262	0.189	1.39	0.165	-0.108	0.632
Out black	-0.225	0.365	-0.62	0.537	-0.941	0.490
residens	-0.949	0.235	-4.04	0.000	-1.410	-0.489
adult	-0.423	0.248	-1.71	0.088	-0.909	0.063
fultime	-0.997	0.257	-3.88	0.000	-1.501	-0.493
capital	-0.100	0.118	-0.85	0.395	-0.331	0.131
h.s.cultr	-0.443	0.154	-2.87	0.004	-0.745	-0.140
hood cultr	-0.518	0.139	-3.72	0.000	-0.791	-0.245
acad prep	0.270	0.152	1.77	0.076	-0.029	0.568
_cons	-1.250	0.409	-3.06	0.002	-2.051	-0.448
Transfer male	0.079	0.150	0.53	0.596	-0.214	0.372
Out black	-0.733	0.352	-2.08	0.037	-1.421	-0.043
residens	0.002	0.226	0.01	0.994	-0.442	0.445
adult	-1.023	0.344	-2.97	0.003	-1.697	-0.348
fultime	-0.454	0.306	-1.48	0.138	-1.055	0.147
capital	0.306	0.079	3.88	0.000	0.151	0.461
h.s.cultr	0.238	0.091	2.62	0.009	0.060	0.416
hood cultr	-0.039	0.098	-0.40	0.688	-0.231	0.152
acad prep	0.341	0.100	3.40	0.001	0.144	0.537
_cons	-1.223	0.424	-2.88	0.004	-2.055	-0.392
Drop male	0.467	0.082	5.68	0.000	0.306	0.628
Out black	-0.635	0.177	-3.58	0.000	-0.982	-0.287
residens	-0.367	0.108	-3.41	0.001	-0.578	-0.156
adult	0.221	0.118	1.88	0.060	-0.010	0.451
fultime	-0.841	0.133	-6.33	0.000	-1.100	-0.580
capital	-0.009	0.045	-0.20	0.842	-0.098	0.080
h.s.cultr	-0.387	0.060	-6.50	0.000	-0.504	-0.271
hood cultr	-0.400	0.060	-6.62	0.000	-0.519	-0.281
acad prep	0.072	0.059	1.21	0.225	-0.044	0.188
_cons	0.588	0.211	2.79	0.005	0.175	1.002

(outcome==Stayer is the base outcome)

Departure Probabilities for Newbie Types: Next, the outcomes of the five primary types of Newbies were viewed: male/female, black/minority, teen/adult, commuter/resident, and pt/ft participation. This analysis depicts the probability of each type of student arriving at each of the four outcomes, holding the four independent "Asset" predictor factors at their means. Table 5.4[73] displays the probabilities for each of the ten types of students, holding the four Asset factors at their mean. Thus, here it appears that early departure is not much affected by the age category of Newbies alone, although it is distinctly affected by female sex and majority Black racial status along with campus residence and a full-time course load. The probability of Stayer is most

[73] Data drawn from STATA's *prtab* command following fitting the MNLR model.

negatively affected by minority racial status and part-time enrollment. The probability of Drop Out, conversely, is affected most by part-time enrollment and minority (non-Black) racial status. Transfer Out and Stop Out, not highly likely in any event as together they are experienced by less than 10% of all Newbies, appear to be most responsive to distinctions in age and ethnicity for Transfer Outs and to commuter status and part-time enrollment for Stop Outs. Parameters for these last two outcomes are not highly significant statistically owing to the relatively small numbers encountered.

Minorities have a 43% greater probability of Drop Out and 56% greater probability of Transfer Out than majority Blacks; they have a slightly lower probability of Stop Out and 24% lower probability of Staying continuously enrolled than majority Blacks.

Males have 14% less probability of Staying continuously enrolled and an 8% lower probability of Transfer Out over two years than females. Males have a 37% greater probability of Drop Out and a 13% greater probability of Stop Out than their female classmates.

Table 5.4: Predicted Probability of Outcomes X Newbie Type*

The Asset MNLR Model

	Enrollment Outcome			
Student Type	**Stop Out**	**Trans-fer**	**Drop Out**	**Stayer**
Female	0.032	0.053	0.260	0.656
Male	0.036	0.049	0.355	0.561
Black	0.034	0.050	0.292	0.624
Minority	0.032	0.078	0.417	0.473
Teen (>20)	0.037	0.063	0.286	0.614
Adult (20+)	0.024	0.022	0.350	0.604
Commuter	0.056	0.046	0.342	0.556
Resident	0.025	0.054	0.275	0.646
Part-time(<12 cr)	0.058	0.055	0.447	0.441
Full-time(12+cr)	0.031	0.050	0.280	0.639

(* assuming each remaining independent input is held constant at its mean)

Influence of Asset Predictors on Alternative Outcomes: While Table 5.4 and the discussion above suggests the predicted probability of the *average* Newbie of each type attaining each outcome and the average influence of each factor on each outcome, it is also true that an average is a fictitious number that often masks considerable variance. Accordingly, it is instructive to see also how much variance there is spread around the average probability predicted by each separate predictor.

Table 5.5 reveals the full range of predictions for each separate input against each respective outcome, holding the other inputs all constant. These numbers then demonstrate the range of influence that each predictor has on each possible outcome. When a number is positive, it indicates that as the regressor increases, the outcome increases also. When a number is negative, it means that the outcome decreases as the regressor increases. So, for example, among the indicator variables it is apparent that Males have a 10% greater probability of Drop Out and a correspondingly 10% lower probability of Stayer than Females, considered within the Asset Predictive Model. Similarly, Blacks have a 13% lower probability of Drop Out and a 15% greater probability of Stayer than Minorities. Residents have a 9% greater probability of Stayer and a 7% lower probability of Drop Out than Commuters. Full-Timers have a 20% greater probability of Stayer and a 17% lower probability of Drop Out than Part-Timers.

Among the less likely outcomes, Adults have a 4% lower probability of Transfer Out than Minors while Blacks have a 3% lower probability of Transfer Out than Minorities. Similarly, Residents have a 3% lower probability of Stop Out than Commuters while Full-Timers have a 3% lower probability of Stop Out than Part-Timers.

Turning to the Asset predictive factors, as Neighborhood Culture rises from its minimum to its maximum, the probability of Stayer rises by 38% and the probability of Drop Out declines by 34%. Similarly, as High School Culture rises from its minimum to its maximum, the probability of Stayer rises by 30% and the probability of Drop Out declines by 34%. The range of influence from Neighborhood Capital is far less on each outcome—rising to its greatest influence on Stayer where it reaches a negative 9%.

Especially interesting, in light of usual persistence research practices, is the finding that the influence of Newbie's individual prior Academic Preparation on either Stayer or Drop Out is less than either of the two Asset culture factors considered—and it is positive.[74] And, the influence of Academic Preparation is higher on the Stop Outs and Transfer Outs than either culture factor. Finally, the greatest influence on Transfer Out comes from Neighborhood Capital; the greatest influence on Stop Out comes from

[74] A positive number indicates that as the factor increases from minimum to maximum, the outcome increases. Thus, the greater the academic preparation, the more likely the Newbie is to Stop Out or Drop Out.

Academic Preparation; and the greatest influence on Drop Out and Stayer both comes from the Neighborhood Culture factor.

Table 5.5: Range of Probability Predictions for Regressors on Outcomes in Asset Model
(When predictor value ranges from minimum to maximum)

Predictors	Outcomes: Stop Out	Transfer Out	Drop Out	Stayer
Indicator variables				
Female to Male	0.004	-0.004	0.095	-0.095
Minority to Black	0.002	-0.028	-0.125	0.152
Commuter to Resident	-0.031	0.008	-0.067	0.090
Minor to Adult	-0.013	-0.041	0.065	-0.010
Part-time to Full-time	-0.027	-0.004	-0.167	0.198
Model Factors				
Neighborhood Capital	-0.023	0.177	-0.061	-0.092
Neighborhood Culture	-0.055	0.020	-0.342	0.376
High School Culture	-0.046	0.085	-0.335	0.296
Academic Preparation	0.520	0.106	0.066	-0.224

Graphs of Probabilities for Newbie Types: Of course, social reality is never as crisply simple as in analytical models. Newbies are never simply or only male or female, Black or minority, full-time or part-time, commuters or campus residents, etc. They are combinations of these various indicator categories and each combination is influenced variously by Asset factors as well. Consequently, the easily interpreted probabilities described above, considered one at a time, are modeled abstractions—no more real and reflective of actual conditions than are simplistic averages. And like averages, typologies can mask great diversity if not used carefully and with distinctions faithful to their subject populations. So attention turns now to graphing detailed findings, perhaps more tedious to wade through but more useful, in the end, for understanding and predicting the actual proclivity for Newbies' early departure in reality. But, rather than pour through further tables, the impact of factors on each of the ten Newbie types will be addressed pictorially through a series of predicted probability graphs. And rather than appeal to specific exact probabilities, the accompanying descriptive narrative relies instead on impressionistic interpretation, looking at various groups of graphs in turn.

Reading Probability Charts: Reading the following probability charts (in Chapters 5-8) is relatively straight forward, once grasped. Accordingly, a detailed explanation is offered here to facilitate perusal of charts through the balance of the study. In terms of organization and format, in the following graphic material each separate

figure (each figure is a separate page) contains either six or four separate graphs. Each graph represents the case of one of the ten types of Newbies. Among the graphs for Chapters 5-7, the influence of each factor is depicted by images in two figures, the first demonstrating six demographic types of students (sex, race, & age) and the second, four involvement types (housing and participation level cohorts). On these figures, each pair of graphs depicts the alternative case of a bivariate pair in the typology. It is instructive therefore to compare the probability curves on adjacent graphs within the figures.

Each separate graph, moreover, contains four separate probability curves (or lines)—one to represent each of the specific outcomes under investigation: Stayer, Stop Out, Transfer Out, and Drop Out. And, *ceteris paribus* (as classical scholars and literate economists both enjoy saying[75]) the sum of the four probability curves at any point on the X-axis must inevitably be 1.0 or 100%. Since probability is a zero-sum game and there is only 100% to go around, if one outcome has more probability then some other outcomes must have less probability of occurring at any point along the horizontal axis. (If there are only two outcomes, the two curves must be complementary mirror images.)

Consistently throughout the study, the probability curve depicted with dark (blue) squares represents the "Stayer" outcome; the curve depicted with hollow (maroon) circles represents the "Stop Outs;" the curve depicted with solid (green) triangles represents the "Transfer Outs;" and the curve depicted with (orange) crosses ("X") represents the "Drop Outs."

The left end of each probability curve (a line really, sometimes curved and some times not) represents the predicted probability of the outcome in question if the factor observed is at its minimum value. And, the right end of each probability curve represents the predicted probability of the outcome if the factor observed is at its maximum value. The overall predicted impact of the factor in question on the type of student and outcome depicted is the absolute difference between the Y-scale values at each end of the probability curve.

In these graphs, the horizontal axis contains values ranging from -5 or -6 through 0 (located somewhere mid-way on the axis) to +5 or +6, depending on the overall range

[75] My personal fondness for the term arising, doubtless, from the good fortune of familiarity with John K. Galbraith's writings long preceding emersion in the writings of applied psychologists and institutional researchers who typically employ a pedestrian phrase like "all other things being equal."

of each factor. Readers should not be concerned to attach any absolute meaning to the X-axis numbers: they simply represent more or less of the factor in question.[76]

The vertical axis, alternatively, contains values ranging from 0 (at the bottom) to 9 (at the top). This scale may be thought of as reflecting the predicted probability or the percent chance that a factor will influence the type of student represented to achieve the outcome depicted by each of the probability curves displayed in the chart.

To exercise probability chart reading skills, focus briefly on the graphs in Figure 5.5 and compare the different lines on the different graphs. Notice that two lines show the most "movement" or variation in these particular charts and represent Stayer (depicted by a square marker) and Dropout (depicted by an x marker). On the upper left chart of Figure 5.5, for example, the Drop Out curve sweeps downward to the right as the High School Culture (X-axis) increases from -3 through 0 to positive 3. This line on this graph means literally that a Male has about a 60% chance of Drop Out within two years where the High School Culture is at its lowest levels (depicted by the X at the extreme left side of the graph). But, as the High School Culture level rises, depicted by moving to the right on the x line, the probability of Males' Drop Out shrinks to about 15% when the High School culture reaches its maximum at the extreme right side of the graph. If the Male comes from a High School with "average" culture (represented on the graph by the "0" on the horizontal axis), his probability of Drop Out within two years is about 35%, represented by the Drop Out probability curve at a position vertical from the "0" on the horizontal scale.

In contrast to this graph, notice the influence of High School Culture on the predicted probability of Transfer Out for Minorities as reflected in the middle graph in the right hand column. Here, Minorities seem to have no chance of Transfer Out if they come from High Schools at the extreme low end of High School Culture (note the "▲" at the coordinate Y=0, X=-3) Their probability of Transfer Out rises to about 20% if they come from High Schools with maximal Culture (note the "▲" at the coordinate Y=+2 , X=+3) on the right hand extreme of the graph). If minorities come from average High

[76] Recall that each Factor is an artificial construct arising from a combination of multiple correlated variables through application of a factor analytic treatment to their z-scores compiled from a collection of raw variables.

School Cultures, they have about a 8% probability of Transfer Out (note the position of the Transfer Out curve at the coordinate Y=+1.0, X=0)

Glancing across all the graphs in Figures 5.5, one notices that some of the probability "curves" are nearly straight horizontal lines. See, for example, the line representing Stop Out on the upper left graph. Males have about an 8% chance of Stop Out at the low end of High School Culture declining to near zero at the high end of High School Culture. Straight horizontal lines indicate that the factor in question has not much affect on the outcome for the type of student indicated. The probable outcome would be expected to remain about the same for this type of student, regardless of changes in the explanatory factor.

In contrast to the near horizontal lines, other lines appear to move in either a straight or somewhat curved direction, either upward or downward sloping from left to right across the graph. Sloping straight lines represent a linear (or nearly linear) relationship between the factor represented and the outcome illustrated. Here, a unit change in the horizontal "X" axis is matched by a corresponding fractional change in the predicted probability (on the "Y" axis) and the same rate of change is seen to occur between any two points on the X axis. This is the case for all the Stopout lines on Figure 5.5 where an increase in the factor (moving from left to right on the X-axis) is always associated with a gradual but regularly negative affect on the probability of Stop Out for each of these types of Newbies. The more this factor increases (moving to the right) the less likely this type of Newbie is to Drop Out (the probability moving correspondingly down the Y-axis).

So far, these several possibilities could be represented easily enough in a table of numbers and most readers would grasp intuitively the simple relationships described. But other plausible relationships between factors and outcomes sometimes cannot be depicted with straight lines and they may not be intuitively grasped from tables of numbers by other than the Steven Hawkings[77] among us. These relationships are

[77] Famous British theoretical physicist/mathematician, Oxford Professor (currently holding Sir Isaac Newton's Chair), author of the popularl "A Brief History of Time" (1988) and "The Universe in a Nutshell" (2001) and a 14 page bibliography of more esoteric work, Hawking is the acknowledged "Dean" of contemporary cosmology. A Fellow of The Royal Society and a member of the US Academy of Sciences, he is most famous for his conjecture (Contemplation or Calculation?) that Black Holes in deep space eventually "evaporate" and disappear by slowly emitting radiation. In all likelihood, Hawking could

curvilinear or indirect and they are represented on graphs by curved lines. Among the graphs in Figure 5.5, a clear example is illustrated by the lower right hand graph. Here it is apparent that the Stayer curve rises consistently from a High School Culture at -3 to one at +1.5 or so. From there, the line flattens out considerably and rises very little as High School Culture rises from +1.5 to its extreme at +3. One can see here that High School Culture in this graph has little impact on the Stayer probability after it reaches higher levels. It's most important influence is felt as it moves from the extreme negative values towards the mean. Lines such as these clearly illustrate curvilinear probabilities that are associated with some combinations.[78] With this preliminary introduction to probability graph reading, a return to directly interpreting substantive findings from the Newbie study is in order.

A Preliminary: In the case of the Asset Models, all the independent predictors, both the factors and the indicator variables, have respectably high x^2 statistics, and generally are statistically significant at $p = 0.001$or higher. The uniformly high statistical significance arises from the large population under study. (In many of the graphs that follow a curiosity encountered by statistics students is displayed where high statistical significance is often coupled with limited practical importance in analyzing large data sets.) Detailed statistics are apparent in Table 5.3 and are not be repeated in the following discussion.

Influence of Neighborhood Capital: Neighborhood Capital is a factor that arose (See Chapter 3) from several variables to reflect the economic nature (low to high income and wealth) of the community in which Newbies were raised. The individual variables that loaded most heavily on the factor were the average home value and the average household income of the Newbie's High School zip code. The variables were derived from U.S. Federal census data. The factor does not reflect the personal family wealth of individual Newbies but rather the economic nature of the neighborhood from which they came.

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envision my probability curves from a glance at their mathematical formula, in spite of his debilitating Motor Neurone Disease. I require pictures.

[78] I am deeply indebted to one of my mentors, Professor Stephen DesJardins, for introducing me to STATA, encouraging my use of the software to this end, and gently coaching me in the use of its more esoteric syntax and features. This adjustment, after a generation-long bonding with SPSS, represented a major learning curve and occupied much of a precious year. I deeply hope the presentation enabled warrants the time invested.

Earlier a univariate analysis (Table 4.3) suggested that the overall influence of Neighborhood Capital on Newbies' outcomes was substantial (x^2=32.01) compared to the other Asset factors—one factor even having a x^2 of under 1.0. Yet in the multivariate analysis, its influence is found to be more modest with x^2=16.9 (Table 5.2). At a more detailed level, Figures 5.1—5.2 below show pictorially how Neighborhood Capital influences the predicted probability of each Newbie type achieving each of the four outcomes, depending on the level of Neighborhood Capital. These graphs illustrate clearly that as Neighborhood Capital increases, both the probability of Staying and the probability of Drop Out gradually decline for all types of students in favor of the probability of Transfer Out[79]. As Newbies come from wealthier neighborhoods, the probability that they will Transfer Out increases while the probability that they will either Stay or Drop Out declines. Newbies from wealthier neighborhoods, it seems, are more likely to Transfer Out from this HBCU than those from poorer neighborhoods. Thus, the Neighborhood Capital level facilitates staying in school by transferring.

In some cases, most notably the commuters and part-timers depicted in Figure 5.2, the probability of Stop Out also declines as Neighborhood Capital increases. In all instances, the Stayer, Stop Out, and Drop Out curves gradually decline from left to right in all the 10 graphs displayed in Figures 5.1 and 5.2. The affect of Neighborhood Capital on Adults is least of all the demographic groups tracked in Figure 5.1. Adult students' propensity to Drop Out is not so heavily influenced by the Neighborhood Capital level of their High School home regions—reasonably enough. The probability lines for Adults are virtually straight except for Transfer Out, which rises somewhat towards the right as Neighborhood Capital increases.

Apparent too, the Neighborhood Capital factor has by far its greatest influence on the Transfer Out of younger and minority students, as illustrated in Figures 5.1. For these student types, the left-right probability line movement is most extreme. Minority students are shown to have the greatest increase in the predicted probability of Transfer Out as they hail from ever wealthier neighborhoods. Their probability of Transfer Out increasingly moves from about 5% to about 30% as they come from the poorest to the wealthiest neighborhoods. In contrast to minority students, Black majority students

[79] Although, less so for Adults. See bottom graph, left column, Figure 5.1

generally have their probability of Transfer Out raised to just 20% as they come from the wealthiest neighborhoods.

Overall, the graphs in Figures 5.1—5.2 illustrate that SSU is apparently most congenial or attractive to students arriving from poorer neighborhoods and as they come from wealthier neighborhoods, they are less inclined to stay for two years and far more inclined to Transfer Out. The affect is most pronounced for younger students, campus residents and commuters. It is least pronounced for adults. For them, the Neighborhood Capital factor from their High School homes is not so strongly related to Stop Out.

Influence of Neighborhood Culture: In the univariate analysis, Neighborhood Culture appeared to have a level of influence on college departure comparable to Neighborhood Capital. (Table 4.3; x^2= 12.75) However, viewed through the lenses of multivariate analysis its influence is quadrupled. (Table 5.2; x^2=51.81) The factor describes the demographic nature of the high school neighborhood in which Newbies lived or from which they came.

While Neighborhood Capital has relatively minor influence on the probability of Newbies' departure compared to other Asset factors (x^2=16.9), Neighborhood Culture is quite another matter so the probability lines in Tables 5.3 & 5.4 show steeper slopes than those in Tables 5.2 & 5.3. With a x^2 of nearly 52, it is the second most influential of all Asset factors and nearly three times as influential on Newbie departure as the Neighborhood Capital factor. Therefore, Figures 5.3—5.4 below, graphing the influence of Neighborhood Culture on the predicted probability of each type of Newbie attaining each outcome, demonstrate considerably more movement among the probability curves depicted.

Recall that "Neighborhood Culture" is an artificial construct arising from a factor analysis of census-derived variables, normalized, reflecting high school zip codes of Newbies. The most prominent, though not only, variables loading on the factor were the percent Black residents, the degree to which the area is "urbanized," and the degree to which the population density increased between the 1990 and 2000 census. Thus, a higher reading on the Neighborhood Culture scale implies a context more urban, with increasing density, and a more predominantly Black racial character. For convenience of expression, the essence of this factor is referred to subsequently with a new term,

expressly crafted for the occasion, lacking known misleading or prejudicial connotations: "Metropolarity." Clearly, this is an intentionally artificial term, devised here, referencing several unusual components combined but excluding wealth, economic capital, and income.

So the first and most obvious impact observed in Figures 5.3—5.4 is that the propensity to remain enrolled for two years at SSU increases dramatically for each of the Newbie types as they hail from communities of increasing metropolarity. Depending on the sub-group, the predicted probability of "Stayer" behavior increases dramatically from the vicinity of 45% to the vicinity of 80% as the home community moves from minimum to maximum on the metropolarity scale. And, equally dramatic, the propensity of each type to Drop Out, declines equally markedly as its metropolarity increases: the decline moving from the vicinity of 45—60% for most types to the level of 10—15% over the range of the scale. Strikingly, the move for all types of Newbies is uniformly in the vicinity of a 40% drop in probability of Drop Out as metropolarity moves from least to most extreme conditions. Expressed more technically, a strong inverse correlation bonds the impact of metropolarity or Neighborhood Culture on Stayer and Drop Out.

Increasing metropolarity also is slightly associated with reduced Stop Out—more pronounced for younger, part-timers, and commuters, than others (See Figure 5.3—5.4). Among these Newbies, the propensity to Stop Out declines by about 10% as they hail from more rather than less metropolized communities. And to a lesser degree, the factor is associated with a somewhat increased probability of Transfer Out—more pronounced for younger and minority students than others. (See Figures 5.3—5.4) In these cases the propensity to Transfer Out increases by about 10% as students come from the most rather than least metropolized home neighborhoods.

Overall, the graphs in Figures 5.3—5.4 illustrate that SSU is apparently most attractive to all types of students arriving from metropolarity-rich neighborhoods. As they come from more suburban, less densely populated and less densely Black neighborhoods, they are less inclined to stay for two years and far more inclined to Drop Out within two years. The affect is nearly as pronounced for all categories of students: younger and older, residents and commuters, males and females, full-time and part-time, and minority and majority races.

Influence of High School Culture: If Neighborhood Culture or metropolarity is influential on Newbie departure, the influence of High School Culture is dramatically more so. With a highly significant x^2 of nearly 61, it is by a substantial margin the most influential of the four Asset factors identified in the present study with respect to the early departure of Newbies.

Unlike the relatively amorphous and abstract, perhaps ambiguous, "Neighborhood Culture," High School Culture is a straight forward construct, based on an easy congruency of variables loading heavily on the factor, as described earlier. The factor represents the number of students sitting annually for a set of senior achievement tests in the high schools coupled with the percent of those who successfully passed the achievement tests. The numbers were aggregated over a five-year history of experience in Georgia Public Schools and have been imputed statistically for students arriving at the HBCU from other high schools. Accordingly, one may, without undue hyperbole, easily imagine the High School Culture factor to represent the degree of academic pressure with which Newbies learned to cope during their earlier institutional affiliation.

And very much like the Neighborhood Culture, the more positive High School Culture is found to be strongly associated with College persistence and negatively associated with Drop Out for all sub-groups of Newbies (Figures 5.5—5.6). The positive effect of an extremely strong High School Culture compared to an extremely weak High School Culture is an approximate 40% increase in the probability of Stayer and an equivalent decrease in the probability of Drop Out among all types of Newbies although there is some variation in level of impact on different sub-groups. The factor, similarly, is positively associated with Transfer Out and negatively associated with Stop Out for all types of Newbies, although to a far lesser extent.

When the Newbie types are combined, the High School culture affect is more amplified and varied. Among part-time adult minority male commuters, for example, those from the weakest high school cultures have less than 10% probability of Stayer for a period of two years and greater than 80% probability of Drop Out. But the probability of Stayer rises to 80% for full-time adult resident Black females from the strongest high

school cultures and to 70% for part-time adult Black female residents when they come from the strongest High School Cultures.[80]

Meanwhile, among minority students (Figure 5.5), the strongest High School Cultures are also associated with a much stronger propensity to Transfer Out. The increase in Transfer Out probability for this group is over 20% across the full range of high school cultures from the weakest to the strongest. The effect does not appear to be associated with sex or residential status. It does appear to be associated with age, participation level, and racial categories. The younger, the minority, and the part-timer Newbies are more likely to Transfer Out when they come from the strongest High School Cultures than are their counterparts (Figures 5.5—5.6).

Overall, it is very difficult to over emphasize the important impact that the strength of High School Academic Culture has on the Newbie probability of departing the HBCU within a period of two years from matriculation. This institution, it is clear, retains longer Newbies from stronger high school cultures. The stronger the High School Culture, the greater is the probability that Newbies remain on campus for two years. The strength of the High School Culture can account for as much as 40-50% of the propensity to stay enrolled.

Influence of Academic Preparation: The final factor identified among Newbies' Assets is that of individual Academic Preparation. This factor is, like those before, an artificial construct derived from a factor analytic treatment of several variables, among which the strongest loading were High School GPA, Merit Aid Received, and the SAT Score or its equivalent. This factor differs from the three preceding ones in being an individual level rather than a group-level factor. Originally, in a univariate analysis, the factor was shown to explain a trivial portion of the variance among Newbies (Table 4.3; x^2=5.85). Under multivariate analysis, its importance rises to nearly double at x^2=14.02 (Table 5.2; p=0.003). But the findings are counter-intuitive.

First, individual Preparation is the <u>least</u> important Asset factors impacting a Newbie's propensity to depart the HBCU within two years. With a x^2 slightly above 14 in the MNLR model, it has less impact on the probability of any Newbie's enrollment

[80] Graphs for the many combined student types are not included here but are available on request from the author.

outcome. The low influence is observed in Figures 5.7—5.8 where the probability curves show a relatively modest 20% or less change as Academic Preparation moves from a minimum (on the left side of the graphs) to a maximum (on the right side of the graphs).

But next, where there is an impact from Academic Preparation, it is negative in terms of the predicted probability of a continued 2-year enrollment. That is, the greater a Newbie's prior Academic Preparation, the more likely the Newbie is to either Transfer Out, Drop Out, or Stop Out and the less likely to remain enrolled. The overall decline in Stayer for most sub-groups as Academic Preparation moves from minimal to maximal is approximately 20%. For example, males have about a 70 % chance of remaining enrolled for two years when they have the least possible Academic Preparation. But, when they have the greatest possible prior Academic Preparation (extreme right end of x axis, Figure 7.5), their probability of remaining enrolled declines to under 50%. Similarly, for minorities the probability of continued enrollment declines from about 60% to about 35% as prior Academic Preparation rises from minimum to maximum. Much of the lost probability to Stay for all types Newbies is absorbed in both an increasing propensity to Transfer Out and to Stop Out— rising from near zero to 15—20 % for most sub-types (Figures 5.7-5.8). The Transfer Out probability of adults, however, is not so strongly enhanced by stronger academic preparation (Figure 5.7). For adults the difference between minimal and maximal Academic Preparation only increases the Transfer Out probability by about 8 %.

Among some Newbie sub-types, especially part-time students and minorities, the probability of Stop Out exceeds absolutely the probability of Stayer when they have the maximum prior Academic Preparation. In these cases, the probability of Drop Out exceeds that of Stayer by 5-10% when Academic Preparation is at it maximum (Figures 5.7—5.8). Generally, SSU Newbies with minimal prior Academic Preparation have a much greater probability of staying than those with maximal preparation. Those with the most prior Academic Preparation tend more strongly to Drop Out, Transfer Out, or Stop Out. Hence, the counter-intuitive influence of academic preparation on early departure.

Figure 5.1: Influence of Neighborhood Capital on Demographic Types

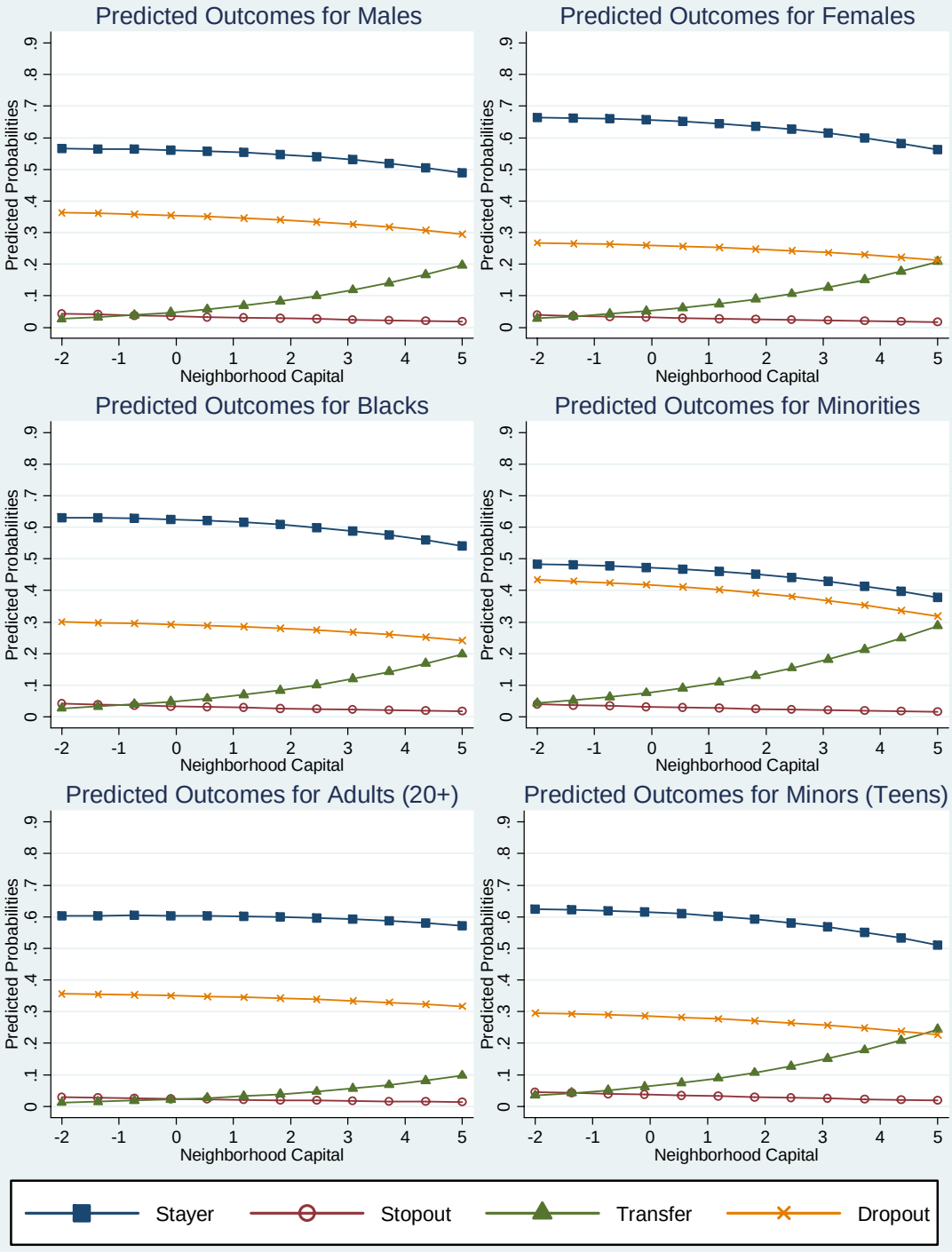


Figure 5.2: Influence of Neighborhood Capital on Involvement Types

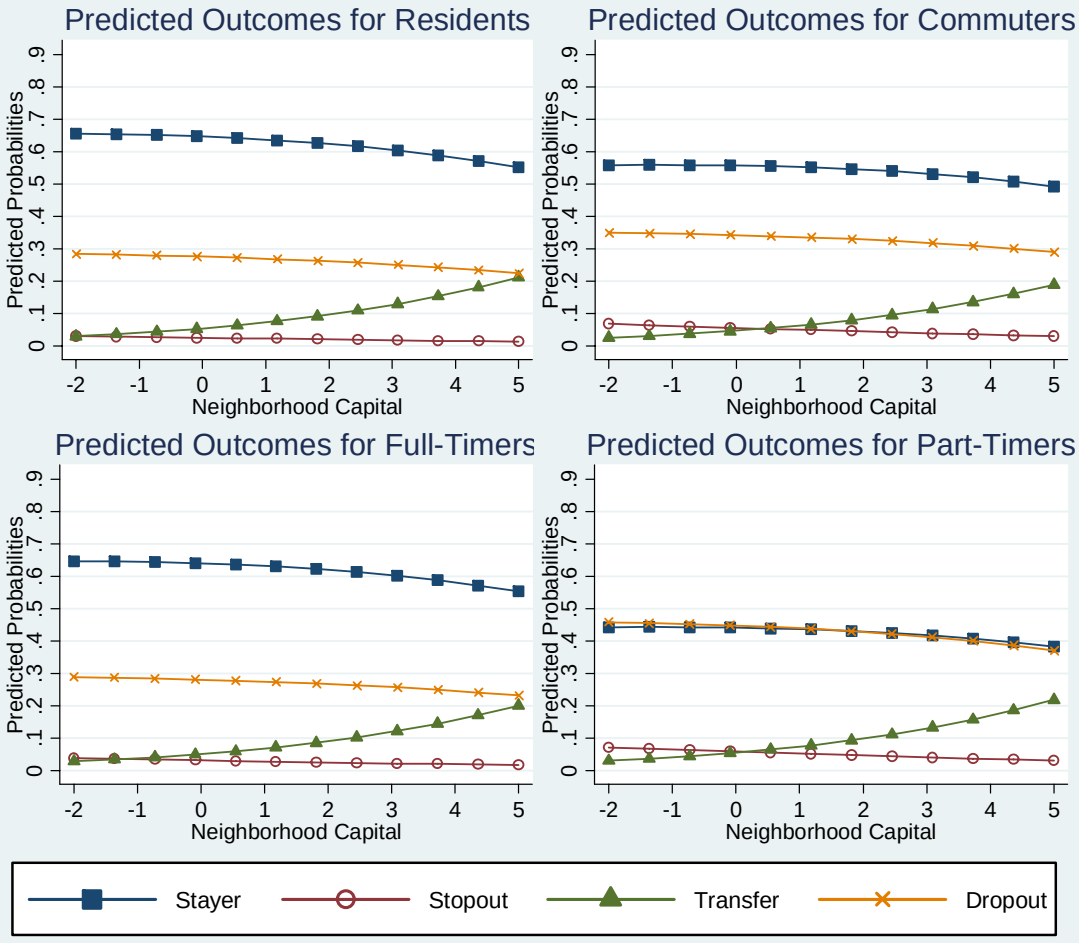


Figure 5.3: Influence of Neighborhood Culture on Demographic Types

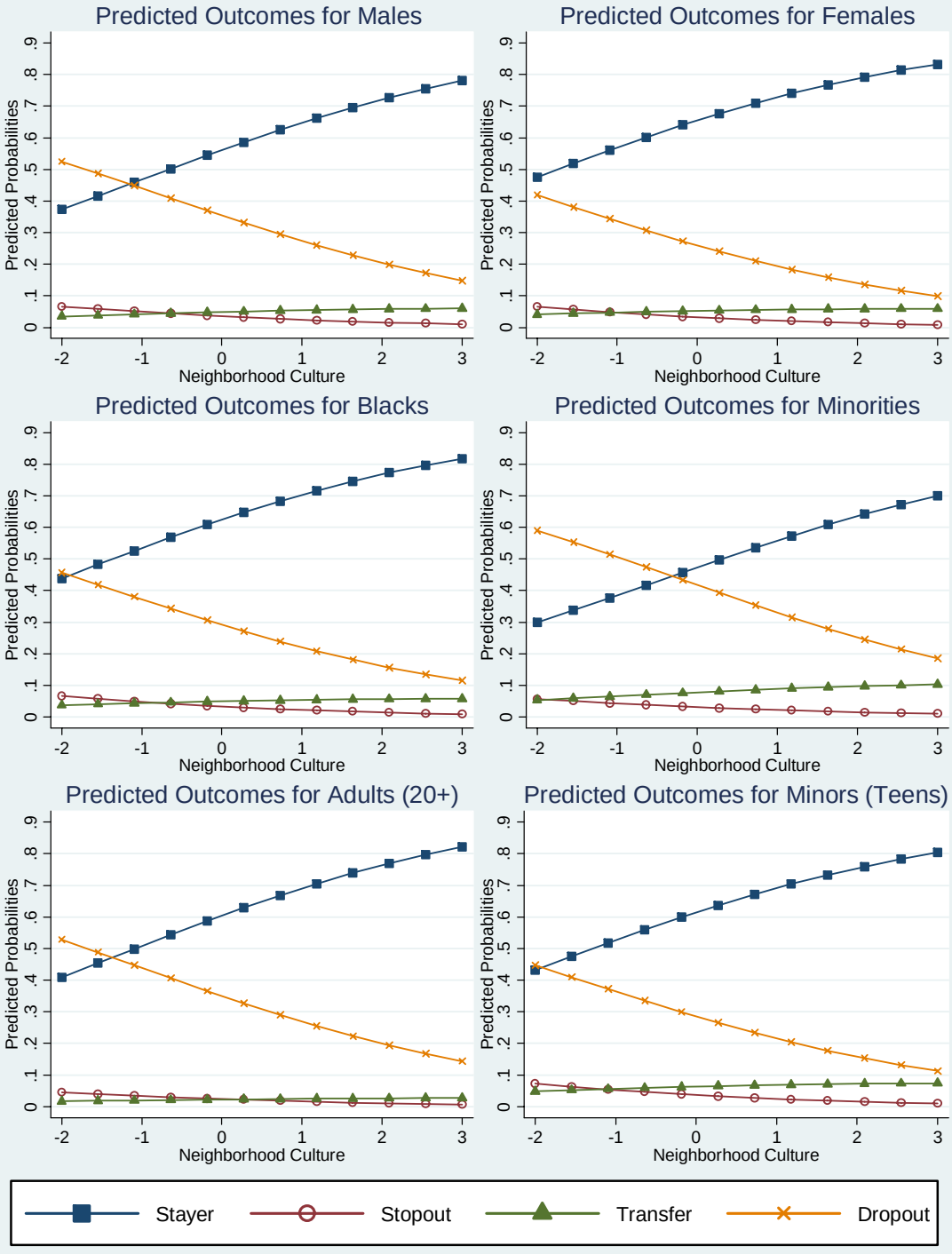


Figure 5.4: Influence of Neighborhood Culture on Involvement Types

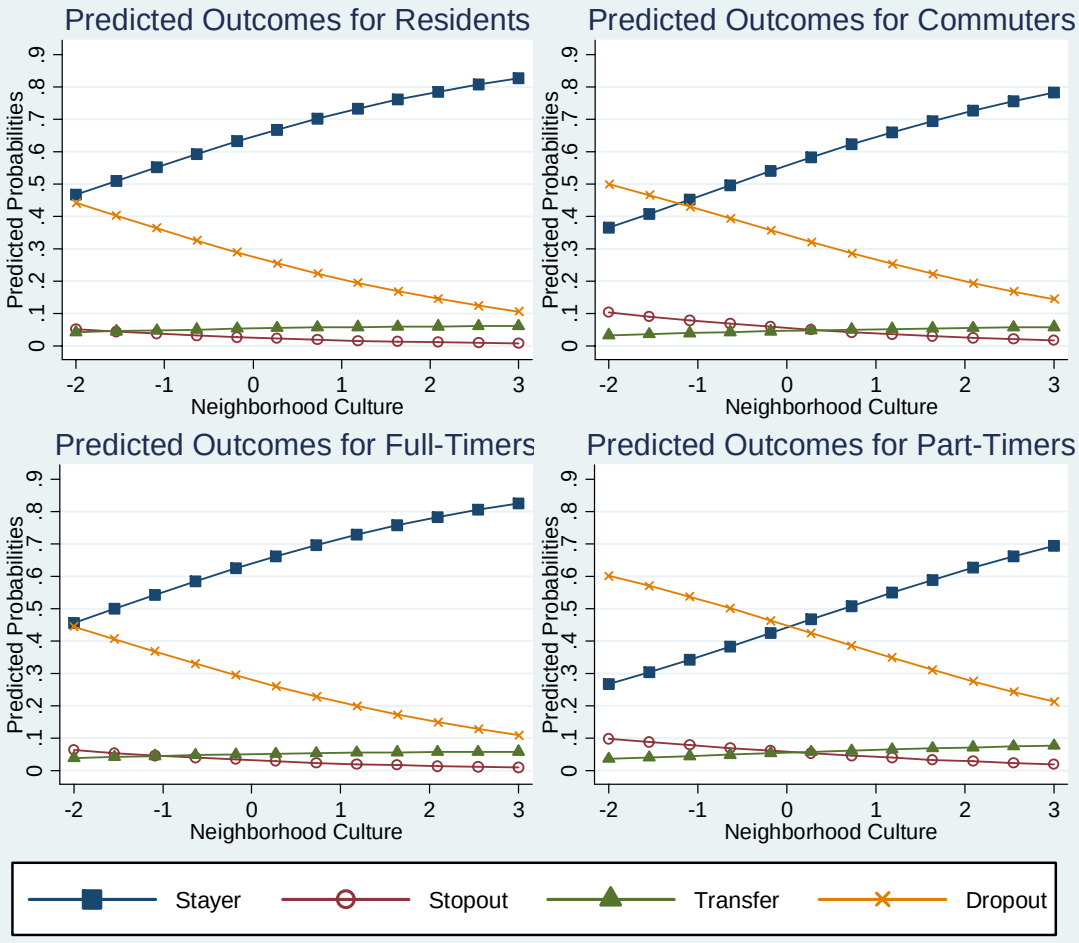


Figure 5.5: Influence of High School Culture on Demographic Types

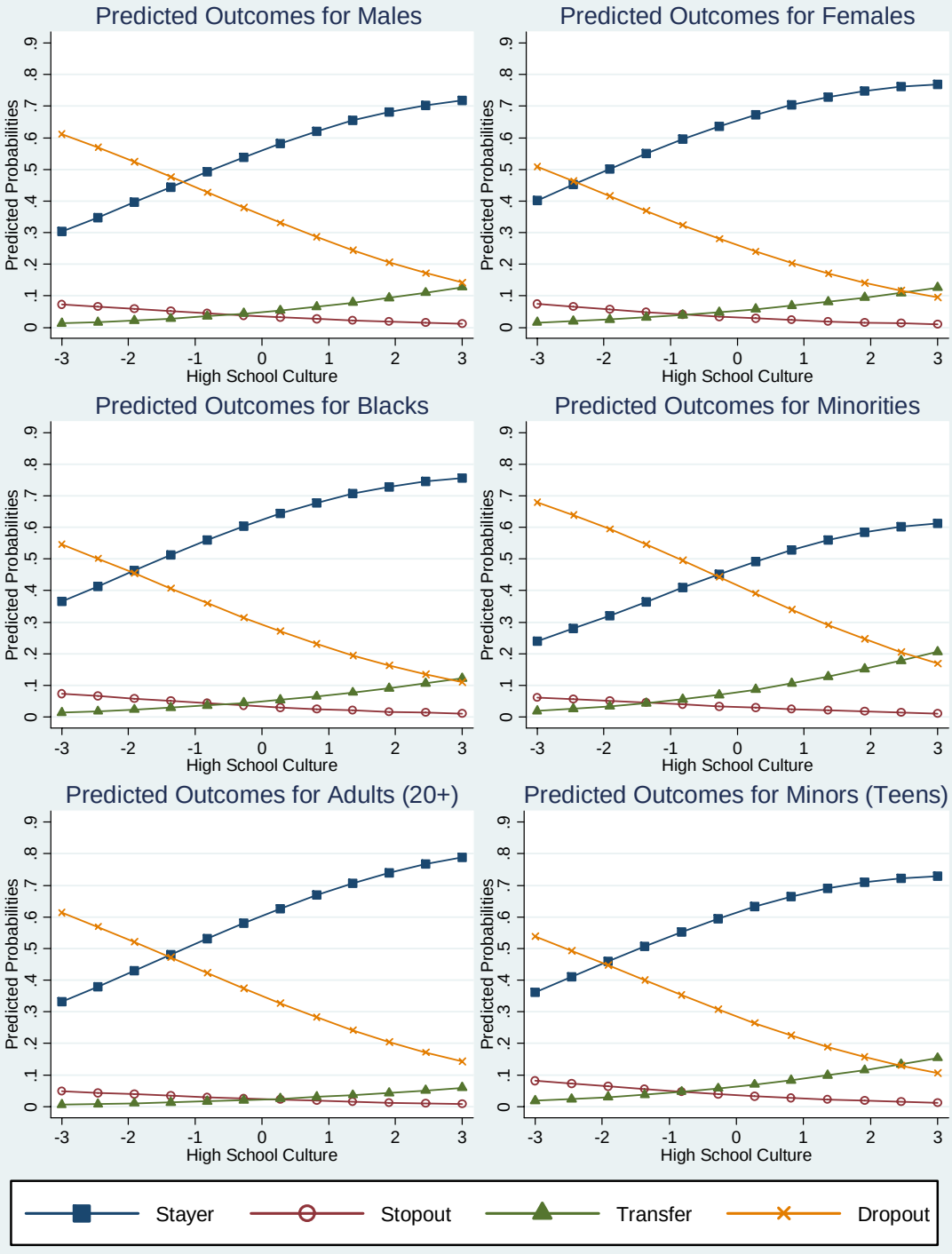


Figure 5.6: Influence of High School Culture on Involvement Types

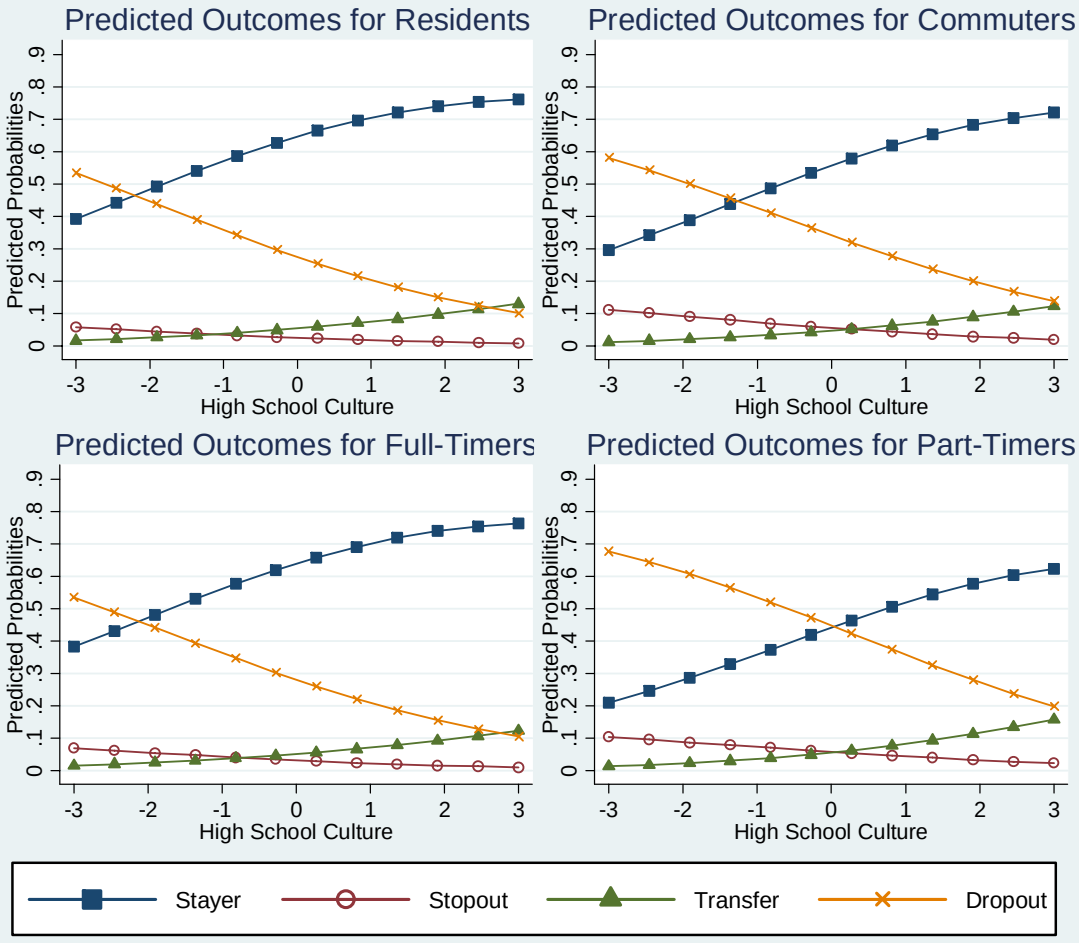


Figure 5.7: Influence of Academic Preparation on Demographic Types

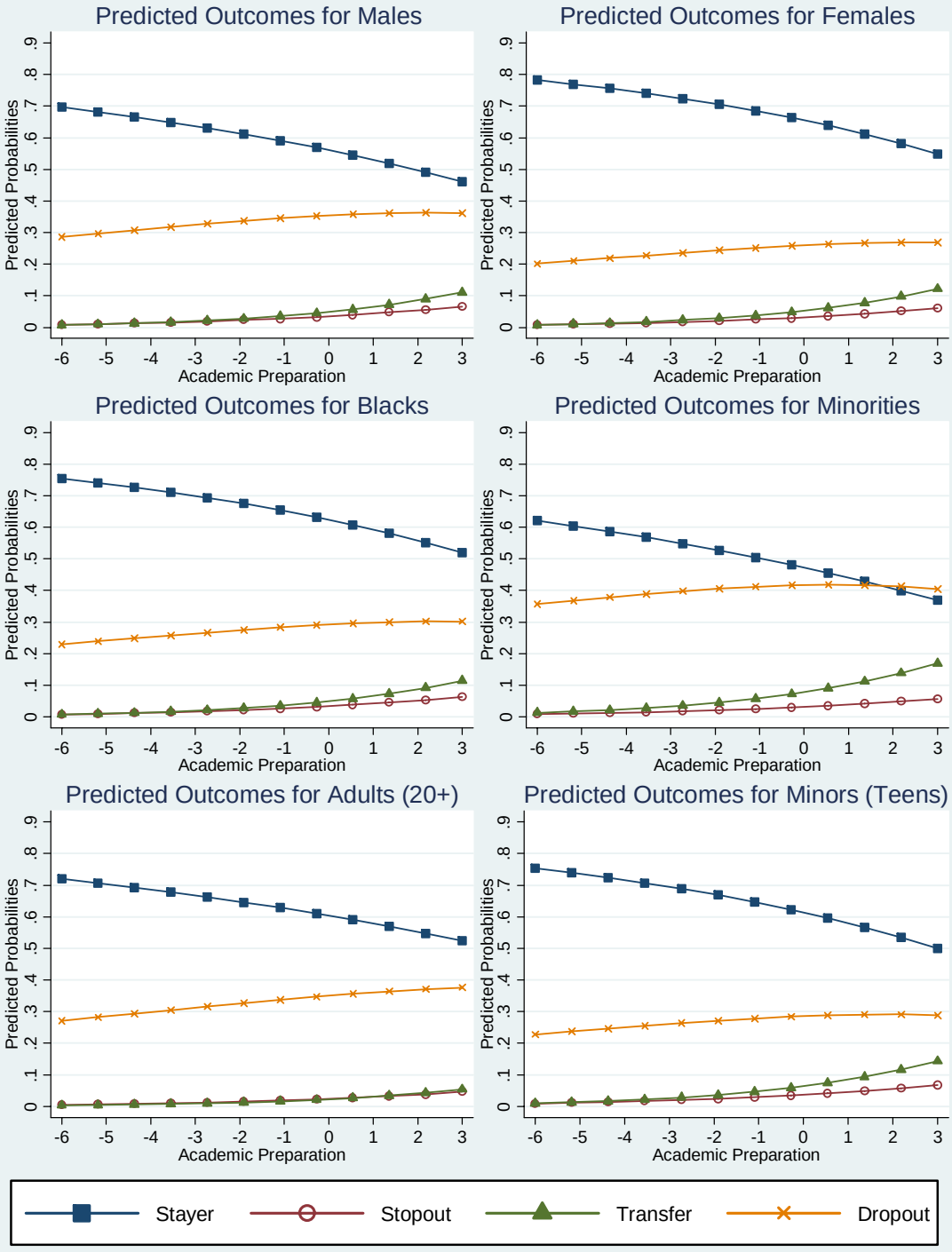
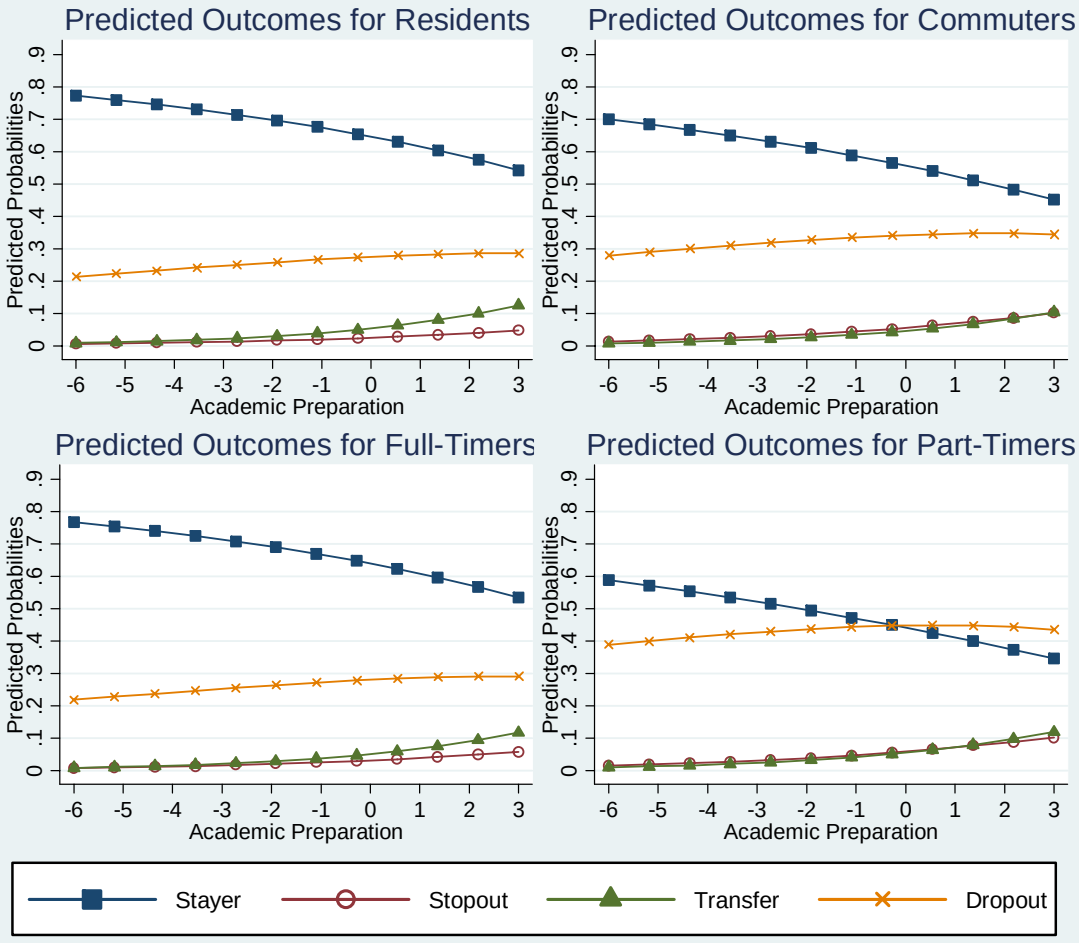


Figure 5.8: Influence of Academic Preparation on Involvement Types



Discussion: Four separate Asset factors (Neighborhood Capital, Neighborhood Culture, High School Culture, and Academic Preparation) were examined to judge their influence, if any, on Newbies' departure within two years of matriculation at an HBCU. The outcomes considered were Stayer, Stop Out, Transfer Out, and Drop Out. Students were classified into 10 different types to allow probabilities of each outcome to be calculated separately for each specific Newbie type. Types of Newbies students were characterized by the usual demographic indicators: sex, ethnicity, and age. They were also characterized by institutional involvement level: full-time and part-time enrollment status and by college residence—on or off-campus. These characteristics were each represented by Identity or dummy variables in the model.

The analysis used a multinomial logistic regression model and the model was found to be both significant and reasonably discriminating among the outcomes. All four explanatory factors have meaningful and statistically significant associations with the outcome. The factor with the most influence on the predicted probability of this population's early departure was High School Culture while the factor with the least influence was the Newbie's individual prior Academic Preparation. Neighborhood Culture proved to be more influential on early departure than Neighborhood Capital.

In general it was found that increasing Neighborhood Capital, Neighborhood Culture, or High School Academic Culture all contributed to reducing Drop Out. Increasing the prior Academic Preparation of individual Newbies did not. As Newbies prior Academic Preparation increased, so did the probability of Transfer Out and Stop Out.

Given the usual emphasis in persistence and departure studies in the literature, the findings are counter intuitive. Cultural factors are found in the present MNLR treatment to be more important than either wealth or specific Academic Preparation in predicting and explaining retention and departure patterns at the HBCU. Why this is true is subject to speculation. Two hypotheses appear tenable, one technical and one substantive.

On the technical level, recall that the Academic Preparation factor combined principally the variables for Newbies' high school GPA, SAT scores, and Merit Aid. There was considerable variation in Merit Aid received by Newbies in the study (ranging from 0 to more than $20,200; mean = $3,769; s.d.= $2,906) but 20% of them received

none (687/3413). Meanwhile High School GPA ranged from 0.23 to 4.00 with a mean of 2.68 (s.d.=0.51) while SAT scores ranged from 530-1450 with a mean of 879.54 (s.d.=102.57). The constricted range in variation among these original input variables coupled with the standardization treatment received in the study may have minimized artificially the influence of the resultant Academic Preparation factor.

On the substantive level, it is conceptually reasonable that the relatively greater academic competition arising from a more rigorous high school culture coupled with an easier fluency with contemporary life pressures arising from a more urban, Black Neighborhood culture may have enabled enrollment persistence in the HBCU. In contrast, a more modest range in academic preparation is found among Newbies where the less prepared had been truncated by admission requirements and the more prepared had been creamed off by competing institutions with heftier endowments and reputations.

In any event, the academic preparation factor is typically controlled for while the two cultural factors are rarely if ever considered in the analytical modeling of early college departure. Findings in this chapter suggest it may be appropriate and fruitful to re-vision early departure studies among minority serving institutions and examine in greater detail the possible influence of previous neighborhood and high school cultural influences. The findings here also reinforce the utility of a 4-part categorical outcome rather than the usual 2-part dichotomy.

Chapter 6

The Mentality Model

Introduction: The exploratory analysis of factors influencing HBCU Newbie early college departure continues now by testing the influence of Newbie's expressed Mentality on their early departure from the institution. Here eight Mentality factors are regressed (using MNLR) against the outcome along with and controlling for the four Asset factors and five Indicator variables described in Chapter 5. As before, Stayer is positioned as the base outcome against which probabilities for three early departure patterns are compared.

The models explored in this chapter test whether and to what extent, the Mentality of Newbies expressed by survey responses shortly after fall term matriculation may provide useful insights for understanding or predicting early college departure. "Mentality" is conceived as the collection of students' assumptions, thoughts, attitudes, beliefs, values, and generally conscious outlook on the world (Simms, 1992). The concept falls short of the German concept "weltanschauung," a term suggesting a more coherent, systematic, philosophical and organized world view. Mentality is represented in the study by eight factors, constructs derived from a factor analysis of CIRP survey data, detailed in Chapter 3, as follows:

1. Achievement motive
2. Confident self-image
3. Social engagement
4. Substantive college choice
5. Hedonism
6. Remedial preparation
7. Other directedness
8. Prior non-credit college work

Each of these Mentality factors is, as were the Asset factors assessed in Chapter

3, first converted to a standardized Z-scale with a mean of 0. Accordingly, as before, Newbies are seen to have more or less of an attribute, but the attribute does not have firm maximums or minimums.

The question here is, to what extent do any of these eight factors add predictive capacity, in addition to the prior Asset and Identity indicators treated in Chapter 5, for understanding early Newbie departure from an HBCU? In a way, one might imagine that these models test the significance of Newbies' personal self-identity or ontology. Does knowing what students think (or report) they know or believe about themselves and their situation add any predictive validity to understanding early departure, compared to knowing in a general way only about the Assets with which they came? Ultimately, this panel of factors could be useful for understanding Newbies' individuality before assuming what impact the institution may have upon their progress. This exercise serves that function.

Outcomes Observed: As demonstrated in Table 3.5 detailed in Chapter 3, among the sample of 704 Newbies for whom CIRP Mentality data is available and matched to the outcome, 1.6% were Stop Outs, 6.7% were Transfer Outs and 20% were Drop Outs within two years of their matriculation. The distribution leaves 71.7% of the Newbies remaining in the HBCU as Stayers. Thus to begin, the sample is biased compared to the full population explored in earlier chapters. The file contains a third fewer Drop Outs and half the Stop Outs of the full population. Accordingly, the data over-represents Stayers by 13%.

Important limitations emerge from this ratio of the separate outcomes relative to those in the full population. The sample itself, consisting of 21% of the population, with a smaller ratio of Leavers, does not support such rigorous statistical findings as were achievable in exploring the much larger number of the full population in Chapters 3—5. And the significantly smaller population also, unfortunately, de-emphasizes the departure behaviors of interest compared to the full population.

Consequently, the numbers of cases available in the Stop Out category are insufficient and the number of cases in the Transfer Out category is barely sufficient to support establishing compelling central tendencies and confidence intervals with levels of certainty that would be desirable. The data clearly will not support definitive statistical

analysis of subdivisions among 32 Newbie types for a rigorous examination. Therefore, findings here relative to these two particular categories of early departure may be suggestive, but are certainly not definitive.

Newbie Types and Sub-Types in Sample: The reduced number of Newbies available for the Mentality study results, unfortunately, in no cases for 9 sub-types of interest and fewer than 10 cases in 18 other sub-types, as is reflected in Table 6.1. The available data includes 280 Males and 424 Females categorized by four additional indicator classifications, as before. Among primary types, the data includes 679 Blacks and 25 Minorities; 66 Adults and 638 Minors; 29 Part-Timers and 675 Full-Timers; with 173 Commuters and 531 Residents. Collectively ¼ of the cells representing all Newbie sub-types are null while only five cells contain double-digit numbers. Comprehensive statistical analysis at the level of the sub-types obviously would be ineffective.

Data of these dimensions is difficult to model at this compound level of specificity since standard statistical tests to establish reliability are inoperable. For many sub-groups of students, no meaningful confidence intervals could be identified. In fact, even among the primary groups, the Minorities (with 25 cases) and the Part-Timers (with 29 cases) are marginal for estimating either central tendencies or confidence intervals with great reliability. Caution is warranted because one finds here only speculative possibilities, not carefully circumscribed probabilities for many sub-groups from data with these properties.

Table 6.1: CIRP Newbies, 585 Counts by Category (Sex, Race, and Age Cohorts by Participation Level) by Sex by Race by Age Cohort by Participation Level by Residency

Sex	Race	Age Grp.	Part.Lvl	Residency	
male 280	black 263	Teen 246	fulltime 236	resident	194
				commuter	42
			parttime 10	resident	7
				commuter	3
		Adult 17	fulltime 15	resident	7
				commuter	8
			parttime 2	resident	0
				commuter	2
	minority 17	Teen 13	fulltime 13	resident	8
				commuter	5
			parttime 0	resident	0
				commuter	0
		Adult 4	fulltime 4	resident	1
				commuter	3
			parttime 0	resident	0
				commuter	0
female 424	black 416	Teen 375	fulltime 366	resident	299
				commuter	67
			parttime 9	resident	6
				commuter	3
		Adult 41	fulltime 34	resident	6
				commuter	28
			parttime 7	resident	0
				commuter	7
	minority 8	Teen 4	fulltime 3	resident	1
				commuter	2
			parttime 1	resident	1
				commuter	0
		Adult 4	fulltime 4	resident	1
				commuter	3
			parttime 0	resident	0
				commuter	0

Alternative Mentality Models: Multiple MNLR models were prepared (as in Chapter 5) to test the influence of Newbie Mentality factors on the departure Outcome. As before, these models used several versions of the outcome, various combinations of the five Indicators, the four Asset factors and the eight new Mentality factors. The same

STATA software routines were employed as before with similar results.[81] Six of these alternative Mentality models are displayed in Table 6.2.

Model 1 employing all four outcomes, with the Stop Out category containing few cases, failed to converge properly in 31 iterations. Accordingly, no overall Wald statistic was produced to testify to its "strength" or robustness. The Log pseudolikelihood was considerably smaller (approximately 2/5) than other models tested that reached brisk convergence in a few iterations. The failure to converge was due, doubtless, to the tiny number of Stop Out cases included in the model.

Model 2, employing three outcomes, technically converged in 33 iterations to a log pseudolikelihood of -446.63 but with an unrealistically high Wald x^2 statistic: 20466.6. The statistic is, however, highly significant at .000.

Four other models were devised (Models 3, 4, 5, & 6) in which only two outcomes were considered, Stayer and Drop Out. These models all converged readily as expected in four iterations, attaining similar log pseudolikelihood levels of near -295—296 and overall Wald x^2 levels of 68-70, highly significant at .000. Differences separating these four additional models related to which explanatory factors were included in the regressions. It is clear from data in Table 6.2 that adding or subtracting explanatory variables does not seriously alter the influence of the remaining factors on the probability of outcomes but the x^2 statistics and p-values do vary as a result of changing degrees of freedom. Reflected in Table 6.2, several explanatory factors attain x^2 of less than 1.0 in any model, indicating essentially no influence on the outcomes considered.

[81] For brevity, readers are referred to Chapter 5 for detailed description of the STATA approach and detailed suggestions for reading probability graphs.

Table 6.2a: MNLR Asset/ Mentality Models—Model Characteristics

			Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Parameters:								
	Stayer Outcome		505	505	505	505	505	505
	Stopout Outcome		11	0	0	0	0	0
	Transfer Outcome		47	47	0	0	0	0
	Dropout Outcome		141	141	141	141	141	141
	Total Observations		704	693	646	646	646	646
Characteristics (df):			49	34	17	16	14	12
	Iterations to Converge		31	33	4	4	4	4
	Log pseudolikelihood		-494.78	-446.63	-294.67	-295.79	-295.99	-296.42
	Wald Chi2 (49)		.	20466.6	70.30	69.71	69.33	68.43
	Prob > Chi2		.	0.000	0.000	0.000	0.000	0.000
	Pseudo R2		0.128	0.126	0.1307	0.127	0.127	0.126
Wald Tests, Combining Categories (df)			17	17	*	*	*	*
	Stopout/Transfer Out	Chi2	3709.511	*	*	*	*	*
		P>Chi2	0.000	*	*	*	*	*
	Stopout/Dropout	Chi2	3354.24	*	*	*	*	*
		P>Chi2	0.000	*	*	*	*	*
	Stopout/Stayer	Chi2	29.375	*	*	*	*	*
		P>Chi2	0.014	*	*	*	*	*
	Transfer/Dropout	Chi2	11019.94	12443.42	*	*	*	*
		P>Chi2	0.000	0.000	*	*	*	*
	Transfer/Stayer	Chi2	14091.92	160009.3	*	*	*	*
		P>Chi2	0.000	0.000	*	*	*	*
	Dropout/Stayer	Chi2	70.402	70.546	*	*	*	*
		P>Chi2	0.000	0.000	*	*	*	*
Wald Test, Independent Contributions (df)			3	2	1	1	1	1
Indicators	Sex	chi2	2.80	2.77	**2.79**	2.48	**3.25**	**3.23**
	n= 424 f / 280 m	*P>chi2*	*0.423*	*0.25*	*0.097*	*0.116*	*0.072*	*0.073*
	Race	chi2	0.30	0.29	0.12	0.33	0.28	.
	n=25 minority / 579 Black	*P>chi2*	*0.862*	*0.856*	*0.732*	*0.564*	*0.597*	.
	Residence	chi2	3.14	2.57	2.45	**30.72**	**3.95**	**4.40**
	n=173 off / 531 on	*P>chi2*	*0.371*	*0.276*	*0.118*	*0.054*	*0.047*	*0.036*
	Age Group	chi2	**7571.62**	**8172.10**	2.28	.	.	.
	n=628 teen / 65 adult	*P>chi2*	*0.000*	*0.000*	*0.131*	.	.	.
	Participation Level	chi2	6.15	6.14	**6.07**	**6.95**	**7.05**	**7.34**
	n=29 pt / 675 ft	*P>chi2*	*0.046*	*0.046*	*0.014*	*0.008*	*0.008*	*0.007*

Table 6.2b: MNLR Asset /Mentality Models—Factor Influences:

			Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Asset Factors:	Neighborhood Capital*	chi2	**6.66**	2.05	0.72	2.62	0.78	0.79
		P>chi2	*0.083*	*0.358*	*0.395*	*0.106*	*0.378*	*0.375*
	High School Culture*	chi2	**13.88**	**11.73**	**7.36**	**7.92**	**7.89**	**8.22**
		P>chi2	*0.003*	*0.003*	*0.007*	*0.005*	*0.005*	*0.004*
	Neighborhood Culture*	chi2	3.66	2.05	2.21	2.62	2.54	**2.90**
		P>chi2	*0.301*	*0.358*	*0.137*	*0.106*	*0.111*	*0.089*
	Academic Preparation*	chi2	**8.20**	**7.49**	0.55	0.50	0.48	0.48
		P>chi2	*0.042*	*0.024*	*0.459*	*0.480*	*0.489*	*0.487*
Mentality Factors:	Achievement Motive	chi2	5.87	**5.21**	**4.75**	**6.55**	**7.07**	**6.87**
		P>chi2	*0.118*	*0.074*	*0.029*	*0.011*	*0.008*	*0.009*
	Self-Image	chi2	1.31	1.30	0.23	0.20	**.**	**.**
		P>chi2	*0.728*	*0.523*	*0.632*	*0.658*	*.*	*.*
	Social Engagement	chi2	**6.24**	**5.44**	**5.06**	**6.44**	**6.16**	**6.49**
		P>chi2	*0.100*	*0.066*	*0.025*	*0.011*	*0.013*	*0.011*
	College Choice	chi2	**7.09**	**4.95**	1.62	2.39	2.53	2.57
		P>chi2	*0.069*	*0.084*	*0.203*	*0.122*	*0.112*	*0.109*
	Hedonism	chi2	5.12	**4.83**	**3.79**	2.55	**2.71**	**2.76**
		P>chi2	*0.164*	*0.089*	*0.052*	*0.111*	*0.100*	*0.097*
	Remedial Preparation	chi2	0.78	0.43	0.37	0.63	0.46	**.**
		P>chi2	*0.854*	*0.818*	*0.545*	*0.429*	*0.497*	*.*
	Other Directed	chi2	**7.82**	3.88	**3.61**	**3.50**	**3.28**	**3.33**
		P>chi2	*0.050*	*0.143*	*0.058*	*0.061*	*0.070*	*0.068*
	Prior Non-Credit Work	chi2	0.95	0.62	0.05	0.19	**.**	**.**
		P>chi2	*0.814*	*0.734*	*0.825*	*0.663*	*.*	*.*

Note: Boldface = Sig 0.10

** Test requires 3+ outcomes*

Explanatory Factors: Across the six Mentality model studies described, eight Mentality factors were employed in addition to the four Asset factors and five Newbie type Indicators. As with the Asset models before, each factor is an ordered continuum summarizing a theme generated by several independent variables described in Chapter 3. The continuums are ordinal, rather than numerical, ranging along a Z-score scale resulting from a factor analysis and without meaningful origins, minimums or maximums. Thus, Newbies may be viewed as having a Mentality characterized by more or less of one of the factors but absolute levels are not precisely reflected in the data used for the study.

Model Tests: As in Chapter 5, these various Mentality models were tested to see whether the outcomes are distinguishable in terms of the factors and variables considered

in the model.[82] When the test was applied to Models 1 & 2, it confirmed that the four outcomes were indeed distinguishable in terms of the model's predictors—even though the models to which the test was applied did not converge readily as a result of the radically dissimilar frequencies of the alternative outcomes. (When this test is not positive, it is often advisable to combine the alternatives.) But, Table 6.2 reveals that in Models 1 & 2, for which the test is appropriate, the outcomes are indeed different and the differences are all significant at .000, except for the difference between Stayers and Stop Outs. These two outcomes differ to a much smaller degree and with less certainty. But, this test lends strong support to the first hypothesis of the overall study: Newbie early departure alternatives in the HBCU should be disaggregated to distinguish between Stop Outs, Transfer Outs, and Drop Outs.

Next, a second test[83] was applied to assess the independence of the explanatory factors and variables. The test verifies whether the coefficients associated with given predictors are 0. Based on this test, and regardless of the particular model chosen, it is clear that the "Prior Non-Credit Work" and "Remedial Preparation" factors along with the Race indicator could be dismissed as non-useful explanatory factors. Each of these potential contributors is found to exhibit a x^2 statistic < 1.0. Other factors are demonstrated to contribute varying levels of influence at varying levels of significance, as reflected in Table 6.2.

The tests for independent variables suggest that several factors do not make an independent contribution to the model, when judged at the 0.05 significance level. Factors not meeting this standard in any of the Mentality models include Neighborhood Culture and Neighborhood Capital from the Asset factors along with Non-Credit College Work, Remedial Preparation, and Confident Self-Image from the Mentality factors. Based on the data available for testing this model, these constructs are not useful for discriminating among the departure outcomes when Asset factors and Newbie type indicators are taken into account—using this limited sample of the population.

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[82] For this purpose, Long & Freese's *mlogtest, combine* command is readily available for use in STATA and can be applied to any MNLR model containing three or more outcomes. (Long & Freese, 2006, p. 239-242)

[83] Again, Long & Freese have provided another command (*mlogtest, wald*) readily available for use in STATA. (Long & Freese, 2006, p. 239-242)

At the other extreme, the only factors meeting the 0.05 significance standard in all models are High School Culture and Level of College Participation. No matter how the Mentality model is constructed, the influence of High School Culture and Level of College Participation (as measured by credit hours enrolled), cannot be effaced whether Mentality or other Asset factors are included as co-variables.

Interestingly, none of the other student-type indicators meet the standard for independent contribution when Mentality factors are included in the model along side of Asset factors. When Asset factors were deleted from the models (not shown), residential and adult status were found to be significant contributors, suggesting some linkage between age, residential status, and original Assets. Such a model is not considered reasonable, however, as Newbies cannot be divorced logically from their prior Assets; Assets came first. It is as if race and sex are not meaningful contributors to departure discrimination once Newbies' Mentality and other Assets are taken into consideration, unless the Stop Out and Transfer Out alternatives remain in the model—but race and sex logically precede any other Asset or Mentality factors.

The age group variable does meet the test standard when Mentality factors are included if and only if the 4 or 3-outcome models are employed. This finding suggests that age is of particular importance in discriminating between Stayers & Drop Outs on one hand versus Stop Outs & Transfer Outs on the other. (As was observed in Chapter 5, older Newbies were much less likely to Transfer Out and much more likely to Stop Out than others when only Assets were being considered.) But the Age variable does not discriminate at an appropriate level of significance between those who Stay and those who Drop Out.

Academic Preparation meets the standard for independent contribution to the prediction model in the context of Mentality factors only in the 3 and 4-outcome Mentality models and only in the case where all the Mentality factors are retained in the model (P x^2=0.042). When the apparently irrelevant Mentality factors are removed from the model, Academic Preparation itself no longer meets the test standard. (P $x^2 > 0.45$). This finding suggests that prior Academic Preparation may be involved in discriminating between Stayers & Drop Outs on one hand and Transfer Outs & Stop Outs on the other but not between Stayers & Drop Outs themselves.

Social Engagement becomes a slightly but statistically significant independent contributor to the prediction in the two-outcome models (x^2 at 5.06, $p < 0.05$), but not in the four-outcome models suggesting that it mediates between Stayer and Drop Out only when Stop Out and Transfer Out are not available as alternatives. The same can be said for Achievement Motive (x^2 at 4.75, $p < 0.05$), although it also remained significant in the four-outcome model when the irrelevant Mentality factors described above were removed (not shown in Table 6.2).

What is perhaps most important, in reviewing the original default Mentality model (with four outcomes, all the Indicators, all the Asset factors, and all the Mentality factors) is that the factors remaining especially significant are Age ($p < 0.000$) and Participation Level ($p < 0.046$) among the indicators, High School Culture ($p < 0.003$) and Academic Preparation ($p < 0.042$) among the Asset factors, and only Other Directed ($p < 0.050$) among the Mentality factors.[84] All the other factors that one might expect to merit inclusion based upon the literature, including Achievement Motive, Self-Image, & rational/substantive College Choice decisions fail to attain significance levels that provides reasonable confidence intervals.

General Findings: As described above, the default Mentality Model 1 did not converge readily and attain a comfortable overall Wald x^2 test statistic. But it did achieve approximately the same predictive power (pseudo R^2) as other models tested and the other models did have respectable Wald test results when the Stop Out and Transfer Out alternatives were purged from the study. Reflected in Table 6.2, in the case of the default model 1, none of the explanatory factors had a significant independent influence greater than x^2 =/> 8.0 (P>|z| = 0.05). Four explanatory factors had an independent influence over Transfer Out, represented by 47 cases. Adult Newbies were strongly and negatively associated with Transfer Out (z= 80.09; P>|z| = 0.000) and having made rational and substantive college-going choices in the first place was slightly associated negatively with Transfer Out (z = -1.89; P>|z| = 0.058). Coming from more capital intensive neighborhoods (z= 2.55; P>|z| = 0.011) and having greater Academic Preparation (z = 2.41; 0.016) were both positively associated, though slightly, with Transfer Out.

[84] Sadly, my personal favorite "Hedonism" remained significant at 0.05 only in the alternative models from which Asset factors and the Stopout and Transfer outcomes had been removed.

The strongest distinctions, however, were between those who were Stayers and those who became Drop Outs. Six independent predictors from among the Indicators, Asset factors, and Mentality factors were identified as making significant independent contributions to the probability of Drop Out. The greatest influence on Drop Out was from High School Culture ($z = -2.77$; $P>|z| = 0.006$), indicating that the stronger the High School Academic Culture, the less likely a Newbie is to Drop Out of the HBCU. This factor is followed by Participation Level ($z = -2.45$; $P>|z| = 0.014$), indicating that full-time students are less likely to drop out than part-time students. The level of the Achievement factor was distinctively associated in a positive direction with Drop Out ($z = 2.28$; $P>|z| = 0.016$) suggesting that students more driven to achieve are more likely to Drop Out rather than Stay. Students with minimal Achievement Motivation have a greater probability of staying. Meanwhile, higher Social Engagement scores are negatively associated with Drop Out ($z = -2.27$; $P>|z| = 0.023$) as are higher Hedonist scores ($z = 1.99$; $P>|z| = 0.046$) and Other Directed scores ($z =1.99$; $P>|z| = 0.046$) Thus, the greater the Social Engagement, the Hedonist, and the Other Directed scores, the more likely the Newbie is predicted to Drop Out.

Notably, Indicator variables for race, sex, and residence, did not emerge from this model as independent predictors for any of the alternative outcomes in comparison to Stayer. That is, in this model, these four variables do not predict well whether Newbies become Transfer Outs, Stop Outs, or Drop Outs instead of Stayers. These findings, when both Asset and Mentality factors are included in the model, stand in marked contrast to the findings when either Mentality or Asset factors are not included. The observation suggests that what is important about the identity variables is the Assets and Mentality that their subjects possess, not the identity itself. Data displaying the general findings for the default Mentality model is displayed in Table 6.3: The Mentality Departure Model Details.

Table 6.3: Mentality Departure Model Details

MNLR 704 Observations; Log pseudolikelihood = -494.78; Pseudo R2=0.128

outcome		Coef.	Rob.Std.Err.	z	P>|z|	[95% Conf.	Interval]
Stop Out	male	.326	0.772	0.42	0.673	-1.188	1.839
	black	18.684	.	.	.	.	.
	residens	- 0.614	0.694	-0.88	0.376	-1.975	0.747
	adult	- 0.234	1.071	-0.22	0.827	-2.333	1.866
	fulltime	17.739	.	.	.	.	.
	capital	0.067	0.327	0.21	0.837	-0.573	0.708
	h.s.cultr	- 1.295	0.770	-1.68	0.093	-2.804	0.214
	hood cult	- 0.412	0.304	-1.35	0.176	-1.008	0.185
	acad prep	0.348	0.471	0.74	0.459	-0.574	1.271
	achiev mot	-0.174	0.333	-0.52	0.601	-0.826	0.479
	self-image	0.060	0.306	0.20	0.844	-0.540	0.661
	soc engage	0.169	0.251	0.67	0.501	-0.323	0.661
	coll choice	-0.776	0.506	-1.53	0.125	-1.768	0.216
	hedonism	-0.086	0.497	-0.17	0.863	-1.059	0.887
	remediation	-0.288	0.481	-0.60	0.549	-1.231	0.655
	other direct	-0.616	0.362	-1.70	0.089	-1.325	0.094
	non-credit	0.143	0.259	0.55	0.580	-0.364	0.650
	constant	-40.412	0.773	-52.31	0.000	-41.926	-38.898
Transfer Out	male	0.116	0.456	0.25	0.800	-0.778	1.009
	black	-0.378	0.848	-0.45	0.655	-2.040	1.284
	residens	-0.060	0.589	-0.10	0.918	-1.214	1.093
	adult	-32.676	0.395	-82.62	0.000	-33.451	-31.900
	fulltime	-0.047	1.083	-0.04	0.965	-2.170	2.075
	capital	0.386	0.152	2.55	0.011	0.089	0.683
	h.s.cultr	0.313	0.195	1.60	0.109	-0.069	0.696
	hood cult	-0.039	0.215	-0.18	0.857	-0.460	0.383
	acad prep	0.484	0.201	2.41	0.016	0.091	0.878
	achiev mot	-0.039	0.194	-0.20	0.839	-0.419	0.341
	self-image	-0.206	0.220	-0.94	0.349	-0.638	0.225
	soc engage	0.047	0.224	0.21	0.835	-0.391	0.487
	coll choice	-0.463	0.245	-1.89	0.058	-0.943	0.016
	hedonism	0.227	0.170	1.34	0.182	-0.106	0.561
	remediation	0.018	0.166	0.11	0.915	-0.307	0.342
	other direct	0.031	0.213	0.15	0.883	-0.386	0.449
	non-credit	0.126	0.168	0.75	0.456	-0.204	0.456
	constant	-2.178	1.245	-1.75	0.080	-4.619	0.262
Drop Out	male	0.394	0.239	1.65	0.099	-0.074	0.863
	black	-0.185	0.479	-0.39	0.699	-1.124	0.753
	residens	-0.420	0.258	-1.63	0.104	-0.925	0.086
	adult	0.505	0.353	1.43	0.152	-0.186	1.195
	fultime	-1.090	0.445	-2.45	0.014	-1.962	-0.219
	capital	0.085	0.010	0.85	0.393	-0.110	0.280
	h.s.cultr	-0.457	0.165	-2.77	0.006	-0.779	-0.134
	hood cult	-0.230	0.158	-1.45	0.147	-0.541	0.082
	acad prep	-0.115	0.139	-0.82	0.410	-0.3871	0.158
	achiev mot	0.301	0.132	2.28	0.022	0.043	0.559
	self-image	0.063	0.119	0.53	0.597	-0.170	0.295
	soc engage	-0.309	0.137	-2.27	0.023	-0.577	-0.042
	coll choice	-0.169	0.117	-1.44	0.149	-0.399	0.061
	hedonism	0.235	0.118	1.99	0.046	0.004	0.467
	remediation	0.076	0.124	0.61	0.542	-0.168	0.319
	other direct	0.220	0.110	1.99	0.046	0.004	0.436
	non-credit	-0.031	0.125	-0.25	0.801	-0.276	0.213
	constant	0.005	0.670	0.01	0.994	-1.307	1.318

(outcome==Stayer is the base outcome)

Departure Probabilities for Newbie Types: Next, the outcome probability of the five primary types of Newbies was reviewed separately: Male/female, Black/Minority, Teen/Adult, Commuter/Resident, and Part-time/Full-time participation. Table 6.4: Predicted Probability of Outcomes by student type with the Mentality Departure Model[85] presents these findings by student type. With so few cases among Stop Out (n=11) and Transfer Out Newbies (n=47), there is clearly a very minor probability of a Newbie attaining one of these ends, based on the full Mentality model using the available data.

As is apparent in Table 6.4, a Female Newbie has a 16% probability of Drop Out while a Male has a 22% probability of Drop Out. The largest difference in expectation is between Adults with a 26% probability of Drop Out and Minors with a 16% probability of the same fate. But there is also a measurable difference in the probability of a campus Resident Drop Out (17%) and a Commuter Drop Out (23%). Interestingly, only 2 points separate the probability of Drop Out by Minorities and Blacks in the Mentality model working with a small sample—unlike the case with the Asset model working with the full population of Newbies. Clearly, this finding results from an under-representation of minorities in the sample.

Table 6.4: Predicted Probability of Outcomes X Newbie Type*

The Mentality MNLR Model

	Enrollment Outcome			
	Stop Out	Transfer Out	Drop Out	Stayer
Female	0.002	0.003	0.159	0.836
Male	0.003	0.003	0.219	0.776
Black	0.004	0.003	0.179	0.813
Minority	0.000	0.004	0.209	0.787
Teen (>20)	0.002	0.058	0.164	0.776
Adult (20+)	0.002	0.000	0.259	0.739
Commuter	0.003	0.003	0.232	0.762
Resident	0.002	0.003	0.166	0.829
Pt-time(<12 cr)	0.000	0.002	0.386	0.611
Fl-time(12+cr)	0.005	0.003	0.174	0.818

(* assuming each remaining independent variable is held constant at its mean)

For any of the Indicator variables, the probability of either Stop Out or Transfer Out is limited to less than 1% (Table 6.4)—in contrast to the Asset model where, working

[85] Data in this table is derived from STATA's *prtab* command following fitting the MNLR model.

with a larger Newbie population, the probability of Stop Out or Transfer Out ranged from 2-8% depending on the Newbie Type. Clearly, the Newbie cases available for Mentality modeling under-represents the Stop Out and Transfer Out fates by a factor of about 10 and the predicted probabilities decline accordingly.

Influence of Mentality Predictors on Alternative Outcomes: In combining the Asset factors with the Mentality factors, the probabilities for each type of Newbie attaining each outcome change somewhat. These changes are most notable among the Stop Outs and Transfer Outs and far less among the Drop Outs and Stayers. (Table 6.5) However, these changes are due primarily to salient differences between the sample population considered here in contrast to the whole population considered in Chapter 5. This understanding is easily verified by noticing that major changes in predicted probabilities among Indicators accompany the change from Minor to Adult and Minority to Black. Before, Adults were observed to have a 1% lower probability of Stayer than Minors; here they are observed to have a 37% lower probability. And before, Blacks were observed to have a 15% greater probability of Stayer than Minorities whereas here they are observed to have only a 3% greater probability of Stayer than Minorities. These changes arise because in this data set there are fewer Minorities and fewer Adults for whom to observe any outcomes at all.

Table 6.5 displays the full range of predictions for each separate input against each respective outcome, holding other inputs constant. As before, these numbers demonstrate the relative influence that each predictor has on each possible outcome.

Among the Mentality model factors, it is observed that Achievement Motivation, Other Directed, and Hedonism are the three factors with the most positive influence on Drop Out. The range of influence for the first two is 26% and the later is 22% as the factors vary from minimum to maximum values. This finding suggests that the more Newbies are driven to achieve, the more they are guided by concerns other than academic, and the more they are involved in hedonistic behavior, the more likely they are to Drop Out of higher education. Countering this finding, the factors that most work against Drop Out are Social Engagement and Careful College Choice—factors whose influences range across 24% and 12% of predicted probability respectively as their own

values rise from minimum to maximum values. In contrast to Drop Outs, the Stop Outs and Transfer Outs are observed to not be much influenced by any of these new Mentality factors.

Table 6.5: Range of Probability Predictions for Regressors on Outcomes in Mentality Model
(When predictor value ranges from minimum to maximum)

	Outcomes			
Predictors	**Stop Out**	**Transfer Out**	**Drop Out**	**Stayer**
Indicator variables				
Female to Male	0.001	0.000	0.060	-0.060
Minority to Black	0.004	-0.001	-0.030	0.026
Commuter to Resident	-0.001	0.001	-0.066	0.067
Minor to Adult	-0.001	-0.058	0.095	-0.370
Part-time to Full-time	0.005	0.000	-0.213	0.208
Model Factors				
Neighborhood Capital	0.001	0.006	0.073	-0.079
Neighborhood Culture	-0.004	0.000	-0.141	0.145
High School Culture	-0.022	0.003	-0.262	0.282
Academic Preparation	0.006	0.007	-0.101	0.088
Achievement Motive	-0.003	-0.001	0.261	-0.258
Self-Image	0.001	-0.003	0.059	-0.056
Social Engagement	0.003	0.001	-0.243	0.239
College Choice	-0.010	-0.004	-0.123	0.137
Hedonism	-0.002	0.002	0.224	-0.224
Remedial Preparation	-0.003	0.000	0.080	-0.077
Other Directed	-0.007	0.000	0.260	-0.252
Prior Non-Credit Work	0.002	0.001	-0.020	0.017

Graphs of Probabilities for Newbie Types: Just as in the case of the Asset model, it is instructive to consider the various departure probabilities for each separate sub-type of students, wherever possible. And, as before, rather than dwell on detailed parameters in tables, attention is drawn instead to graphic displays to better illustrate possible alternatives and non-linearities among the outcome probabilities. But unlike the prior model, the Mentality model is, of necessity, based upon a sample, not the entire population. Recall here that the Mentality sample underestimates the Stop Outs and Transfer Outs compared to the full population. Consequently, the Mentality model reflects very little influence arising from the explanatory variables upon Newbies attaining these two outcomes. Where it does reflect a modest influence, the influence is not statistically significant at any conventional level.

Nonetheless, charts have been prepared to reflect the *possible* influence of each Mentality factor on the predicted probability of each student sub-type attaining each of the four outcomes. Where a prediction curve is observed to lie inert along the base of the graph, it may be assumed that the sample of the particular Newbie sub-type illustrated contained too little variation among a few cases to meaningfully represent any probability. There are many such cases in the following graphs. While these graphs and/or these probability curves might have been deleted owing to their lack of a suitable incidence level and statistical confidence, they are included because the earlier population study indicated there are meaningful independent relationships to be understood. While in many cases there can be no strong confidence in indications provided, they well may spark hints and suggestions of directions for subsequent research. Accordingly, the graphs are included for all cases even though they may not represent statistically significant, reliable findings.[86] The Asset factors are included in the model for control but their independent influence was fully described in Chapter 5 and is not reviewed again here.

Influence of Achievement Motive: The Achievement Motivation factor, a composite of a multitude of variables drawn from CIRP survey data, is characterized by Newbie's articulated intention to engage in a variety of influential roles in society. Among them, for example, are the desires to influence social values, to influence political structure, to keep up to date with politics, and to promote racial understanding—to list just the most prominently loading variables. (Table A2: CIRP Panel Factors) Earlier univariate investigation suggested the factor modestly discriminated between the outcomes (Table 4.3; $x^2 = 8.06$; $p = 0.04$). The multivariate Mentality models, however, indicate its influence is somewhat less and not statistically compelling (Table 6.2; x2 = 5.87; p = 0.118).

Achievement Motivation was found to have a positive influence on Drop Out compared to the Stayer outcome. (Table 6.3; $z = 2.28$; $P>|z| = 0.022$) Graphs 6.1—6.2 illustrate the independent influence of Achievement Motivation on each of the ten Newbie types' probability of attaining each outcome. It is notable first that for <u>each</u> of 10 types of Newbies, the more a Newbie is motivated by Achievement, the more likely the

[86] Detailed guidance in reading predicted probability graphs is provided in Chapter 5, p. 103.

Newbie will Drop Out and the less likely the Newbie will be a Stayer. For Adults and Commuters, the difference between minimum and maximum Achievement Motivation is almost a 40% range in the probability of Stayer and Drop Out. For on-campus residents, the comparable distinctions are about 25%. Among the Under 20 and full-time residents, distinctions are a little less, accounting for about a 20% differential in Drop Out and Stayer probabilities between the minimal and maximal Achievement Motivation. (Graphs 6.1—6.2)

Among the Minors alone, Transfer Out is negatively impacted by Achievement Motivation, but to only a minor degree. About a half point separates the probability of Transfer Out for those with a minimum and those with a maximum of Achievement Motivation. (Graph 6.1) Stated more crisply, Minor Newbies with a minimum of Achievement Motivation are more likely to transfer elsewhere than are Minors with a maximum of Achievement Motivation. And, as described earlier, Stop Out is not revealed to be affected by Achievement Motivation at all, owing to limitations in the data.

Influence of Self-Image: Confident Self-Image was a factor extracted from CIRP variables that grouped a wide variety of Newbie self-assessments. Among those loading most heavily on the factor are intellectual self-confidence, social self-confidence, self-understanding, competitiveness, and emotional health, to list only the first few of many variables. Univariate analysis revealed that it discriminated only minimally between the outcomes (Table 4.3; $x2 = 5.68$; $p = 0.00$). Its impact in the multivariate Mentality model is even less robust (Table 6.2; $x2 = 1.31$; $p = 0.728$) and statistically insignificant.

While the Confident Self-Image factor does not discriminate reliability between Stayer and the differing departure outcomes, it appears visually to be modestly and negatively related to Stayer and modestly and positively associated with Drop Out (Figures 6.3—6.4). The influence, if any, seems a little stronger on males, adults, commuters, and part-timers than on females, minors, residents, and full-timers. Among minors, it may relate negatively to Transfer Out as well. (Figure 6.3) But, interestingly and uniquely, among minors it does not appear related to the probability of Stayer at all;

it appears to contribute only to the distinction between Drop Out and Transfer Out where it may inhibit Transfer Out and encourage Drop Out. (Figure 6.3)

Influence of Social Engagement: Social Engagement is a wide-ranging factor that emerged from the CIRP data. Loading especially heavily on it were such dissimilar variables as performing volunteer work, participating in student clubs and organizations, voting in student elections, tutoring other students, and so on. Clearly Social Engagement represents the degree to which a Newbie is involved in and with others in some type of productive effort or work. But, in contrast with earlier factors, Social Engagement is more influential in the Mentality model than it appeared individually. Compare its x^2 values from Table 4.3 with Table 6.2: 2.57 vs. 6.24.

The Social Engagement factor was found to be a solid discriminator between Stayer and Drop Out for all ten types of students. ($z = -2.27$; $P>|z| = 0.023$) It is very clear in reviewing the probability curves in Figures 6.5—6.6 that full-time Newbies with a maximum of Social Engagement have a 90% probability of Stayer while full-time Newbies with a minimum of Social Engagement have only a 65% probability of Stayer. Among part-time Newbies, the impact is similar but about 10% less for any given level of Social Engagement. Thus part-time Newbies may expect a 35% probability of Stayer if at a minimum on the Social Engagement scale and a probability of 80% if at a maximum on the Social Engagement scale. Social Engagement may also have a somewhat positive influence on Transfer as well, among Minor residential students; but the observation is not compelling in the absence of statistical reliability. (Figure 6.5)

Influence of College Choice: The Careful College Choice factor emerged from CIRP data and relates to Newbies' articulated reasons for their college choice. Among variables loading most heavily on this factor are diverse items, including "grads get good jobs," "a good academic reputation," "grads go to top grad schools," a "good social reputation" and a long list of other reasons and/or rationalizations. The interpretation behind the factor is that some Newbies apparently engaged in a great deal of comparative shopping and considered many diverse issues in selecting their HBCU while at the other extreme, some of their peers appear to have stumbled in randomly without much anticipatory thought. Viewed individually, Careful College Choice discriminated only

trivially between the outcomes (Table 4.3; $x^2 = 1.37$) but in the context of the Mentality multivariate analysis it appeared somewhat more useful: $x^2 = 7.09$ (Table 6.2)

Careful College Choice appears to discriminate modestly between Transfer Out and Stayer outcomes, but not between the other distinctions. (z = -1.89; P>|z| = 0.058) Figures 6.7—6.8 illustrate the influence of this factor on all ten types of Students. Thus, one sees in the case of Minors that the probability curve for Transfer Out is inversely correlated with Stayer more clearly than it is associated with the other outcomes. The finding is reasonably intuitive. The more thoughtful the choice-making when electing to attend the HBCU, the more likely the Minor Newbie is to Stay and the less likely to Transfer Out. Some Drop Out behavior appears to be influenced by the Careful College Choice factor for all Newbie types as well, so that the more careful the College Choice, the less likely the Newbie is to Drop Out. But as this relationship is not statistically significant, it cannot be claimed as a firm finding.

For most types of students, the difference in probability of Staying is about 20—25 % between the minimum and maximum values of Careful College Choice. Thus, for example, with Minors the probability of staying is about 65% if their Careful College Choice factor was minimal but it rises to 90% if the same factor rises to the maximum (Figure 6.7). Part-time students, otherwise similar, have their Stayer probability curves shifted downward by about 10-15 points (Figure 6.8).

Influence of Hedonism: Hedonism is a factor on which partying, socializing, drinking, coming late to class, being bored in class and missing appointments were variables loading heavily. Accordingly, the factor combines a set of variables that are not strongly associated with serious or focused academic behavior. Interestingly it had equivalent discriminatory power viewed individually or in the context of the MNLR model: $x^2 = 5.12$.

Hedonism was found to have a statistically significant influence (z = 1.99; P>|z| = 0.046) in discriminating between Stayers and Drop Outs, but not between Stayer and the other outcomes. So, for example, it appears that increasing Hedonism may lead to greater probability of Transfer Out among Minors, raising their probability of Transfer Out by 10% (Figure 6.9). But the independent influence for this claim is not statistically

robust. (Perhaps it might be were there more cases in the sample to under gird the statistical test.)

But clearly the influence on discriminating between the probability of Stayer and the probability of Drop Out is solid. For example, males with a minimum Hedonism factor rating have about an 87% probability of Staying and a 11% probability of Drop Out. But when that same male is at the maximum end of the Hedonism scale, the probabilities change dramatically. He now has a 58% probability of Stayer and a 40% probability of Drop Out (Figure 6.9). A similar effect is evident for every type of Newbie. Adults, for instance, have an 85% probability of Stayer and a 15% probability of Drop Out when at a minimum on the Hedonism scale. But move them to the maximum on the Hedonism scale and they have a 50% probability of Stayer and a 47% probability of Drop Out (Figure 6.9). Part-timers, further, have a greater probability of Drop Out than Stayer when they are at maximum on the Hedonism scale (Figure 6.10).

Influence of Remedial Preparation: The Remedial Preparation factor consists of a cluster of variables relating to Newbies' prior remediation in a variety of specific disciplines, including social sciences, science, reading, English, languages, and math. A high placement on this scale indicates that a Newbie has had considerable prior remediation. While it appeared to have important discriminatory power between the outcomes individually ($x^2 = 12.10$), it did not in the context of the MNLR model ($x^2 = 0.78$)

The factor was found not to have a statistically significant independent influence on any of the outcomes in contrast to the Stayer outcome. As Figures 6.11—6.12 illustrate, nearly all the predicted probability curves are almost horizontal from minimum to maximum on the Remedial Preparation scale, indicating little effect (less than a 10% range for most Newbie types). There appears to be a little more influence (c. 15%) on Part-time and Adult students than others, with greater remediation associated with somewhat less probability for Stayer and somewhat more probability of Drop Out, but the relationships are tiny and not statistically significant at 0.05. If this factor were significant, it might indicate that those Newbies in need of remediation did not completely overcome their academic deficits through remediation and therefore, were

more subject to attrition. But this hypothesis is not defensible based solely on this data and study.

Influence of Other Directed: The Other Directed factor consists of Newbie intentions to do things in the future that have in common the property of being not particularly germane or directly related to University life or studies. Among variables loading on this factor were "creating an artistic work," dropping out permanently or temporarily from school, and being well off financially. The factor had a similar level of discriminatory power viewed by itself ($x2 = 7.12$) and in the MNLR model ($x2 = 7.82$). Compare Tables 4.3 and 6.2.

Other Directed appears to have a positive influence on Drop Out at the expense of Stayer for all student types, but its influence varies some by Newbie type. ($z = 1.99$; $P>|z| = 0.046$) For example, Adults, and Commuters (Figures 6.13—6.14) have a far greater probability of Stayer (80%) than Drop Out (20%) when Other Directed is at a minimum. These same groups' probability of Stayer drops to about 50% at the maximum scale of Other Directed while their probability of Drop Out rises from a low of 20% to a high of 50% as the Other Directed scale slides from the minimum to the maximum. Unmistakably Other Directed is a major distracter for Adult and Part-Time Newbies who are far more likely to Drop Out than Stay when at a Maximum on Other Directed (Figure 6.13—6.14).

Being Other Directed appears to be somewhat less distracting for Minors than it is for older Newbies. When minors are maximally Other Directed, their probability of Drop Out is 40% while the probability of Staying is 60% (Figure 6.13). On Residents and Full-Timers the impact of Other Directed is limited to an approximate 30% range in the probability of Stayer and Drop Out. But, the most heavily affected by this factor are Part-Timers. When maximally Other Directed, their probability of Staying is 30% and their probability of Dropping out is 70% (Figure 6.14).

Influence of Prior Non-Credit Work: Prior non-credit work relates to a set of variables indicating that the Newbie had experienced non-credit course work at the post-secondary level prior to matriculating in the freshman year. However, relatively few students shared this characteristic: 23 Newbies had experienced a non-credit course in a 4-year college and 19 had experienced a prior community college course. The factor has

minimal influence viewed either independently or in the context of the MNLR model because very students had experienced it.

The influence of prior Non-Credit Work as an independent influence on departure outcomes in contrast to Stayer, is neither meaningful nor statistically significant. Accordingly, Figures 6.15—6.16 reflect essentially horizontal probability curves for each outcome for each type of student. The horizontal "curves" indicate no influence arising from changes in the value of the factor along the X-axis. In fact, they resemble as much as anything, the EKG reading for a comatose patient. The tiny deviation of some curves from the horizontal is so slight as to be insignificant and of no importance. The charts are included here only to illustrate in passing a contrast with charts of factors that do have meaningful influences.

Figure 6.1: Influence of Achievement Motive on Demographic Types

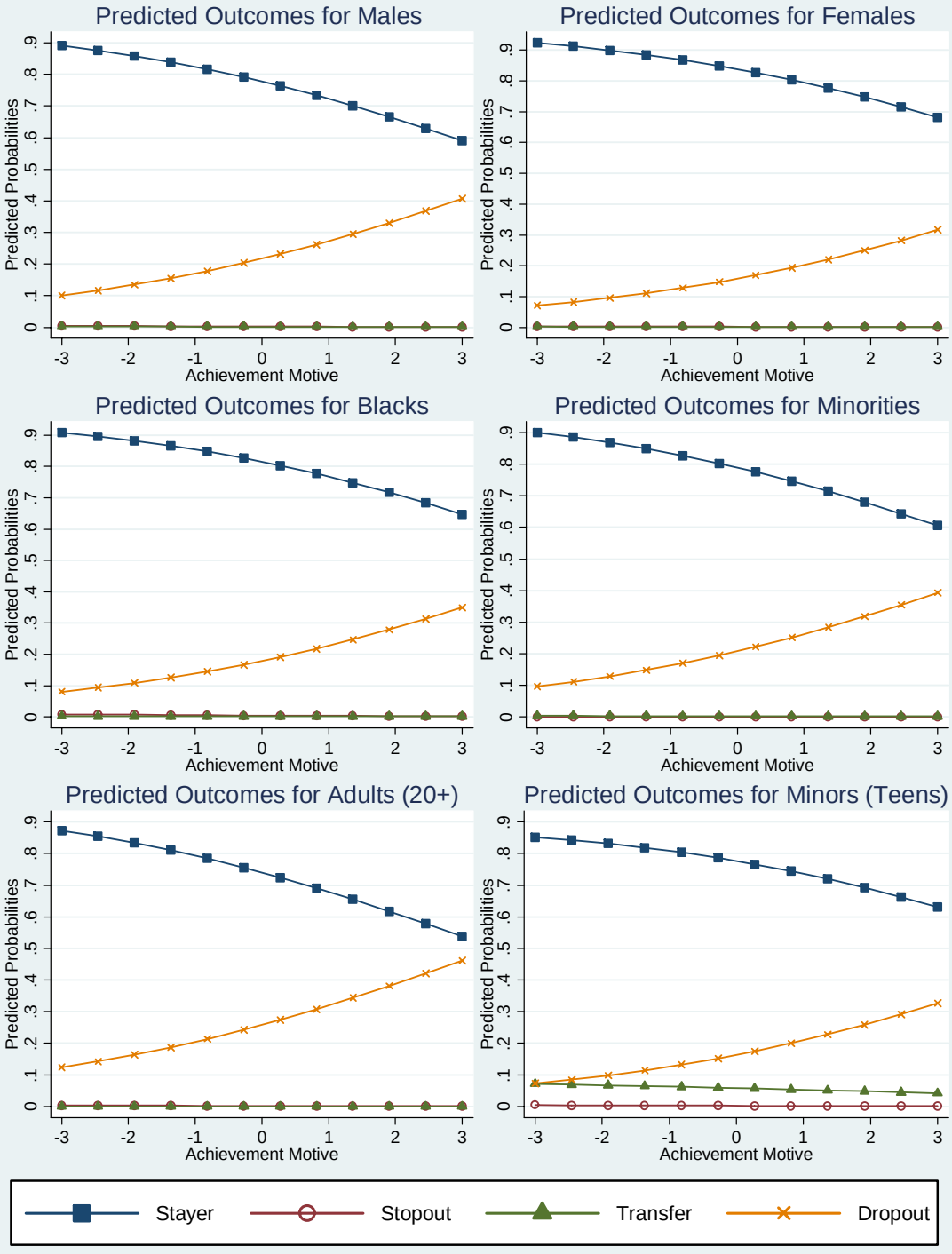


Figure 6.2: Influence of Achievement Motive on Involvement Types

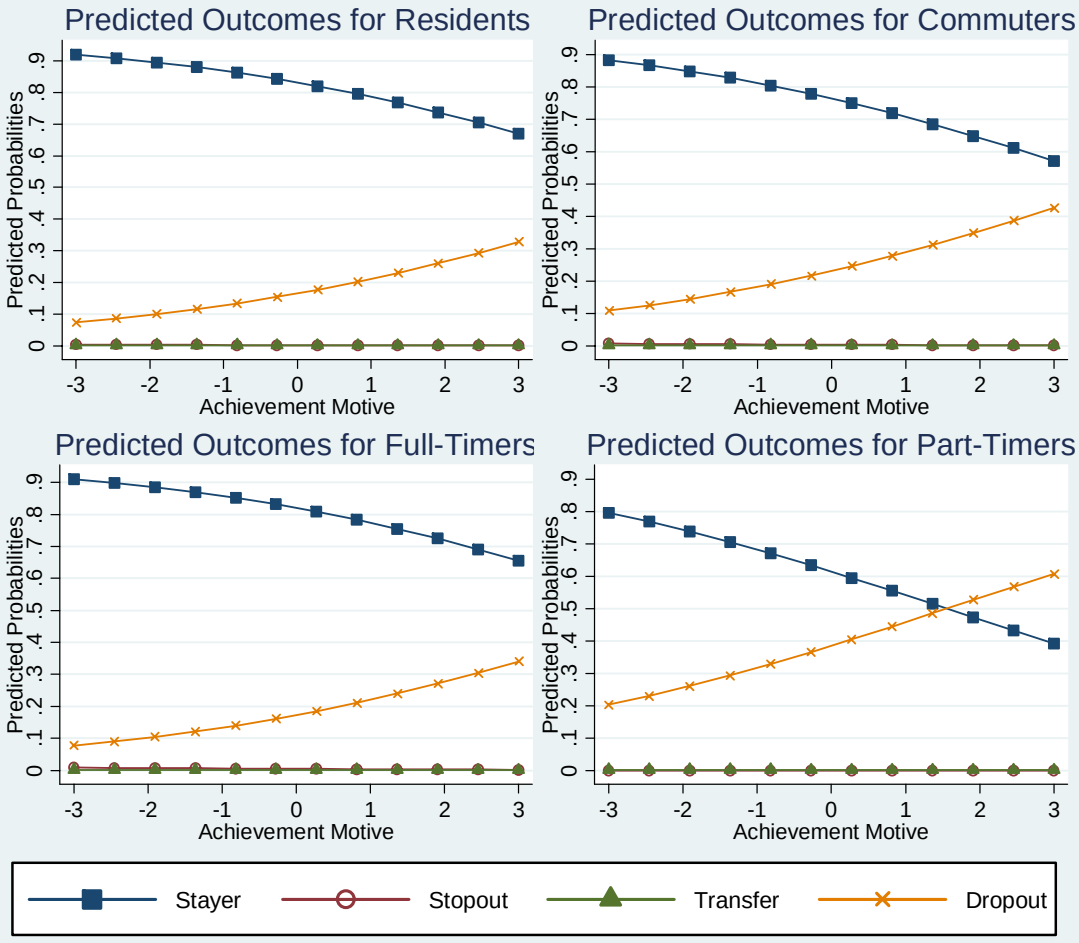


Figure 6.3: Influence of Confident Self-Image on Demographic Types

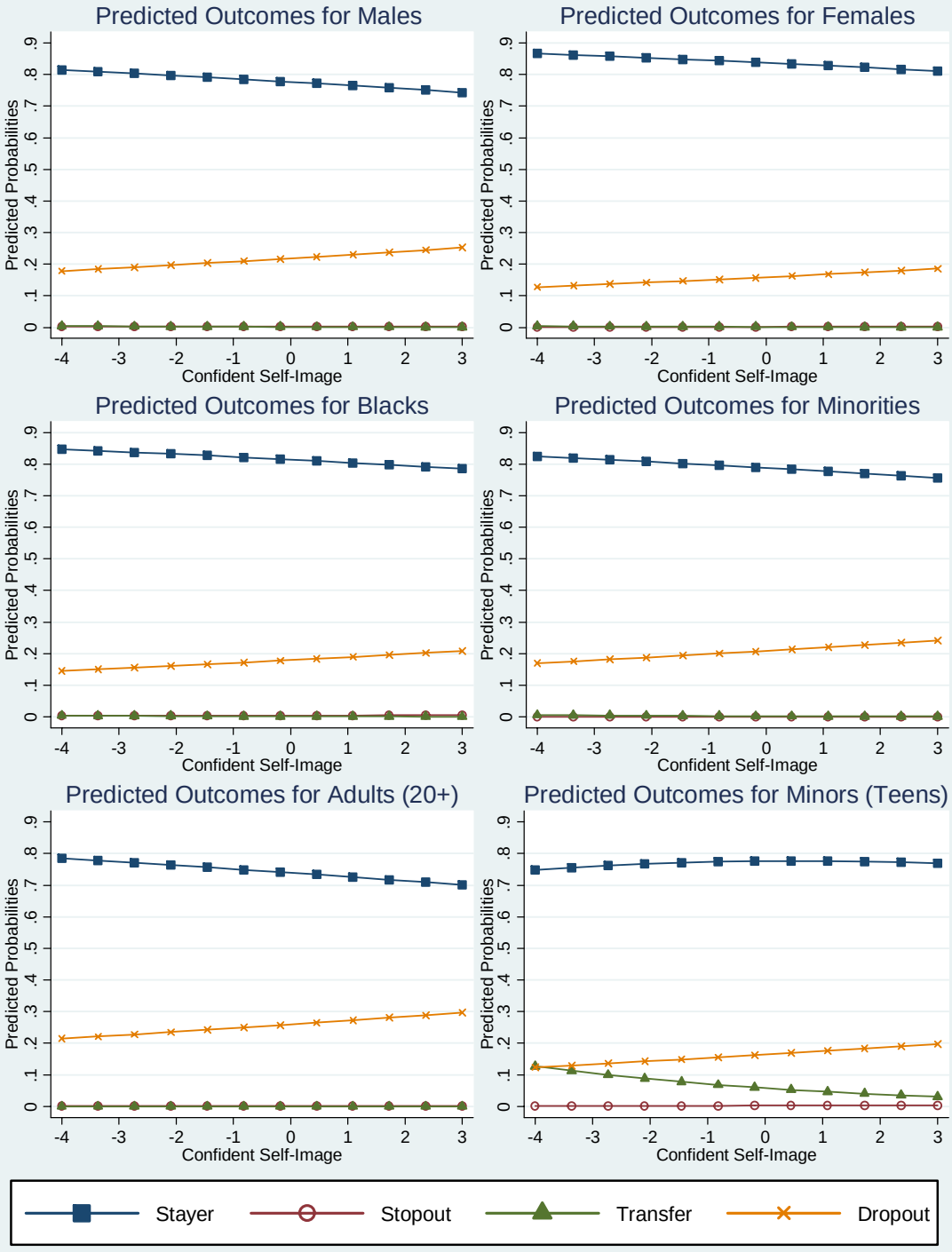


Figure 6.4: Influence of Confident Self-Image on Involvement Types

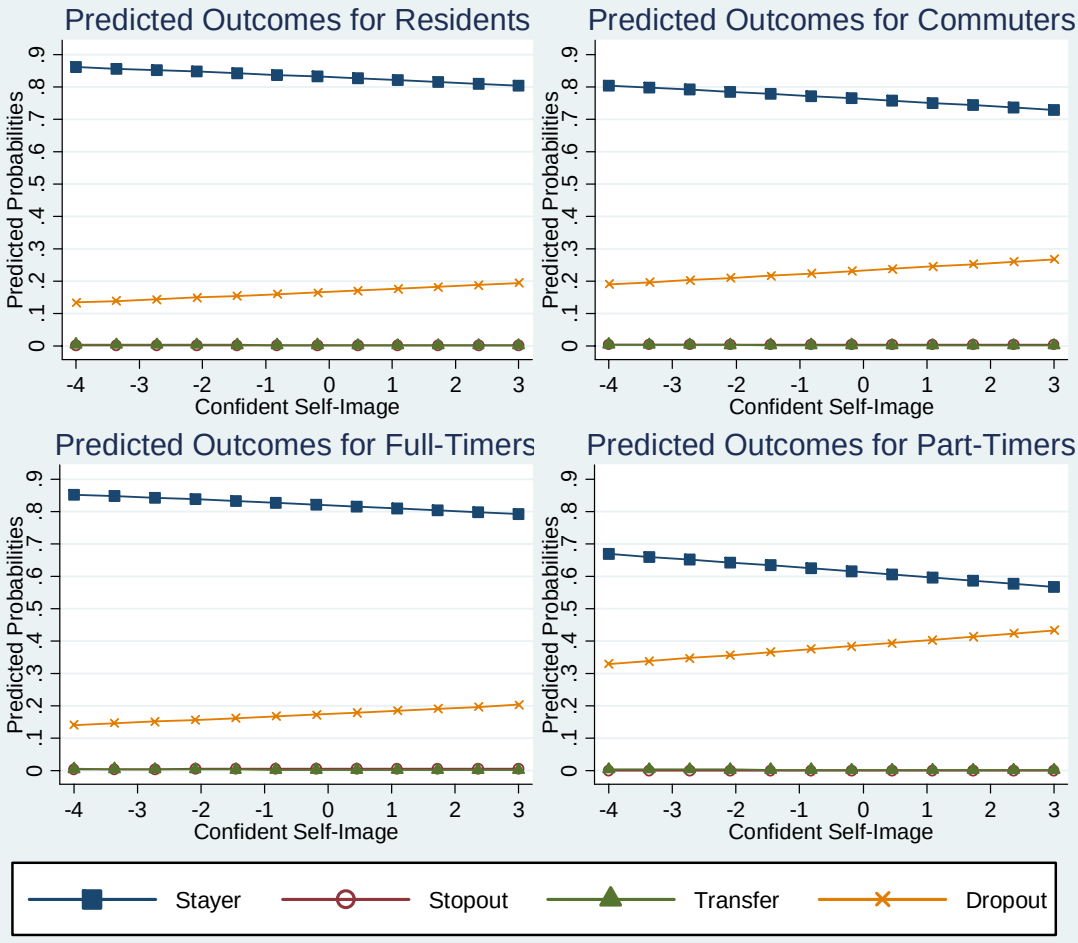


Figure 6.5: Influence of Social Engagement on Demographic Types

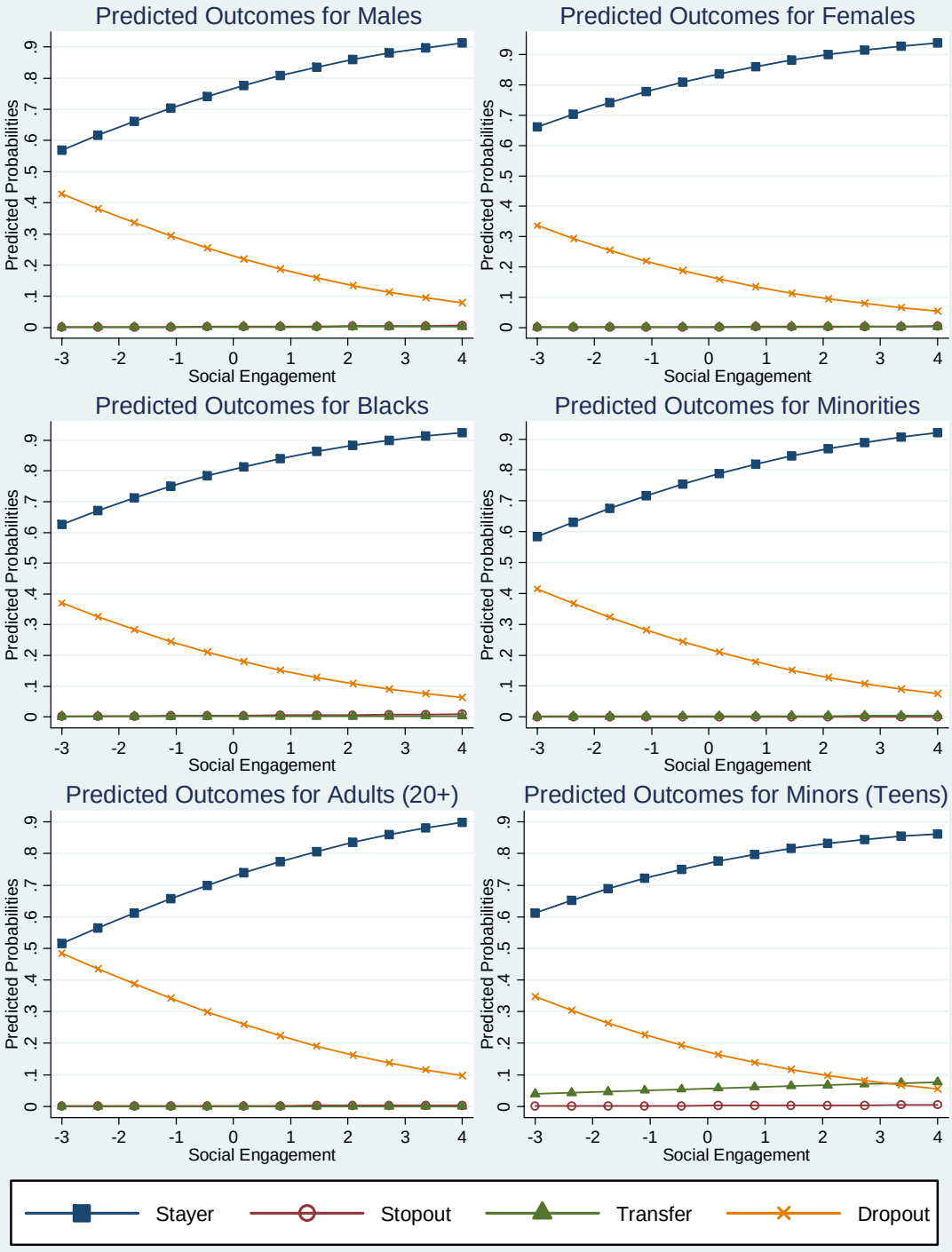


Figure 6.6: Influence of Social Engagement on Involvement Types

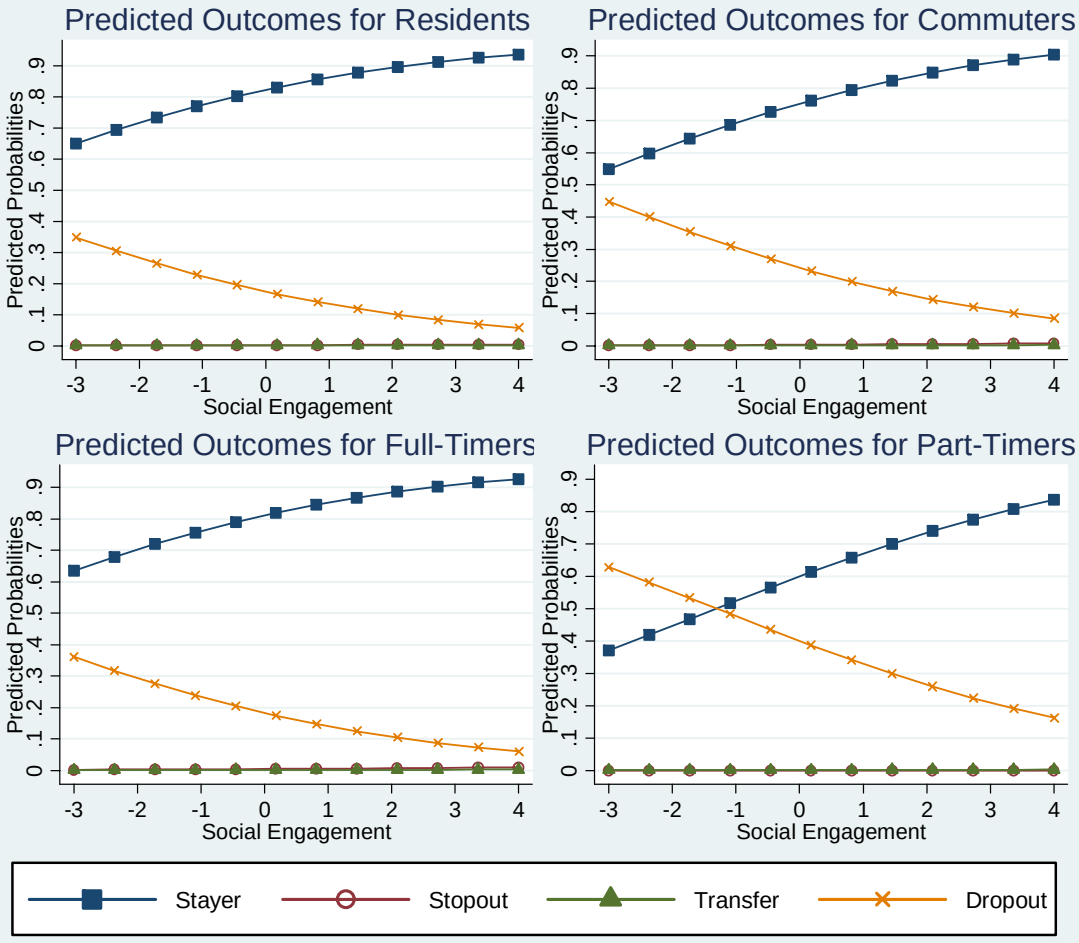


Figure 6.7: Influence of Careful College Choice on Demographic Types

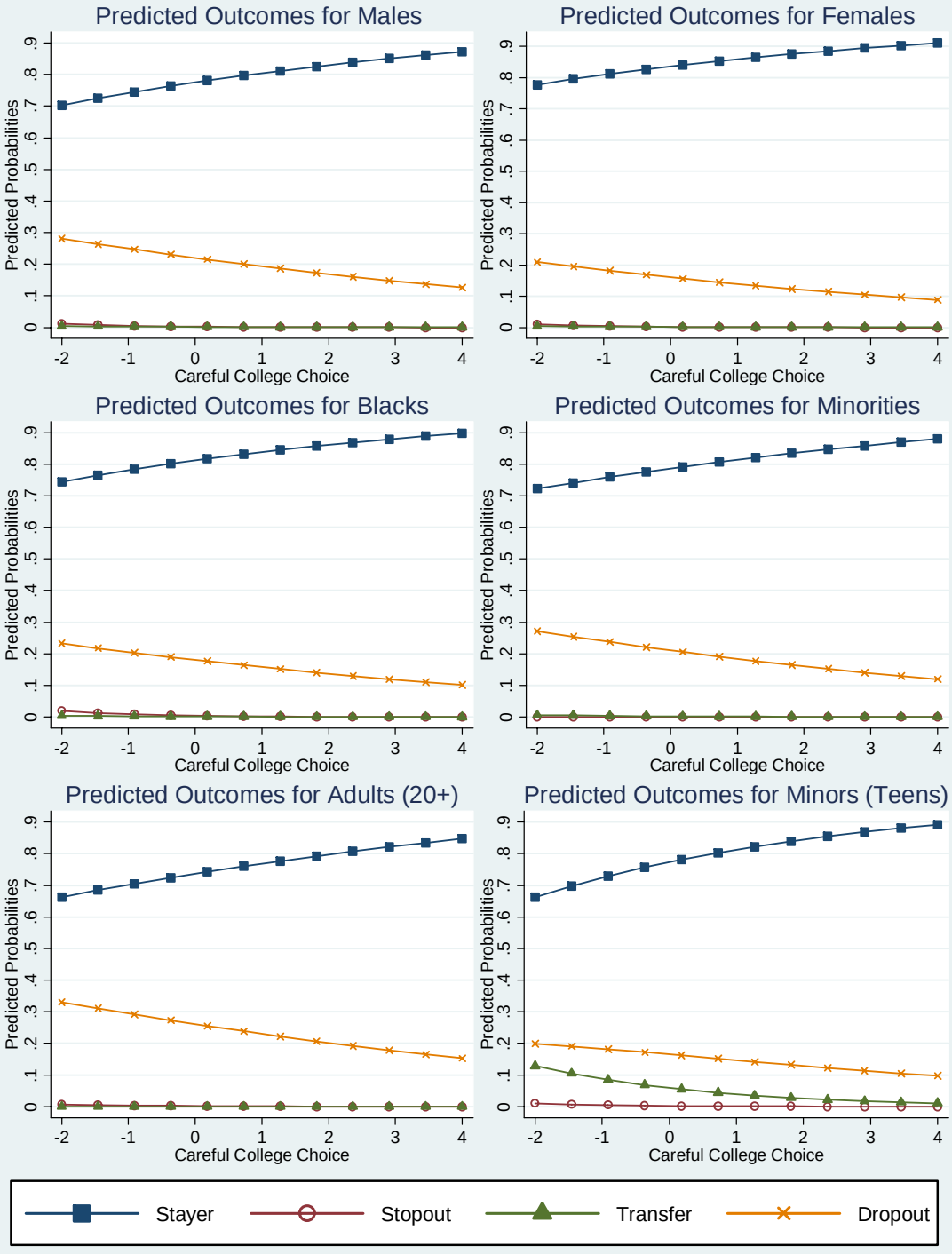


Figure 6.8: Influence of Careful College Choice on Involvement Types

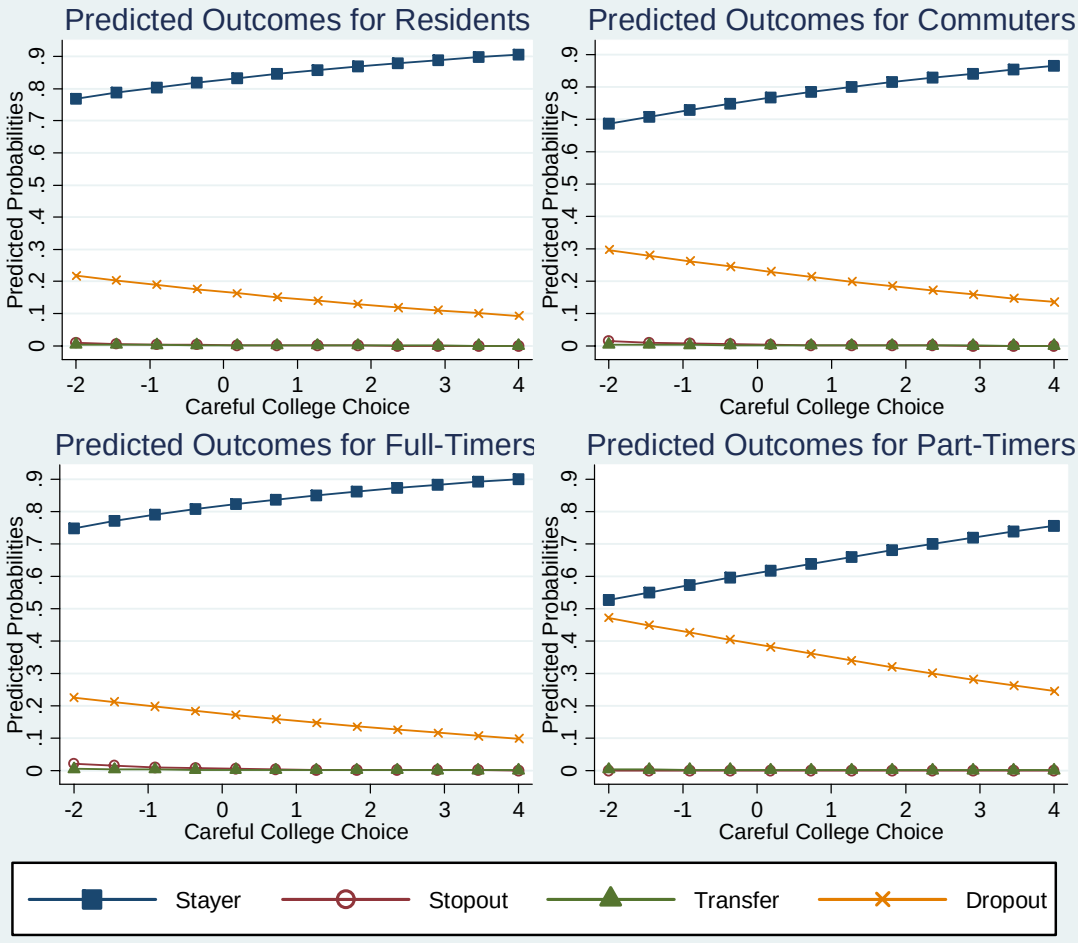


Figure 6.9: Influence of Hedonism on Demographic Types

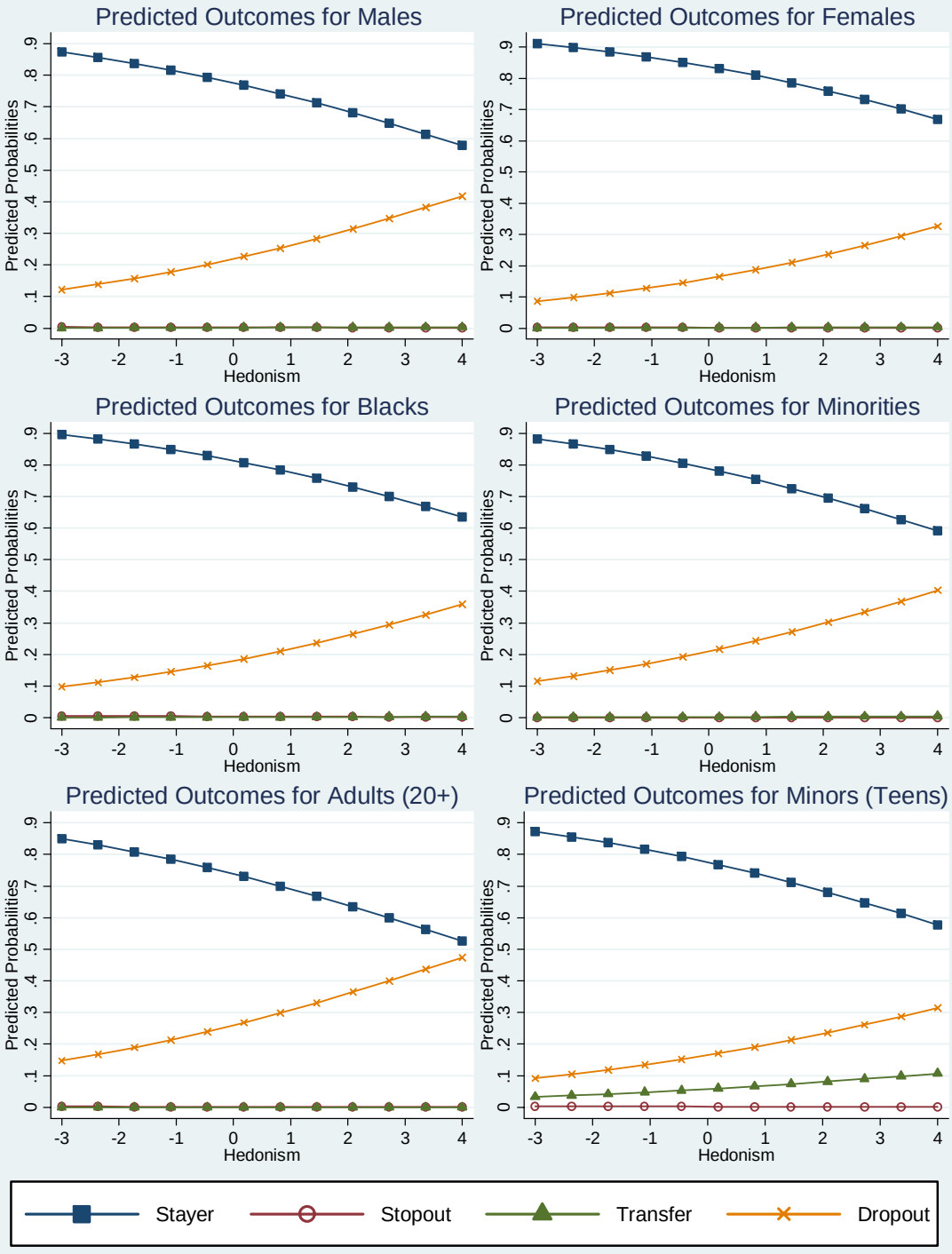


Figure 6.10: Influence of Hedonism on Involvement Types

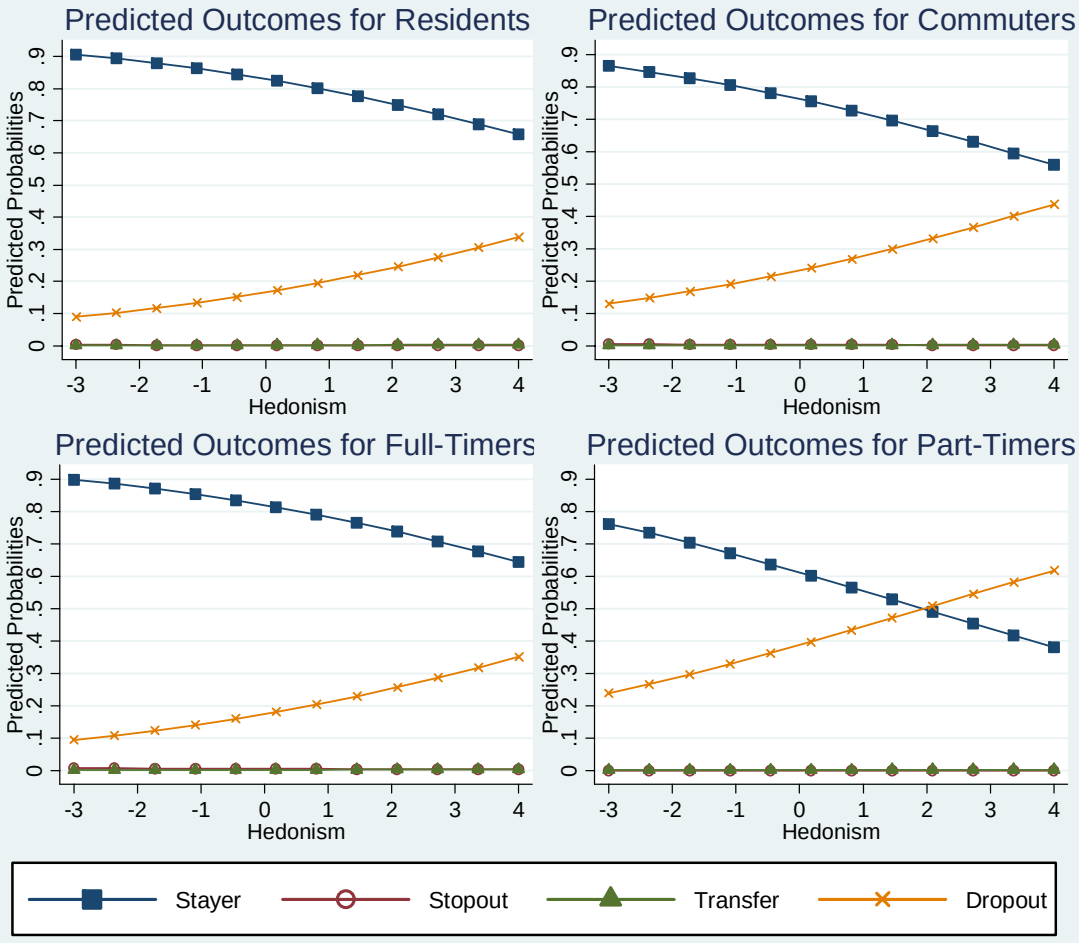


Figure 6.11: Influence of Remedial Preparation on Demographic Types

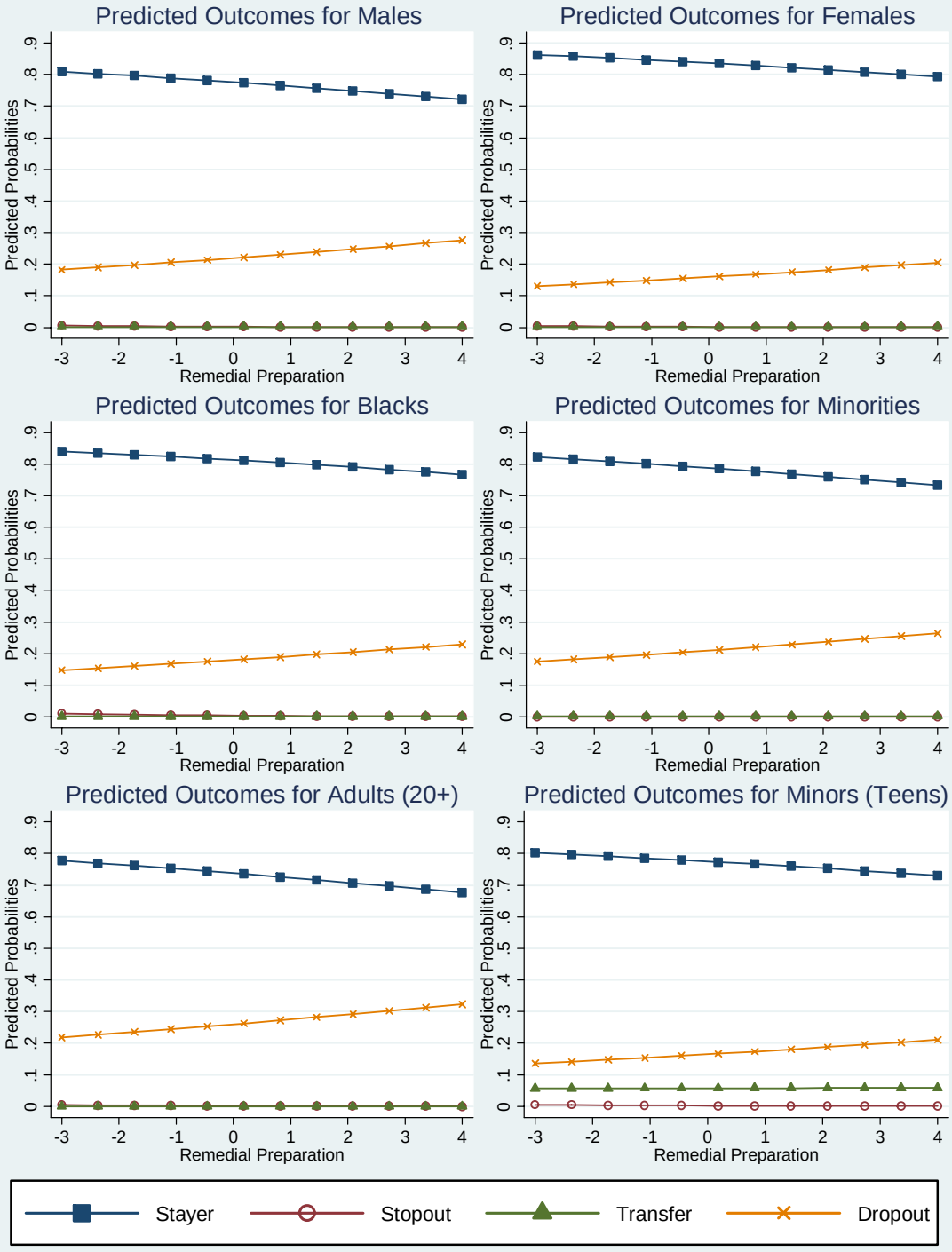


Figure 6.12: Influence of Remedial Preparation on Involvement Types

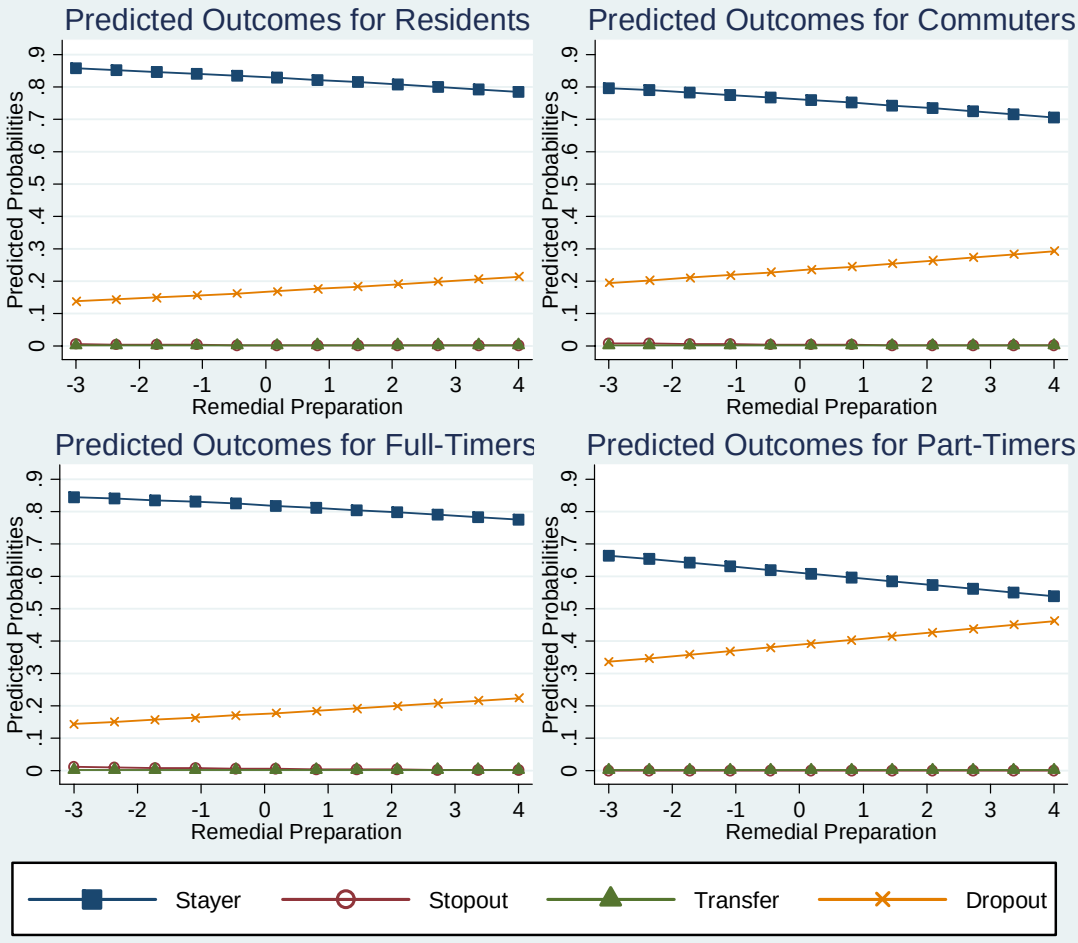


Figure 6.13: Influence of Other Directed on Demographic Types

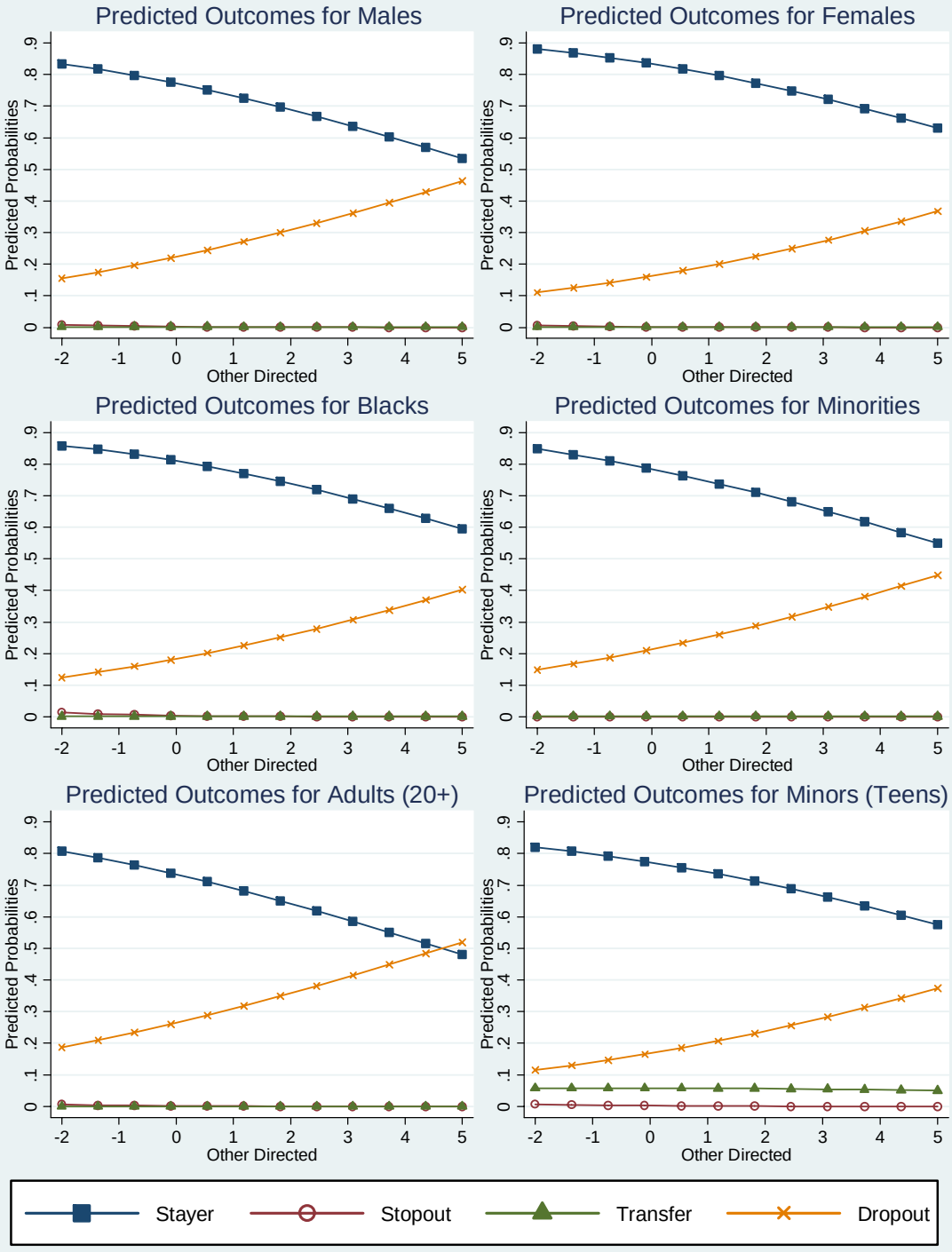


Figure 6.14: Influence of Other Directed on Involvement Types

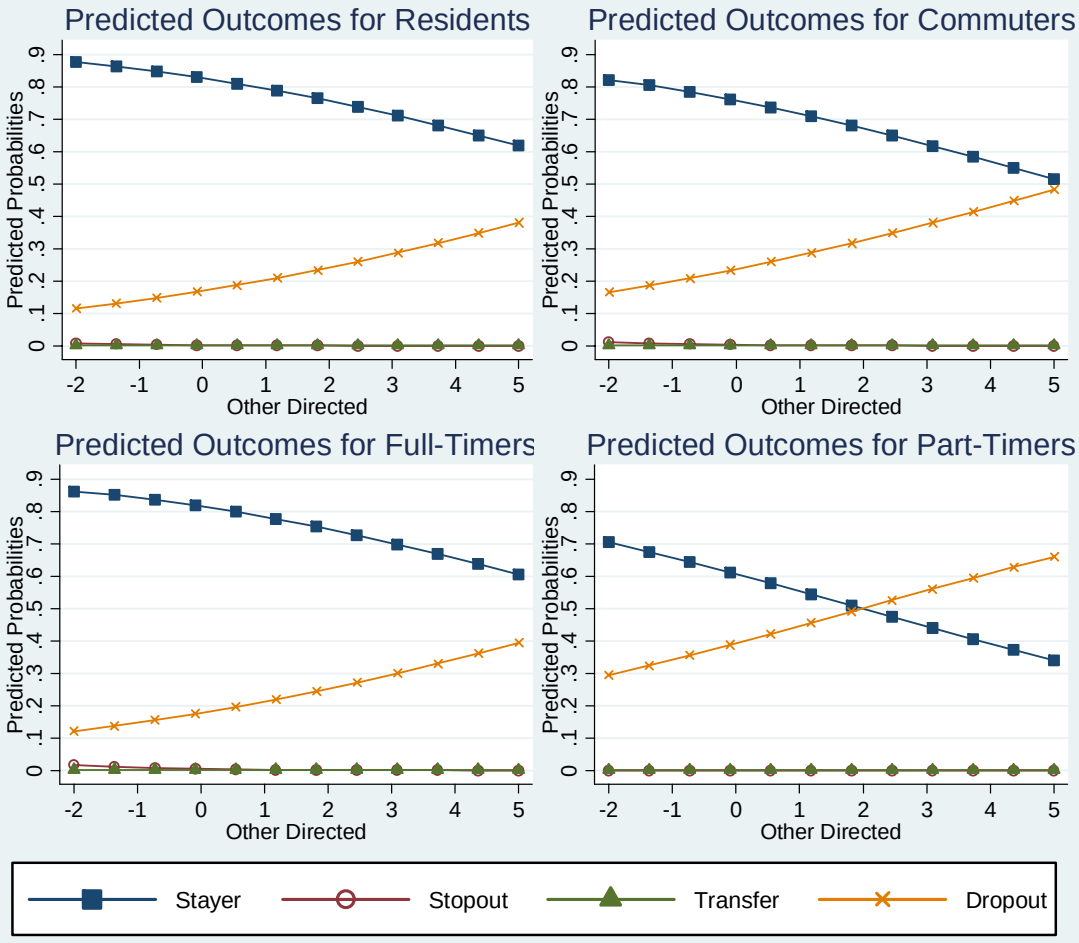


Figure 6.15: Influence of Prior Non-Credit Work on Demographic Types

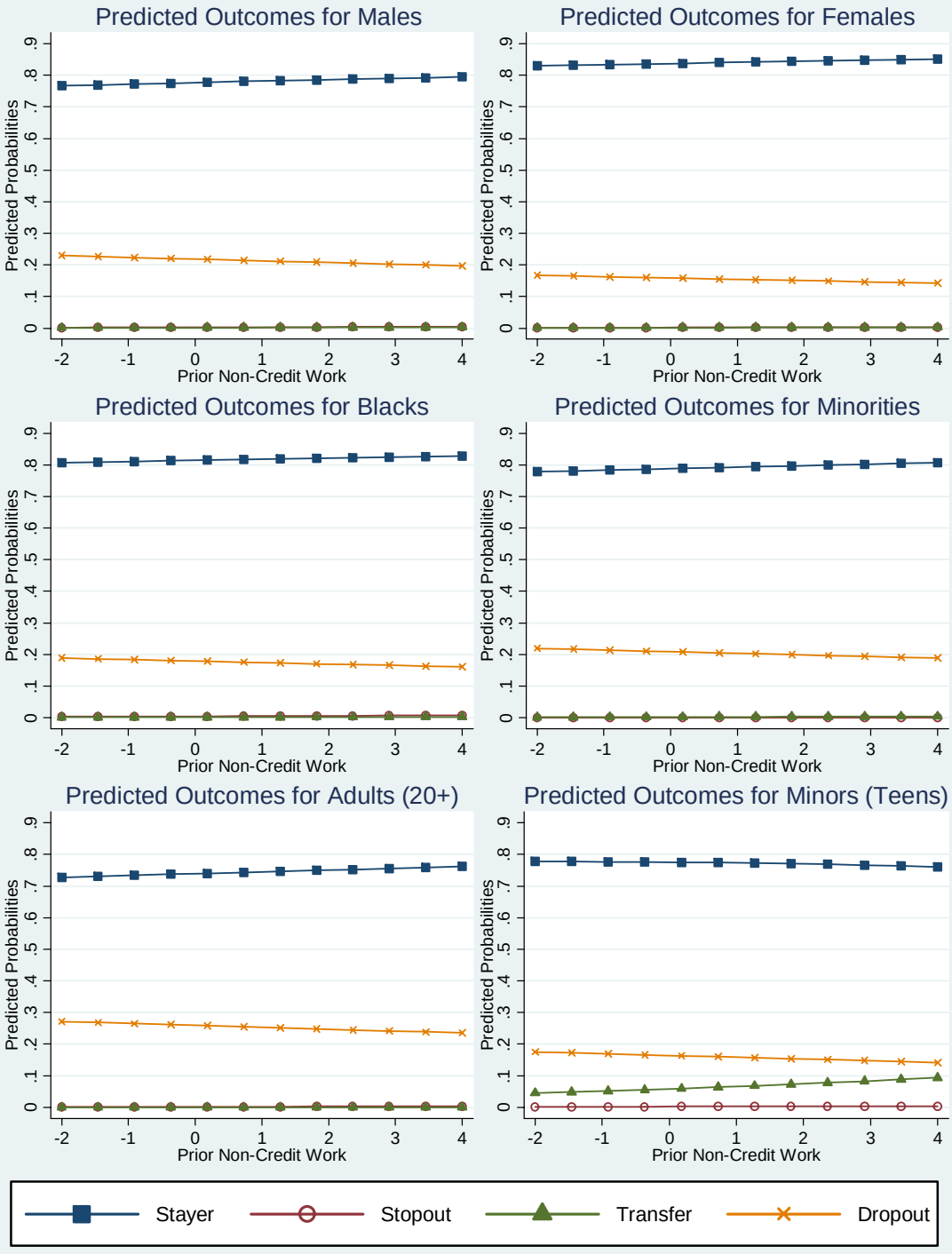
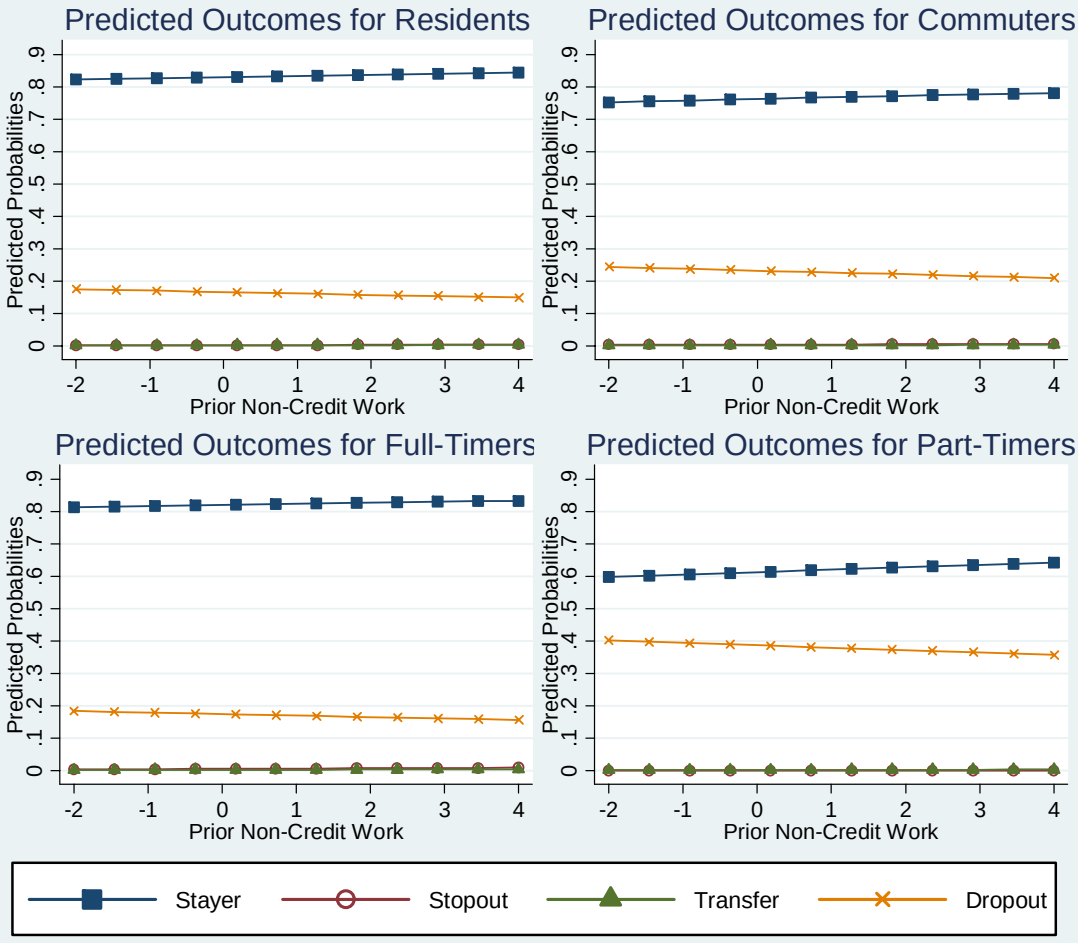


Figure 6.16: Influence of Prior Non-Credit Work on Involvement Types



Discussion: Ultimately Chapter 6 presents results of six alternative MNLR models examining the influence of eight Mentality factors on early departure from the HBCU in the context of five Identity dichotomies and four Asset factors. Alternate models were worth considering since the original model had difficulty converging and failed to do so near zero, as is considered ideal. Iterations in the Default model were terminated automatically by the software program after the model failed to converge below -434.8 after 32 iterations. (More typically, by way of comparison, models converge closer to zero in 3-5 iterations.) The original model yielded a Pseudo R^2 of 0.128 although two of the alternative outcomes (Stop Out and Transfer Out) contained insufficient cases to produce a sound Wald x^2 test statistic for the overall model. Such a finding is anticipated in the relevant literature: "if a cell has very few cases (a small cell), the model may become unstable or it might not run at all." (UCLA Academic Technology Services, http://www/ats.ucla.edu/stat/stata/dae/mlogit.htm)

It is apparent that none of these models strongly predicted the departure outcomes. They had relatively modest Pseudo R^2 values—although the R^2 value does not take on the same meaning as in OLS regression. Yet all seven models had predictive powers similar to one another (relatively close R^2 values ranged from 0.100 to 0.131). Two of them failed the overall Wald test (models 1 & 2). While the two models based on four outcomes could not be verified with the Wald x^2, because of excessive cells containing null values, the five other models in which the outcome had been re-coded into two alternatives converged nicely in four iterations, with Wald x^2 values ranging from 57.97 to 72.37, all highly significant at 0.000. Further, the alternative models in which the Asset factors were not included, although not judged invalid, had significantly less predictive power than did the models including the Asset factors. The Wald x^2 jumped by about 12—15 points (a 21-26% gain) when the Asset factors were included in the model. It is largely on the basis of this statistical evidence, in conjunction with intuitive conceptual understanding, that it is believed Asset factors should be incorporated into departure modeling for HBCU's along with the more conventional student and institutional factors.

Among the Mentality factors tested, four are found to offer special promise in explaining early Newbie departure from the HBCU. Although each had a $x^2 < 8.00$, and

was statistically significant only at $p < 0.1$, each affected sub groups of Newbies in substantially the same direction. Among them, the relatively most influential were Achievement Motivation and Other Directed. Social Engagement and Hedonism were slightly less influential.

The direction of influence is interesting. Increasing Achievement Motivation, Hedonism, or Other Directed increased the propensity to Drop Out. Increasing Social Engagement, in contrast, decreased the propensity to Drop Out.

Chapter 7
The Experience Model

Introduction: The exploratory analysis of factors influencing Newbies' early departure from an HBCU proceeds next to test the influence of Newbie's perceived first-year Experiences on early departure from the HBCU. As with prior models, the test is conducted with MNLR models, relying on five Indicator variables (sex, race, age, participation level, and residency), four Asset factors, and a set of nine independent Experience factors derived from the well-known and widely used NSSE survey as regressors. Also, included in this model as a separate independent regressor, was a z-score representation of the Freshman year GPA.

These models test whether, among incoming Newbies, their perception of their own collegiate and collateral experiences during their first year in college have a significant independent influence over early departure patterns, controlling for student type Indicator and their entering Assets. "Experience" is represented in these models by nine factors, constructs emerging from a factor analysis of NSSE data, together with a single variable representing the freshman GPA[87], as follows:

1. College Value Added
2. Cognition Required
3. Quality Relations
4. Scholarly Emphasis
5. Interactive Learning
6. Informal Dialogues
7. Literature Focus
8. Academic Work

[87] One reasonable question is why was the GPA not simply entered into the earlier Factor Analysis and included as and where it fell among the Factors? Why should it be treated as a separate indicator in this analysis? The answer is that the Factor analysis of NSSE variables was conducted in the NSSE file *before* it was merged with institutional data so that Factor scores could be derived based on a far larger sample of students than the smaller number who could be merged based on their volunteered ID #. The difference between the two sets of files was significant: 1509 cases vs. 585 cases in the merged file where the Freshman GPA is available.

9. Extramural Demands
10. Freshman GPA

The question here is, does understanding Newbies' individually perceived experiences—experiences that may be thought of as Collegiate and Extramural influences upon or as interventions in their lives—add meaningful additional predictive power to already accumulated knowledge in accounting for early departure experiences?

Outcomes Observed: Within the sample of 585 Newbies for whom NSSE Experience data is available and matched to the outcome, 1.4% were Stop Outs (n=8), 6% were Transfer Outs (n=35), and 18.1% were Drop Outs (n=106). The outcome distribution of the group left 75% of the cases as Stayers (n=436). [Table 3.5] These outcome ratios are similar to the sample used in the Mentality study (Chapter 6) and equally divergent from the population studied in Chapter 5. And the relatively minor incidence of two of the three early departure outcomes in the data results in similar mischief for the analysis. There are obviously insufficient cases of Stop Outs (n=8) and barely adequate cases of Transfer Out (n=45) to support any conclusive statistical analysis. The data cannot be milked for definitive or conclusive findings relative to the probability of these two outcomes for many cohorts of Newbies.

Further, and more critically, with Stop Outs reduced to just 8 cases, the outcome is under-represented compared to the full population by 63%. The Transfer Outs sample, although small in number (n=47), does nicely reflect the weight of Transfer Outs in the full population at exactly 5.98%. Stayers, on the other hand, are over-represented by 11% while Drop Outs are under-represented by 58% compared to the full population.

Newbie Types & Sub-Types in Sample: Just 585 cases are available for the Experience analysis, others having been lost from the study due to both attrition and the failure of some survey returns to match institutional records, as described in Chapter 3. Among primary Newbie types in this analysis, are 280 Males and 424 Females, 66 Adults and 638 Minors, 25 Minorities and 679 Blacks, 531 Residents and 173 Commuters, and 29 Part-Timers and 675 Full-Timers. Critically, the relative incidence of each type is biased compared to the general population of Newbies. Females are over represented by 12%, Minor by 16%, Blacks by 3%, Residents by 22%, and Full Timers by 10%. The

atrophied sample size results in null values for 9 sub-types and fewer than 10 cases in 17 other sub-types, as reflected in Table 7.1. The biased ratios of types are fateful because they lead to disproportionately large data voids for just those Leaver categories whom we most seek to understand.

Table 7.1: NSSE Newbies, 585 Counts by Category
by Sex by Race by Age Cohort by Participation Level by Residency

Sex	Race	Age Grp.	Part.Lvl	Residency	
Male 221	black 208	teen 193	fulltime 187	resident	157
				commuter	30
			parttime 6	resident	3
				commuter	3
		adult 15	fulltime 13	resident	7
				commuter	6
			parttime 2	resident	0
				commuter	2
	minority 13	teen 9	fulltime 9	resident	5
				commuter	4
			parttime 0	resident	0
				commuter	0
		adult 4	fulltime 2	resident	0
				commuter	2
			parttime 2	resident	0
				commuter	2
female 364	black 356	teen 329	fulltime 323	resident	267
				commuter	56
			parttime 6	resident	4
				commuter	2
		adult 27	fulltime 22	resident	5
				commuter	17
			parttime 5	resident	0
				commuter	5
	minority 8	teen 4	fulltime 4	resident	2
				commuter	2
			parttime 0	resident	0
				commuter	0
		adult 4	fulltime 2	resident	1
				commuter	1
			parttime 2	resident	0
				commuter	2

The data available thus compromises the robustness of the model by both the modest incidence of absolute numbers at the sub-group level and the relatively infrequent

Stop Outs and Drop Outs, compared to the Newbie population as a whole, as depicted in Table 7.1.

Alternative Experience Models: To assess the relationship between Newbie Experiences and the early departure fate**,** several versions of a basic MNLR model were compared and six are reported here to illustrate to what extent the configuration of the model, including varying definitions of the response variable and the inclusion or absence of various factors affected the findings. As before (Chapters 5 & 6) the Experience models include a nominal outcome in which several alternative departure patterns are compared to the base outcome, Stayer. Independent factors (regressors), considered in the modeling included four Asset factors, described in detail in Chapter 5, nine Experience factors generated from NSSE survey responses, described in Chapter 3 & 4, and an additional variable[88] indicating the Freshman Year GPA.

Several versions of the Experience model were compared to the model used for analysis. Critical metrics for six these models are displayed in Table 7.2a & b: Alternate MNLR Experience Models. The model used included a four-part outcome, five Indicator variables, four Asset factors, Nine Experience factors, and the Freshman GPA as independent predictors. Variations of this full model included and excluded the Freshman Year GPA (Base Model and Model 2, in Table 7.2) and included and excluded the Asset factors (Base Model and Model 6, in Table 7.2) among predictors.

One major variation on the Base Model collapsed the outcome into two categories, Continuing and Non-Continuing, by including the Transfer Outs as Continuing and the Stop Outs with the Drop Outs as Not-Continuing. This model was run without the Stop Outs and Transfer Outs (Models 4 and 5, Table 7.2) and without the Asset factors included.

A second variation on the Base Model collapsed the outcome into two categories, Stayer and Drop Outs, but excluded the Stop Outs and Transfer Outs from consideration—thus reducing the data set by 43 records but permitting a view of pure Drop Outs and pure Stayers.(Models 2—5) This model was run with and without the Stop Out (Models 2—5, Table 7.2) and Transfer Out (Models 3—5); and with and

[88] Freshman GPA was first converted to a z-score for inclusion in the MNLR model.

without the Participation level included as an indicator variable and with and without the Asset factors (Model 5 and 6, Table 7.2)

Table 7.2a: MNLR Asset/Experience Departure Models—Model Characteristics

		Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Parameters:							
Stayer Outcome (continue)		436	436	436	436	(471)	(471)
Stopout Outcome		8	0	0	0	0	0
Transfer Out Outcome		35	35	0	0	0	0
Dropout Outcome (not continue)		106	106	106	106	(114)	(114)
Total Observations		585	577	542	542	585	585
Characteristics (df):		53	37	19	16	15	
Robust?		Yes	Yes	Yes	Yes	Yes	No
Iterations to converge		19	18	4	4	4	4
					-	-	-
Log pseudolikelihood		-381.00	-348.02	-229.47	229.61	252.26	252.26
Wald Chi2 / *LR Chi²*		.	.	69.66	67.85	64.34	*72.53*
Prob > Chi2		.	.	0.000	0.000	0.000	0.000
Pseudo R2		0.138	0.109	0.143	0.143	0.126	0.126
Wald Tests, Combining Categories (df)		19	18	*	*	*	*
Stopout/Transfer Out	Chi2	499.026	*	*	*	*	*
	P>Chi2	0.000	*	*	*	*	*
Stopout/Dropout	Chi2	1989.332	*	*	*	*	*
	P>Chi2	0.000	*	*	*	*	*
Stopout/Stayer	Chi2	10764.086	*	*	*	*	*
	P>Chi2	0.000	*	*	*	*	*
Transfer Out/Dropout	Chi2	1005.208	1002.488	*	*	*	*
	P>Chi2	0.000	0.000	*	*	*	*
Transfer Out/Stayer	Chi2	28.930	29.041	*	*	*	*
	P>Chi2	0.049	0.048	*	*	*	*
Dropout/Stayer	Chi2	71.617	70.893	*	*	*	*
	P>Chi2	0.000	0.000	*	*	*	*
Wald Tests, Independent Vars (df):		3	2	1	1	1	1
Indicators:							
Sex (male)	chi^2	**10.55**	**10.35**	**9.35**	**9.30**	**7.23**	**7.32**
n = 364 f / 221 m	*P>chi²*	*0.014*	*0.006*	*0.002*	*0.001*	*0.007*	*0.007*
Race (Black)	chi^2	**1890.21**	**11.07**	**10.64**	**10.40**	**9.98**	**9.87**
n = 21 minoirty / 564 Black	*P>chi²*	*0.000*	*0.004*	*0.001*	*0.001*	*0.002*	*0.002*
Residence	chi^2	0.94	0.79	0.86	0.95	0.36	0.37
n = 134 off / 451 on	*P>chi²*	*0.816*	*0.675*	*0.353*	*0.329*	*0.548*	*0.543*
Age Group	chi^2	6.64	2.56	2.03	2.13	**3.31**	**4.03**
n = 535 teen / 50 adult	*P>chi²*	*0.084*	*0.278*	*0.154*	*0.144*	*0.069*	*0.045*
Participation Level	chi^2	**887.46**	0.04	0.02	.	0.00	0.00
n = 23 pt / 562 ft	*P>chi²*	*0.000*	*0.844*	*0.882*	.	*0.983*	*0.982*

Table 7.2b: MNLR Asset/Experience Departure Model—Factor Influences

			Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Asset Factors:	Neighborhood Capital*	chi^2	3.94	0.40	0.01	.	.	.
		P>chi²	*0.268*	*0.820*	*0.941*	.	.	.
	High School Culture*	chi^2	0.76	0.69	0.13	0.13	.	.
		P>chi²	*0.859*	*0.708*	*0.721*	*0.720*	.	.
	Neighborhood Culture*	chi^2	**16.53**	0.93	1.08	1.04	.	.
		P>chi²	*0.001*	*0.627*	*0.299*	*0.308*	.	.
	Academic Preparation*	chi^2	2.41	1.57	0.55	0.56	.	.
		P>chi²	*0.492*	*0.464*	*0.458*	*0.455*	.	.
Experience Factors:	College Value Added	chi^2	2.10	2.15	2.00	2.02	1.61	1.56
		P>chi²	*0.552*	*0.342*	*0.157*	*0.155*	*0.204*	*0.212*
	Cognition Required	chi^2	2.72	2.02	1.74	1.58	2.08	2.17
		P>chi²	*0.436*	*0.365*	*0.187*	*0.209*	*0.149*	*0.141*
	Quality Relations	chi^2	**16.60**	**15.49**	**6.83**	**6.68**	**6.63**	**7.15**
		P>chi²	*0.001*	*0.000*	*0.009*	*0.010*	*0.010*	*0.007*
	Scholarly Emphasis.	chi^2	1.45	1.70	2.23	2.12	0.99	1.02
		P>chi²	*0.694*	*0.428*	*0.135*	*0.146*	*0.320*	*0.312*
	Interactive Learning	chi^2	2.90	1.39	1.48	1.94	0.35	0.31
		P>chi²	*0.407*	*0.499*	*0.223*	*0.163*	*0.556*	*0.576*
	Informal Dialogues	chi^2	0.48	0.34	0.26	.	0.44	0.43
		P>chi²	*0.924*	*0.842*	*0.611*	.	*0.506*	*0.521*
	Literature Focus	chi^2	3.67	1.59	0.28	0.32	0.46	0.50
		P>chi²	*0.299*	*0.451*	*0.595*	*0.571*	*0.497*	*0.480*
	Academic Work	chi^2	3.89	3.13	1.95	2.39	1.20	1.12
		P>chi²	*0.274*	*0.209*	*0.163*	*0.122*	*0.273*	*0.290*
	Extramural Demands	chi^2	3.67	2.96	1.11	1.04	0.49	0.50
		P>chi²	*0.300*	*0.228*	*0.291*	*0.307*	*0.484*	*0.481*
	Freshman GPA	chi^2	**21.22**	**18.96**	**17.41**	**17.47**	**23.11**	**29.47**
		P>chi²	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*

Note: Boldface = Sig 0.10

** Test requires 3+ outcomes*

Explanatory Factors: Across six Experience model studies, ten Experience factors are examined in addition to the earlier Asset factors and five Indicator variables. The factors, again, are ordered continuums, measured by z-scores, summarizing themes generated from independent variables—this time from the NSSE survey conducted late in the Spring term of the freshman year. Here Newbies may be viewed as having perceived themselves to have experienced more or less of each particular factor. The exception is the Freshman GPA, a separate variable culled from institutional data and converted to a z-scale as the others for consistency. Unlike the factors included, it represents the institution's rather than the students' perception of the students' freshman experience.

Model Tests: As in Chapters 5 and 6 for the Asset and Mentality models, the Experience models constructed here were tested both to verify the distinctiveness of the separate outcomes and the independence of the various explanatory inputs. The same

tests were applied as for earlier models previously. First, applied to Models 1 & 2, the test verified that the outcomes were each either somewhat or highly distinct at p = 0.000—except for the contrast between Transfer Out and Stayer. That pair were only modestly distinct at p = 0.05. But, secondly, testing for the factors revealed that only the Quality Relations and Freshman GPA factors were significant at 0.001 or 0.01 (depending on the model). None of the other Experience factors made a significant contribution to discriminating among the outcomes in any of the models, even at the level of p = 0.1. Indeed, the tests for these models suggest that even the Asset factors that were found robust in Chapter 5, may be irrelevant in discriminating among the outcomes based on the sample data available here.

General Findings: First it should be noted that the Pseudo R^2 was similar for most of the Newbie Experience models tested, ranging from 0.109 to 0.143, suggesting that overall they explained roughly similar proportion of the variation in the outcome—however configured. And, viewed from the perspective of the Pseudo R^2, the models that converged easily (within 4 iterations) all had Pseudo R^2 scores more tightly constrained within the range 0.126—0.143.

Second, the models for which a Wald x^2 test statistic could be calculated (that is, among the bivariate outcome models only) all resulted in a Wald x^2 statistic (or the equivalent) in the range of 64-73. Model 5 with the lowest Wald x^2 was the model with the low Pseudo R^2 as well; it was a model from which all the Asset factors had been excluded and in which the outcome was collapsed to two parts, but without excluding Stop Outs and Transfer Outs. Further findings are instructive and are reviewed in some detail with supporting data displayed in Table 7.2.

Next, whenever the 4-part response variable was used in the model, aside from other variations, the model had difficulty converging and did so only after 19 iterations when the program defaulted to the last Log pseudolikelihood attained. In these cases, the Log pseudolikelihood is below -380 and the Wald x^2 test cannot compute owing to insufficient cases for two of the outcomes—a finding similar to that in Chapter 6 with the Mentality models. When the 2-part response variable was used, the models easily converged in 4 iterations and a respectable Wald test statistic could be generated in the range 64.3—72.3.

Further, among the full set of 18 indicators and factors, only four independent predictors consistently recur as factors making an independent contribution (at 0.05) to discriminating among the outcomes, regardless of the model configuration. They are the Indicator variables for Sex and Race along with the Experience factors for Quality of Stakeholder Relationships and Freshman Year GPA. In none of the models tested do the indicators for Residence and Age reflect an independent contribution to the outcome while the indicator for Participation Level does so only in models including the 4-part outcome. The observation suggests that the primary influence of Participation Level Indicator is to discriminate between Stayer/Drop Out on one hand and between Stop Out/Transfer Out on the other. Without Stop Out & Transfer Out in the model, Participation Level does not add predictive power in its own right.

Moreover, the Asset factor for Neighborhood Culture appears in the model as a significant independent predictor of the outcome only when the outcome is 4-fold. Whenever the outcome is reduced to a bivariate case, either by excluding Stop Outs and Transfer Outs or by re-coding them for inclusion in Not-Continuing and Continuing, respectively, the Neighborhood Culture factor no longer adds discriminatory influence to the model.

Finally, the Asset factor for High School Culture that emerged as a strong explanatory or predictor of the outcome in both Chapter 5 and 6 does not emerge as a significant influence in any of the Experience models tested here.

It is interesting to observe that none of the factors reflecting Newbie's perceptions of the academic processes of the institution, including their sense of value added, types of cognitive assignments in class, the degree of scholarly emphasis, focus on or utilization of literature, etc. emerged as independent contributors to the Departure outcome. Tentatively, based on the Experience models here, it appears that the general institutional departure issue is more of a social issue than an academic one.

Table 7.3: Experience Departure Model Details

MNLR 587 Obs; Log pseudolikelihood = -380.997; Wald chi2(53)=.;Prob > x^2 = .
Pseudo R^2 = 0.1383 (Iteration 19)

outcome		Coef.	Rob.Std.Err.	z	P>|z|	[95% Conf.	Interval]
Stop	male	-0.037	1.005	-0.04	0.971	-2.006	1.933
Out	black	16.891	0.438	38.52	0.000	16.03	17.750
	residens	0.297	0.745	0.40	0.690	-1.163	1.757
	adult	2.042	0.914	2.23	0.026	0.2498	3.833
	fulltime	16.796	0.570	29.49	0.000	15.680	17.913
	capital	0.403	0.214	1.88	0.060	-0.017	0.823
	h.s. cultur	0.030	0.591	0.05	0.959	-1.128	1.188
	hood cultur	1.591	0.417	3.82	0.000	0.774	2.408
	acad prep	-0.521	0.519	-1.00	0.316	-1.538	0.496
	value added	-0.132	0.610	-0.22	0.829	-1.327	1.063
	cognit req	0.668	0.642	1.04	0.298	-0.591	1.927
	quality relat	-0.666	0.500	-1.33	0.183	-1.645	0.313
	scholarly emph	-0.007	0.888	-0.01	0.994	-1.747	1.733
	interact lrn	0.529	0.488	1.08	0.278	-0.427	1.486
	inform dialg	-0.395	0.842	-0.47	0.639	-2.046	1.256
	literary foc	-0.684	0.432	-1.58	0.114	-1.532	0.163
	acad work	-0.227	0.373	-0.61	0.543	-0.958	0.504
	extramural	-0.642	0.694	-0.93	0.355	-2.003	0.718
	col GPA	-0.989	0.598	-1.65	0.098	-2.160	0.183
	constant	-39.346	.	.	.	.	.
Transfer	male	0.605	0.376	1.61	0.107	-0.131	1.342
Out	black	-0.341	1.319	-0.26	0.796	-2.926	2.245
	residens	0.062	0.673	0.09	0.927	-1.257	1.381
	adult	-0.333	1.223	-0.27	0.786	-2.730	2.065
	fulltime	17.625	.	.	.	.	.
	capital	0.085	0.168	0.51	0.613	-0.245	0.415
	h.s. cultur	0.129	0.280	0.46	0.645	-0.4190	0.677
	hood cultur	-0.001	0.262	-0.01	0.996	-0.514	0.512
	acad prep	-0.251	0.237	-1.06	0.289	-0.716	0.213
	value added	-0.030	0.265	-0.11	0.909	-0.550	0.489
	cognit req	0.155	0.256	0.61	0.544	-0.346	0.657
	quality relat	-0.870	0.264	-3.30	0.001	-1.387	-0.353
	scholarly emph	0.129	0.307	0.42	0.674	-0.472	0.731
	interact lrn	-0.177	0.288	-0.61	0.539	-0.740	0.387
	inform dialg	0.118	0.316	0.37	0.709	-0.501	0.738
	literary foc	- 0.408	0.353	-1.15	0.249	-1.100	0.285
	acad work	0.322	0.319	1.01	0.314	-0.304	0.948
	extramural	- 0.437	0.318	-1.37	0.170	-1.060	0.187
	col GPA	0.300	0.325	0.92	0.356	-0.337	0.937
	constant	-20.836	1.389	-15.00	0.000	-23.558	-18.113
Drop	male	0.754	0.250	3.01	0.003	0.263	1.244
Out	black	-1.791	0.546	-3.28	0.001	-2.862	-0.721
	residens	0.353	0.386	0.91	0.361	-0.404	1.109
	adult	0.737	0.501	1.47	0.141	-0.244	1.718
	fulltime	0.117	0.588	0.20	0.842	-1.035	1.269
	capital	-0.028	0.125	-0.22	0.823	-0.273	0.217
	h.s. cultur	-0.115	0.172	-0.67	0.505	-0.452	0.222
	hood cultur	-0.196	0.186	-1.06	0.291	-0.560	0.168
	acad prep	-0.176	0.177	-1.00	0.318	-0.522	0.170
	value added	-0.243	0.168	-1.44	0.149	-0.572	0.087
	cognit req	0.240	0.183	1.31	0.190	-0.119	0.598
	quality relat	-0.495	0.191	-2.60	0.009	-0.869	-0.121
	scholarly emph	0.215	0.185	1.16	0.247	-0.149	0.578
	interact lrn	-0.197	0.180	-1.09	0.274	-0.551	0.156
	inform dialg	-0.049	0.166	-0.29	0.768	-0.373	0.276
	literary foc	-0.111	0.193	-0.58	0.565	-0.490	0.268
	acad work	0.263	0.166	1.59	0.112	-0.061	0.589
	extramural	0.196	0.218	0.90	0.369	-0.231	0.623
	col GPA	-0.732	0.175	-4.18	0.000	-1.075	-0.389
	constant	-0.598	0.810	-0.74	0.461	-2.186	0.990

(outcome==stayer is the base outcome)

Departure Probabilities for Newbie Types: Next the probable outcome for each of the Newbie types is reviewed for the Experience model, with input factors drawn from NSSE survey data coupled with Asset factors and ten Indicator variables, as before. This analysis depicts the probability of each type of Newbie attaining each of the four outcomes, assuming that the explanatory factors and Indicators are held at their means.

Table 7.4 indicates the probability of each outcome for each of the ten types of students, holding all the Experience factors at their means. While the data is presented in this table, readers are cautioned that for the categories of Residence and Age groups, the findings are not significant at 0.05 and therefore may not be generally true with any confidence. That is, we are not 95% confident that these findings would hold true for any other group of Newbies beyond the specific individuals sampled. (In fact, based on data reflected in Table 7.3 above, we can be only about 1% confident in the case of the Resident predictions although we could be about 93% confident in the case of the Age cohort predictions.)

The first observation in order about these predicted probabilities is that based on this sample of data there is less than a 1% probability of Stop Out, less than a 4% probability of Transfer Out, and considerably less than a 30% probability of Drop Out for all groups reported here save Minorities. But, we do know from the population study in Chapter 4 that these rates overall should be in the vicinity of 4% for Stop Out, 6% for Transfer Out, 31% for Drop Out and 59% for Stayer, respectively. Thus the predictions listed here overweight the Stayer category at the expense of the three early departure fates. The differences are hypothesized to lie in a survival effect: the sample data supporting the Experience model originates in the second semester after significant attrition has occurred during or following the first semester. Therefore, perceptions that might have been garnered from many early leavers are not available the Experience study.

Thus, the probability of Stop Out within two years among this sample of Newbies drawn from late in the Spring term is less than 0.1% for any type of Newbie. The probability of Transfer Out within 2 years is 4.6% for Full-Timers, and 2-3% for any other type of Newbie. The probabilities for Drop Out within two years in this sample are

considerably greater: 50% for Minorities, 26% for Adults, 22% for Males, and 12-16% for all other types.

Table 7.4: Predicted Probability of Outcomes by Student Type*[89]
The "Experience" MNLR Model

	Enrollment Outcome			
Student Type	**Stop Out**	**Transfer Out**	**Drop Out**	**Stayer**
Female	0.002	0.020	0.120	0.858
Male	0.001	0.032	0.221	0.745
Black	0.003	0.025	0.144	0.829
Minority	0.000	0.020	0.501	0.480
Teen (>20)	0.001	0.026	0.145	0.829
Adult (20+)	0.008	0.016	0.260	0.715
Commuter	0.001	0.024	0.121	0.854
Resident	0.002	0.025	0.163	0.811
Pt-time(<12 cr)	0.000	0.000	0.143	0.858
Fl-time(12+cr)	0.003	0.048	0.149	0.800

(* assuming each remaining independent predictor is held constant at its mean)

Influence of Experience Predictors on Alternative Outcomes: Next we turn attention to the range of influences from each Experience predictor on each possible outcome, as before with the Asset and Mentality prediction models. Among the new Experience factors, Relationship Quality and Freshman GPA are easily the most positive influences on the Stayer outcome, with ranges of influence running neck and neck at about 50% each. Of more modest influence, two academic factors have a negative range of influences on the Stayer outcome. Academic Work Focus, with a full range of 20%, and Cognitive Course Work, with a range of 15% have substantial negative impact on Newbies' probability of Stayer.

Not surprisingly, these same factors have inverse influences of nearly the same magnitude on the Drop Out alternative. Here Quality Relationships accounts for a variation of 30% in the probability of Drop Out while Freshman GPA accounts for a variation of 53% in the probability of Drop Out. At the same time, Cognitive Coursework and Academic Work focus have positive impacts on the probability of Drop Out, ranging from 14-18% each. Other Experience factors have only marginal or minor influence over the outcome, although the Asset factor Academic Preparation now retains a strong influence.

[89] Table 7.4 is constructed from STATA's *prtab* command, following the fitting of the model.

Table 7.5: Range of Probability Predictions for Regressors on Outcomes in Experience Model

(When predictor value ranges from minimum to maximum)

Predictors	Outcomes: Stop Out	Transfer Out	Drop Out	Stayer
Indicator variables				
Female to Male	0.000	0.020	0.101	-0.113
Minority to Black	0.003	0.005	-0.357	0.349
Commuter to Resident	0.000	0.000	0.042	-0.043
Minor to Adult	0.007	-0.010	0.116	-0.113
Part-time to Full-time	0.003	0.048	0.007	-0.057
Model Factors				
Neighborhood Capital	0.006	0.014	-0.024	0.004
Neighborhood Culture	0.044	0.002	-0.108	0.062
High School Culture	0.000	0.015	-0.064	0.049
Academic Preparation	-0.018	-0.059	-0.195	0.272
Value Added	-0.001	0.002	-0.167	0.166
Cognitive Coursework	0.004	0.013	0.135	-0.152
Quality Relations	-0.005	-0.178	-0.306	0.489
Scholarly Emphasis	0.000	0.010	0.118	-0.127
Interactive Learning	0.005	-0.015	-0.108	0.118
Informal Dialogues	-0.003	0.013	-0.029	0.019
Literature Focus	-0.004	-0.038	-0.057	0.099
Academic Work Focus	-0.002	0.035	0.164	-0.198
Extramural Demands	-0.005	-0.055	0.129	-0.065
College GPA	-0.011	0.040	-0.530	0.501

Graphs of Probabilities for Newbie Types: As in the case of the Asset and Mentality models, the Experience model affects a large number of Newbie types, 10 specific groupings arising from the bivariate alternatives of sex, ethnicity, age-group, residency status, and participation level. And, as before, the influence of each Experience factor on the probability of each sub-type attaining each outcome is explored graphically to better illustrate the findings. Care must be taken, however, in reading these graphic depictions. In some cases, what appear to be dramatic findings may be purely coincidental, supported only by very small samples. In other cases, findings that appear important, may be of low reliability owing to a minor significance level in the model's findings. Reading the graphs, in other words, must be tempered by awareness both of the number of cases reflected and the significance level of the findings. In the detailed discussions that follow, emphasis is on those factors with the greatest reliability.

Influence of College's Value Added: The College's Value Added is an amalgam of a long list of observations about the school's unique contribution to a host of

Newbie's personal growth indicators, including for example, learning on their own, speaking clearly & effectively, understanding the self, working with others, thinking critically and analytically, using computer technology, etc. (See Table A4: NSSE Panel Factors, for a complete list.) In a way, it is analogous to Newbie's perception of the value the institution adds to the general education of freshmen. The factor appears to have only minor influence whether viewed independently (Table 4.3) or in the MNLR model (Table 7.2).

Newbies' perception of the College's Value Added to their own collegiate experience is found to be of marginal importance with respect to their enrolment or departure outcomes, with a x^2 ranging from 1.6 to 2.15 and p-values ranging from 0.15 to 0.55, depending on the model. Numbers in this range are not robust and indicate that the factor may not be very useful for predicting Newbies' departure outcome. Yet, the factor is worth exploring briefly because it could prove more robust with a different sample of Newbies. The probability graphs are suggestive although not definitive.

Figures 7.1—7.2 document the apparent influence of Value Added on various Newbie types. The graphs reflect, first, little influence on Transfer Out or Stop Out, as these alternatives contain insufficient cases to reflect statistically having been influenced by the factor. The graphs reflect, secondly, the apparent fact that the probability of Drop Out for each Newbie type is reduced perceptively as the perceived Value Added increases from -3 to +2 on the z-scale. The graphs demonstrate, third, that the perceived value added must increase rather dramatically toward the positive end of the scale before Minorities, in particular, have their Drop Out probability reduced to below 50%. Indeed, the difference in relative probability between Minorities and Blacks is the only dichotomy among the indicator variables to exhibit a real difference in probable outcome based on the Value Added perception.

Influence of Cognitive Coursework: Figures 7.3—7.4 depict the apparent influence of the Cognitive Coursework factor on the probability of each Outcome. Variables that loaded on the factor, as will be recalled, reflect the well-known Bloom Taxonomy of Cognitive Objectives as Newbie attitudes about them were sampled by the

NSSE survey.[90] (Bloom, 1956; 1984) Again, the images must be taken cautiously as the x^2 values only ranged between 1.6—2.7, with p-values ranging 0.15—0.43 for various models.[91] As in the case of Value Added, numbers at this level indicate that the factor is of marginal influence on the outcome, based on this particular Newbie sample. And, as before, the Stop Outs and Transfer Outs are marginally responsive to the factor owing to the paucity of cases in the sample with those outcomes.

Generally speaking, however, the images suggest that as Newbie perception of Cognitive Coursework increases, the probability of Drop Out may increase as well. This effect appears to be true for each Newbie Type: all the Drop Out probability graphs do show a positive slope toward the positive end of the x-axis, reflecting some increased probability of Drop Out. The phenomenon appears more dramatic for Minorities than Blacks and for Adults compared to Minors as these probability curves either intersect or converge closely. (Figure 7.3) The increasing probability of Drop Out is not nearly so pronounced in the case of Blacks or Full-Timers: for these types the probability of Drop Out rise only about 10-12% as the perceived Cognitive Coursework rises to its maximum value.

Influence of Quality Relations: In contrast to earlier experience factors, an increase in the Quality Relations factor is associated with a dramatically increasing probability of the Stayer outcome for all types of Newbies. Quality Relations is a factor drawing together variables representing Newbie interaction with all types of institutional stakeholders: faculty, advisors, administrators, staff, and students. In general terms, its influence on early departure is 3 to 10 times that of Value Added or Cognitive Coursework. And its influence is negative, indicating that as Relationship Quality increases, the probability of departure within 2 years declines markedly. With a x^2 ranging between 6.6 and 16.6 and a p-value ranging from 0.000 and 0.01, depending on the model, the Quality Relations factor clearly has an impact and the impact is highly

[90] Bloom's taxonomy detailed "knowledge," "comprehension," "application," "analysis," "synthesis," and "evaluation" as increasingly complex cognitive tasks.
[91] The Cognitive Coursework factor had even less apparent influence on the outcome when viewed independently of other factors. See Table 4.3.

significant.[92] It is, accordingly, worth exploring more carefully in relation to Figures 7.5—7.6.

First, on a very general level, it is seen in these figures that for all Newbie Sub-Types, the probability of any departure outcome is decreased as the Quality Relations is perceived to increase towards the extreme positive end of the x-axis. Even the Stop Outs and Transfer Outs are seen to respond mildly to this factor, in spite of their low incidence in the survey sample.

Second, it is observed that for Males, Minorities, and Adults, the slopes for Stayer and Drop Out intersect or cross at some point along the x-axis. For these groups, Stayer is less probable than Drop Out when Quality Relations is low. The probabilities are reversed when Quality Relations is high. Among Females and Blacks, on the other hand, the probability of Stayer exceeds the probability of Drop Out regardless of the influence of Quality Relations. For these Types of Newbies, the probability of Drop Out never rises above 40% even in cases of the most extremely negative Stakeholder Quality—declining to -3 on the z-scale.

Third, it is observed that for most types of Newbies, the probability curves are curvilinear—flattening out near the upper reaches of Quality Relations. This attribute demonstrates that the rate by which the probability of departure declines is reduced for these types as relations are perceived to be of a better quality. An exception to this pattern is among Minorities. For them, the Drop Out curve is convex rather than concave indicating that Minorities do not experience a declining rate of Drop Out probability as their Relations Quality advances. Thus, in Figure 7.5 the Drop Out curve for Minorities declines only marginally from -3 to -1 on the x-axis. But between -1 and +2, the decline of Drop Out is far more precipitous for this type of Newbie.

Fourth, one can see that the Minority types exhibit a greater than 50% probability of Drop Out whenever the Relationship Quality is perceived to be below the mean ("0") on the x-axis. Blacks, in contrast, appear to be more tolerant of lower Quality Relations, as their Departure probabilities remain below 35% even at -3 on the Quality Relations scale or the x-axis.

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[92] The Quality Relationship factor, viewed independent of other factors was also among the stronger discriminators between the outcomes with $x^2 = 8.44$ and $p = 0.02$. See Table 4.3.

Fifth, as seen in Figure 7.6, the probability that Full-Timers will Drop Out is seen to be less affected by the perceived quality of Stakeholder Relationships than will Part-Timers. In these cases characterized by the least possible Quality Relations, Full-Timers are 10% less likely to Drop Out than Part-Timers. But at the upper end of the Quality Relations scale, the two groups appear to have approximately equal probability of Stayer (90%) and Drop Out (5%).

Sixth, and perhaps most striking in light of widespread national concerns, it is clearly seen in Figures 7.5 that the predicted probability of Blacks or Males or Adults achieving the Stayer outcome over two years rises to about 90% or above whenever their perceived Quality Relations rises to the level of +2. Among Black Females the affect at the upper end of the Relationship Quality scale is similar although at the lower end of the scale, they are differently inclined.

Finally, it is interesting to notice that among the Newbie types where an effect can be observed, the predicted probability of Transfer Out is also reduced markedly as Relationship Quality increases. The observation holds especially true for Full-Time Newbies in Figures 7.6. At its most extreme, among Full-Timers the decline in the probability of Drop Out moves from 30% to nothing as Relationship Quality rises from -3 to +2. It seems readily apparent that the Transfer Out experience is tightly connected to the Quality Relations perception.

Influence of Supportive College: Figures 7.7—7.8 display the apparent influence of the Supportive College factor on the predicted probabilities of Newbie types becoming Leavers within two years of matriculation. The factor incorporates Newbies perception of institutional support for various endeavors, including social success, interaction with diverse individuals, attending campus events and the like. But with x^2 ranging between 1 and 2 and p ranging between 0.14 and .70, depending on the model, the influence on the outcome is minor and not statistically significant for this survey sample.[93]

[93] The Supportive College factor similarly did not discriminate meaningfully between the outcomes when viewed individually: $x^2 = 1.21$; $p = 0.75$ (Table 4.3).

To the extent that there is an influence, it is negative for all types of Newbies, indicating that the more Newbies perceive a College Support Emphasis, the more likely they are to Drop Out and the less likely to remain enrolled over two years.

The influence of the factor is considerably more upon minority students than for Blacks and less important for Females and Minors than for Males and Adults. In Figure 7.7—7.8, the groups with the largest membership (Female, Black, & Minor, show similar predicted probability progressions. Here, probability of Drop Out rises from 10% to nearly 20% as College support progresses from the extreme of -2 to +3. The Males' probability of Drop Out rises far more over the full range of the x-axis: moving from 15% to 35% as their Perception of a Supportive College rises from -2 to +3.

Influence of Interactive Learning: The Interactive Learning factor, on the other hand, appears to be positively associated with the Stayer outcome. The factor incorporates a variety of activities, including discussions outside of class with the instructor, teamwork with classmates, participating in a community project, and the like. Figures 7.9—7.10 display the relationship for each Newbie type between Interactive Learning and early departure. But the relationship is again weak and not statistically significant, even at p= 0.1. With a x^2 statistic ranging between 0.31 and 2.90 and p varying between 0.16 and 0.58 (depending on the model), the impact is hardly dramatic—so far as the present survey sample is concerned. It was similarly not a statistically significant discriminator between outcomes when tested individually (Table 4.3; $x^2 = 5.31$; $p = 0.15$)

Visually, the relationship appears solid for some Newbie types, worth a 15--20% variation in the Drop Out propensity for Males, Adults, & Residents but stronger for others. The relationship is strongest among Minorities where it accounts for a 30% decline in Drop Out as the perception of Interactive Learning rises from the extreme negative to the extreme positive on the x-axis (Figure 7.9).

There are hints, however, that increasing Interactive Learning may also increase the propensity to Stop Out for Adults (Figure 7.9) while it decreases the probability of Transfer Out for others, especially, Full-Timers (Figure 7.10). These probabilities could be aberrations as they are based on relatively few cases.

Influence of Substantive Informal Dialogs: With a x^2 below 0.5 and $p > 0.5$ for all models tested, this factor can hardly be charged with a major influence on the propensity to depart from the HBCU. Indeed, a glance at Figures 7.11—7.12 reveals that all the probability curves are nearly straight horizontal lines for all groups of Newbies, indicating that there is no interaction worthy of note. Once again, we see here the corpse effect. Whether there is a minimum or maximum of Substantive Informal Dialogs appears to make little difference to the predicted probability that a Newbie will experience early departure from the HBCU. Departing the HBCU or not may be regarded as quite independent of this factor.

Influence of Literary Focus: Literary Focus appears that it may have some slight influence on Newbie's early departure from the HBCU, but the influence is not statistically significant. With a x^2 of 0.28—3.67 and a p-value consistently above 0.3 (depending on the model), if there be any enduring relationship, it is clearly modest. Figures 7.13—7.14 display the predicted probabilities for each Newbie group. To the extent that there is an influence, it is positive and consistently tends slightly in the same direction for all sub-groups of Newbies. The more Newbies perceive a Literary Focus to their work on the HBCU campus, the more they may be expected to remain Stayers and not Drop Out over two years. But the influence is modest: less than about 15% for most types of Newbies across the full continuum of the x-axis.

There is a slight indication that Part-Timers and Females may be less likely to Stop Out or Transfer Out as well as Drop Out when the Literary Focus rises from -2 to its mean (0). (Figure 7.13—7.14) But in no case does the factor's influence appear to count for more than a 20% change in the predicted probability of Drop Out across the full range of its continuum (-2/+3) and for some sub-groups there is no influence whatever, a finding associated with nearly horizontal probability curves.

Influence of Academic Work Focus: Academic Work Focus does appear to have a little more influence over the propensity of Newbies to either Drop Out or Transfer Out. This factor combines the college's propensity to emphasize time devoted to academics and study and/or using computers for coursework; its influence appears to be negative for all types of Newbies: the more Newbies perceive the HBCU to emphasize Academic Work, the more likely they are to engage in early Departure. But with a x^2 in

the vicinity of 1.1—3.9 (depending on the model) and associated p-values contained in the interval 0.12—0.29, the relationship remains minor and is not statistically significant.

But graphically, it appears that the changes in Drop Out probabilities are in the vicinity of 20—30%, as Academic Work Focus rises for most types of Newbies from minimum to maximum. (Figures 7.15—7.16) Visually, it appears that Minorities and Adults are the most strongly adverse to a rise in this factor rating: the change from minimum to maximum accounting for a 25—35% rise in Drop Out probability.

Curiously, Residents and Full-Timers are more adversely affected by a rise of Academic Work focus than are Commuters and Part-Timers. And the predicted probability of Transfer Out appears to be slightly elevated (c. 10%) for most Newbie types as Academic Work Focus reaches an extremely positive position (Figures 7.15 & 7.16).

Influence of Extramural Demands: The potential impact of Extramural Demands on the predicted probability of Newbies' early Departure appears a little more complex than some of the other Experience factors. Though the influence is not great (x^2 = 1.0—3.7; $p > 0.2$, depending on the model) and is not statistically meaningful, it is complex for this sample of the population. Glancing across Figures 7.17 & 7.18, one observes curvilinear relationships for all types of Newbies except for Part-Timers and Minorities where the relationship is essentially linear.

For all other groups, as seen in these figures, it exhibits an interesting pattern. The predicted probability of Stayer remains relatively constant for x-axis values below 0, but begins to decline gradually as the x-values rise above 0 to +3 on the horizontal scale. The changes in probability are relatively modest (15-20%) for most Newbie types but rise to about 30% for Minorities. The pattern suggests that an extreme lack of Extramural Demands is associated with Transfer Out behavior for many Newbie types but once Extramural Demands rise to an average level ("0"), Stop Outs are essentially mitigated. These demands, in short, appear to depress Transfer Out behavior while at the same time increasing Drop Out behavior. And the pattern is similar for all Newbie types.

Even more interesting, the predicted probability of Stayer appears to reach its maximum for several types of Newbies, especially Males and Blacks at a modest -1 on the Extramural Demand scale. For these Newbies, a little less than the mean amount of

Extramural Demand appears optimal for continued enrollment; less or more—approaching either end of the continuum, is associated with a declining probability of Stayer (Figure 7.17 & 7.18). The differences are modest and limited to c.10% between the optimum probability of Stayer (at the mean of Extramural Demands) and the minimum probability (located at extremes of the Extramural Demand continuum).

Influence of Frosh GPA: Among all the Experience factors investigated for possible influence on the Newbie proclivity for early departure, the Freshman Year GPA is easily the most robust single influence—far outdistancing all its rivals. Even the fairly robust Quality Relationship factor pales by comparison. With a x^2 statistic in the range of 17.4—29.47, the associated p-values for all tested models is < 0.000. But beyond the magnitude of the influence, the influence is an interesting and complex one as well, since most of the interactions are extremely curvilinear and vary considerably by group, as is apparent in Figures 7.19—7.20.

First, it is readily apparent that the predicted probability of Drop Out declines in much the same form for each Newbie type as Newbie's GPA rises from -3 to +3. For the Minority types, the predicted probability of Drop Out is at its maximum (95%) when the GPA is at its minimum: -3. And the probability of Drop Out declines to 10% when the GPA rises to its maximum of +3 on the continuum. This variance in the predicted probability of Drop Out for Minorities is greater than about 80 percentage points overall.

Among Black Newbies, in contrast, the pattern is similar, but not nearly so extreme as the probability of Drop Out declines from a high of 65% to a low of about 5% as the GPA rises from its minimum to its maximum at +3.0. Here the magnitude of change in the predicted probability of Drop Out is on the order of 60 percentage points over the full range of the GPA continuum. Finally, the predicted probability of Stayer reaches its maximum for all groups when GPA reaches its maximum at +0.3 .

Interesting to observe also, for Full Time Newbies, the declining probability of Drop Out is not all absorbed into a corresponding rising probability of Stayer. For this type of Newbie, the decline in the probability of Drop Out as GPA rises is also associated with a corresponding rise in the probability of Transfer Out. The higher the GPA of Full-Time Newbies, the more likely they are to Transfer Out within two years. The effect is in

the vicinity of 10 % for these Newbies over the full range of the GPA continuum. A similar pattern is observed among both sexes, Blacks, and Minors (Figures 7.19—7.20).

Meanwhile, it is clear that for Adults, the probability of Stop Out also declines by a modest 5% as their Freshman GPA rises from the extreme negative to the mean. But from the mean on to ever higher GPAs, there is no change in the probability of Stop Out for this type of Newbie. The observation does not hold for other types of Newbies.

Figure 7.1: Influence of College's Value Added on Demographic Types

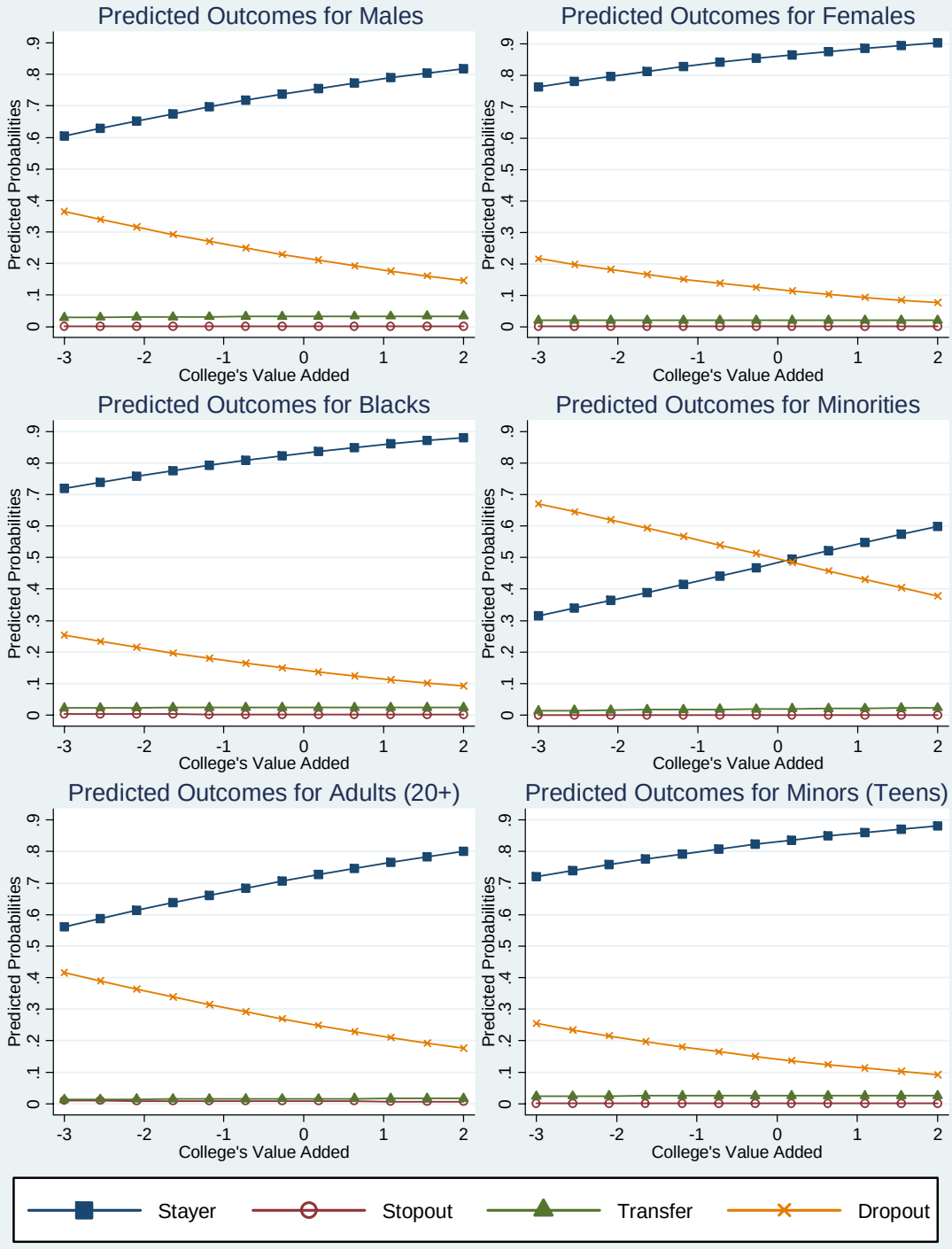


Figure 7.2: Influence of College's Value Added on Involvement Types

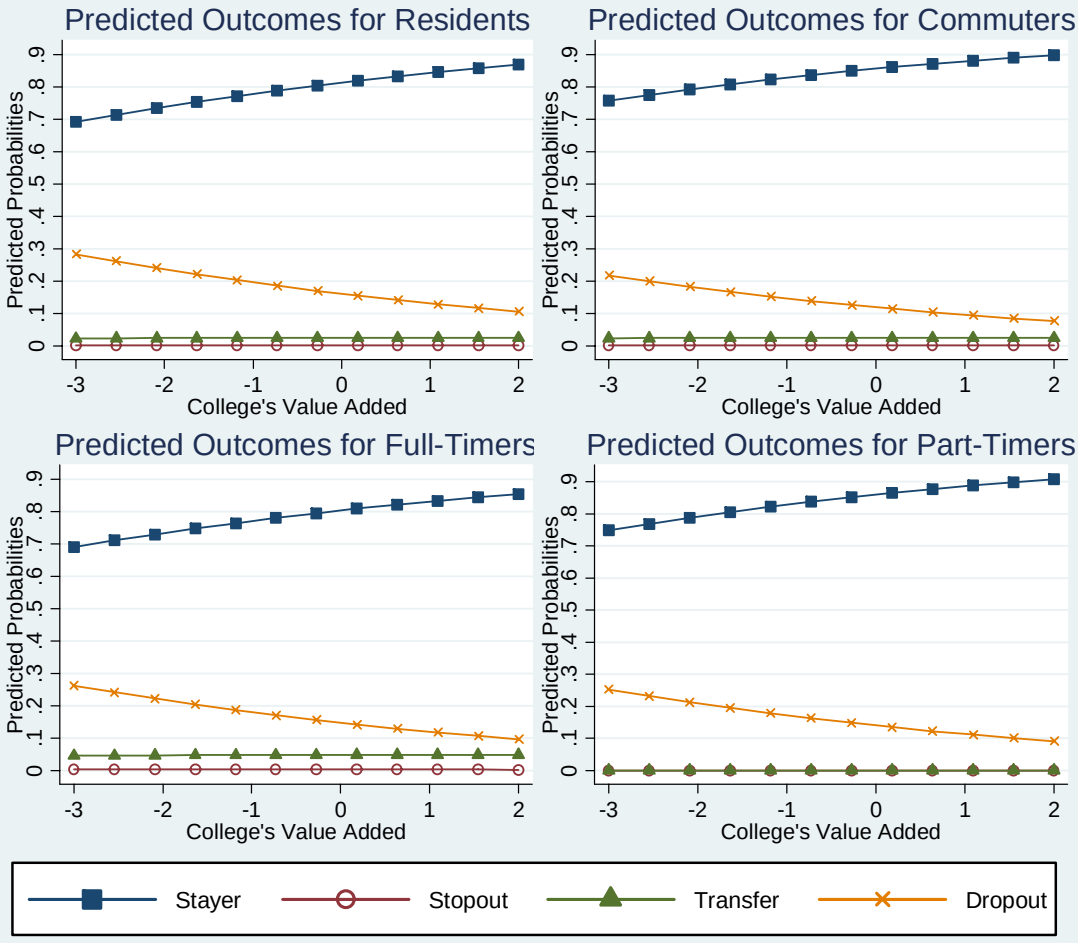


Figure 7.3: Influence of Cognitive Coursework on Demographic Types

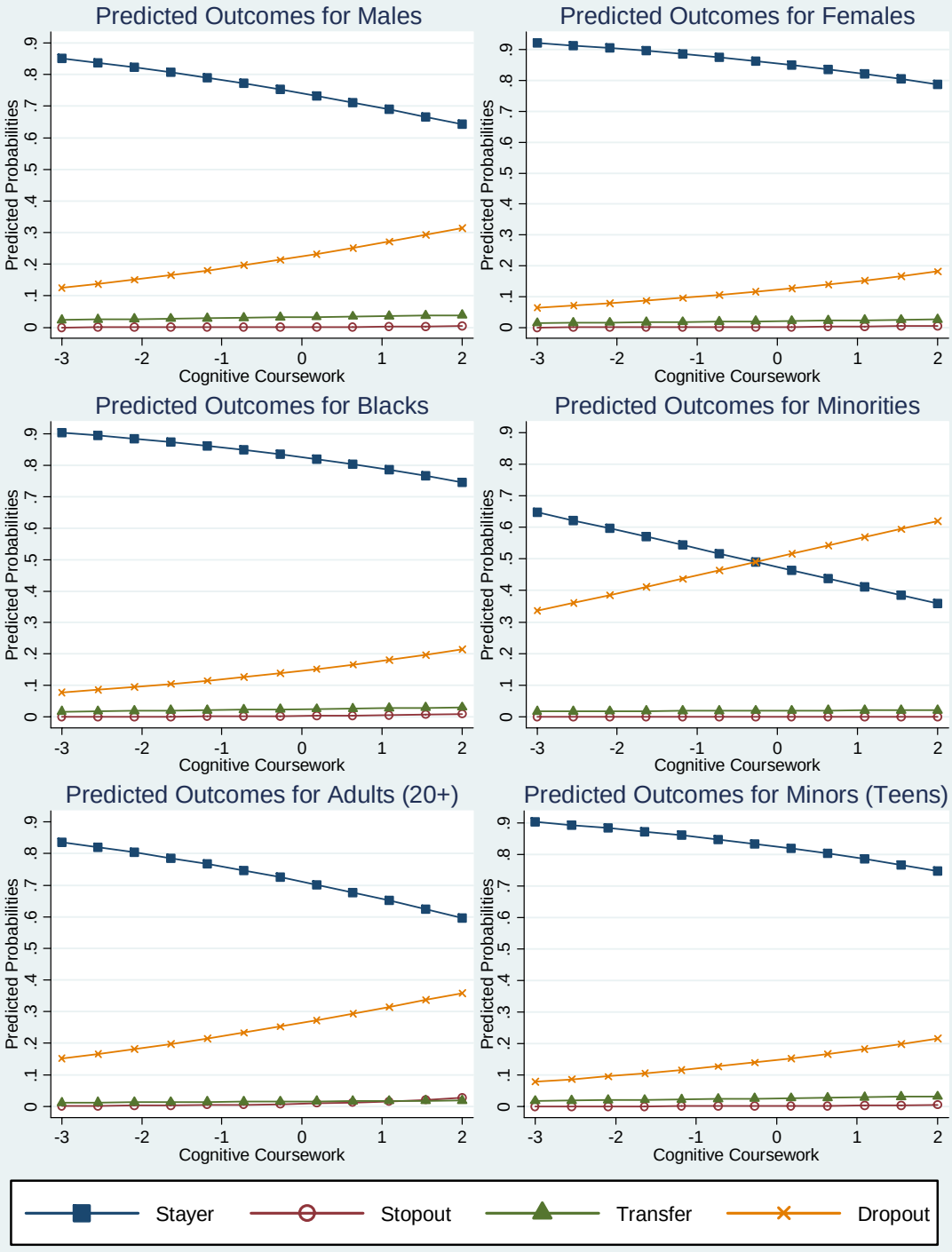


Figure 7.4: Influence of Cognitive Coursework on Involvement Types

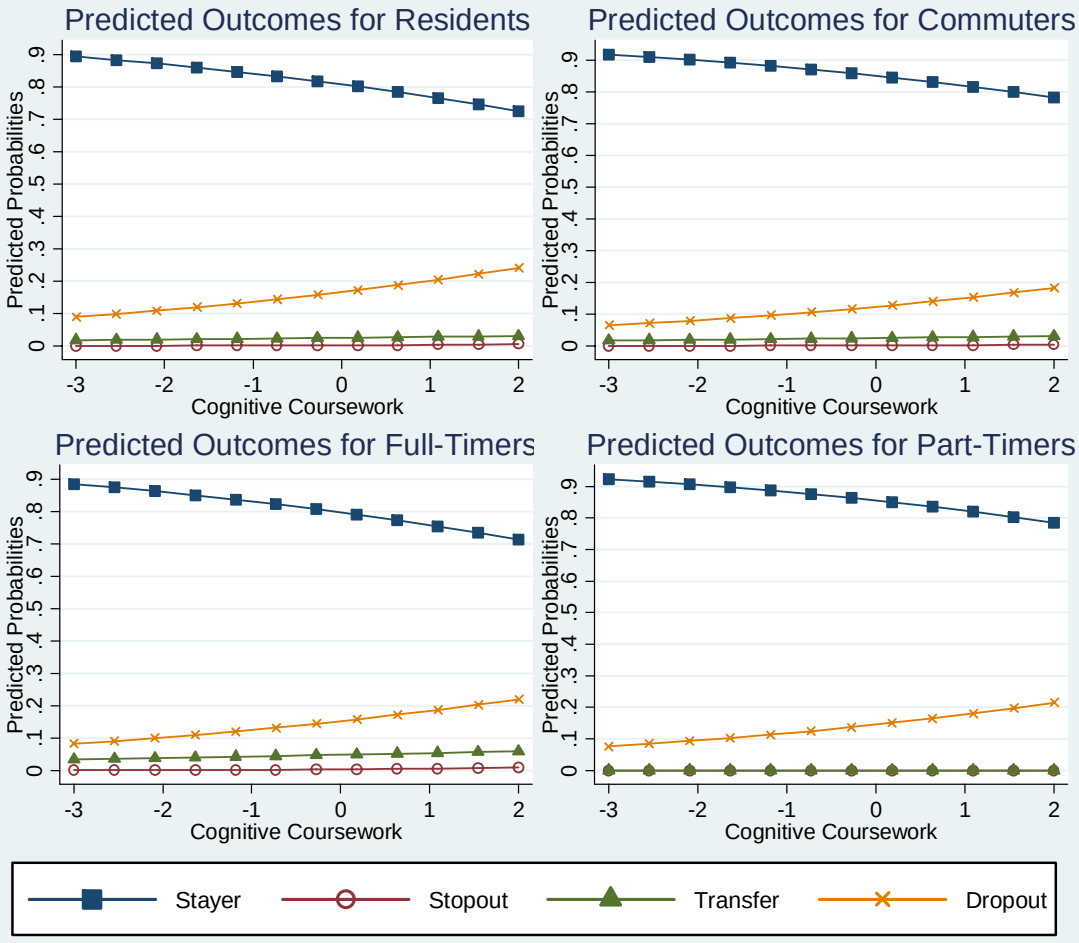


Figure 7.5: Influence of Quality Relations on Demographic Types

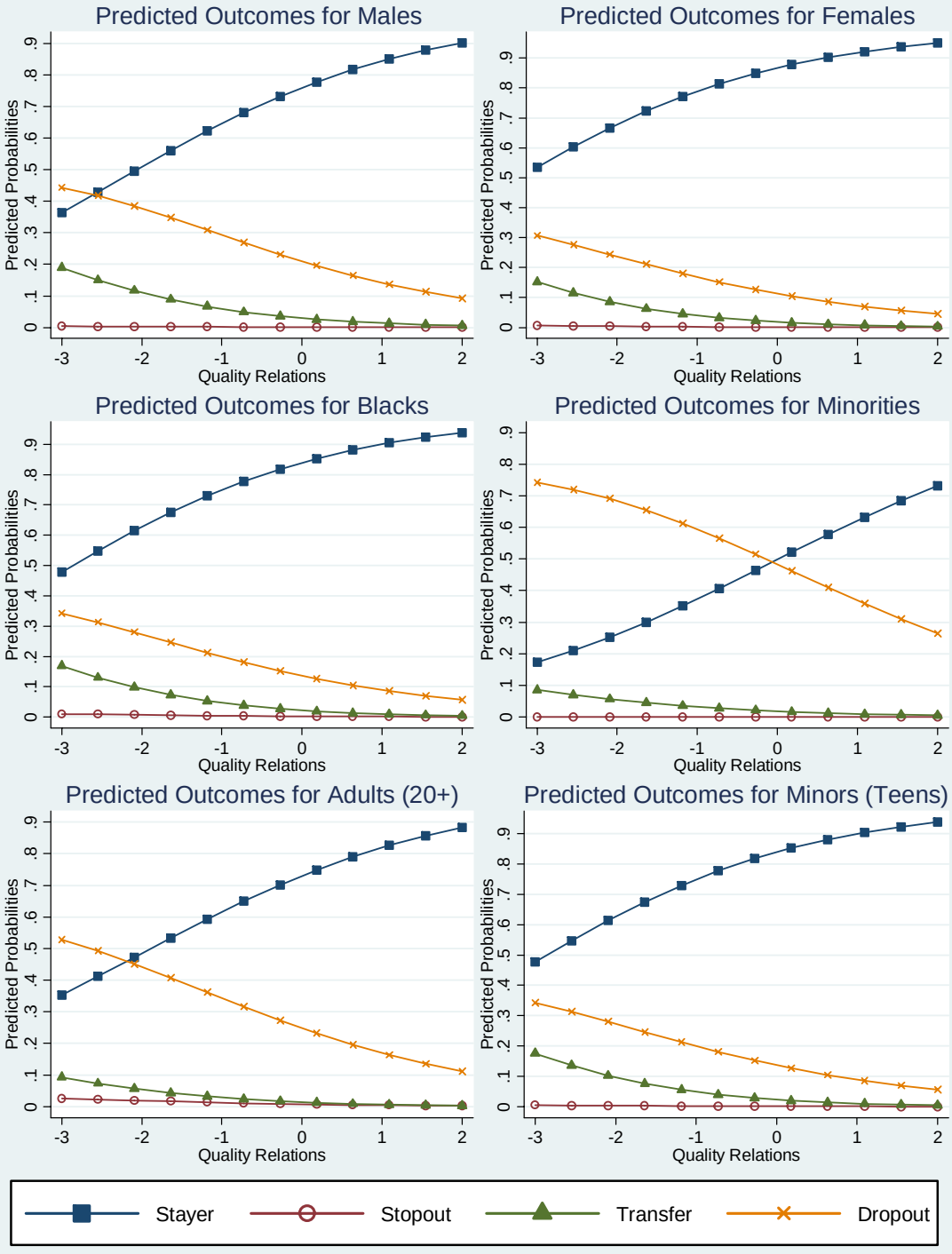


Figure 7.6: Influence of Quality Relations on Involvement Types

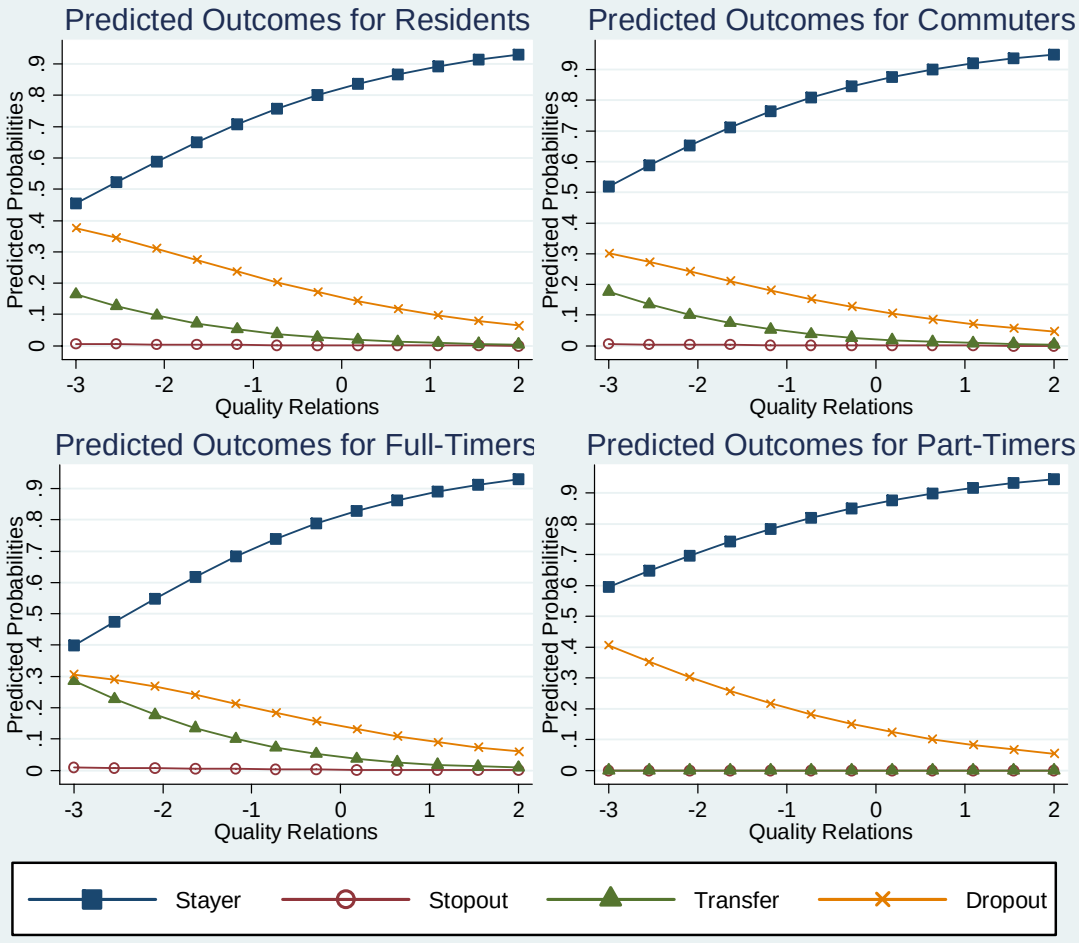


Figure 7.7: Influence of Supportive College on Demographic Types

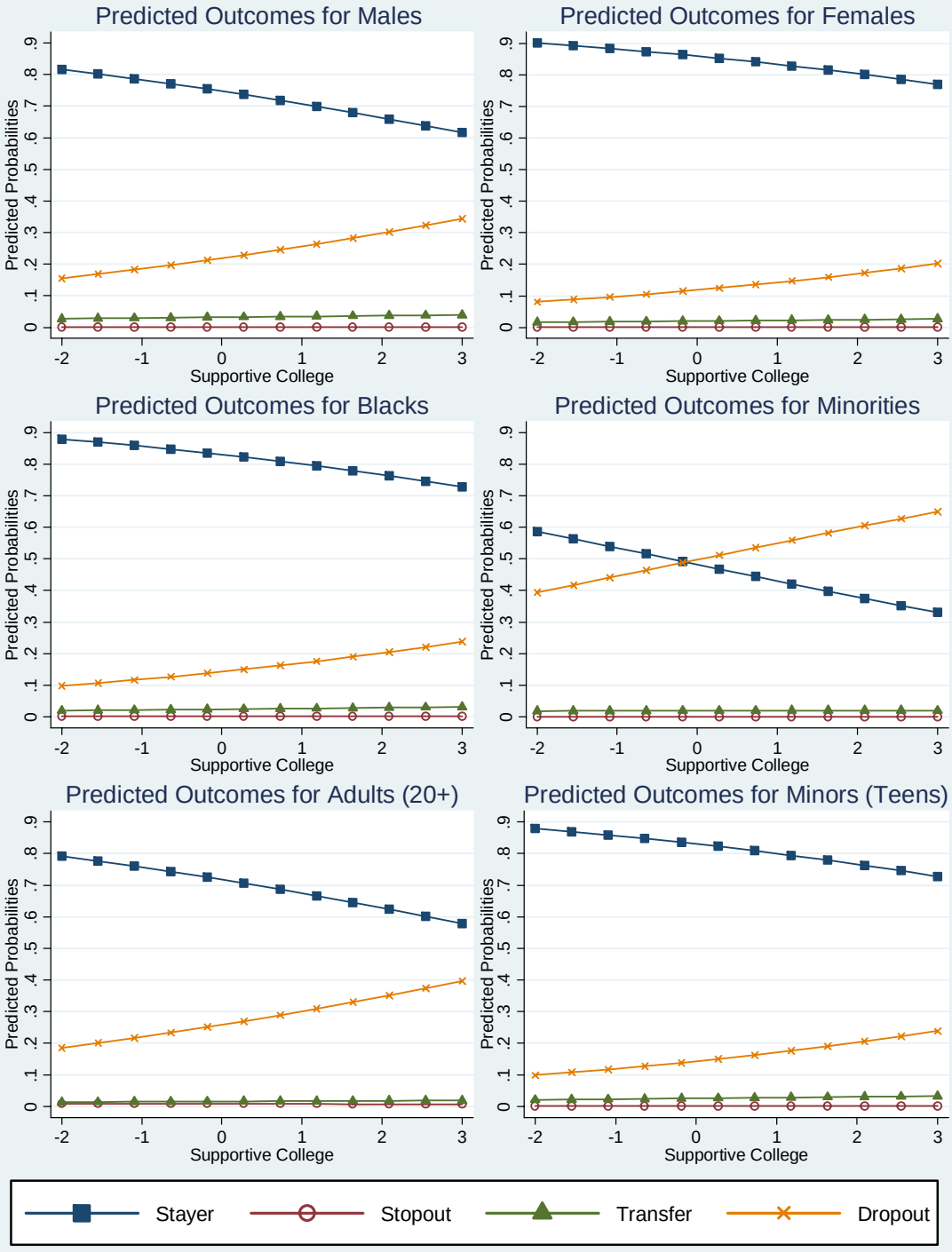


Figure 7.8: Influence of Supportive College on Involvement Types

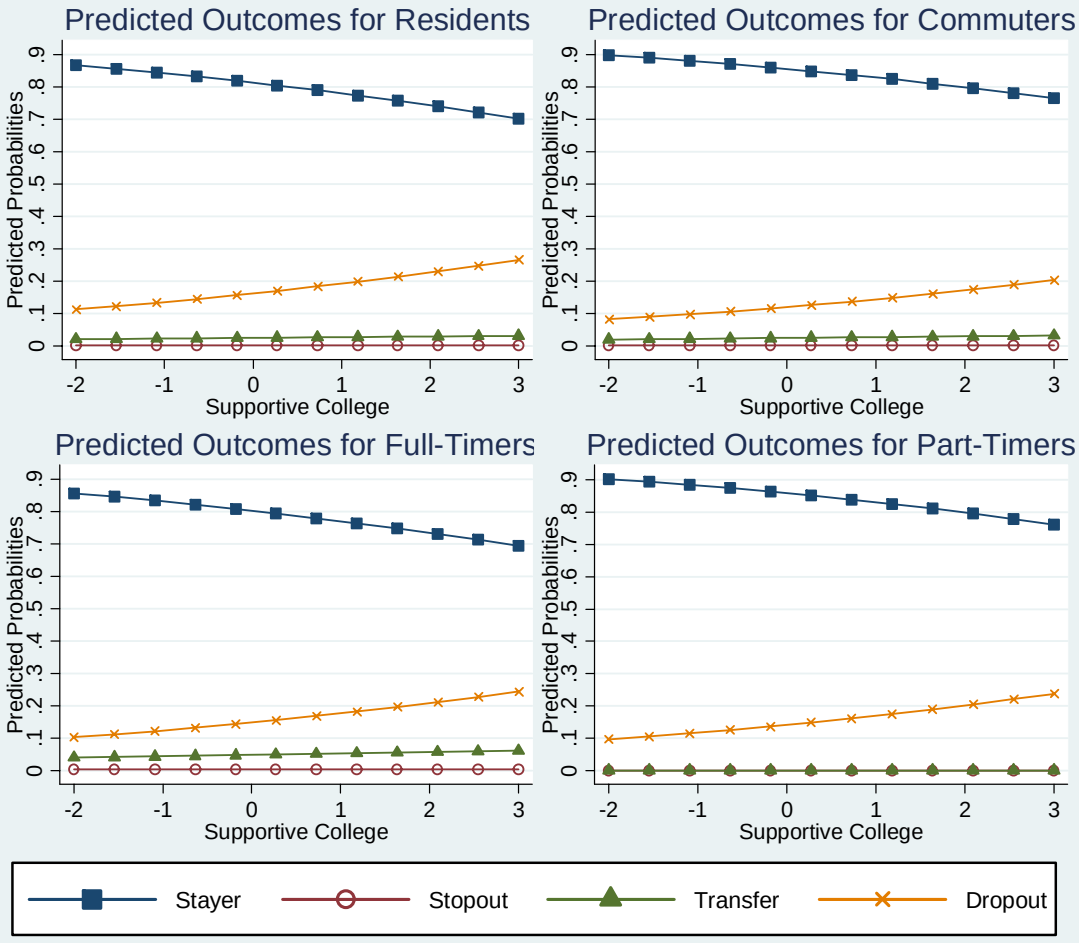


Figure 7.9: Influence of Interactive Learning on Demographic Types

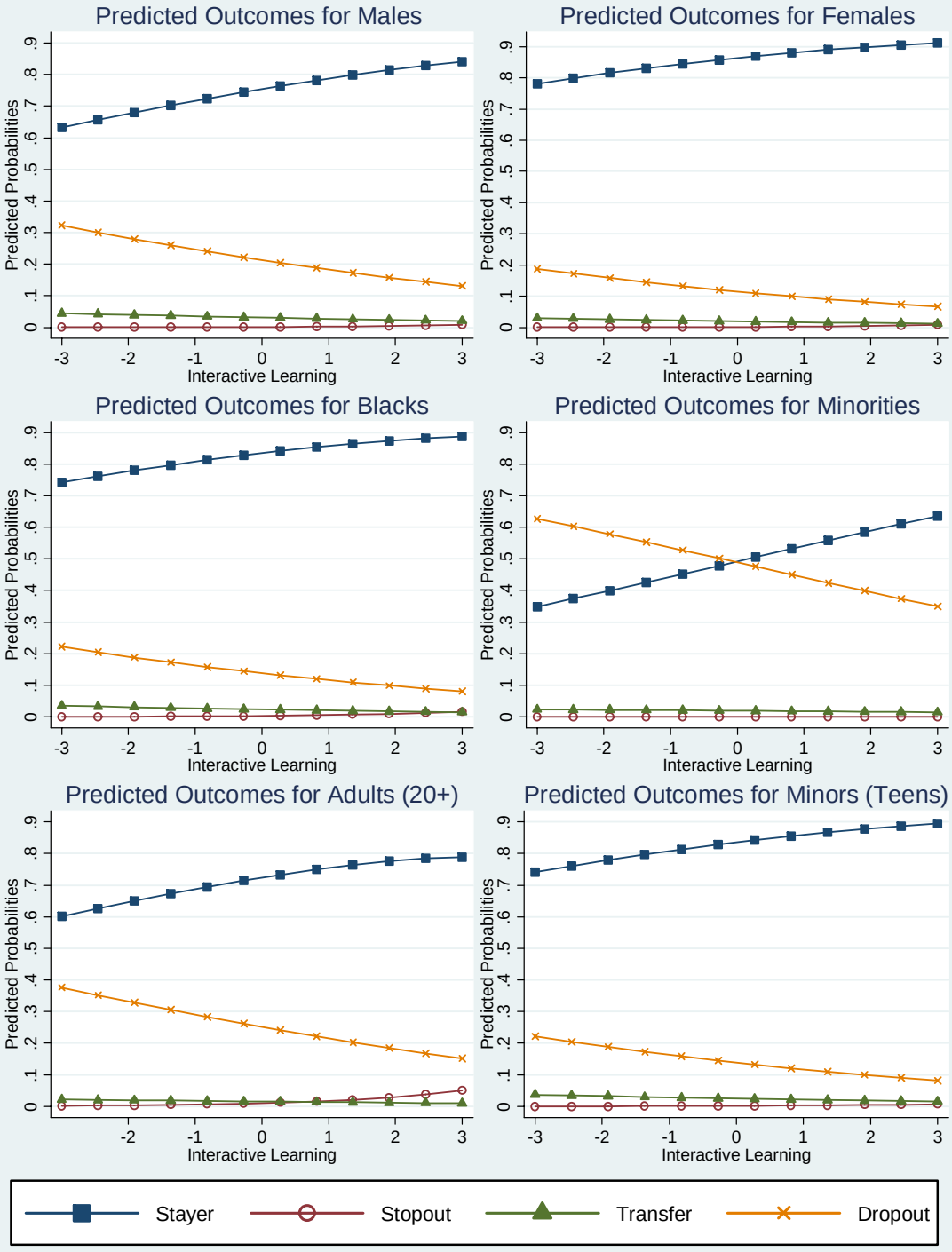


Figure 7.10: Influence of Interactive Learning on Involvement Types

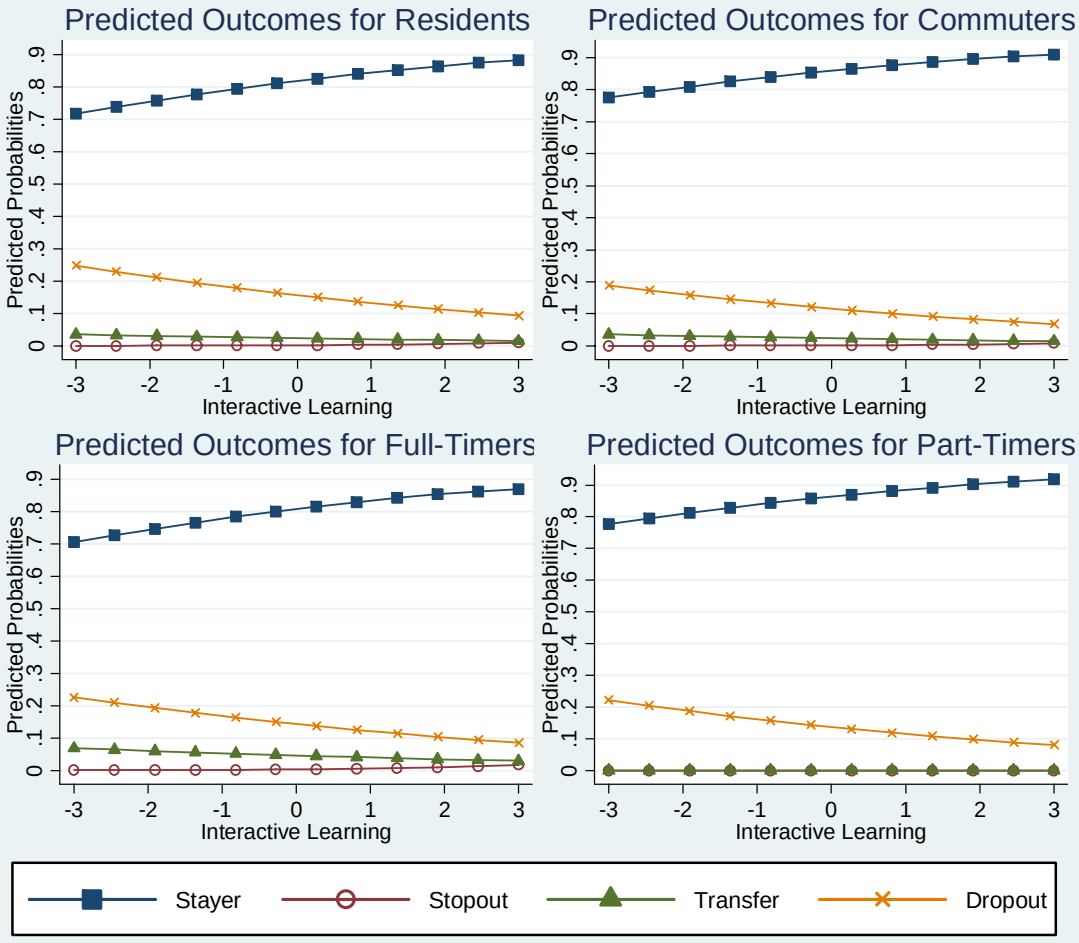


Figure 7.11: Influence of Substantive Dialogs on Demographic Types

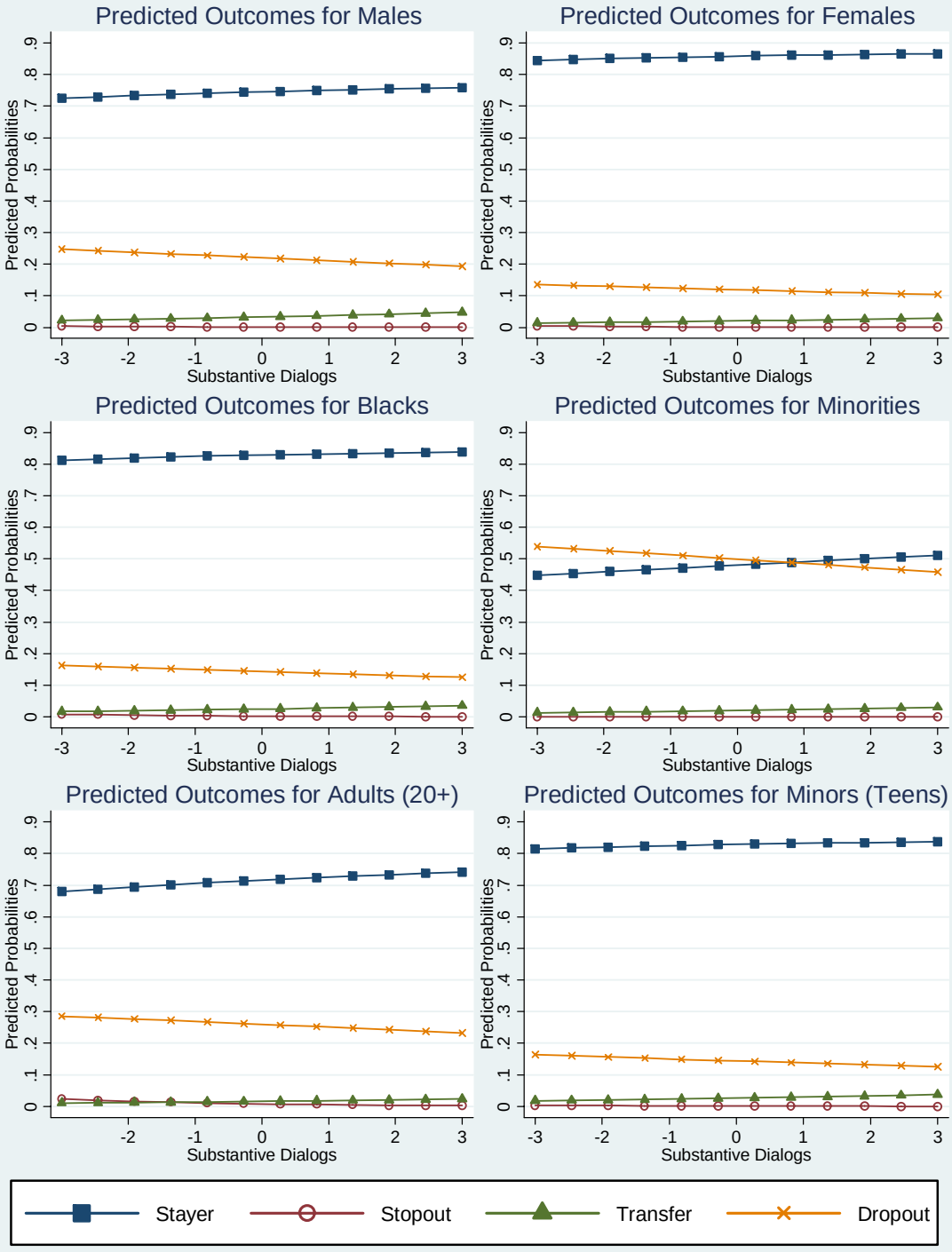


Figure 7.12: Influence of Substantive Dialogs on Involvement Types

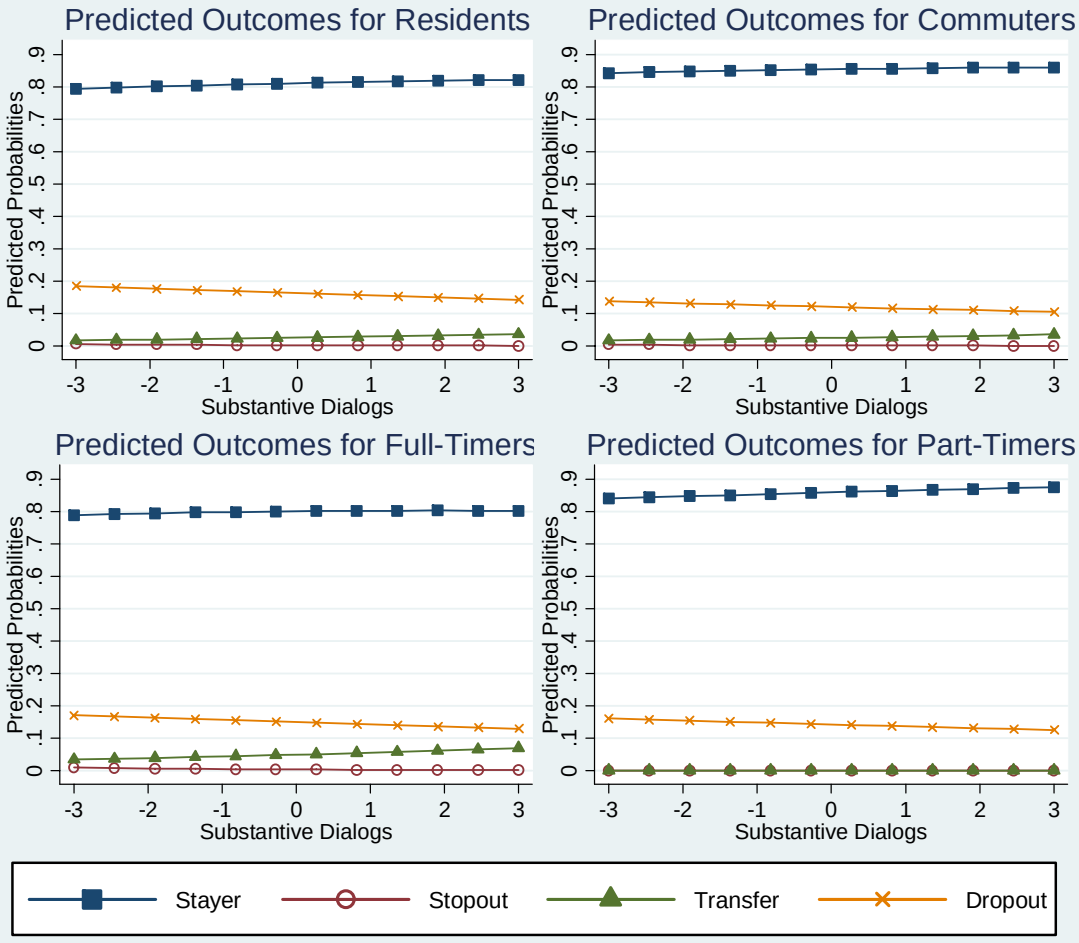


Figure 7.13: Influence of Literary Focus on Demographic Types

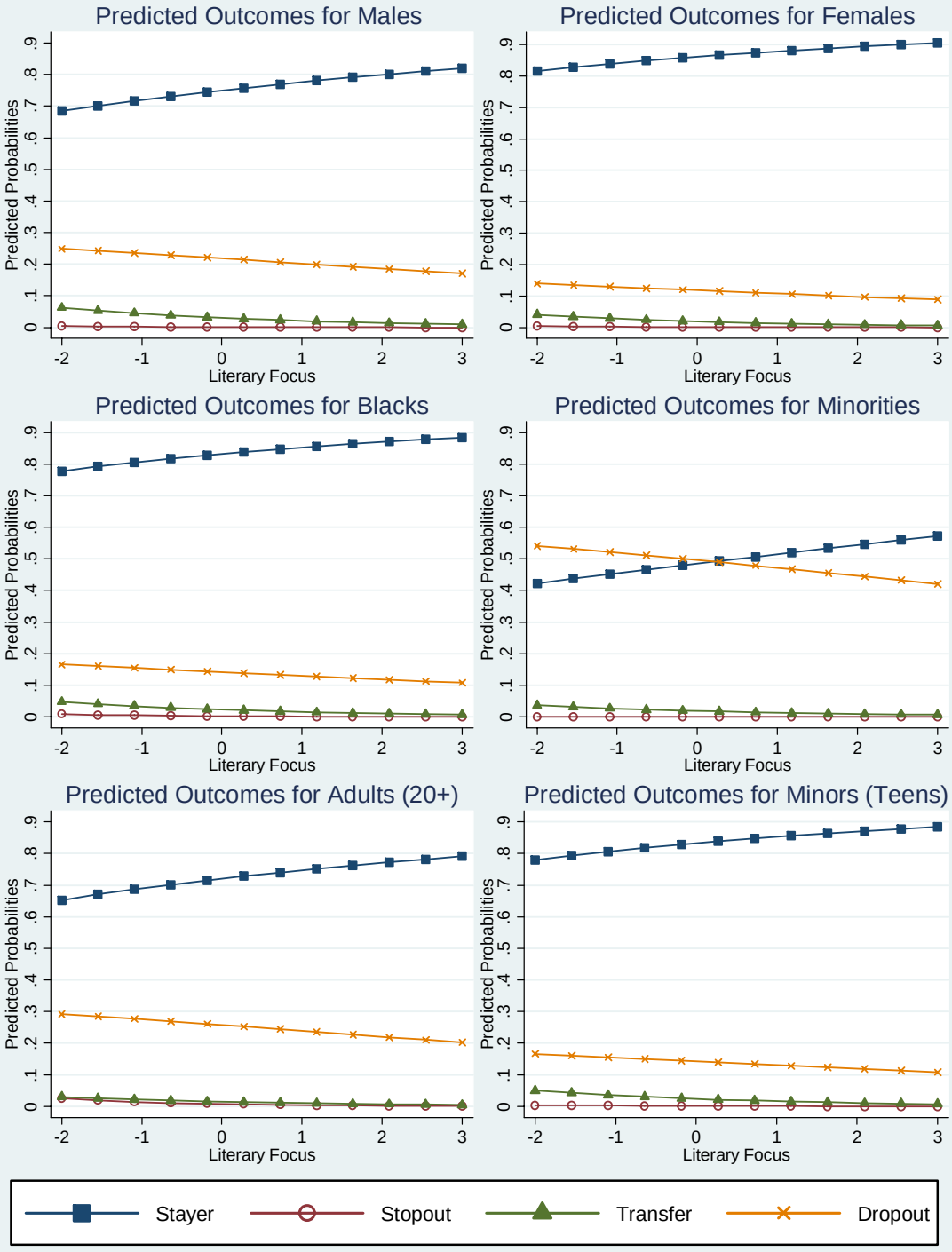


Figure 7.14: Influence of Literary Focus on Involvement Types

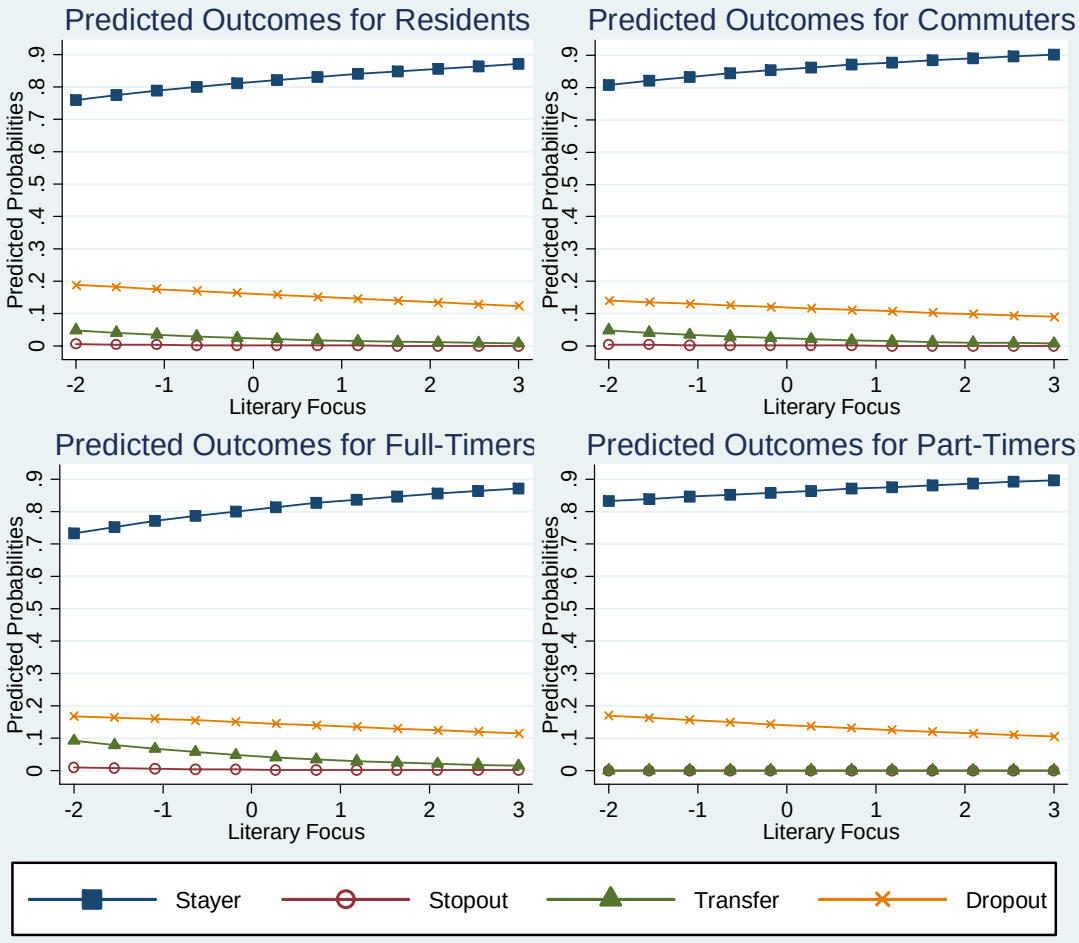


Figure 7.15: Influence of Academic Work Focus on Demographic Types

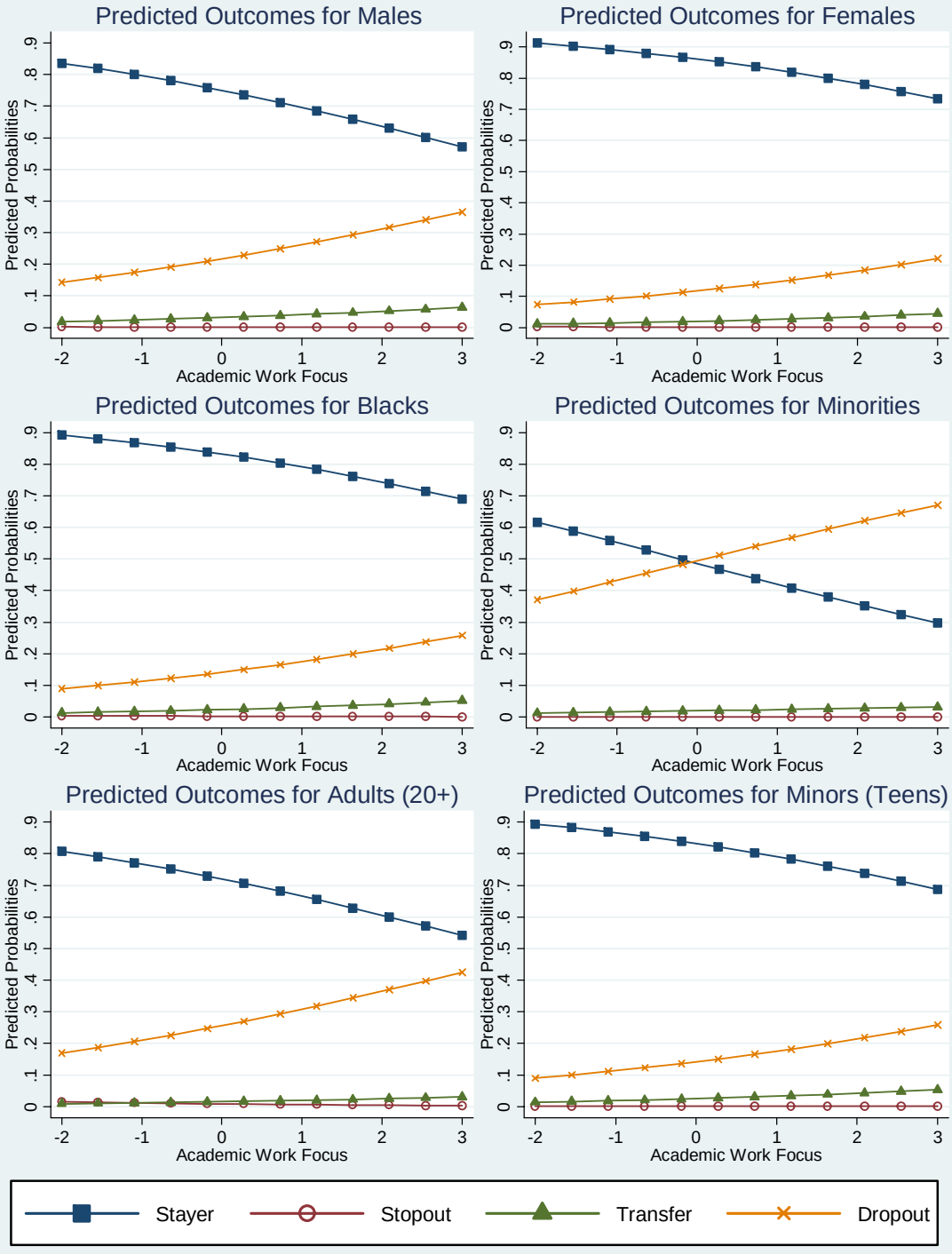


Figure 7.16: Influence of Academic Work Focus on Involvement Types

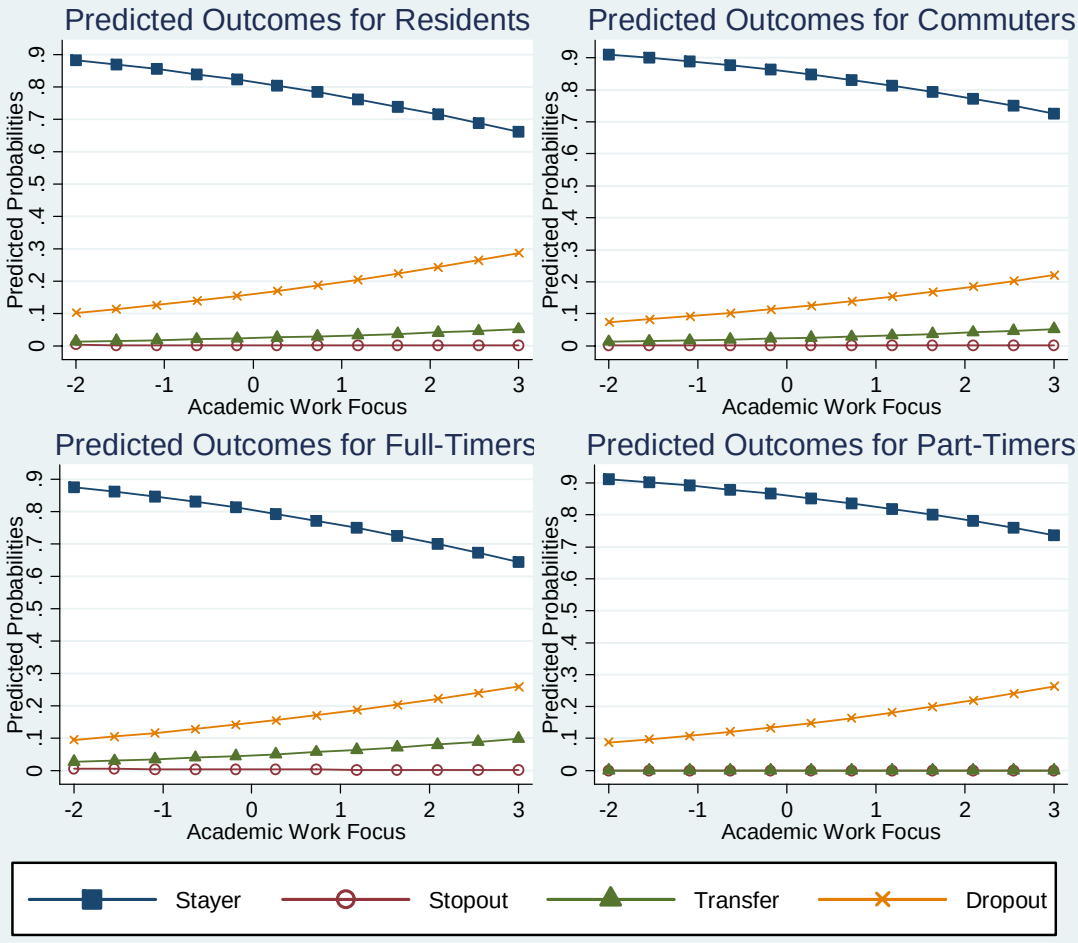


Figure 7.17: Influence of Extramural Demands on Demographic Types

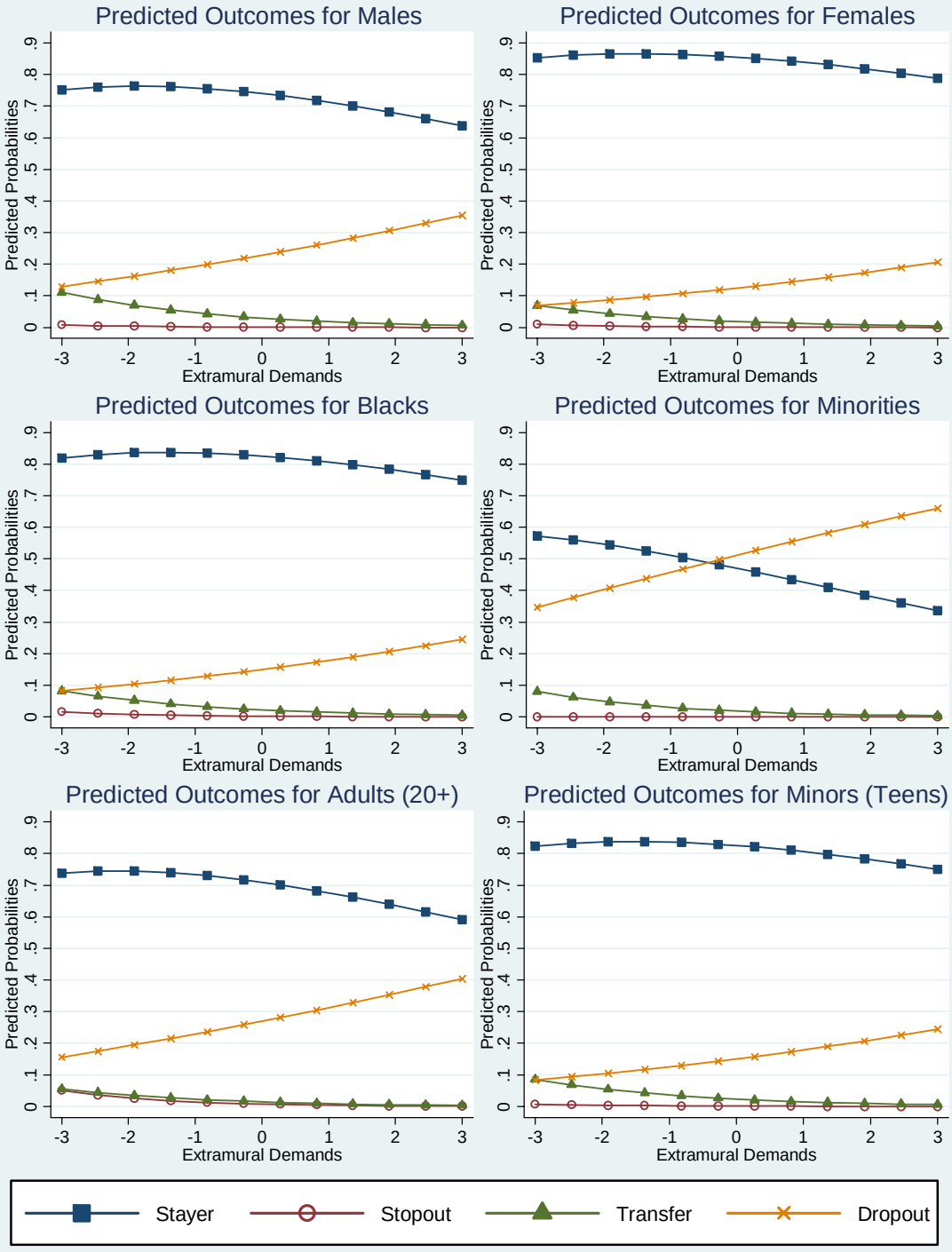


Figure 7.18: Influence of Extramural Demands on Involvement Types

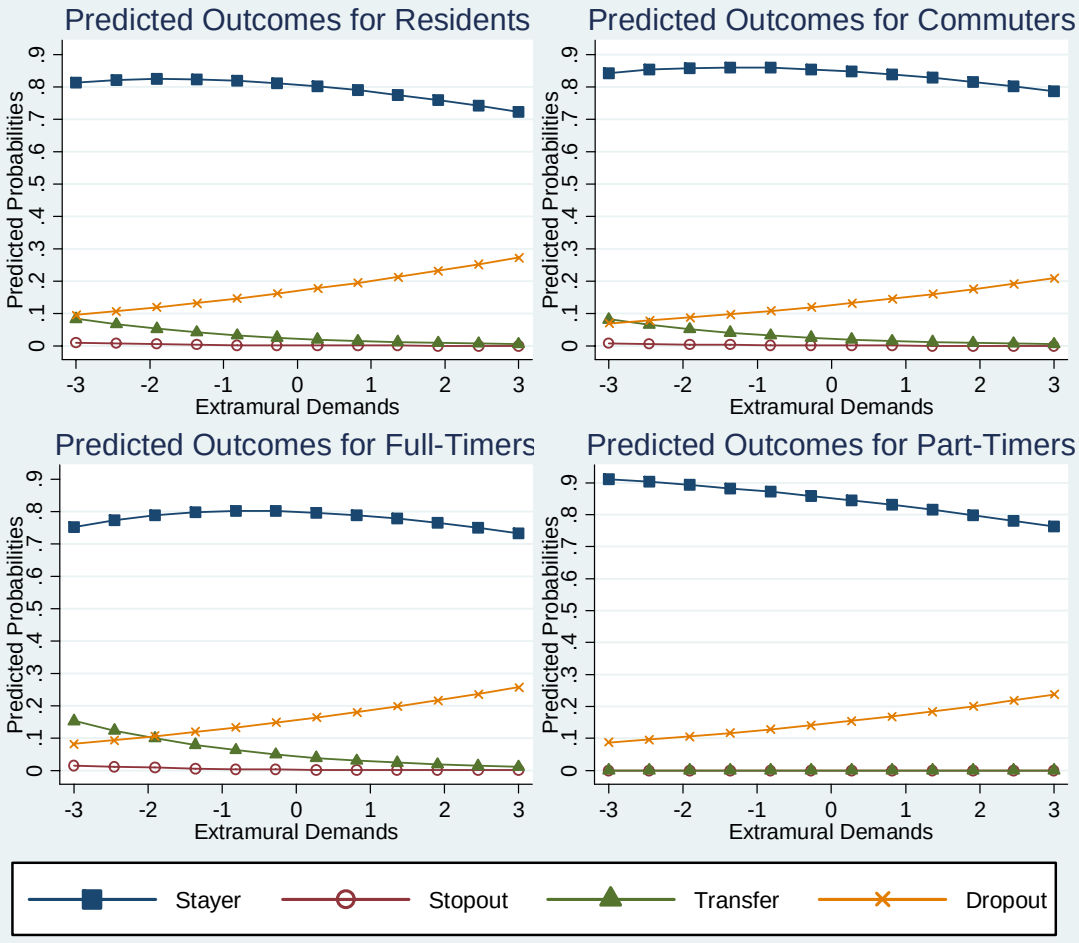


Figure 7.19: Influence of Frosh GPA on Demographic Types

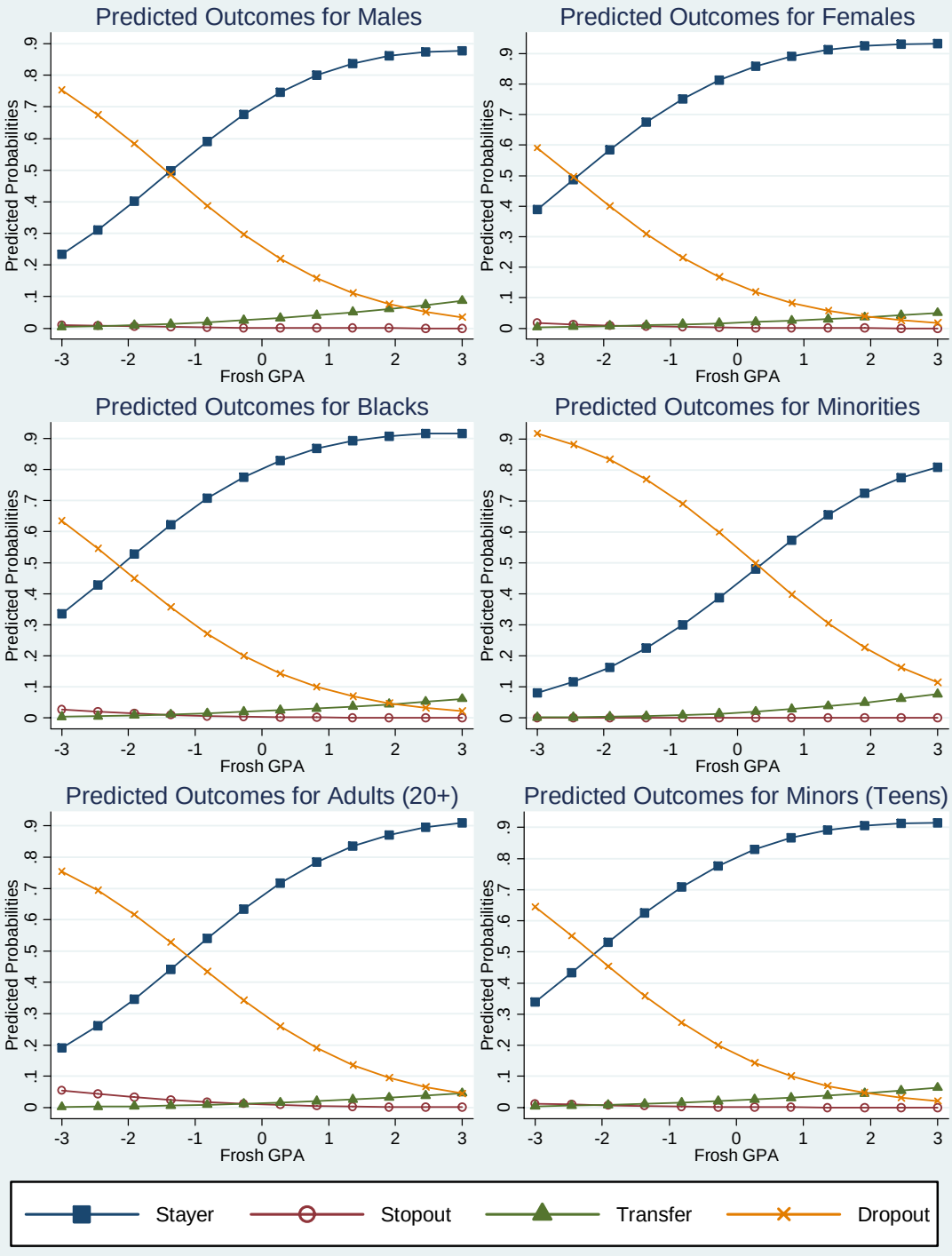
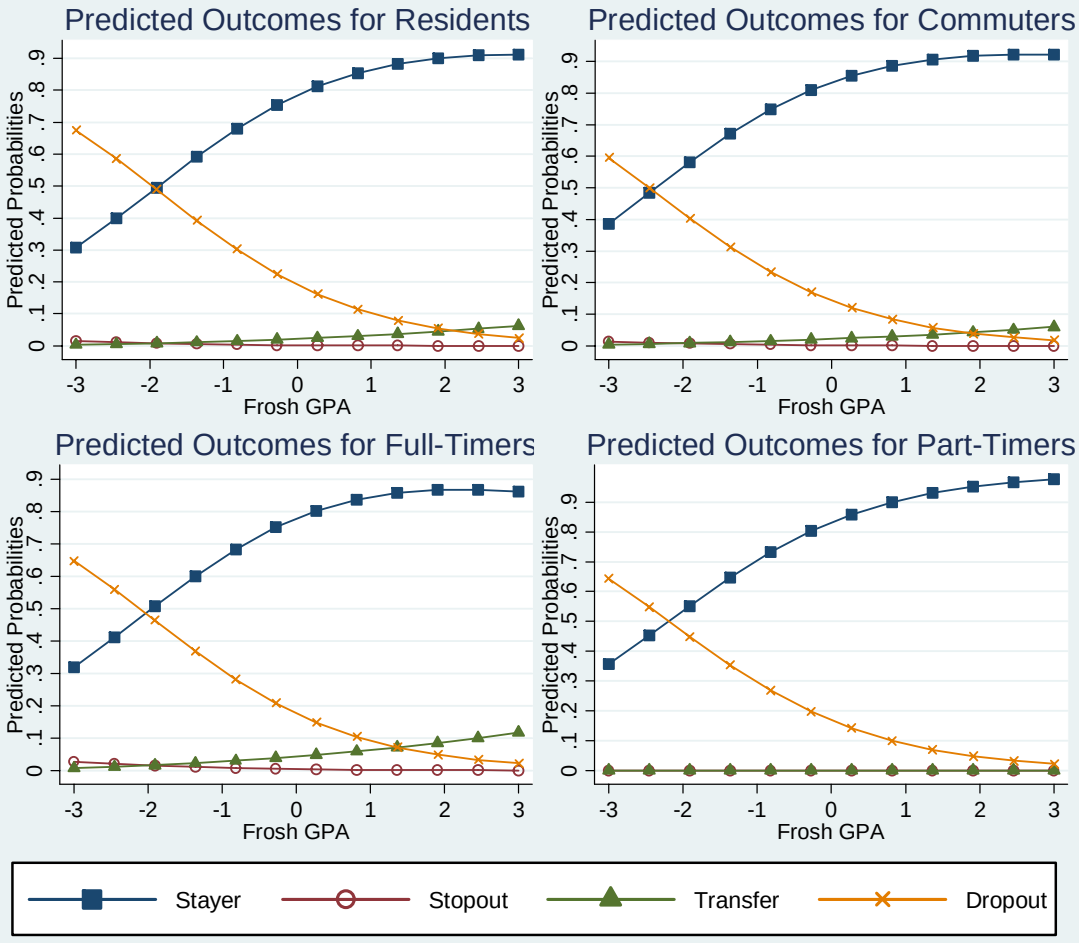


Figure 7.20: Influence of Frosh GPA on Involvement Types



Discussion: In Chapter 7 the results of investigating the influence of nine Experience factors and Freshman GPA on Newbie early departure using MNLR analysis are related. While intuitive, logical, and reasonable arguments can be and have been adduced in support of all the factors influencing early departure, the results of empirical analysis are considerably more circumscribed. With only 585 cases available for consideration, the impact of most of these factors on the outcome (described earlier) is extremely modest and statistically insignificant even at $p < 0.1$.

Of all these explanatory Experience factors, only the Quality Relations factor and the Freshman GPA were found to be robust negative predictors of Drop Out. That is, as either of these predictors increased, reflecting higher grades and increasingly high quality interpersonal relations on campus, Drop Out is predicted to decline and Stayer is predicted to increase. Across its full range, the Relationship Quality factor can account for decreasing the probability of Drop Out from 50% to 20%, depending on the sub-group affected. The Freshman GPA is even more powerful. Across its full range, it can be seen to account for reducing the probability of Drop Out from 80% to 60%, again depending on the sub-group affected.

While these two findings are robust, there is impressive but not compelling visual evidence in graphic form that many intellectual issues may tend to enhance Newbies' proclivity to Drop Out. Among these factors are increased Cognitive Experiences with coursework and an increased Academic Work Focus. There is similar visual evidence to suggest that an increase in Extramural Demands will similarly enhance Newbies' proclivity to Drop Out.

In contrast, there is visual evidence to suggest that increasing Interactive Learning or a Literary Focus may tend to depress the probability of Drop Out. But these observations must remain heuristic domains for future exploration and/or experimentation as they are not established statistically beyond question through this investigation.

Chapter 8
An Integrated Departure Model

Introduction: Exploring the early departure of HBCU Newbies culminates now by integrating factors utilized in Chapters 5-7 in a confirmatory study using a modest sample of 181 Newbies for whom data is available for *both* the CIRP Mentality survey and the NSSE Experience survey in addition to institutional data. Unlike earlier chapters, the limited sample of Newbies available here did not permit a full and complete test of the hypothesized full integrated model. In particular, insufficient cases were available to meaningfully document the impact of all integrated factors on Stop Out and Transfer Out behaviors, since only a single Stop Out case and ten Transfer Out cases were available in the composite data set. Accordingly, these cases were deleted from consideration here. Similarly, insufficient cases were available to document the influence of alternative racial identities or participation levels. Thus, since only three minority and four part-time Newbies were available in the data set, these Indicator distinctions have been ignored in this integrated analysis. Available evidence, thus, supports an Integrated analysis limited to including only sex, age group, and residency among identity variables and Stayer and Drop Out among outcome effects.[94]

However, given the treatment modification outlined above, the Integrated Departure models explored here do include nearly all the Asset, Mentality, and Experience factors addressed in Chapters 5-7. Just two Mentality factors demonstrated earlier to be of no effect on the outcome have been dropped from consideration. In all, therefore, twenty explanatory factors representing Assets, Mentality, and Experience are regressed here against a 2-part outcome (Stayer/Drop Out) to assess the relative influence of three panels of factors on the early departure of Newbies from the HBCU.

[94] But, the Drop Out category here is not compromised by including any Newbies who are legitimately Stop Out or Transfer Out. So the category remains fully parallel to that employed in chapters 5-7.

While the bivariate outcome available for the confirmatory models surely could be analyzed appropriately using the more ubiquitous logistic regression analysis[95], it is undertaken here instead using the same MNLR analysis as in earlier chapters, in the interests a fully parallel treatment. It is understood that an MNLR treatment applied to two outcomes produces the same findings as would a standard logistic treatment, so nothing is lost thereby (Long & Freese, 2006, p. 223 [96]). As before, Stayer is the base outcome against which the Drop Out probabilities are assessed for the different surviving Newbie types and twenty different explanatory factors.

The integrated models, then, consider the influence of four Asset factors, six Mentality factors, and ten Experience factors along with three identity variables (sex, age, residency) on Newbie's Drop Out compared to Stayer outcome. The Mentality factors "Remedial Preparation" and "Prior Non-Credit Work" have been dropped from consideration as they were demonstrated in Chapter 6 to have no meaningful impact on the outcome. While several Experience factors might be deleted from consideration as well, since the models in Chapter 7 demonstrated that they had little meaningful impact, they have been retained. The sole reason for retaining them here is that with the growing national ubiquity of the NSSE survey in use for documenting and demonstrating collegiate effectiveness[97], it is thought important to underscore the degree to which constructs derived from NSSE, do or do not actually impact or explain early departure in a minority serving institution.

Outcomes Observed: In chapters 6 and 7 it was observed that the survey samples were progressively more limited in reflecting cases of Leavers compared to Stayers. That concern is greatly magnified in this chapter where Stayers for whom Experience and Mentality data both are available and who can be matched to the Asset data contained in or derived from institutional data constitute fully 81% of the set. And, whereas for the Newbie population as a whole, 41% were early Leavers, in the sample

[95] Using the command *logit* in Stata.
[96] Long & Freese explain, op. sit., that in a multinomial logit model "you are essentially estimating a separate binary logit for each pair of outcome categories."
[97] US News and World Report has begun collecting (demanding?) NSSE scores from institutions along with its diverse reputation and resource variables with an eye toward expanding further its national college ranking schemes.

available for the present integrated model study, the incidence of Leaver is reduced to 29% (Table 3.5, Chapter 3, reflects these frequencies succinctly).

Most importantly, Stopout is represented by only a single case, rather than 4% of the whole. While Transfer Out is represented by 6% of the sample, mirroring that in the population, the actual number of cases is only 10, rendering any meaningful statistical analysis dubious. (In fact, it has been verified that an MNLR model will not converge successfully when it has either great disparities in the frequency of diverse outcomes or tiny frequencies with which to contend in any single outcome.)

Newbie Types & Sub-Types in Sample: One hundred and eighty one cases are available for the final Integrated model analysis, as indicated above. Among these are but three Minorities and four Part-Timers. Clearly no statistical analysis can address numbers of this magnitude; any finding could be pure coincidental. Accordingly, as indicated above, these distinctions are ignored in this study and these few cases are removed from consideration. Beyond these characteristic, the Newbie types available for analysis include 59 Males and 122 Females, 14 Adults and 167 Minors, 143 Residents and 38 Commuters. Nesting the three indicator types would produce just eight cells (2 X 2 X 2); the good news is that none of the cells is null. The bad news is that 50% of the cells include only three cases and two more cells contain fewer than 20 cases. The distribution by sub-type is illustrated in Table 8.1.

Table 8.1: Integrated Model Newbies, 181 Counts by Category
(Sex and Age Cohorts by Residency)

Sex		Age Grp.		Residency	
male	59	Teen	53	resident	42
				commuter	11
		Adult	6	resident	3
				commuter	3
female	122	Teen	114	resident	95
				commuter	19
		Adult	8	resident	3
				commuter	5

Alternative Integrated Models: As with the earlier focused models (Asset, Mentality, and Experience), several Integrated MNLR Regression models were examined to test the simultaneous impact of all three panels of factors on Newbies' departure

probabilities. These models used the same variations of the outcome as before together with the four well-tested Indicator variables, the four Asset factors, six Mentality factors, and nine Experience factors and the independent variable representing the Freshman year GPA. As before (Chapters 5, 6, & 7), these models were implemented using MNLR amplified by postestimation analysis to obtain parameters of interest and similar graphic output.

These models manipulated the outcome, indicator variables, and various factors seeking alternative approaches to integrating a great variety of influences on Newbies' early departure. Model 1 included all the explanatory factors and variables; Model 2 merged Transfer Out with Stayer and Stop Out with Drop Out, calling the results Continuing and Not Continuing. Models 3-6 deleted cases associated with Stop Out and Transfer Out, leaving only pure Stayers and Drop Out cases in the models. Model 4 eliminated the Race and Age Group indicators owing to the small number of Minorities (n=3) and Adults (n=14). Model 5 deleted five factors that had been least influential in earlier studies while Model 6 included only the six most robust explanatory factors examined in earlier chapters. Table 8.2 displays key attributes of each model.

Table 8.2a: MNLR Integrated Departure Models—Model Characteristics

		Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Parameters:		(full)					
Stayer Outcome/Continuing		146	156	146	146	146	146
Stopout Outcome		1	0	0	0	0	0
Transfer Out Outcome		10	0	0	0	0	0
Dropout Outcome/Not Continuing		24	25	24	24	24	24
Total Observations		181	181	170	170	170	170
Characteristics (df):		66	26	26	24	21	10
robust model?		Yes	Yes	Yes	Yes	Yes	Yes
# Iterations to Converge		35	5	5	5	5	4
Log pseudolikelihood		-68.98	-54.79	-52.41	-54.96	-54.39	-55.24
Wald Chi2 / LR Chi^2		.	39.38	37.59	32.10	26.41	24.42
Prob > Chi2		.	0.04	0.07	0.12	0.19	0.01
Pseudo R2		0.390	0.246	0.243	0.206	0.214	0.202
Wald Test, Combining Categories (df):		26	*	*	*	*	*
Stopout/Transfer Out	Chi2	**5412.00**	*	*	*	*	*
	P>Chi2	0.000	*	*	*	*	*
Stopout/Dropout	Chi2	**3174.00**	*	*	*	*	*
	P>Chi2	0.000	*	*	*	*	*
Stopout/Stayer	Chi2	**4898.00**	*	*	*	*	*
	P>Chi2	0.000	*	*	*	*	*
Transfer Out/Dropout	Chi2	**3093.00**	*	*	*	*	*
	P>Chi2	0.000	*	*	*	*	*
Transfer Out/Stayer	Chi2	12113.000	*	*	*	*	*
	P>Chi2	0.000	*	*	*	*	*
Dropout/Stayer	Chi2	**36.80**	*	*	*	*	*
	P>Chi2	0.079	*	*	*	*	*
Wald Test, Independent Contribution (df)		3	1	1	1	1	1
Indicators:							
Sex (male)	chi2	**15.79**	**8.78**	**8.72**	**9.86**	**6.68**	**5.41**
n = 122 f / 59 m	*P>chi2*	*0.001*	*0.003*	*0.003*	*0.002*	*0.010*	*0.020*
Race (black)	chi2	**275.21**	0.07	0.41	.	0.46	0.20
n = 3 minority / 178 Black	*P>chi2*	*0.000*	*0.786*	*0.521*	.	*0.500*	*0.652*
Residence	chi2	**58.89**	1.09	0.85	0.34	0.88	0.65
n = 38 off / 143 on	*P>chi2*	*0.000*	*0.297*	*0.357*	*0.560*	*0.368*	*0.420*
Age Group (adult)	chi2	**194.83**	**5.93**	**4.71**	.	**3.78**	**5.81**
n = 167 teen / 14 adult	*P>chi2*	*0.000*	*0.015*	*0.030*	.	*0.052*	*0.016*
Participation Level (fulltime)	chi2	**115.24**	0.04	0.06	0.04	0.30	.
n = 4 pt / 177 ft	*P>chi2*	*0.000*	*0.851*	*0.801*	*0.844*	*0.581*	.

Table 8.2b: MNLR Integrated Departure Models—Factor Influences

			Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Asset	Neighborhood Capital*	chi2	**230.27**	0.45	0.80	0.51	0.28	.
Factors:		*P>chi2*	*0.000*	*0.503*	*0.373*	*0.475*	*0.600*	.
	Neighborhood Culture*	chi2	**66.80**	0.00	0.03	0.23	0.01	.
		P>chi2	0.000	0.793	0.853	0.628	0.938	.
	High School Culture*	chi2	**2.44**	0.81	0.51	1.30	0.93	1.02
		P>chi2	*0.486*	*0.369*	*0.474*	*0.254*	*0.336*	*0.314*
	Academic Preparation*	chi2	**154.24**	0.42	0.23	0.12	0.22	.
		P>chi2	*0.000*	*0.516*	*0.628*	*0.728*	*0.641*	.
Mentality	Achievement Motive	chi2	**404.72**	**2.92**	1.93	2.22	2.60	**3.47**
Factors:		*P>chi2*	*0.000*	*0.087*	*0.165*	*0.136*	*0.107*	*0.062*
	Self Image	chi2	1.316	0.020	0.061	0.016	0.094	.
		P>chi2	*0.725*	*0.888*	*0.805*	*0.900*	*0.759*	.
	Social Engagement	chi2	**7.64**	0.00	0.05	0.03	0.10	.
		P>chi2	*0.054*	*0.993*	*0.822*	*0.856*	*0.754*	.
	College Choice	chi2	**84.32**	0.01	0.00	0.23	0.14	.
		P>chi2	*0.000*	*0.944*	*0.992*	*0.630*	*0.708*	.
	Hedonism	chi2	**64.22**	0.01	0.09	0.15	0.17	.
		P>chi2	*0.000*	*0.936*	*0.762*	*0.701*	*0.677*	.
	Remedial Preparation	chi2	***282.22***	*0.65*	*0.79*	*0.00*	.	.
		P>chi2	*0.000*	*0.422*	*0.373*	*0.971*	.	.
	Other Directed	chi2	**763.78**	0.06	0.00	0.14	0.04	.
		P>chi2	*0.000*	*0.805*	*0.999*	*0.701*	*0.843*	.
Experience	College Value Added	chi2	**52.64**	0.00	0.10	0.59	0.11	.
Factors:		*P>chi2*	*0.000*	*0.954*	*0.752*	*0.443*	*0.740*	.
	Cognition Required	chi2	**293.70**	0.24	0.60	0.29	.	.
		P>chi2	*0.000*	*0.628*	*0.439*	*0.587*	.	.
	Quality Relations	chi^2	2.12	1.08	0.93	0.37	1.07	2.15
		P>chi^2	*0.547*	*0.298*	*0.334*	*0.541*	*0.301*	*0.143*
	Scholarly Emphasis	chi2	**474.64**	0.53	0.01	0.00	.	.
		P>chi2	*0.000*	*0.466*	*0.940*	*0.982*	.	.
	Interactive Learning	chi^2	2.10	1.26	1.39	1.62	.	.
		P>chi^2	*0.552*	*0.261*	*0.239*	*0.203*	.	.
	Informal Dialogs	chi2	**195.472**	0.841	0.129	0.536	.	.
		P>chi2	*0.000*	*0.359*	*0.719*	*0.464*	.	.
	Literature Focus	chi^2	**25.56**	1.21	1.72	1.77	2.11	2.14
		P>chi^2	*0.000*	*0.272*	*0.189*	*0.184*	*0.146*	*0.144*
	Academic Work	chi^2	**201.57**	0.31	0.69	0.52	0.48	.
		P>chi^2	*0.000*	*0.581*	*0.407*	*0.469*	*0.489*	.
	Extramural Demands	chi^2	**174.99**	2.56	1.41	0.24	1.16	1.38
		P>chi^2	*0.000*	*0.110*	*0.235*	*0.623*	*0.281*	*0.241*
	Freshman GPA	chi^2	**68.63**	**3.70**	**2.96**	1.11	**3.78**	**4.40**
		P>chi^2	*0.000*	*0.055*	*0.085*	*0.293*	*0.052*	*0.036*

Note: Boldface = Sig 0.10
** Test requires 3+ outcomes*

Insignificant explanatory factors from all prior models have been excluded from integrated model tests.

(incl. confident self-image, remedial preparation, informal college experience, value added, cognition requirements, scholarly emphasis, and informal dialogues.)

Explanatory Factors: For these Integrated models, the four outcomes, the Identity variables, Asset factors, Mentality factors, and Experience factors assessed independently earlier were incorporated together to see how and to what degree they might all serve to explain early Newbie departure, cognizant that the data set available for these full bodied models contained only 181 cases and that two outcomes and several identities were grossly under-represented in it.[98] As before in earlier chapters, all the explanatory factors are ordinal continuums and Newbies are seen as having more or less of the attribute represented, not a finite amount or quantity. For the analysis that follows, all factors are reported, whether or not statistically significant by normal standards. The justification for this practice is that this study seeks only to identify a plausible model by uncovering suitable types of explanatory factors—not prove conclusively that these particular factors, synthesized in the particular fashion that these were, constitute a perfect model and conclude the search.

Model Tests: Continuing parallel with earlier procedures, these six models were tested to confirm whether the outcomes were distinct and the inputs independently useful. Even though the model failed to converge easily, as in earlier models, owing to the great disparity in outcome frequencies, the alternative outcomes were highly independent of one another at $p > 0.000$. The other models could not be subjected to this test as it is applicable only to models in which three or more outcomes are present. In checking the predictors, findings were mixed. Sex passed with a x^2 of 6.7—15.9 and associated p-values < 0.01 for all models save #6. Age groups and Freshman GPA also passed in most models at $p < 0.1$. For the rest, most of the independent predictors failed to pass the test with any normally accepted p-value for most of the models. In the full model that failed to converge properly, most of the predictors did pass—except, and this is the curious finding, that one of the factors found to be most robust in earlier models was least so here: High School Culture attained a x^2 of only 2.4 with an associated p-value = 0.49.

General Findings: The Integrated Newbie Departure Model, incorporating together explanatory factors drawn from Newbies' Assets, Mentality and Experience Departure models, experienced the same difficulty that troubled earlier models. The full

[98] 43% of the Stop Outs and 18% of the Transfer Outs left following their first fall term and so were not available to have their opinions sampled by the Spring term NSSE survey.

model had difficulty in converging as a result of the great dissimilarity in frequencies among the four alternative outcomes being tested. The full model ran for 35 iterations before concluding with a log pseudolikelihood of -68.98 and a pseudo R^2 of 0.39. That model exceeded the tight range of log pseudolikelihoods (54.24—54.96) found among alternative 2-outcome models, all easily converging in 4 iterations with a pseudo R^2 in the range 0.20—0.25. The full model, by not converging easily, lacked a Wald x^2 statistic; while the alternative models reflected a Wald x^2 in the range 24.4—39.4.

In the full model, all the Asset factors except High School Culture were found to be strong independent contributors to the outcome. The Mentality factors, except for Self-Image and the Experience factors, except for Relationship Quality and Interactive Learning were similarly found to be strong independent contributors to the outcome ($p = 0.000$) . Indeed, in this Integrated model explored with this small sample of the population, the only factors found contributing to Dropout with $p < 0.10$ were Sex, ($z = 2.95$), Age cohort ($z = 2.17$), and Freshman GPA ($z = -1.72$). Most surprising, the factor representing High School Culture that appeared so strong among the Asset models was a non-contributor here as was the factor representing Relationship Quality that had appeared so strong among the Experience models. Given that only a single Stop Out case and ten Transfer Out cases were found among the sample cases here, there is little point in running the full model. Therefore, the partial model #3 was run and findings reported for the MNLR that considers only Drop Out as the alternative to Stayer. These findings are reported in Table 8.3.

Table 8.3: Integrated Departure Model Details (Model #3)

MNLR 170 Obs; log pseudolikelihood = -52.407; Wald $x^2(26) = 37.59$; Prob > $x^2 = 0.066$
Pseudo $R^2 = 0.243$

outcome	Coef.	Rob.Std.Err.	z	P>|z|	[95% Conf.	Interval]
Drop Out male	1.558	0.528	2.95	0.003	0.524	2.593
black	-0.967	1.507	-0.64	0.521	-3.920	1.987
adult	2.215	1.020	2.17	0.030	0.216	4.215
residens	-0.780	0.847	-0.92	0.357	-2.440	0.880
fulltime	0.238	0.945	0.25	0.801	-1.613	2.090
capital	-0.267	0.300	-0.89	0.373	-0.855	0.321
h.s.cultur	-0.306	0.427	-0.72	0.474	-1.143	0.531
hood cultur	-0.074	0.397	-0.19	0.853	-0.853	0.705
acad prep	0.196	0.404	0.48	0.628	-0.597	0.988
achiev mot	0.497	0.358	1.39	0.165	-0.205	1.200
self-image	0.083	0.335	0.25	0.805	-0.574	0.740
soc engage	0.080	0.357	0.22	0.822	-0.620	0.780
coll choice	-0.003	0.298	-0.01	0.992	-0.587	0.581
hedonism	0.121	0.401	0.30	0.762	-0.664	0.907
remediation	-0.227	0.255	-0.89	0.373	-0.726	0.272
other direct	-0.000	0.335	-0.00	0.999	-0.657	0.657
value add	-0.173	0.547	-0.32	0.752	-1.245	0.899
cognit course	0.349	0.451	0.77	0.439	-0.534	1.231
relation qual	-0.498	0.515	-0.97	0.334	-1.508	0.512
support coll	-0.029	0.380	-0.08	0.940	-0.774	0.717
interact lrn	-0.627	0.532	-1.18	0.239	-1.671	0.416
inform dialg	0.141	0.393	0.36	0.719	-0.629	0.912
literary foc	0.617	0.470	1.31	0.189	-0.304	1.538
acad work	0.294	0.354	0.83	0.407	-0.401	0.987
extramural	-0.620	0.521	-1.19	0.235	-1.642	0.402
coll GPA	-0.764	0.444	-1.72	0.085	-1.633	0.106
constant	-1.760	1.791	-0.98	0.326	-5.268	1.749

(outcome==Stayer is the base outcome)

Departure Probabilities for Newbie Types: Obviously, since Stop Out and Transfer Out cases were excluded from the model, the probability of any Newbie type attaining these outcomes is null. With Drop Out remaining as the only alternative to the base outcome, Stayer, reporting the findings for Newby Primary types is a relatively easy task. From this cohort of Newbies, 122 females had a 5% chance of Drop Out contrasted with 59 males who had a 19% chance of doing so. Black Newbies (n=178) had an 8% chance of Drop Out while the three Minorities had a 15% chance. The Minors (n=167) had a 7% chance of Drop Out while the fourteen Adults had a 31% chance. Residents (n=143), with a 7% chance of Drop Out, were eclipsed by thirty eight Commuters who had a 13% chance. The four Part-Timers and the 177 Full-Timers were relatively even-matched with a 6% and 8% chance of Drop Out respectively. Details are reflected in Table 8.4.

Table 8.4: Predicted Probability of Outcomes X Newbie Type*

The Integrated MNLR Model

	Enrollment Outcome			
Student Type	**Stop Out**	**Transfer Out**	**Drop Out**	**Stayer**
Female	0.000	0.000	0.052	0.948
Male	0.000	0.000	0.190	0.810
Black	0.000	0.000	0.081	0.919
Minority	0.000	0.000	0.151	0.849
Teen (>20)	0.000	0.000	0.072	0.927
Adult (20+)	0.000	0.000	0.307	0.694
Commuter	0.000	0.000	0.134	0.866
Resident	0.000	0.000	0.071	0.929
Pt-time(<12 cr)	0.000	0.000	0.060	0.940
Fl-time(12+cr)	0.000	0.000	0.082	0.918

(assuming each remaining independent predictors is held constant at its mean)*

Influence of Integrated Predictors on Alternative Outcomes: In reviewing the range of probabilities for outcomes influenced by predictors in the Integrated model, we see general support for the findings in earlier more limited models, with some difference and lower levels of conviction (Table 8.5).

Among the Asset factors, the two culture factors representing Newbie's home neighborhoods and High Schools maintained an influence in the same direction in the Integrated model as they had in the Asset model, although the range of probabilities for each is lessened somewhat. Neighborhood Capital, which had a modest negative influence on Stayer in the Asset model has an equally modest but positive influence on Stayer in the Integrated model. Academic Preparation in the Asset model had a modest positive influence on Stayer while in the Integrated model it has a modest negative influence on Stayer.

Among the Mentality factors, Achievement Motivation, Confident Self-Image, Hedonism, and Other Directed all contributed positively to Drop Out in the Integrated model as they had in the Mentality model. The factors Social Engagement and Careful College Choice, on the other hand, earlier had positive influence on Stayer in the Mentality model and are found now in the Integrated model to have a negative influence on Stayer. While the order of magnitude of the influences are small, the change in direction is somewhat puzzling.

Among the Experience factors, Relationship Quality, Interactive Learning, Extramural Demands, and Freshman GPA each have positive impact on the probability of Stayer with a range of influences of 15%, 16%, 15%, and 27% respectively. Since there are only two alternative outcomes investigated in this partial model, a positive influence of some magnitude on one outcome indicates, by default, a corresponding and opposite influence on the other outcome. Thus, Relationship Quality, Interactive Learning, Extramural Demands, and Freshman GPA each have a negative impact on the probability of Drop Out with the same range in probabilities.

Alternatively, the Experience factors Cognitive Coursework, Substantive Informal Dialogs, Literature Focus, and Academic Work Focus each have smaller positive influences on the probability of Drop Out, with ranges of influence of 10%, 6%, 20%, and 8% respectively.

Among the Experience factors, Value Added, Relationship Quality, Interactive Learning, and Freshman GPA all contributed positively towards an increased probability of Stayer, an influence in the same direction as was observed for the same factors in the Experience model. Stayer outcome was affected in the same direction. Several other factors, however, reversed direction from what was observed before and influenced Stayer negatively where they were positive influences before. These include Substantive Dialog, and Literature Focus.

Table 8.5: Range of Probability Predictions for Regressors on Outcomes in Integrated Model

(When predictor value ranges from minimum to maximum)

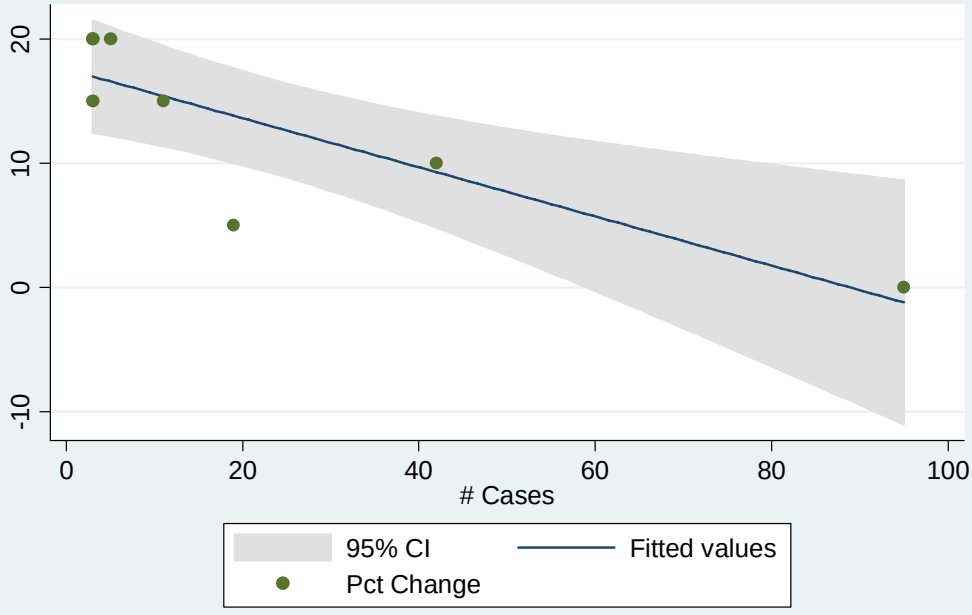
Predictors	Outcomes: Dropout	Stayer
Indicator variables		
Female to Male	0.144	-0.144
Commuter to Resident	-0.070	0.070
Minor to Adult	0.347	-0.347
Model Factors		
Neighborhood Capital	-0.075	0.075
Neighborhood Culture	-0.011	0.011
High School Culture	-0.088	0.088
Academic Preparation	0.061	-0.061
Achievement Motivation	0.220	-0.220
Confident Self-Image	0.018	-0.018
Social Engagement	0.021	-0.021
Careful College Choice	0.006	-0.006
Hedonism	0.038	-0.038
Remedial Preparation	-0.066	0.066
Other Directed	0.001	-0.001
Value Added	-0.055	0.055
Cognitive Coursework	0.097	-0.097
Relationship Quality	-0.154	0.154
College Support Emphasis	-0.018	0.018
Interactive Learning	-0.162	0.162
Substantive Informal Dialogues	0.064	-0.064
Literature Focus	0.197	-0.197
Academic Work Focus	0.075	-0.075
Extramural Demands	-0.154	0.154
College cum GPA	-0.266	0.266

Graphs of Probabilities for Newbie Types: Unlike earlier models, as explained above, the Integrated model included Newbies characterized only by the identity variables sex, residence, and age cohort. Race and participation levels were dismissed as primary indicators for the Integrated model since few cases were available in the data (3 minorities and 4 part-time students). Accordingly, whereas earlier models were able to consider factor influences on 10 Newbie types, this model is only able to consider influences on 6 student groups. In light of the far simpler typology, the graphic displays have been rearranged and reformatted in this chapter compared to earlier output. Here each factor's influence is displayed on a single page (a "Figure"), with six graphs or panels, documenting the factor's influence on all six types of Newbies.

But in reviewing various factor influences on Newbies' probability of early departure—in this case, Drop Out—it is critical to bear in mind the "law of small numbers" (Guy, R.K.; 1988). Even among this reduced set of Newbie types, many of the

groups are still constituted by such small clusters of cases that the probability findings may represent random error more than any genuine or meaningful central tendency. Figure 8.0, for example, displays a simple scatter diagram plotting the changes in the predicted probability of Drop Out from the minimum to the maximum range of Neighborhood Capital against the number of cases in each of the images for the first substantive graph in Figure 8.1. The regression line clearly shows that as the number of cases increases, the change in predicted probability of Drop Out tends downward toward zero. Clearly, then, any observations drawn from Figures 8.1—8.20 must be regarded as a heuristic device to suggest further research, not a rigorous proof of compelling relationships between explanatory factors and Newbie sub-types.

Figure 8.0: Random Error & The Law of Small Numbers



Don't believe a pattern continues just because you've seen it a few times.

In Figures 8.1-8.20 that follow, six separate images are included in each Figure. For descriptive purposes, those images are discussed in the text as if displayed in the form of a 2 X 3 matrix, moving from top to bottom and left to right. The same 6-panel format is used for each of the remaining Figures. Accordingly, the following key will aid in following the subsequent narrative:

A	B
C	D
E	F

Influence of Neighborhood Capital: Turning first to the Newbies' Asset factors, Neighborhood Capital was found in Chapter 5 to be moderately influential overall but mainly owing to its positive influence on Transfer Out. It was not seen to be a significant predictor of Stop Out or Drop Out there. Here, with Transfer Out and Stop Out suppressed, and only Drop Out available as an alternative to the base outcome, Stayer, Neighborhood Capital appears to serve as a useful explanatory factor only in the case of Males, Adults, and Commuters. Although in Figure 8.1 it appears to depress the predicted probability of Drop Out slightly for other types of Newbies as it increases from a minimum to a maximum value, for Males and Commuters it accounts for a 20% reduction in Drop Out while for Adults it accounts for a 30% reduction in Drop Out. These predictions are based on very few cases, however, and are subject, therefore, to the Law of Small Numbers. Panels A, C, and F where the most influence is demonstrated are based on just 59, 14, and 38 cases respectively while Panels B, D, and E are where the least influence is demonstrated are based on 122, 167, and 143 cases respectively.

Influence of Neighborhood Culture: The second Asset factor, Neighborhood Culture, was found in Chapter 5 to be more influential on outcomes in general than Neighborhood Capital, but its significant influence was also on predicting Stop Out and Transfer Out, not Drop Out. Here, with Stop Out and Transfer Out suppressed, the factor is without meaningful influence on the remaining Drop Out category. Therefore, Neighborhood Culture does not aid in discriminating between Stayers and Drop Outs for this population sample. Consequently, in Figure 8.2, one observes essentially flat, straight probability curves for all panels. To be clear, although the probability of Drop Out itself differs considerably for each type of Newbie, that probability is not affected by Neighborhood Culture in this model. A Newbie's predicted probability of Drop Out is not altered by the degree of Neighborhood Culture among his/her Assets, regardless of the type of Newbie.

Influence of High School Culture: The third Asset factor under consideration, High School Academic Culture, was found in Chapter 5 to be the single most influential of all Asset factors in predicting Newbie departure patterns, overall. And it influenced most heavily the Stop Outs and Drop Outs, rather than the Transfer Outs. For those two outcomes, the influence was negative; that is, the stronger the Academic Culture of the High School from which a Newbie hailed, the lower the predicted probability of that Newbie's Stop Out and Drop Out within two years.

The same pattern is reflected again here for Drop Outs. In the graphs in Figure 8.3, it is clear that for every type of student, the stronger (or more positive) the High School Academic Culture from which the Newbie came, the lower the predicted probability of Drop Out within two years. The tendency appears strongest among Males, Adults, and Commuters and weaker among Females, Minors, and Residents. Yet these appearances are likely an artifact of the Law of Small Numbers, described above. Panels B, D, & E, where the High School Academic Culture influence is least, are the panels where the numbers of cases are largest while Panels A, B, and F where the influence is greatest are the panels where the number of cases are much smaller.

Nonetheless, on Adults and Males, the most positive High School Culture appears to reduce the propensity to drop out by about 22-40% compared to the least positive High School Culture (Figure 8.3, panels A & C). In marked contrast, among Female and Minor students, the difference between minimal and maximal High School Culture appears to be only about 10% (Figure 8.3, Panels B & D).

Influence of Academic Preparation: The final Asset factor, Newbies' individual Academic Preparation, was found in Chapter 5 to be modestly related to Newbies' probability of early departure overall. And reviewed closely, it was found to be strongly related to the probability of Transfer Out, moderately related to the probability of Stop Out, and not significantly related to the probability of Drop Out. Here, working with a sample of 181 Newbies, the factor was found to have a very modest but insignificant relationship with the predicted probability of Drop Out (Table 8.3).

In Figure 8.4, increased Academic Preparation appears to increase the probability of Drop Out slightly and the tendency is similarly in the same direction for all types of students. Among Males (Panel A), the difference from minimal to maximal Academic

Preparation seems to be about a 20% probability of Drop Out. Among Females, in contrast, the influence is limited to about 5% (Panel B). A similar contrast is observed between Adults and Teens with Adults experiencing a a 22% increase in the probability of Drop Out and Minors experiencing a 5% increase in the probability of Drop Out.. There does not appear to be much difference between the impact of Academic Preparation on the Drop Out probabilities of Residents and Commuters.

Influence of Achievement Motive: Having considered the influence of Asset factors on Newbies' probability of Drop Out within two years in the Integrated model, it is appropriate now to turn to consider the possible influence of Newbies' individual Mentality factors. The first among them, Achievement Motive, was seen in Chapter 6 to be somewhat influential in the overall Mentality model and useful in particular to explain Drop Out. It did not seem to influence Stop Out or Transfer Out. While the parameters displayed in Table 8.2 indicate a minor overall influence on the Integrated model, details reflected in Table 8.3 are not supportive. They suggest that the factor is of limited influence and without statistical significance—even at $p = 0.1$

Nonetheless, the patterns observed here (Figure 8) are congruent with the earlier finding in Chapter 5: Achievement Motive appears in the graphs depicting aspects of the Integrated model to influence all types of students in the same direction. Achievement Motive seems to depress the predicted probability of Staying and improve the predicted probability of Drop Out. The influence could be as profound as a 50% increase in the probability of Drop Out for Males (Figure 8.5, Panel A) and a 60% increase in the probability of Drop Out for Adults (Figure 8.5, Panel C) Among Females and Miners, the influence may be somewhat less: perhaps as little as 15-20%. (Figure 8.5, Panels A & D) It appears that the more driven HBCU Newbies are to achieve, the more likely they are to Drop Out within two years of matriculation. As their Achievement Motive increases, Newbies of all types are more inclined to Drop Out. But these findings must be regarded as tentative since they are not statistically robust.

Influence of Self-Image: Unlike the Achievement Motive, a Confident Self-Image was found in the Mentality model to be unrelated to Newbies' outcomes. It did not influence the overall model nor any of the individual outcomes there. Findings here in the Integrated model are fully congruent. A Confident Self-Image appears to have no

particular relation to whether Newbies continue or leave the HBCU within two years of matriculation. A glance at Table 8.6 reinforces this finding: the probability curves for both outcomes, Stayer and Drop Out, are essentially flat and horizontal in all Panels, A—F. There is no important interaction reflected for any type of student.

Influence of Social Engagement: Social Engagement, similarly, was found to have a slight influence on the overall Mentality model where its influence was felt only with respect to Drop Out. There its impact was negative, suggesting that the more Newbies were socially engaged, the more likely they were to Drop Out. Findings here are neither congruent nor compelling. The relationship uncovered here is neither much nor statistically influential. Where an influence does appear, it seems that increased Social Engagement increases slightly the probability of Drop Out. But the probability curves for both outcomes (Stayer & Drop Out) in all panels (A—F) of Figure 8.7 are straight lines, nearly horizontal, providing dramatic testimony to the lack of interaction between this explanatory factor and the Outcome.

Influence of College Choice: Similarly, College Choice earlier failed to have a meaningful influence on the outcome in most of the Mentality models tested (Chapter 6). Here with the Integrated model, the finding is similar. It appears it has no important nor significant influence on Drop Out. The probability lines in Figure 8.8, Panels A—F are all horizontal, indicating no change in the probability of Drop Out regardless of level of College Choice for any type Newbie.

Influence of Hedonism: Hedonism, depending on the Mentality model considered, was observed to have a very slight influence on Newbie outcomes as reviewed in Chapter 6. There its influence was observed to affect Drop Out in a positive direction. The more Hedonistic students were more inclined to Drop Out. The influence did not attach to the Stop Outs and Transfer Outs. Here, in the Integrated model, Hedonism does not have a robust nor statistically important affect on the Drop Outs, although its tendency is in the same direction as in Chapter 6. The more Hedonistic students experiences are, the more inclined they appear to Drop Out.

As a consequence, in the images of Figure 8.9, all the Drop Out probability curves are seen to slope in an upward direction as Hedonism increases while all the Stayer probability curves are seen to slope in a correspondingly steep downward direction as

Hedonism increases. The same influence appears to extend to all types of students but is least apparent among Females, Minors, and Residents and more apparent among Males, Adults, and Commuters. But these findings easily could reflect more the influence of the Law of Small Numbers than the influence of Hedonism.

Influence of Other Directed: The Other Directed factor was observed before (Chapter 6) to influence the Newbie outcome slightly, but significantly, only with respect to Stop Out and Drop Out. It did not influence the Transfer Outcome. Among those Newbies, it negatively influenced Stop Out while positively impacting Drop Out. Here the factor has no influence of any significance among the much smaller set of Newbies. Consequently, all the probability curves in Figure 8.10 are straight and horizontal, indicating no important influence of the factor on the Outcome.

Influence of College Value Added: Having reviewed the possible influence of four Asset and six Mentality factors on the Integrated model, we turn now to consider the influence of ten Experience factors. The first of them, Value Added, was found to be without much influence on the outcome in Chapter 7. That finding is reinforced here in the Integrated model where it remains without influence. The departure fate of Newbies does not appear to be influenced much by whether or not Newbies perceive themselves to have received supportive Value Added from the institution.

The probability curves in Figure 8.11 are all straight lines indicating little interaction. That they exhibit some slope and since that slope is in the same general direction for most Newbie types, is not incongruent with the Law of Small Numbers. The panels depicting the largest number of cases, Panels B, D, and E, reflect very little slope while the Panels depicting very few cases (Panels A, C, & F), demonstrate the greatest slopes.

Influence of Cognition Required: The case with Cognition Required is similar to that of Value Added. In Chapter 7 the factor showed very little influence on the Experience model as a whole, and no particular influence on any of the individual outcomes. Here it shows modest influence over any type of Newbie in any Integrated model that reached true convergence, although it demonstrate meaningful influence in the original Model 1 (See Table 8.2). But its influence on Drop Out itself was not significant (See Table 8.3).

As a result, the slopes observed for probability curves in Figure 8.12 could be misleading and mainly an artifact of the Law of Small Numbers. Even though increasing Cognition Required seems to propel all the Drop Out functions upward, sometimes rather dramatically, the greatest movement is seen consistently among just those Panels inhabited by the fewest cases (Panels A, C, and F) and the least among those Panels with the greatest number of cases (Panel B, D, and E).

Influence of Quality Relations: The third Experience factor representing Quality Relations on campus, was found in Chapter 7 to be an especially useful Experience factor for understanding the Newbie enrollment outcome in an HBCU. It had a significant negative impact on both Transfer Out and Drop Out, indicating that the better the Newbie's relations were perceived to be with campus stakeholders, the less likely the Newbie was inclined to either Transfer Out or Drop Out. The factor did not appear to influence Stop Out in any way.

Here in the Integrated model, Quality Relations was not found to have a statistically meaningful influence on the overall model, regardless of how the model was configured (Table 8.2). Yet, the probability curves in Figure 8.13 clearly are congruent with the findings in Chapter 7. For all types of Newbies, the propensity to Drop Out, represented by the red-brown lines, declines measurably as Newbies perceive themselves to have experienced higher quality relations with campus stakeholders. For Males and Adults, the influences extend to 35 & 50% respectively over the full range of Quality Relations from low to high. However, the apparently great differences in the importance of the influence among the various types of Newbies could result from the size of the sample as much as from the influence of the factor. As suggested before, the existence of a strong "central tendency" is hard to defend on the basis of less than a couple of dozen cases—although the tendency may be clear enough in the few cases at hand.

Influence of Supportive College: In marked contrast to Quality Relations, Supportive College demonstrates no particular relationship to early Departure patterns in the Integrated model just as it demonstrated no special influence in the Experience model. Here, as before, it does not appear to influence any of the individual outcomes or the overall model at a level of significance that warrants closer inspection. Newbies in the

HBCU do not appear to have their propensity toward early departure influenced by a Supportive College in the curriculum or among the staff.

As a consequence, the predicted probability curves in all panels in Figure 8.14 are all straight lines and reflect little slope for any type of the Newbie sub-groups considered. The observation is particularly forceful with respect to those groups that are the largest: Females, Teens and on-campus Residents (Figure 8.14, Panels B, D, & E).

Influence of Interactive Learning: Interactive Learning did not have a solid statistically robust influence on the Experience models investigated in Chapter 7. Likewise, it does not have a solid statistically robust influence on the Integrated models viewed here.

Yet, in viewing the graphs in Figure 8.15, the factor does appear empirically to have a consistent influence in the same direction for all Newbie types investigated. In each case, the more Newbies perceived themselves to have been engaged in active learning, the more likely they are predicted to not Drop Out within two years of matriculation. The slopes of the predicted probability lines are all in the same direction and could account for as much as a 40-50% decline in the probability of Drop Out as Newbies experience maximal in contrast to minimal Interactive Learning—for some types of students.

The influence appears especially strong among adults—a finding fully congruent with expectations of long standing in the Adult education literature (Cross, 1981). Adults, as reflected in Panel C, appear to have a 70% probability of Drop Out when they experience minimal interactive learning. That probability appears to drop off to about 12% when they experience maximal interactive learning.

Another interesting observation is possible from the graphs in Figure 8.15 that cannot be seen from earlier tables directly. For all types of students depicted, the probability curves are curvilinear. Larger reductions in Drop Out probability are achieved in moving from -2 to 0 on the Interactive Learning scale and smaller reductions are achieved in moving from 0 to +2 on the same scale. This observation suggests that enhancing interactive learning at the low end would be far more productive for retention than increasing it at the high end.

Influence of Informal Dialog: The Informal Dialog factor presents a case similar to Interactive Learning. Findings in Chapter 7 were inconclusive. The factor did not appear to have a reliable or statistically confident influence on the overall Experience model nor on any of the four individual Outcomes. The same is found here in the Integrated model. It has no reliable association in models that have converged properly.

Yet, empirically, in reviewing the predicted probability curves in Figure 8.16, the Drop Out curves all consistently bear a positive slope as Informal Dialogs increase. This would seem to suggest that the more informal dialog that occurs, the more likely Newbies are to Drop Out. But again, the relationship between the outcome and the factor is most modest among just those types of students for whom the most cases are included (Figure 8.16, Panels B, D, & E).

Influence of Literature Focus: Literature Focus was a factor that did not emerge in the Experience models studied in Chapter 7 to have an important influence on Newbies' early departure outcome. Similarly, it does not now have a robust or statistically significant influence in any of the Integrated models investigated.

Yet, like the Interactive Learning factor, the graphs displayed in Figure 8.17 do suggest a consistent influence on all types of student groups. For each group, regardless of its size, the predicted probability of Drop Out appears to increase healthily as the perceived incidence of Literature Focus increases. The impact of the factor appears to range from 40% to 60% for some groups as Literature Focus ranges from minimal to maximal (Figure 8.17, Panels A, C, & F). For other groups however, the influence appears far more modest: 10-20% for Females, Minors, and Residents, for example. (Figure 8.17, Panels G, D, & E).

Influence of Academic Work: The situation with the Academic Work factor is quite similar again. It had no special influence in the Experience model as it has no special influence in the Integrated model. It is not influential on the overall model or on any of the individual outcomes in the model. In no model investigated does it have a powerful or statistically significant relationship with the outcome under investigation.

Yet, the graphic images depicting predicted probabilities for each Newbie sub-group all reflect a similar impact: the more Newbies perceive themselves to experience Academic Work, the greater the predicted probability of Drop Out (Figure 8.18). But,

since the effect is strongest on sub-groups for whom fewest cases are present and weakest on sub-groups for whom who most cases are present, the finding is also under suspicion of being an artifact of small numbers rather than the factor under investigation.

Influence of Extramural Demands: Extramural Demands were not found to be robust predictors of Stop Out or Drop Out in Chapter 7 when Experience factors were under consideration. Neither are they here when an Integrated model is being considered. The "numbers" themselves do not reflect a strong nor significant relationship between the factor and the Outcome, as theory would seem to require.

Yet curiously, the images depicted in Figure 8.19 do reveal predicted probability curves that are in direct conflict with what the theory would suggest and with what was discovered in Chapter 7. Here, as Newbies of all types perceive their Extramural Demands to increase, their predicted probability of Drop Out appears to be *reduced*, not increased. For some Newbie types, the influence seems to rise to as much as 50% between minimal and maximal Extramural Demands (Figure 8.19, Panels A & C). Yet, for others, the influence appears limited to 10-20% over the same range (Figure 8.19, Panels B & C).

Influence of Frosh GPA: Turning now to the final Experience predictor considered among the Newbie early departure prediction models, the Frosh GPA itself proves quite a different experience from other factors. This factor was found to have a highly significant overall effect on the Experience models and also on the Integrated models. In all models the net effect was significant at $p < .000$.

The effect was, further, negatively associated with Stop Out and Drop Out in the Experience models—more so with Drop Out. This finding strongly supports the argument that the higher a Newbie's GPA, the less likely the Newbie is to Stop Out or Drop Out within two years of matriculation. In the Integrated models, however, the effect is significant only at $p < 0.1$: providing a minimal comfort zone for the argument.

Reviewing the images of Figure 8.20, it is seen that among all types of students, the higher the Freshman GPA, the less the predicted probability of Drop Out. The Drop Out curve declines markedly for most Newbie types as the GPA advances toward the right end of the X-axis. The effect is most pronounced among older and male students (Figure 8.20, Panels A & C); but it is strong for all types of Newbies (Figure 8.20).

Figure 8.1: Influence of Nieghborhood Capital on Newbie Types

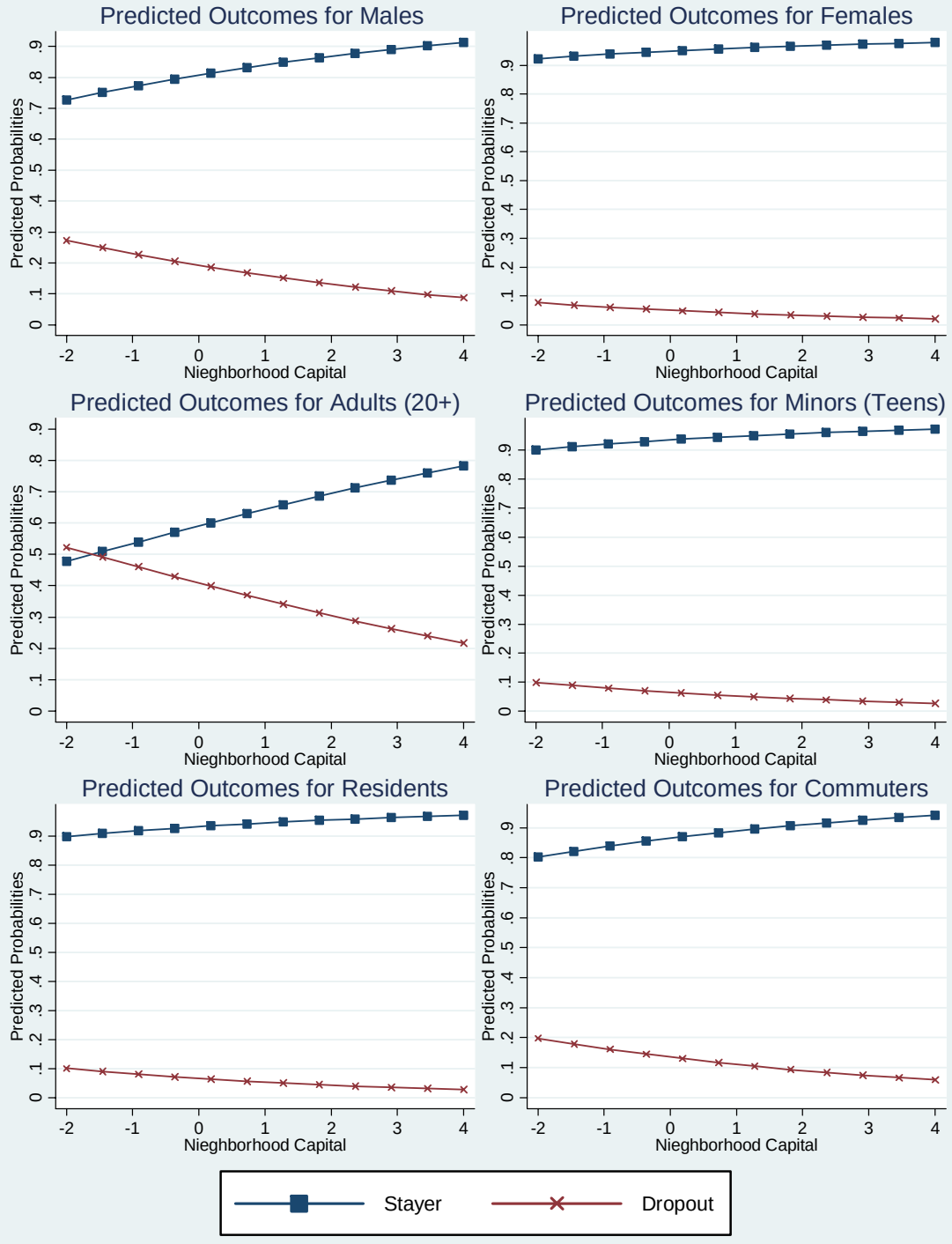


Figure 8.2: Influence of Nieghborhood Culture on Demographic Types

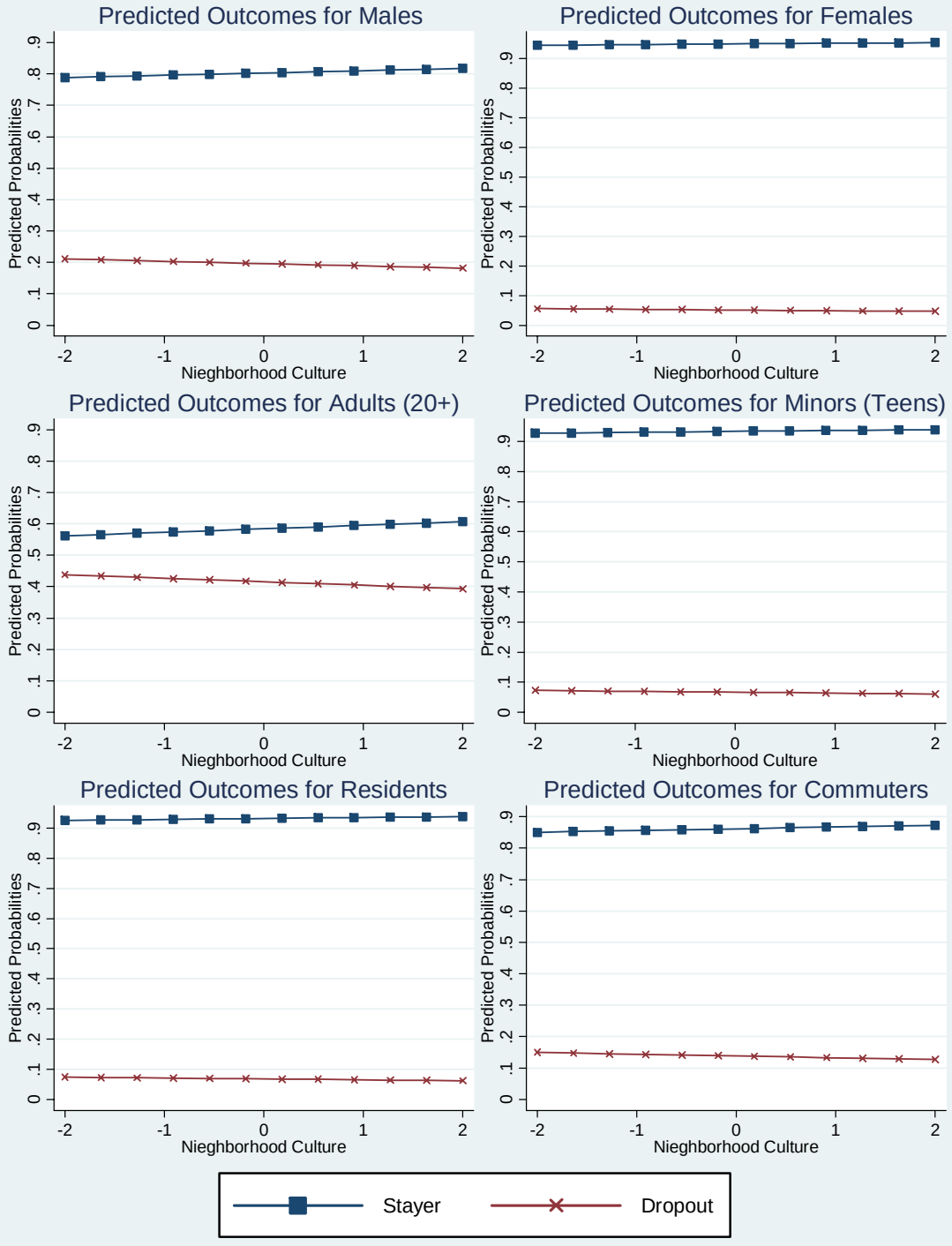


Figure 8.3: Influence of High School Culture on Newbie Types

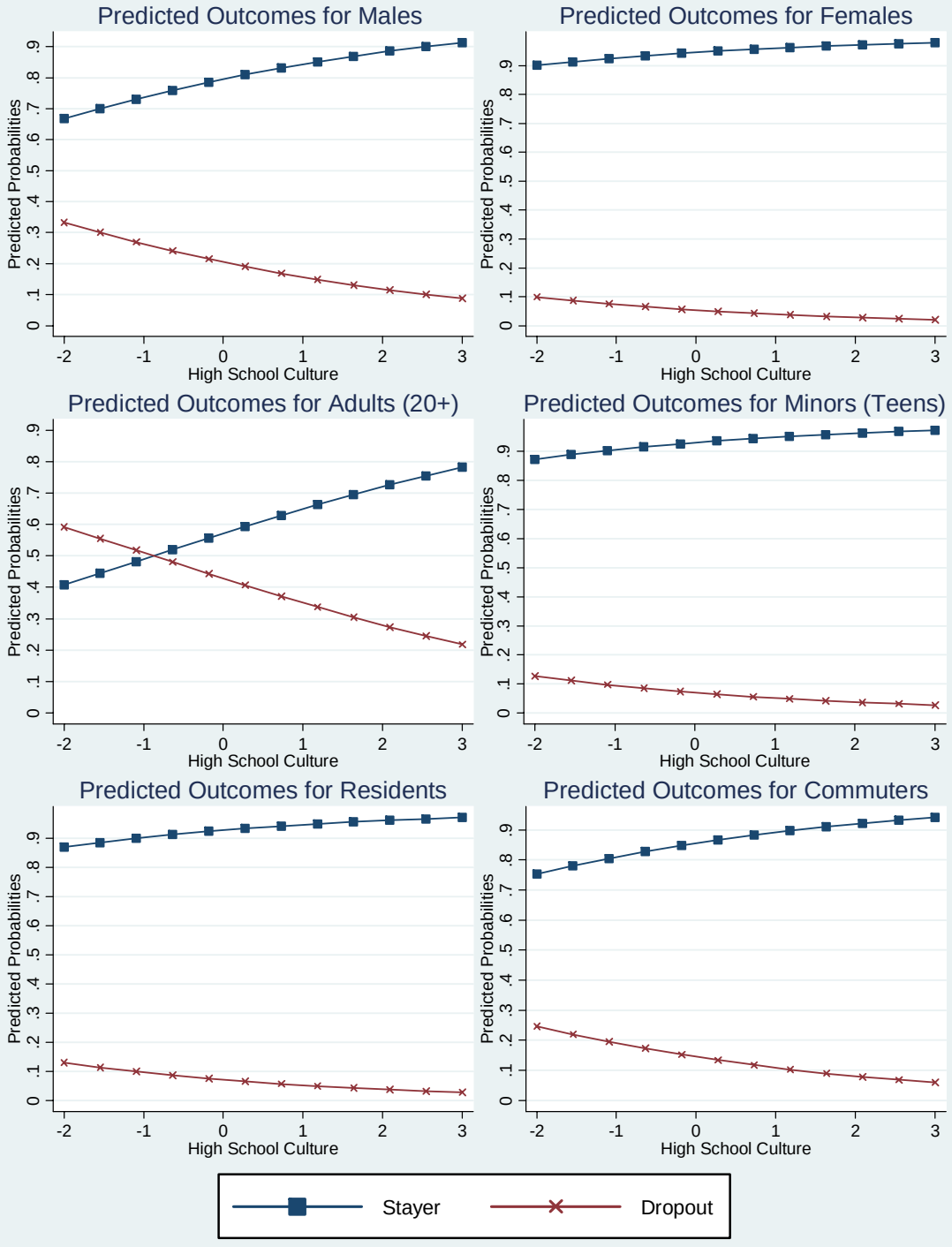


Figure 8.4: Influence of Academic Preparation on Newbie Types

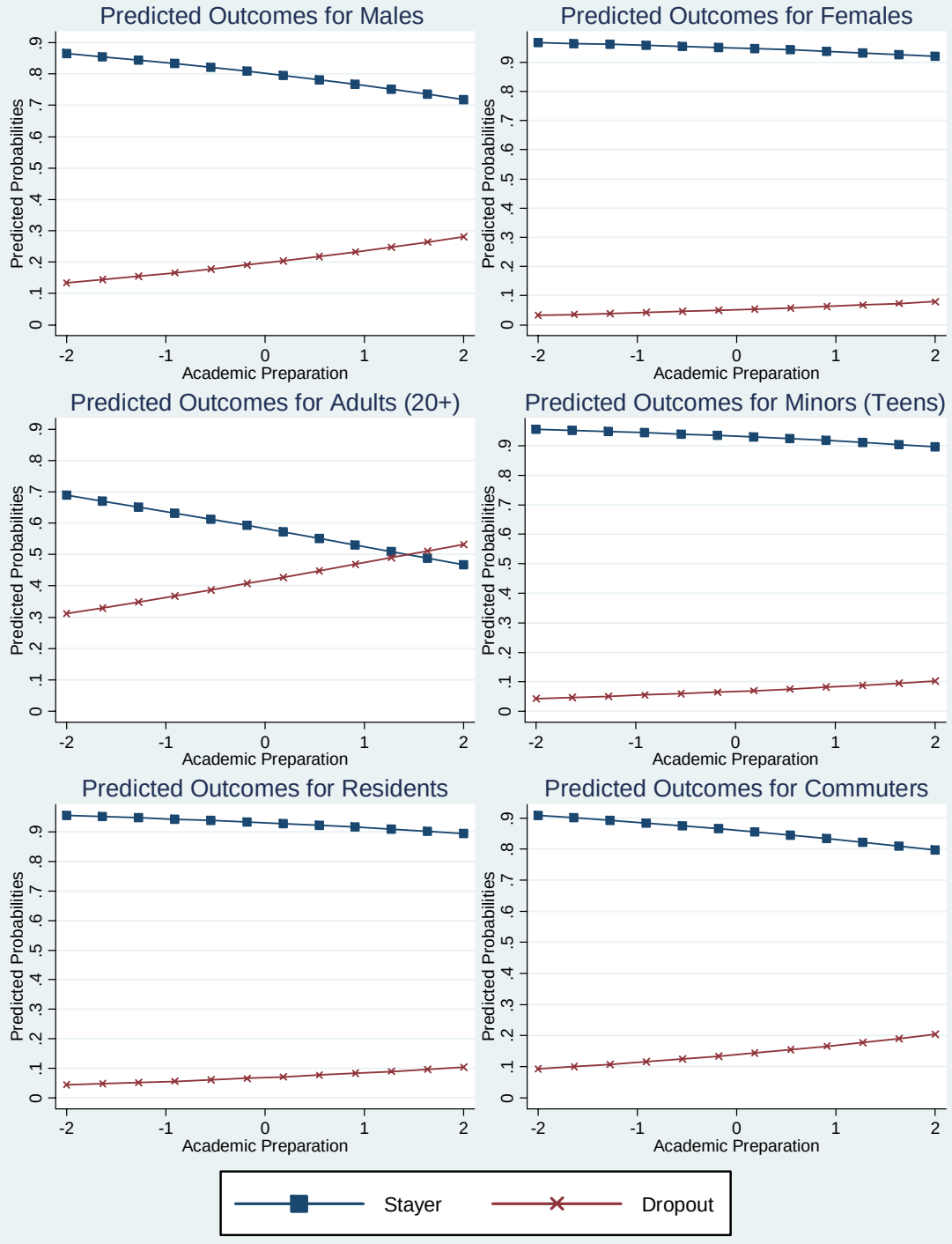


Figure 8.5: Influence of Achievement Motive on Newbie Types

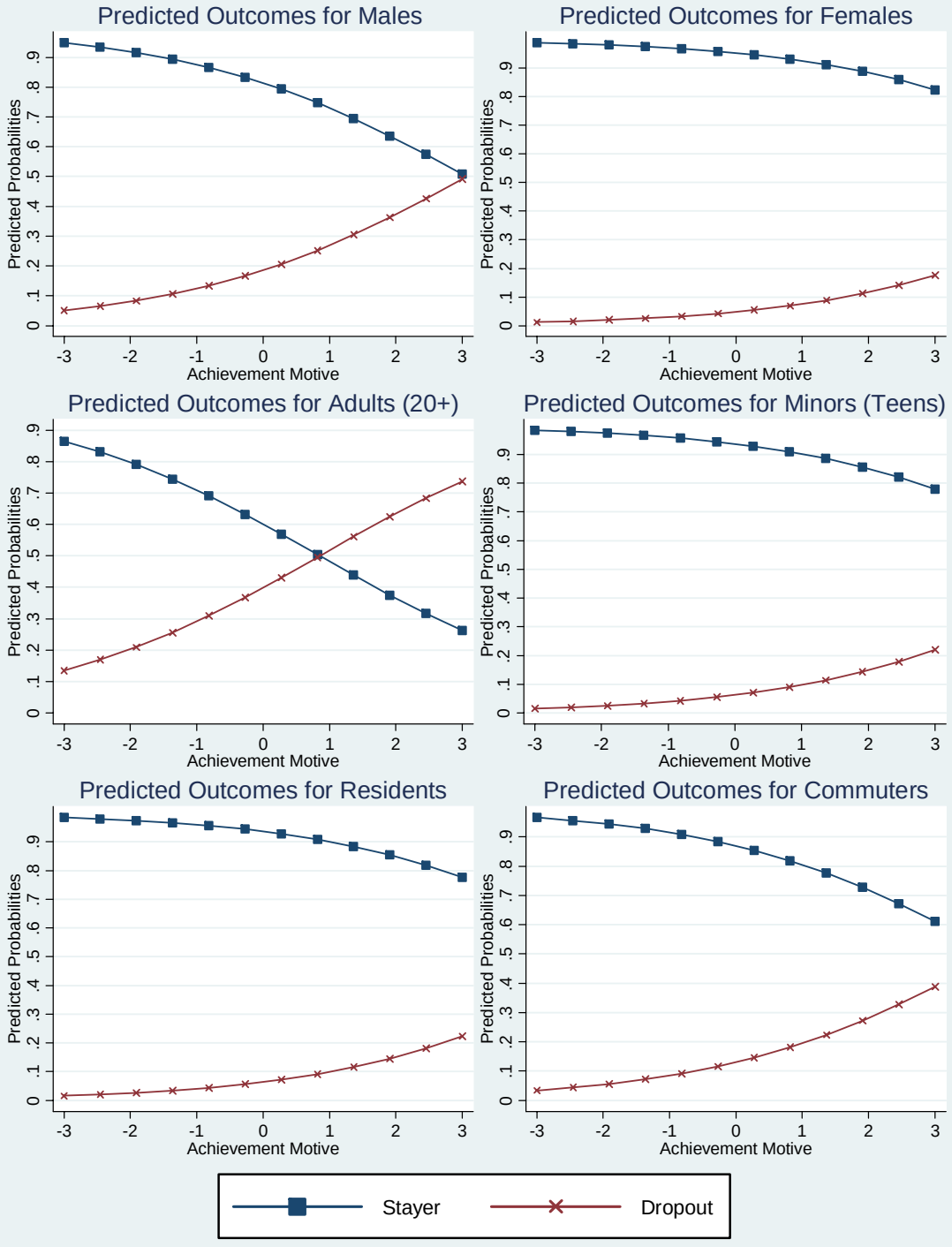


Figure 8.6: Influence of Self-Image on Newbie Types

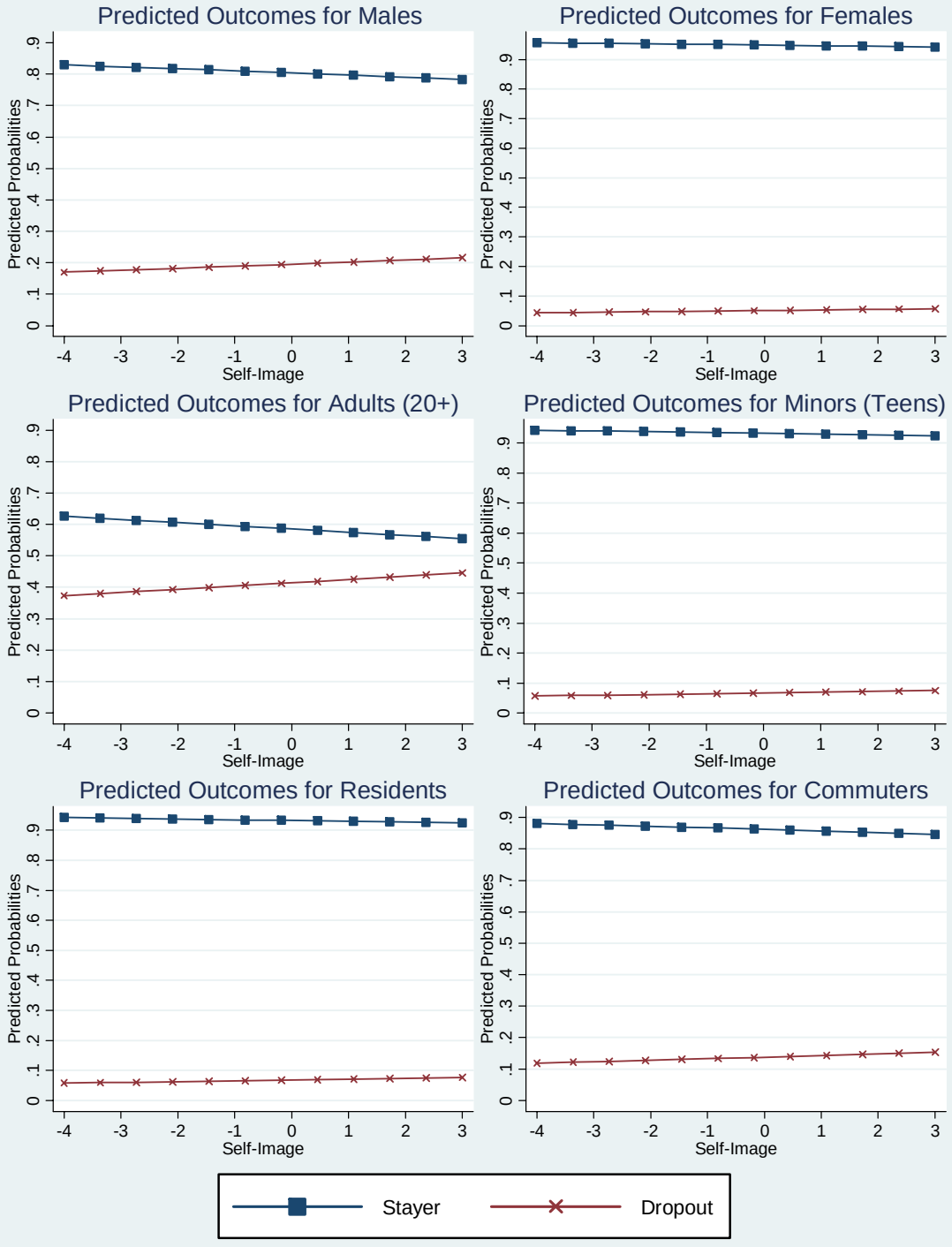


Figure 8.7: Influence of Social Engagement on Newbie Types

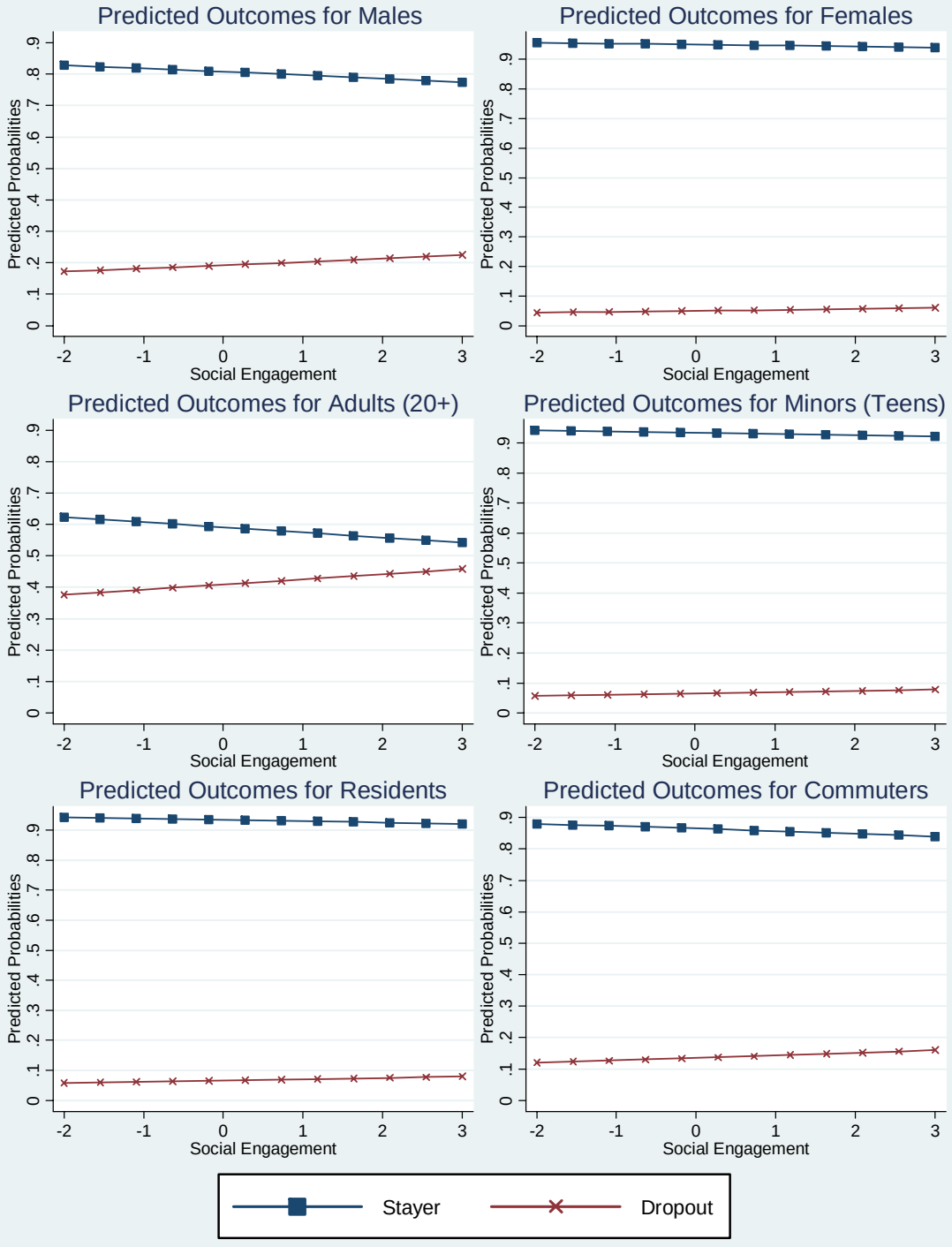


Figure 8.8: Influence of College Choice on Newbie Types

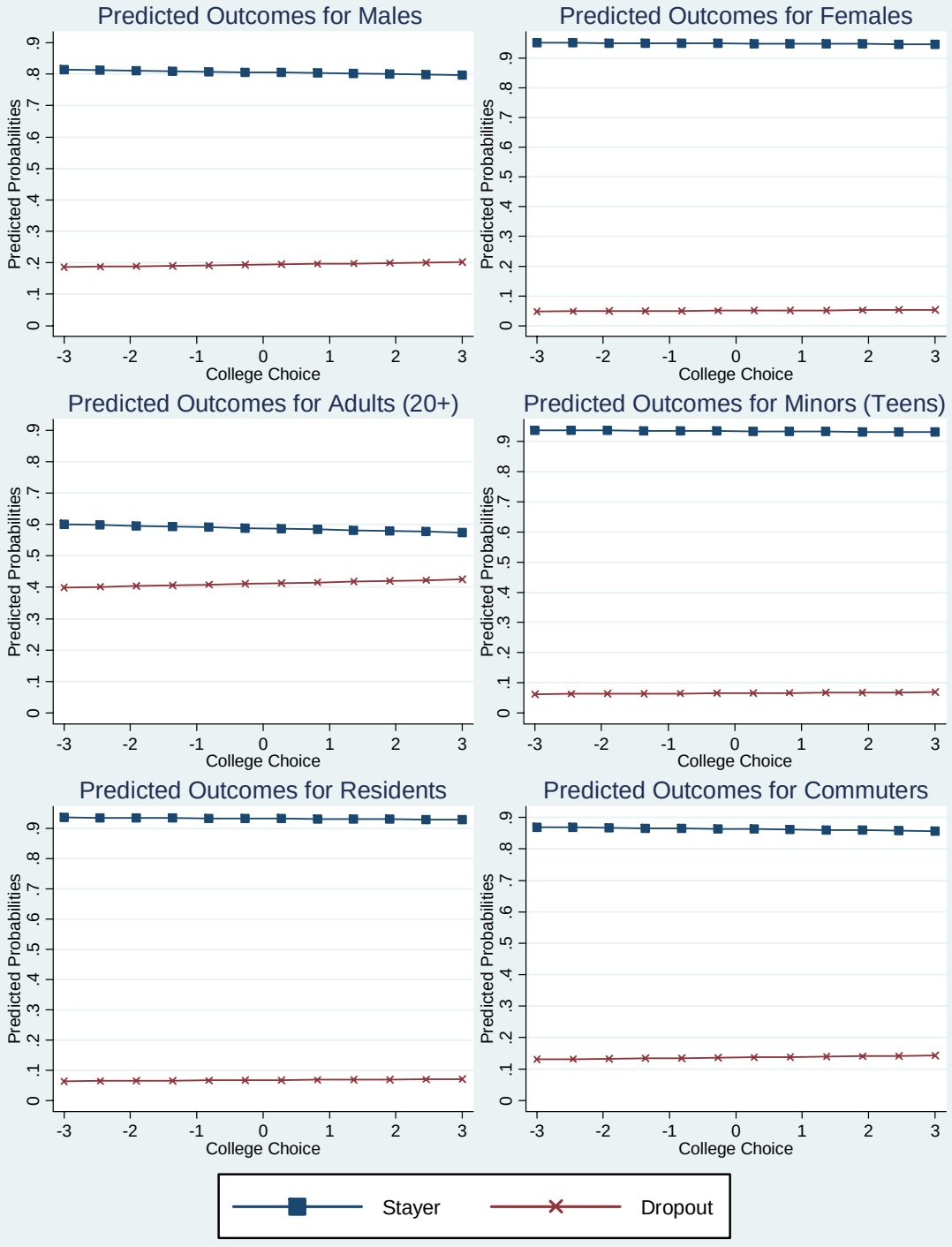


Figure 8.9: Influence of Hedonism on Newbie Types

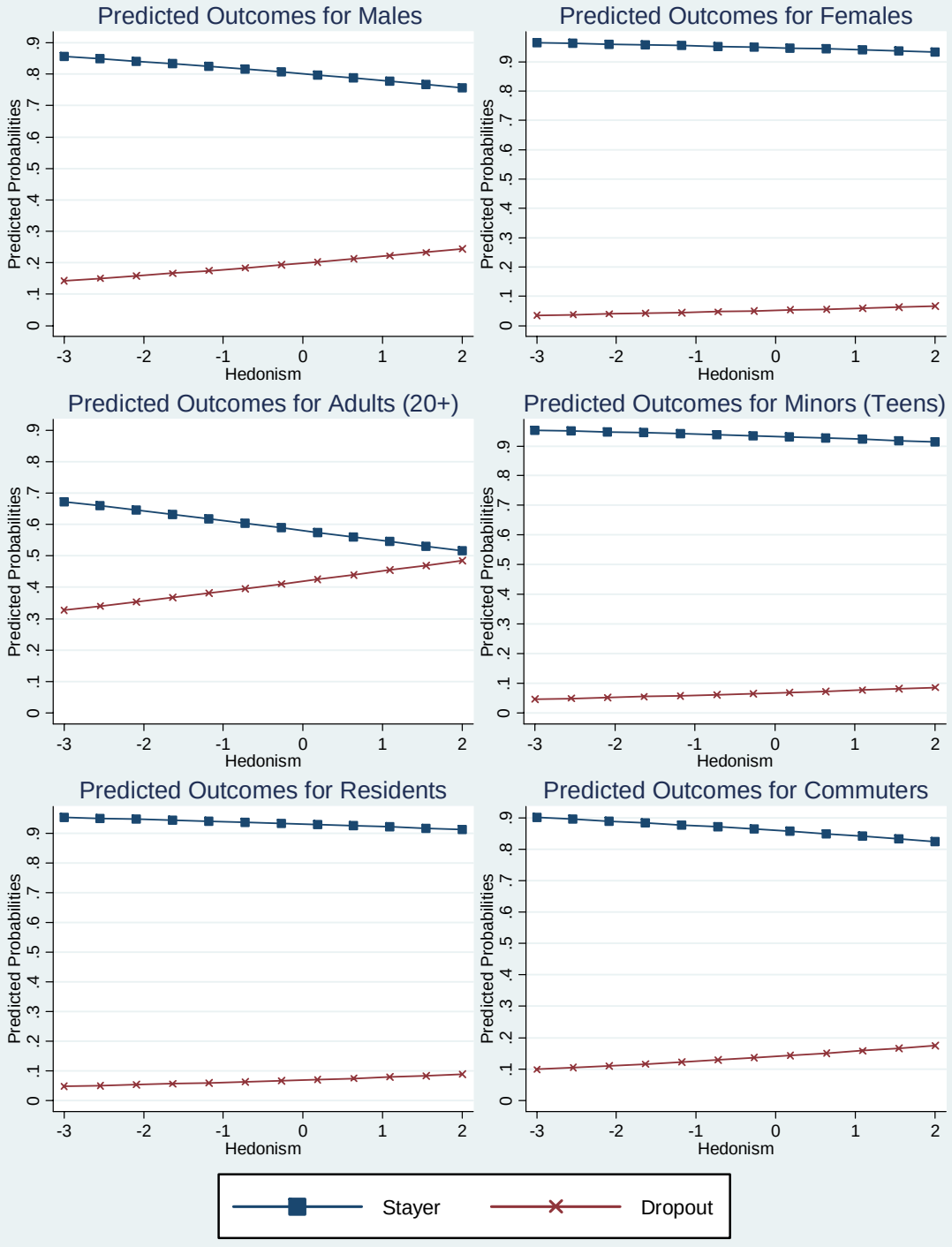


Figure 8.10: Influence of Other Directed on Newbie Types

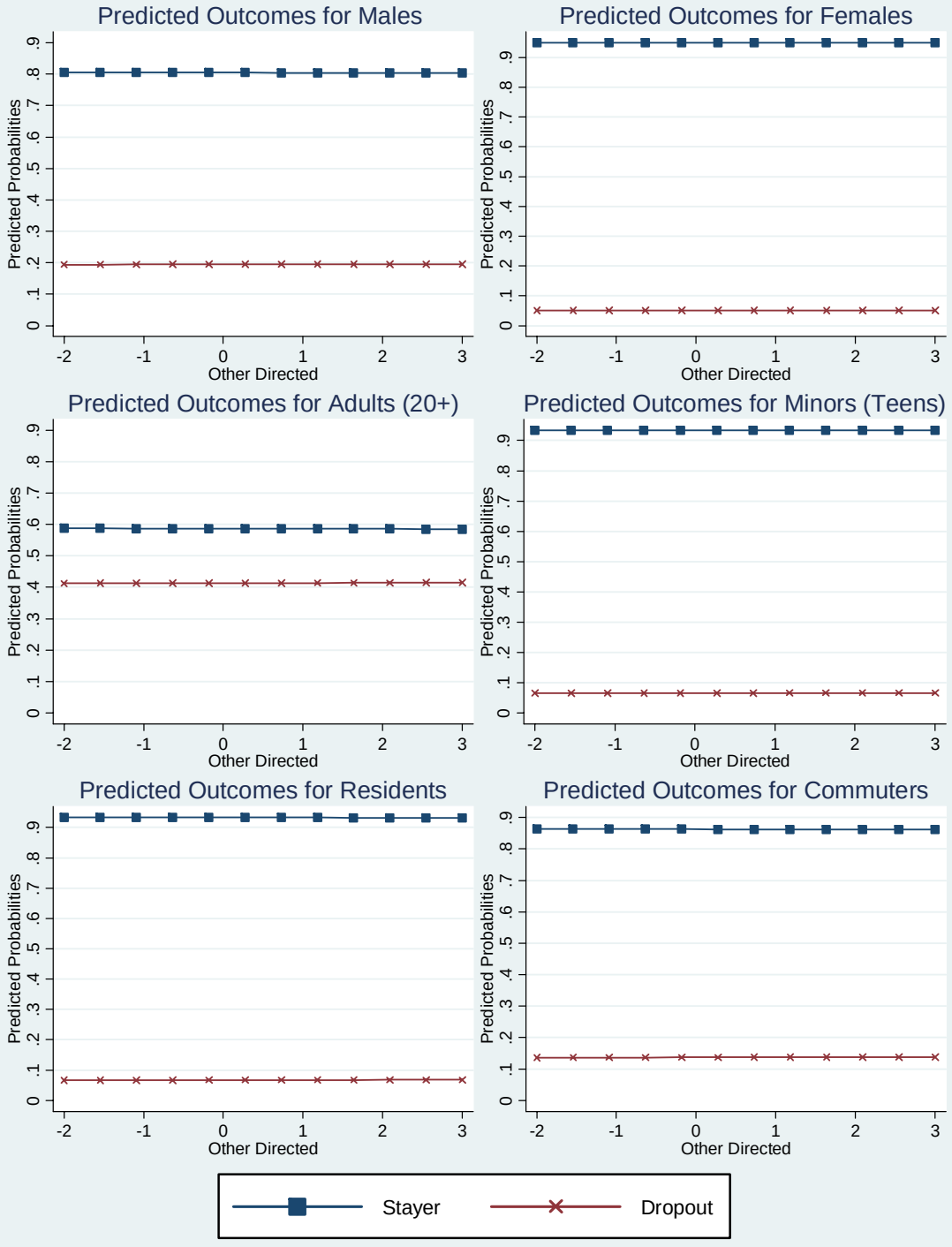


Figure 8.11: Influence of College Value Added on Newbie Types

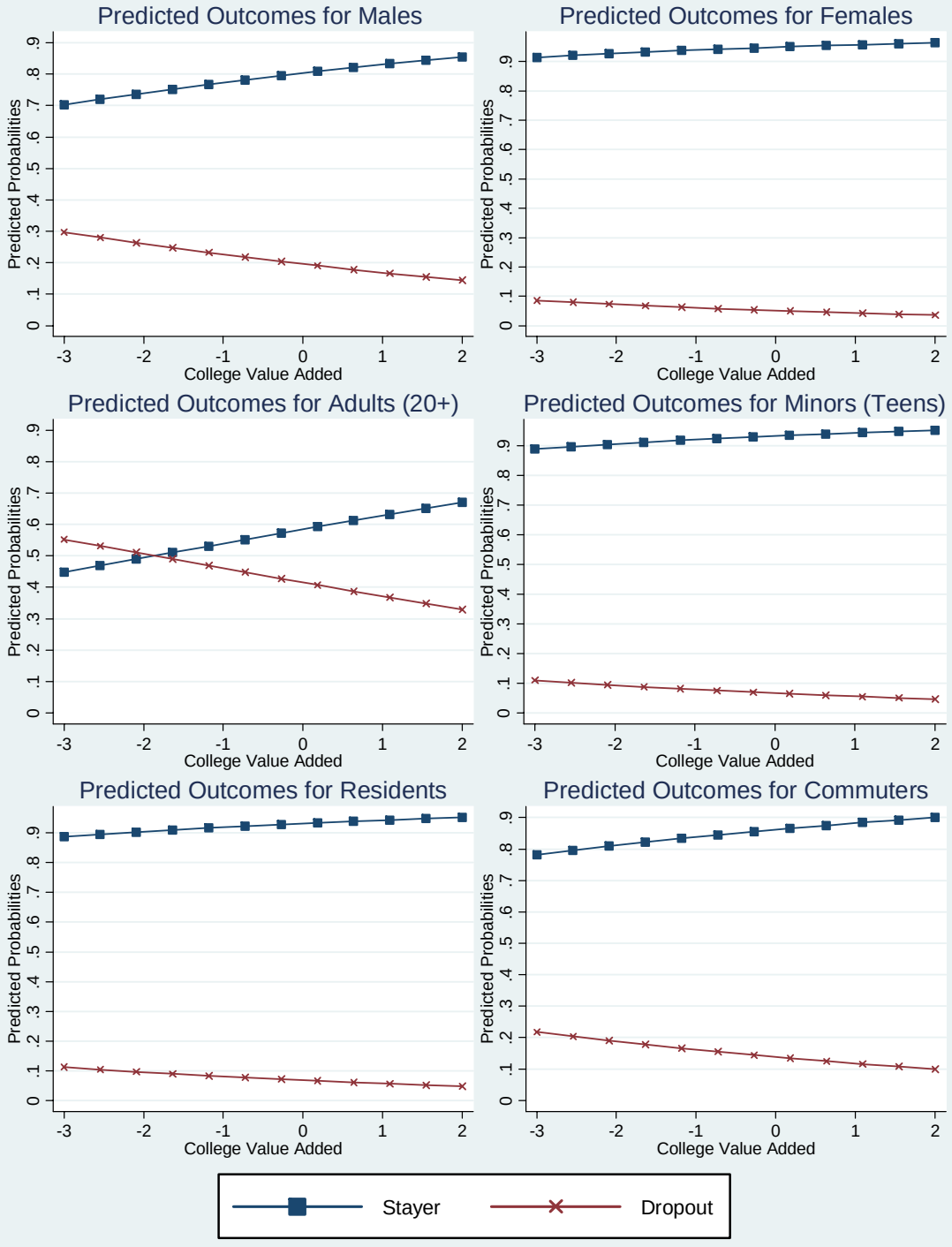


Figure 8.12: Influence of Cognition Required on Newbie Types

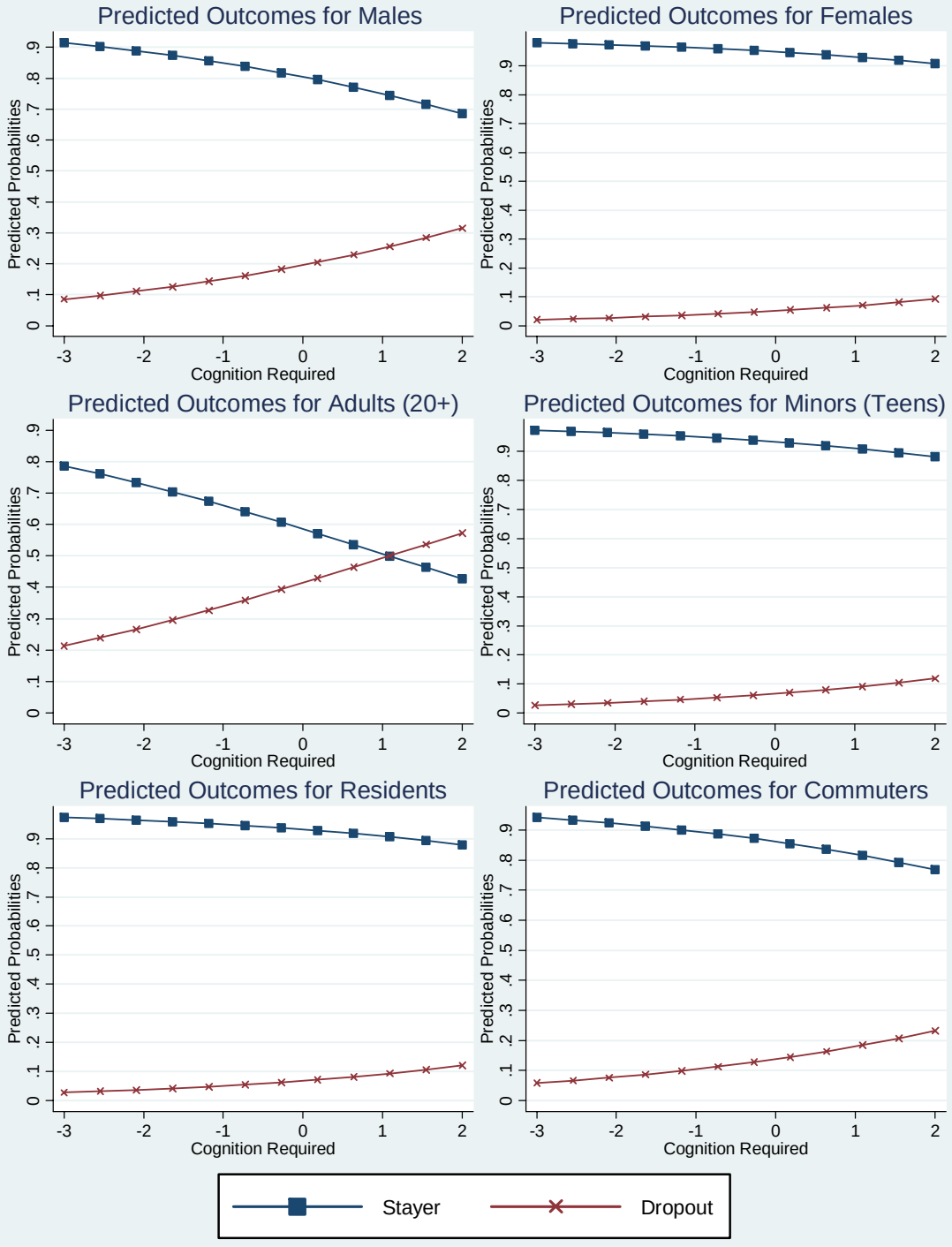


Figure 8.13: Influence of Quality Relations on Newbie Types

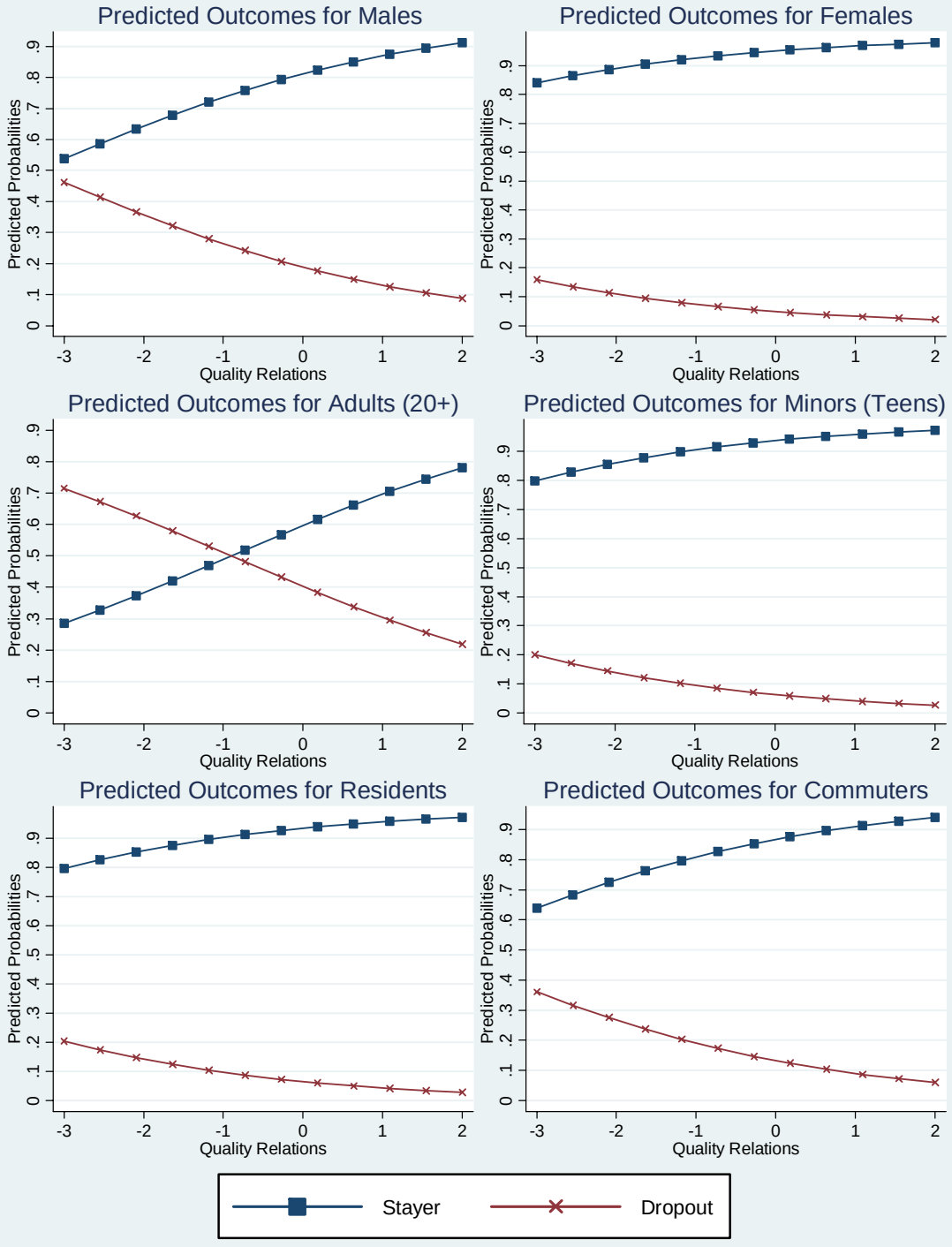


Figure 8.14: Influence of Scholarly Emphasis on Newbie Types

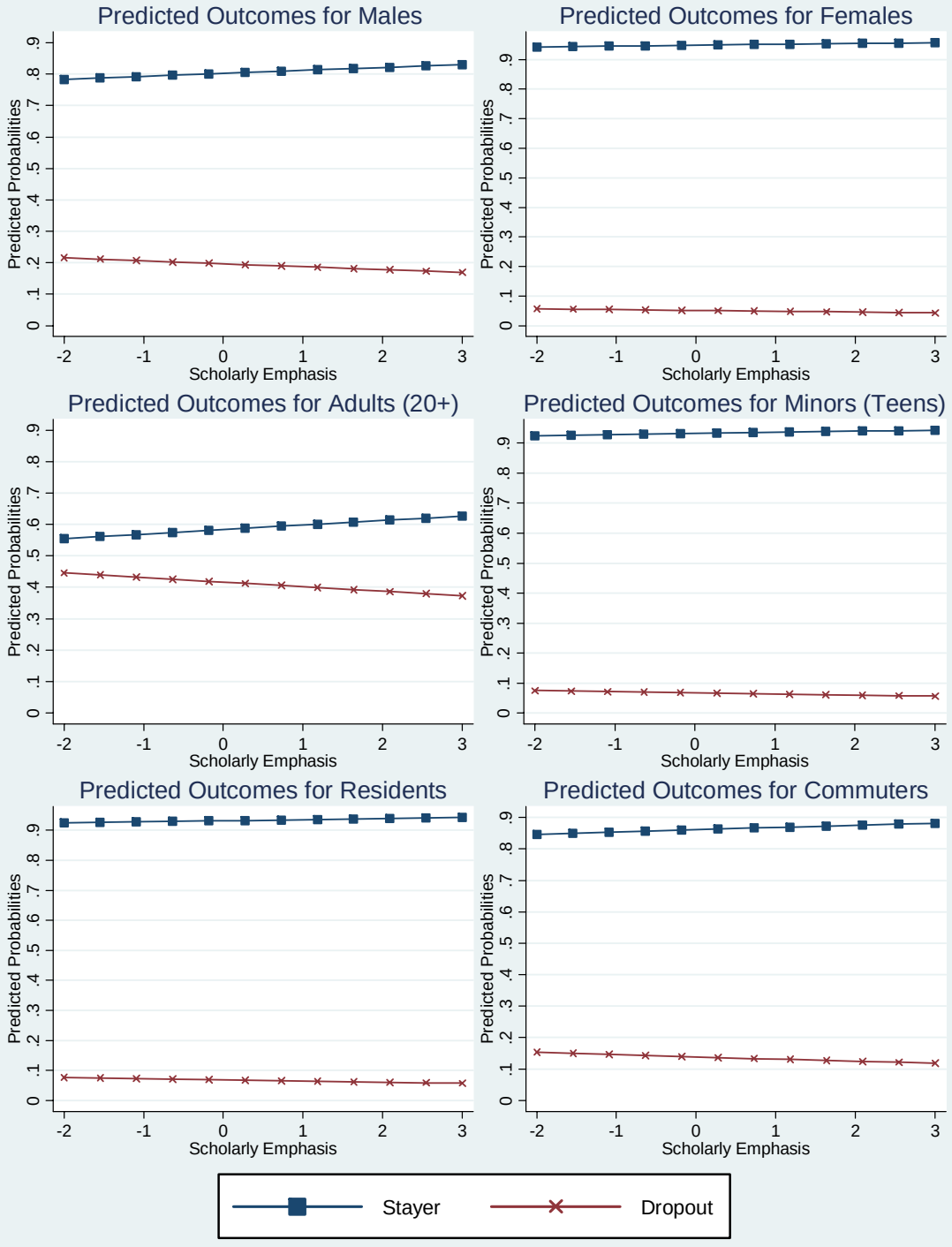


Figure 8.15: Influence of Interact Learning on Demographic Types

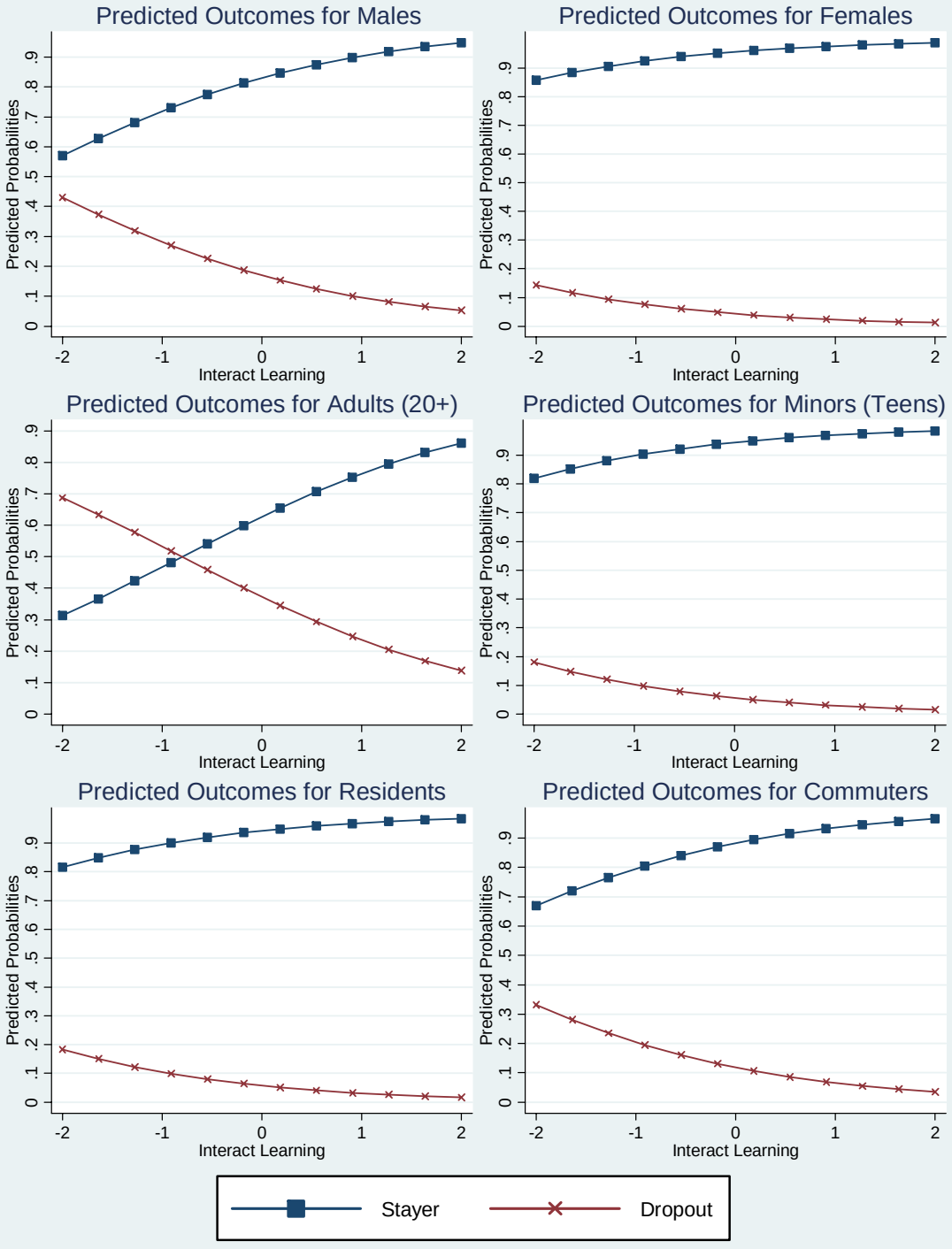


Figure 8.16: Influence of Informal Dialogs on Newbie Types

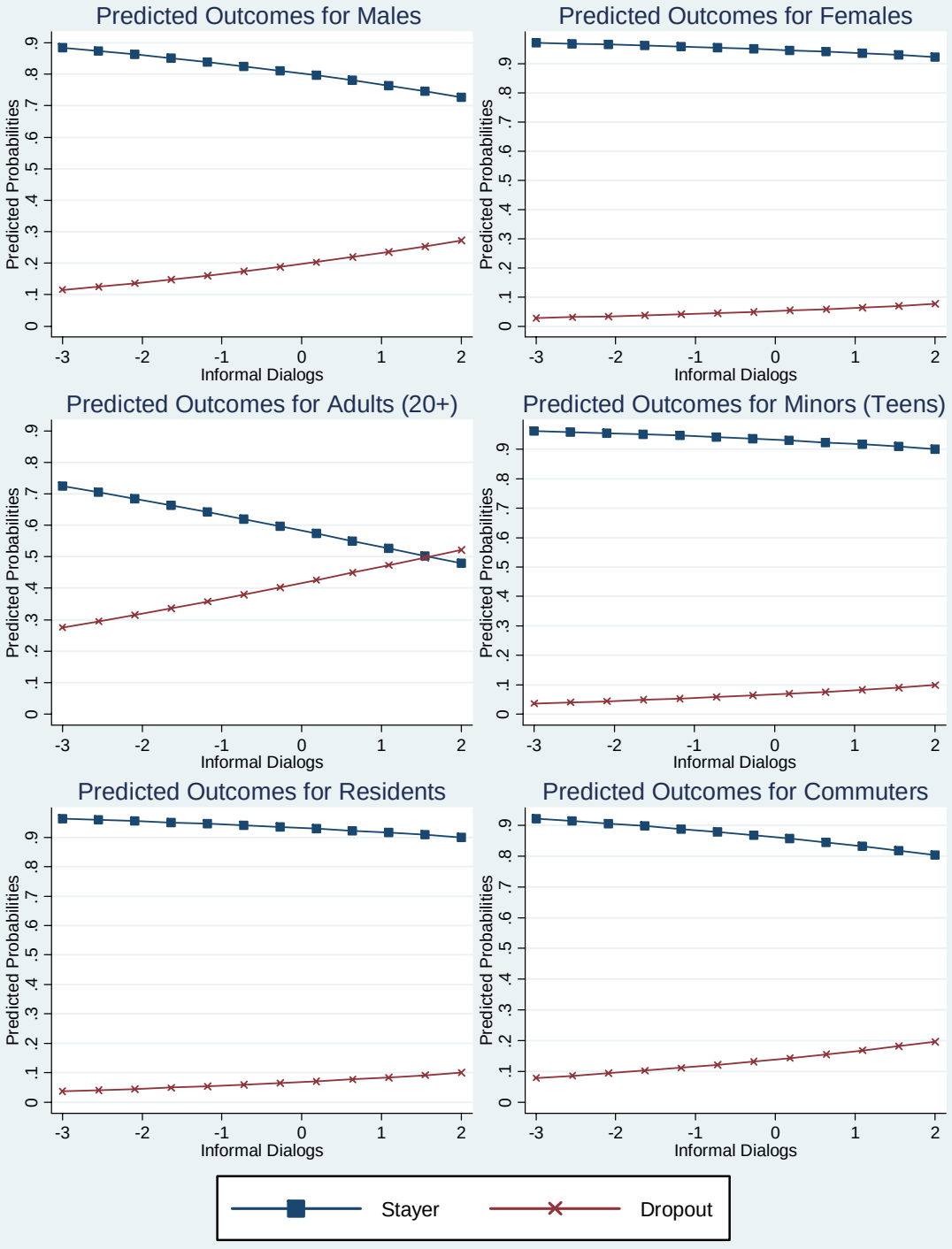


Figure 8.17: Influence of Literature Focus on Newbie Types

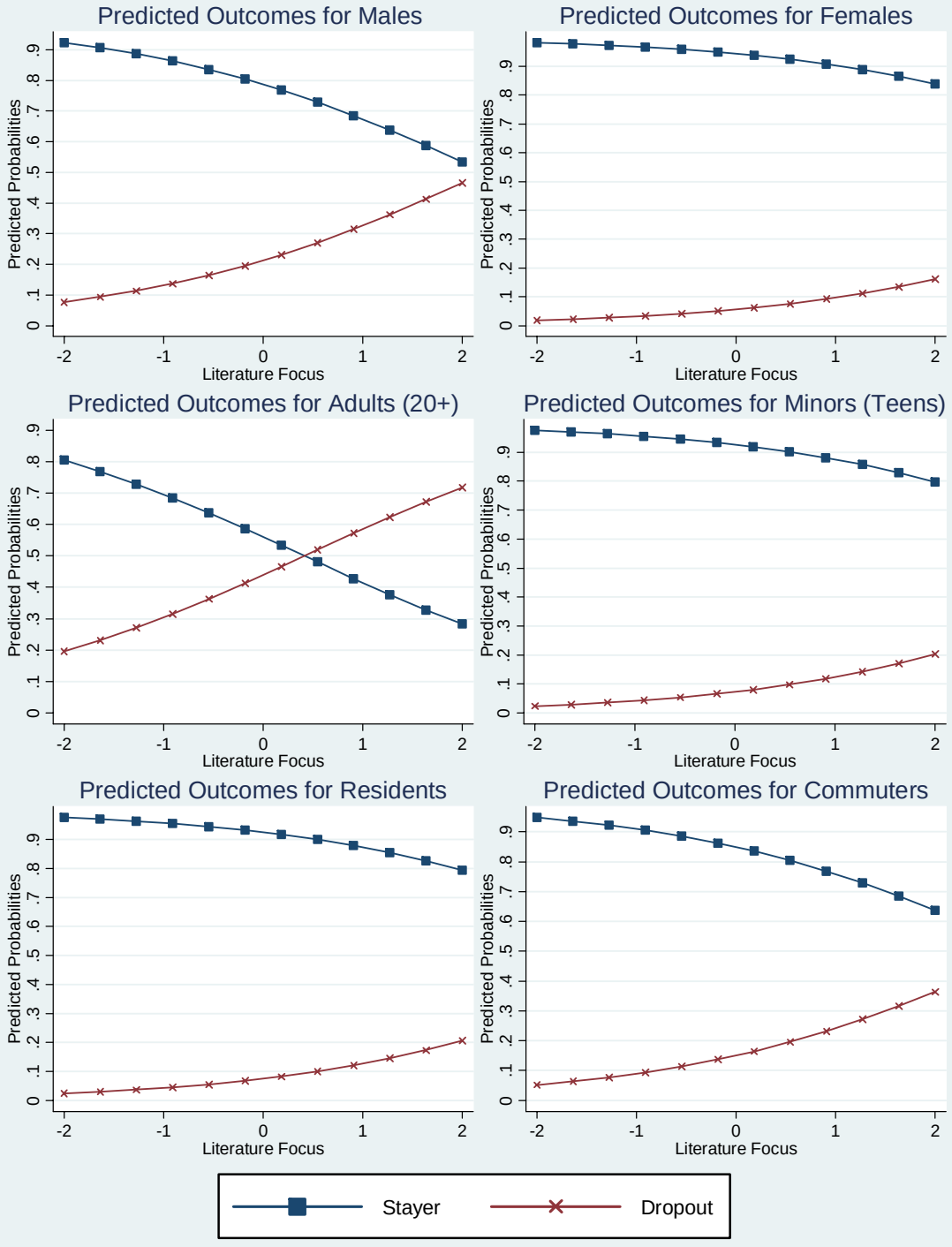


Figure 8.18: Influence of Academic Work on Newbie Types

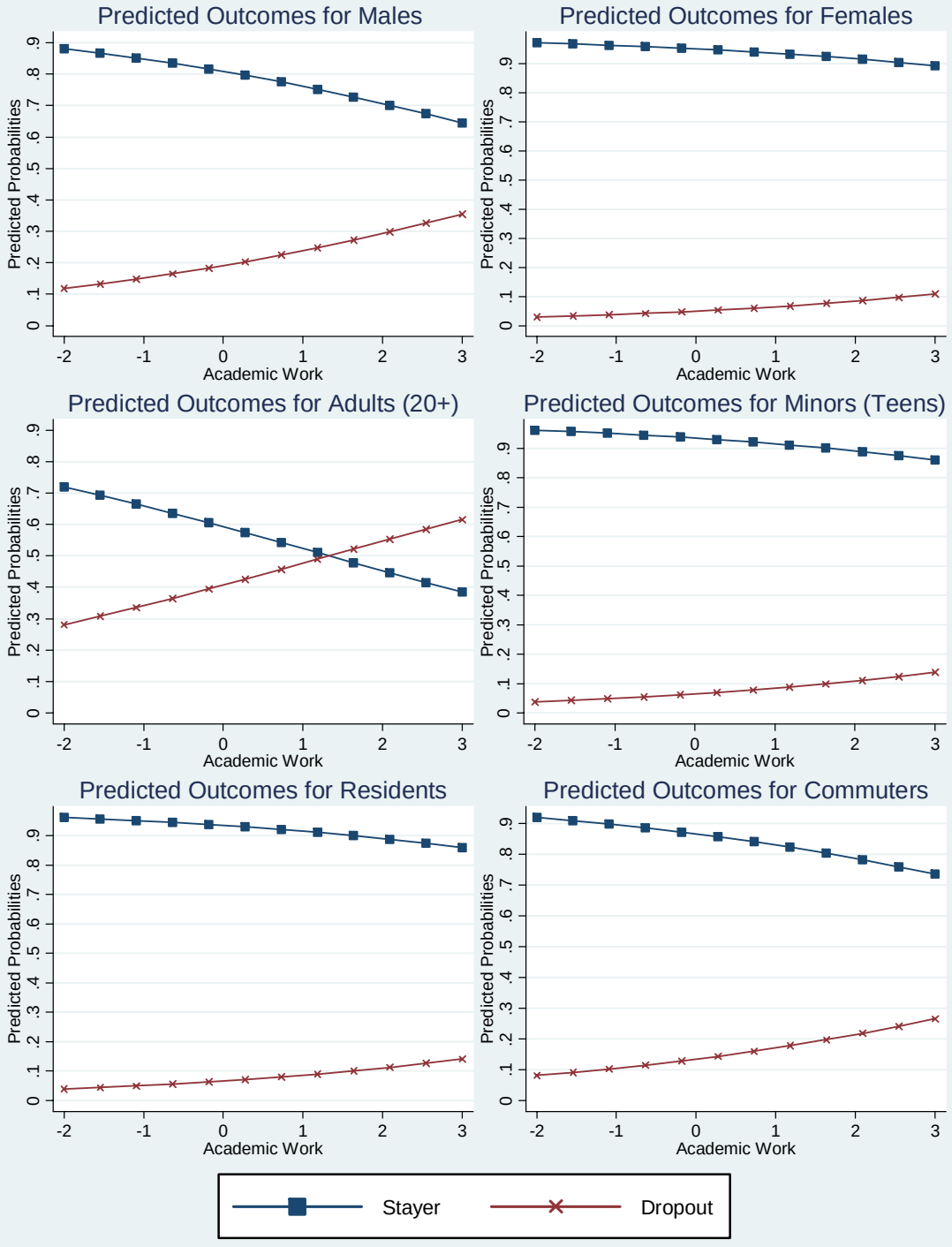


Figure 8.19: Influence of Extramural Demands on Newbie Types

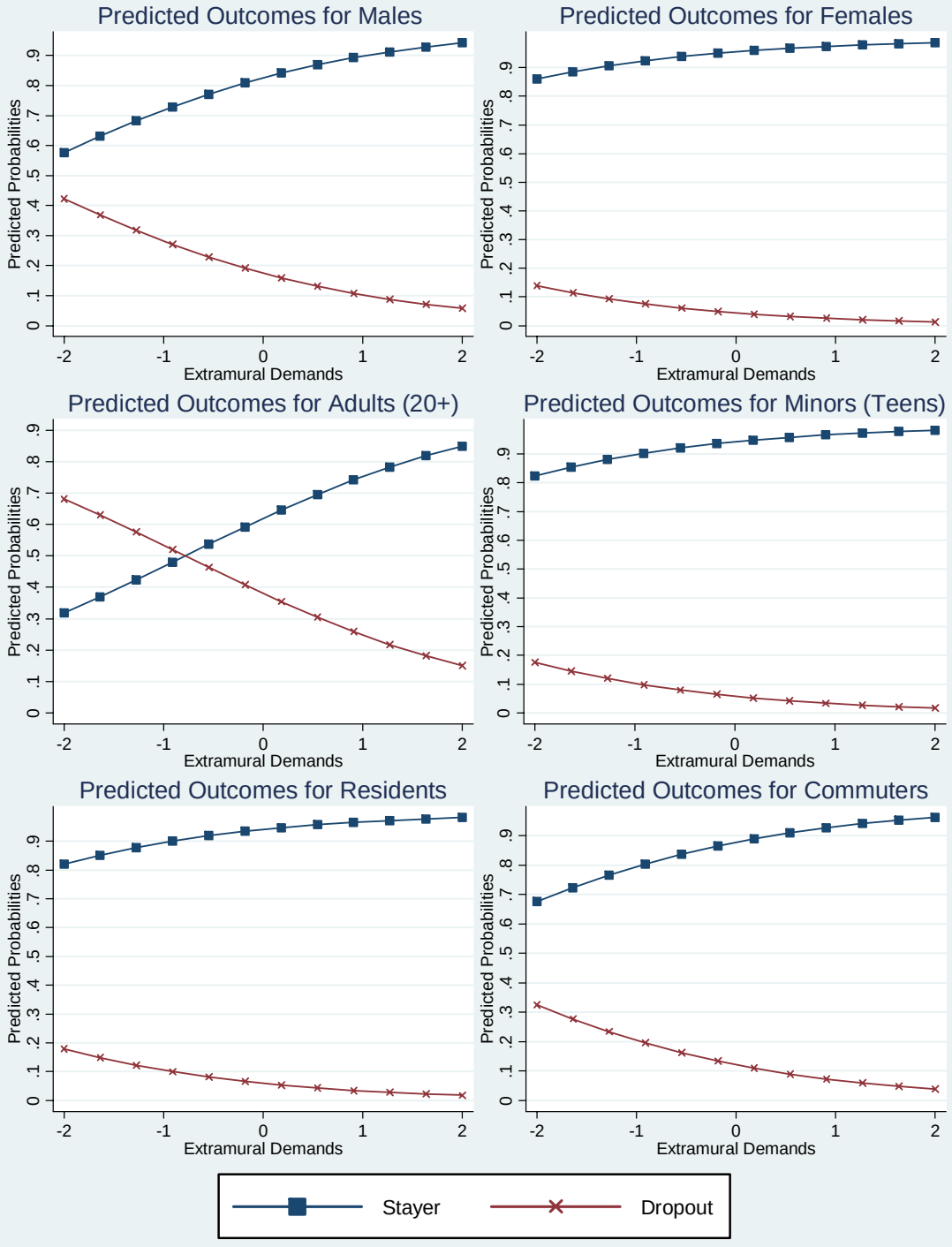
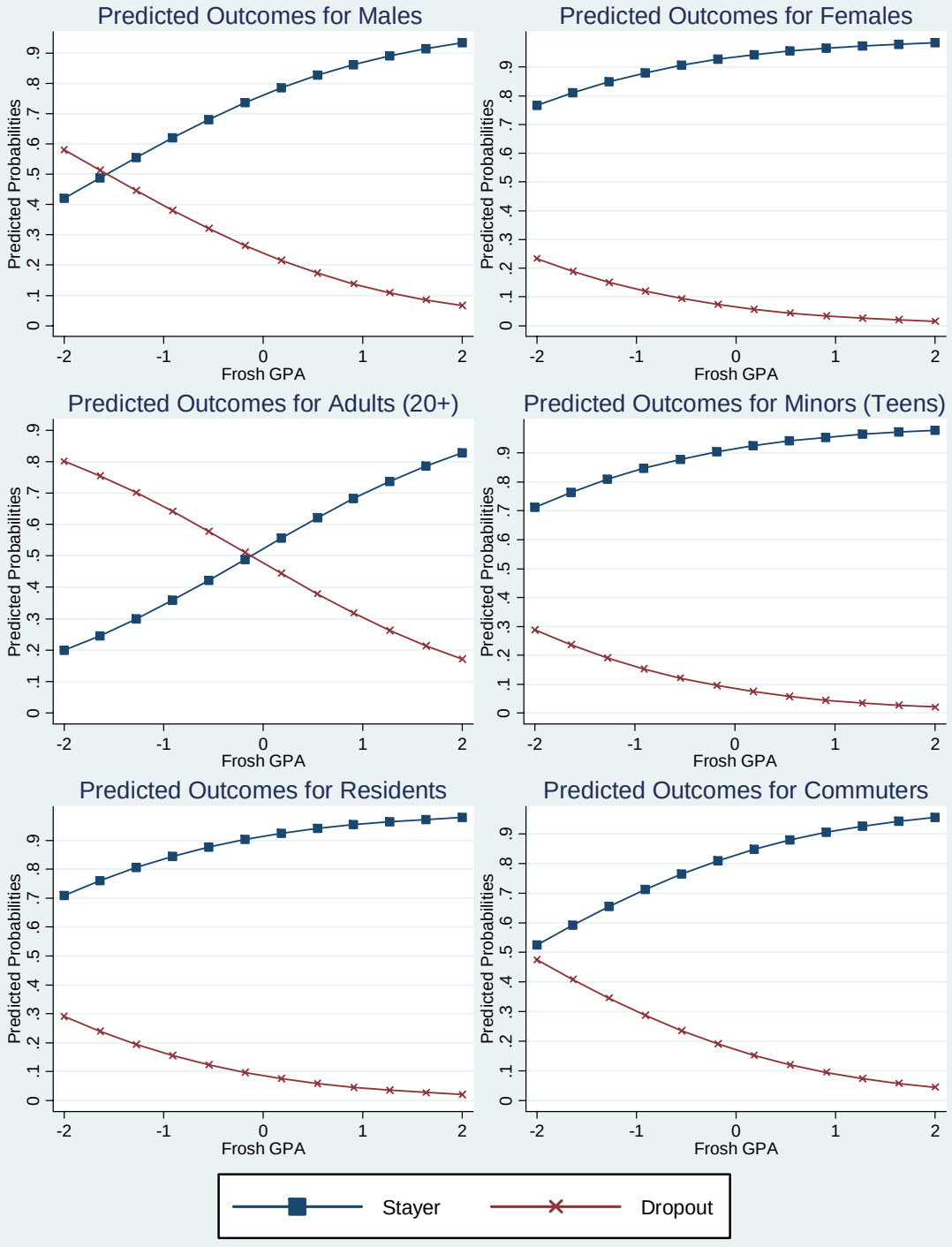


Figure 8.20: Influence of Frosh GPA on Newbie Types



Discussion: Chapter 8 describes findings from the investigation of an integrated model of Newbie early departure from the HBCU. In so doing, it incorporates twenty potential explanatory factors found influential in three earlier single-domain models that considered Assets, Mentality, and Experience factors separately. The population sample on which the model could be tested was limited to 181 cases—pressing the outside limits of the number of factors that could be considered based on the number of cases available. The limitation was imposed by a compelling practical consideration: there were only 181 Newbie cases available for which data is known from all three domains. Further, the limited data set contained insufficient cases representing two of the four outcomes of interest to properly evaluate those outcomes. Therefore, Stop Out and Transfer Out were not investigated in the Integrated models. Considered here was only Drop Out in contrast to Stayer.

Similarly, the limited data contained insufficient cases representing Minority and Part-Time students to properly enable consideration of those two student types. Therefore, racial and participation levels representing important aspects of Newbie sub-types could not be examined properly in the integrated model.

As a result, examined here were partial integrated models. These partial models document (Table 8.3) that the Newbie's indicator types for sex and age cohorts were solid influences on early Drop Out. The Asset factors were all found to be less significant than is usually required to document strong influence—except in the MNLR model that failed to effectively converge. There the Asset factors except for High School Culture were found to be quite significant. Mentality factors representing Achievement Motive and Hedonism, like other Mentality factors, did not attain usual levels of statistical significance in most models. Yet, the graphs representing their relationship to the outcome for specific types of students contain predicted probability curves that are consistent with stronger findings in the earlier more limited-range models considered in Chapter 6.

Most Experience factors all fell short of exhibiting a statistically robust relationship with Drop Out. Yet half of them do appear visually in graphic depictions to influence various student types in ways congruent with findings in the earlier Experience models as well as theory. Hence, increasing Hedonism appears to enhance the

probability of Drop Out while increasing Quality of Relationships, and Interactive Learning, appear to depress the probability of Drop Out. Increasing Extramural Demands, inexplicably, are seen to decrease the probability of Drop Out in this model, in contrast both with theoretical expectations and the findings in Chapter 7.

One Experience influence, however, has, in the partial Integrated model, an indisputably heavy impact on Drop Out: Freshman GPA. All types of students have an enhanced predicted probability of Drop Out as their Freshman GPA declines. Newbies who are earning better grades in their Freshman year are much more inclined to hang around for two years.

Chapter 9

Conclusion: Understanding Early HBCU Departure

Background: For well over a half-century, scholars, researchers, practitioners, bureaucrats, accountants, politicians, funding agents, and others have busied themselves exploring ways to better understand and/or predict college retention and attrition—attempting to reduce early departure, or striving to punish or de-fund institutions where excessive attrition was believed present for one reason or another—depending on their perspective. Over this time, many mature analytical studies have been undertaken in well-funded, world-class research universities using theories, models, and methodologies based on studies of the privileged or outstanding students usually found in those contexts. Thus, for example, Vincent Tinto has grappled with the issue at Syracuse University; John Bean has viewed it from Indiana University while John Braxton examined it from Vanderbilt. Alexander Astin studied it from UCLA in Westwood, CA, while George Kuh sees it from Bloomington, IN. Others have investigated it similarly from Ann Arbor, MI; College Station, PA; Madison, WI; Iowa City, IA and other such premier communities of higher education. These are institutions, parenthetically, in which, on average, 96% of the freshmen are retained from the first to second years.

While an enormous range of theories and understandings has been explored to good effect in these settings, representing essentially the full range of the behavioral sciences, it is interesting, first, that many such studies have assumed *a priori* some particular school of thought, perspective, or discipline and applied that point of view to the topic. It is as if a given analytical perspective descends, *deus ex machina*-like, to enlighten a researcher in time to explain the unfolding departure drama as in one of

Euripides' Greek tragedies.[99] Thus, psychologists have examined particular psychological issues (Bean & Eaton, 2000); economists have examined economic and financial issues (St. John, Cabrera, Nora & Asker, 2000); anthropologists have explored various cultural dimensions (Kuh & Love, 2000) and so forth in trying to understand the early departure issue.

But, for the most part, the studies themselves have not justified themselves on comparative empirical grounds. That is, they have not demonstrated that they provide *greater* insight into the issue than some other perspective or perspectives. They begin with methodological assumptions, not verified observations, and proceed by steps to directly conclude the importance of the vantage point previously assumed or to disconfirm the expected outcome. Such is, of course, both the curse and the virtue of discipline-based scientific research, as readers of Kuhn (1962; 1996) are well aware.

Secondly, it is also interesting—even humbling for scholars—to know that despite this truly massive investment of scholarly time and resources in analyzing college retention and early departure across the nation for over a half-century, relatively little change in college attrition rates has been accomplished or experienced nationally. One scholar observed that the departure rate has been approximately 45% for over a hundred years (Tinto, 1982) while another was provoked to wonder "Why has this rate remained constant over such a long period of time?" (Braxton, 2000, p. 1) Is it true that there is a disconnection between what researchers have discovered about early departure and daily practices underway in institutions? Or is it simply that research findings, though frequently communicated to practitioners, have not been particularly useful in influencing or adjusting the norms of the collegiate enterprise? Why is it that documented and wide-spread knowledge about influences on early student departure has not succeeded in influencing the rate of departure itself to any great extent?

Then, to further exacerbate the issue for HBCUs, to the extent that college attrition has been studied in HBCUs, results of those studies have been, as Ledbetter (1991) found, "discouraging." In part, this discouraging experience may have arisen

[99] Wile it is clear that Tinto, for example, examined and considered many sociological theories in creating his framework, some of his successors have applied his framework to HBCU case studies without considering economic or cultural dimensions that might better or further account for departure outcomes (e.g.: Ledbetter, 1991).

because HBCU studies have mirrored student departure models, theories, and methodologies developed in more privileged institutions, where they were previously applied to a more homogeneously elite mainstream student body—elite either fiscally or academically. These borrowed theories, methodologies, and techniques have been applied in a few HBCUs but with largely unimpressive results. HBCU retention studies have generally explained little and sometimes have come to contradictory conclusions. They have often been conducted with meager resources and depended on single surveys for both explanatory factors and outcome effects. The practice gives rise to the "vicious circle" described by Kaplan in which research "substance gives way to form" (1964, p. 406).

Mindful of the general predicament described above, the present study was envisioned and undertaken as an exploratory empirical study, within the context of a state HBCU, to see whether and to what extent various perspectives and a variety of available evidences might aid in further understanding Newbies' early departure from this type of institution—an institution specialized to serve one specific population sub-group. The study began under the protective aegis of a loose social-cognitive framework (Figure 2) legitimating Newbie's prior contexts ("Assets"), current mental outlook ("Mentality") and on-going first-year experiences ("Experience"). It proceeded by culling through the wide collection of variables readily available[100] to focus on those that related to or were justified by one or another analytical theory or perspective found previously useful in the relevant literature. The study took shape then as a reanalysis of existing data. Data sources included rich institutional data drawn from the Registrar's student file, financial aid data from the Financial Aid Office, freshman survey data on hand from annual CIRP and NSSE investigations, High School performance data retrieved from sympathetic state-level K-12 officials (with access to individual schools testing results), and neighborhood census data retrieved from the Federal Bureau of Census.

In proceeding thus, various serious challenges presented themselves. Missing data was a clear and present danger—far more so than one would have suspected. Matching data from one source or file with another was itself a Herculean task. Combining data across years, in light of survey instruments' ever changing range of

[100] Nearly 500 variables were reviewed initially and compared against the relevant literature.

survey items proved a demanding feat. Even matching students with their high schools and home zip codes was a greater task than anticipated as both are subject to changing designations across time to an extent previously unexpected.

In the end, master data files were constructed to enable blending extensive student background information, called "Assets," with attitudinal information at entry, called "Mentality," and student first-year experiences, called "Experience" in the study. Thus the composite data files enabled applying a number of integrated, contextualized multinomial logistic regression models for predicting premature HBCU students' departure from the state university at the center of this study. The models included factors constructed from students' biographical Assets, their expressed Mentality, and their perceived Experiences to account for early departure, whether by Stop Out, Transfer Out, or Drop Out.

Methodology: The research design differed from more popular approaches, combining classic factor analysis (FA) both to reduce the large number of variables and to allow for the possible emergence of new theoretical constructs with multinomial logistic regression (MNLR) to focus attention on distinct categories of departure. For this treatment, 21 factors were first identified, residing in three domains (Assets, Mentality, and Experience) which, along with a 10-category Student (Identity) typology, could be regressed against an outcome measure. The outcome measure consisted of four distinct categories: Stayer, Stop Out, Transfer Out, and Drop Out where Stayer was the base category against which the other three were compared. In proceeding thus, the study differs from usual treatments in that it sought to explicitly explain each of the three separate departure behaviors rather than the single retention category usually attracting attention. The underlying logic for this approach was that the three types of leaving behavior are conceptually and categorically different from one another and require, therefore, somewhat different explanations—explanations lying at the "middle range" of abstraction theoretically, as Merton described (1957). Retention thus, is viewed by default as the absence of three early departure behaviors and the influences on those behaviors.

An advantage to this approach is that as understanding of each separate outcome category matures, the possibility of focused, formative interventions increases. Whereas

a study of those retained indicates generally what worked, what worked is manifestly not what requires intervention. Study of what *didn't* work (i.e.: study of those departing in three distinct ways) provides more direct clues to possible intervention strategies that might be developed to minimize in turn each specific departure route. In this respect, the study sought to develop what Robert Merton (1957) once described as "middle range theories" as would be appropriate in accounting for departure in "particular types of colleges" and "for particular types of students" (Braxton, 2000, p. 270). It is entirely possible that the lack of general progress on limiting early departure from colleges may result from a general preoccupation with overall institutional averages and assembling a "grand theory" to account for those large-scale averages at the expense of closer-range particulars. An overly general account, after all, cannot reasonably be expected to guide effective specific interventions in limited real life contexts.

Findings: Given the above, what, it is fair to ask, has been discovered, verified, demonstrated, or suggested of importance or significance by this study? Is anything new known about Newbie early departure from the HBCU? The original research question guiding this inquiry was "What factors influence early freshman departure in an HBCU?"

First, Chapter 5 documents that in studying early departure from an HBCU, it is useful to consider three separate categories of early departure (Stop Out [4%], Transfer Out [6%], & Drop Out [31%]) against the Stayer category [59%] rather than the usual two (Stayer [59%] and Drop Out [41%]). These outcomes are demonstrated to be validly independent and not redundant—at least in terms of the explanatory factors included in the Asset models of Chapter 5—factors reflecting Newbies' home Neighborhood Culture, Neighborhood Capital, High School Culture, and individual prior Academic Preparation as measured by high school grades and college entrance test scores (See Table 5.2). One of the outcomes, Stop Out, was not found useful in the Chapter 5 analysis, but did prove useful for subsequent analysis in Chapters 6 and 7. It is necessary, however, to gather information relating to more Stop Out cases to fully verify its utility for the Asset study undertaken in Chapter 5.

Second, it is demonstrated by the MNLR models in Chapter 5 that three very broad group-level factors representing the economic and cultural nature of Newbies' home neighborhoods and high schools are measurably useful in understanding early

departure. These factors, not usually considered in college attrition studies, do appear to have an important influence on Newbies fates in an HBCU and should be considered hereafter. And they represent considerably more conceptual depth than the basic demographic factors usually controlled for or studied.

Easily most important among these group-level factors, it turned out unsuspectingly, is the High School Academic Culture. For this study the factor was measured largely by the numbers of seniors sitting for the senior achievement tests and the percent of those passing the achievement tests. Accordingly, the factor is presently understood to represent a degree of academic pressure or force that Newbies must have learned to cope with during high school days. What is truly astonishing among the findings of Chapter 5 is that the High School Academic Culture factor (a group-level factor) is considerably *more* powerful in influencing early college departure in the HBCU than Newbies' own individual prior Academic Preparation, an individual level factor combining variables representing the high school GPA, the SAT score (or the equivalent), and merit scholarship funding. And since the High School Academic Culture is not much correlated with individual Academic Preparation ($r = 0.0253$; $p = 0.1397$), it is not a factor that enters typical analytical models implicitly as a covariate of Newbies' individual Academic Preparation. The High School Academic Culture is a separate and legitimate factor, as was seen in Chapter 5, distinctly different from Individual Academic Preparation and it deserves to be included in analytical models of early departure from HBCUs—despite the potential political risks to intrepid researchers.

While an individual's prior academic preparation, measured by high school GPA and college entrance test scores has been ubiquitous in studies of early college departure, rarely has further influence from contributing high schools been taken into account systematically.[101] And, as seen in Chapter 5, that factor ultimately could be more useful as a predictor or explanatory regressor than is individual preparation—including grades and college entrance test scores.

[101] It is often true that colleges and universities track students by high school of origin and return to the high schools "reports" containing frequency distributions indicating % of their graduates enrolled, earning different grades, progressing through the college years, and so forth. But rarely are high school attributes considered as causative or correlated factors influencing directly the college fates of their graduates. Indeed, political niceties within states prohibit crossing the line from one institution to another for this type of study. Certainly that was the case in GA where obtaining useful high school data was a major achievement and cautions were whispered from several quarters.

Chapter 6, in turn, demonstrates rather conclusively that two particular factors associated with Newbie's Mentality are also of very special utility in understanding early departure from the HBCU. Those factors are life goals Achievement Motivation and Other Directed activities (See Table A3). Both were found to increase Newbies' proclivity to Drop Out as they increase in intensity. While the finding with respect to Achievement Motivation is counter-intuitive on its face owing to the factor's label; a scan of the list of variables loaded on the factor renders the association reasonable enough. One might assume that those strongly motivated to achieve academically would be strongly motivated to remain in school to work towards that achievement. But the factor is a construct combining a set of variables extrinsic to academics and reflecting an assortment of specific life goals queried by the CIRP survey, not the usual collection of characteristics encompassed by "n-Achievement" found in the literature following Atkinson (1978) and McClelland (1987). It appears then that those Newbies in the greatest hurry to advance their life goals' achievement agendas may have little patience for the ways of academia in the HBCU and appear to be moving to express themselves more expeditiously elsewhere.

Two other factors associated with Newbie Mentality proved also of special interest, although their case remains to be proven with firm statistical reliability. Increasing Hedonism appears to enhance the probability of Drop Out clearly enough for all types of Newbies in Figures 6.9 and 6.10 and it surely is supported by strong face validity noted by a variety of observers over a long time period (e.g.: Schurman, 1956). Yet the metrics displayed in model one (Table 6.2a) do not support this observation's validity statistically and it is not a factor that has received much attention in the empirical literature (Pascarella & Terenzini, 2005, Chapter 8). The significant problem here becomes clear when Models 3 & 5 are reviewed. There is an inadequate sample of students in the Stop Out and Transfer Out categories and among Adult Newbies to robustly support statistical findings with those categories included in the model. Yet, when those categories are removed from consideration, as in Model 3 & 5, the Hedonist factor might be considered a statistically valid regressor, although a very weak one, with $p < 0.10$. There is enough evidence, however, to suggest that it might be well to consider

it further for its potential advantages—especially in light of racial stereotypes commonly found in American society (Ellis, 2002).

Similarly, the Social Engagement factor appears clearly to depress the probability of Drop Out and enhance the probability for Stayer and Transfer Out in Figures 6.5—6.6. Yet the metrics displayed for Model 1 (Table 6.2a) reveal it to be barely defensible as a statistically valid regressor with x^2 6.24 and $p < 0.10$. Yet a review of Models 3-6 reveals that the Factor is easily valid with a commonly accepted $p < 0.05$ when the Stop Out and Transfer Out cases are removed from the model. The problem here was in attempting to measure statistically a sample with too few cases in some cells—the same as with the Hedonism factor. The Social Engagement factor, as is apparent in reviewing the variables loading on it (See Table A3) reflects an activist and involved Newbie, much as hypothesized in the voluminous literature from Pace (1980) and Astin (1993) to Kuh, et.al.(2005) and the factor is associated with the Stayer outcome much as would be expected by those familiar with the literature (Pascarella & Terenzini, 2005; Ch. 8).

Chapter 7, further, documents that of all the various first-year experiences that might have been found to profoundly influence Newbies' proclivity to depart early, only Stakeholder Relationship Quality and Freshman Year GPA found strong statistical support for their validity as predictors. It is clearly established in this study that as these predictors increase, so increases the predicted probability of staying enrolled. Low GPAs are related to both Stop Out and Drop Out responses (more strongly to Drop Out) while low Quality Relations are related to Transfer Out and Drop Out (more strongly to Transfer Out). That better grades, though "imperfect," are congruent with predicted enrollment persistence is consistent with the relevant literature. Pascarella and Terenzini, for example, observed after examining 30 years of post-secondary empirical research that "college grades may well be the single best predictors of student persistence" (2005, p. 396). No surprise relating to the influence of grades has emerged in the Newbie study.

Chapter 8, sadly, did not add much of substance or novelty to the overall study. Intended as an Integrated model, it fell short owing to deficiencies and omissions in the merged data set. The full four-part outcome model could not be tested because there were insufficient cases of Stop Out and Transfer Out to consider. The full array of input factors could not be analyzed owing to insufficient cases of minorities and part-time

students in the sample. Among the factors that were considered, findings sometimes contradicted the more robust findings of earlier chapters. For example, in Chapter 5 & 6, High School Academic Culture was found to be a dominant influence. In Chapter 8, it was not found to be a significant influence. The partial Integrated model was able to verify only that age, sex, and freshman GPA were strong influences on Drop Out; older, male, and lower GPA were associated with increasing the probability of Drop Out.

Overall, it is fair to say that the Newbie study demonstrates the extreme importance of contextual factors beyond the institution ("Assets" here) in studies of college persistence and departure. This may be the primary theoretical contribution the study has to make to college departure literature for HBCUs. On the basis of this study, it is now understood that Newbies' pre-college life experiences (beyond prior personal academic preparation) deserve far greater attention than they have had in the literature.

Similarly, pull factors emanating from Newbies' concurrent Extramural lives deserve far greater attention—although the present study documents no statistically valid relationship between Extramural Demands and early departure (Table 7.2b: $x^2 < 3.7$, $p > 0.22$ for all models tested). But, Extramural Demands is a factor that might be expected, as a result of findings in studies of other venues (e.g.: Nora, Cabrera, Hagedorn, & Pascarella, 1996) to strongly influence early departure in the HBCU. That it failed to do so likely is due to the restricted range and type of variables loading on the factor—an unfortunate and serious data limitation.[102] Based on findings from other researchers, it is worth pursuing this factor further and incorporating in the factor other variables reflecting off-campus real-life experiences found to be important for Newbies enrollment outcomes. The effort is likely to be especially useful in understanding behavior of older non-traditional Newbies and Commuters. Prior studies, at least in cases of HBCUs, may have been too tightly woven around academic experience and too little tied to the fuller external lives of real people. Extant studies have been dominated by educational researchers and may lack adequate influence from sociologists and economists who may be able to expand the contribution of community norms, standards, and influences on individual behavior.

[102] No valid data was available, for example, to document obvious potential extramural influences like Newbies' marital status, number and ages of children, types of employment, current legal or financial problems, community entanglements, labor marked conditions, debt loads, tax problems, and the like.

Influences on Discrete Outcomes: Based on this study, each of the outcomes in the dependent variable can be seen to occur as a result of different mixes of influences in varying proportions. Tables 5.3, 6.3, 7.3, & 8.3 display the particulars in full. Discussed here is a basic overview.

Stayer: In terms of student types, Black race and Full-Time participation are the strongest positive influences on persistence. Among Asset factors, Neighborhood and High School Culture are stronger than are Academic Preparation or Neighborhood Capital. Neighborhood and High School Cultures are positively associated with this outcome as is Social Engagement. Neighborhood Capital and Academic Preparation are negatively associated with it—meaning the more affluent the background and the greater the individual's Academic Preparation, the lower is the probability of Staying.

Life goal Achievement Motivation appears to be negatively associated with Stayer, as may be are Hedonism, Other Directed, Cognitive Coursework, and Academic Work Focus—although these later factors do not have strong statistical support. Quality Relationships and good College Grades are strongly associated with an increased probability to Stay.

Stop Out: Commuters and Part-Timers have large and comparable influences on the probability of Stop Out while Adult status is about half as influential. Gender and Race are not very influential on this outcome. Most important, however, is Academic Preparation; as it increases, the probability of Stop Out increases dramatically. Careful College Choice is negatively associated with this outcome but none of the Experience factors is closely connected to it—including college grades. Stop Out appears to be driven by extramural forces and pressures and is felt most strongly by those most susceptible to them—part-time students and commuters living, logically, in closer proximity to extramural influences.

Transfer Out: Adult age and Minority (non-Black) status are strong influences on transferring while Sex, Participation Level and Residence identities are of minimal influence. Increased Neighborhood Capital and Academic Preparation are associated with increased probability to transfer. None of the Mentality factors are particularly influential on this outcome, while depressed Quality Relationships are associated with it.

Drop Out: Commuting and Adult status are the major factors associated with this outcome while the other indicators are more moderate. Depressed Neighborhood and less robust High School Cultures are positively associated with Drop Out, as is Achievement Motivation, Hedonism, and Other Directed. Extramural Demands, Academic Work Focus, and Cognitive Coursework are all appear visually to be positively related to Drop Out (Figures 7.3—7.4 and 7.15—7.18) but lack firm statistical support on the basis of data available for this study. But it does appar that the more of these factors the Newbie experiences, the more probable is Drop Out.

Implications for Practice: HBCUs, like other institutions of higher learning, are anxious to reduce the early departure of their student bodies. If that be a primary goal, several courses of action appear likely to be useful and worth formal testing with applied research, based on the findings outlined in this study.[103] Following is a list of examples.

First, Newbies might be recruited and admitted from those specific neighborhoods in which students are found to have the highest predicted probability of Staying enrolled. Those would include urban, predominantly black, metropolitan communities that are not impoverished. In the case of this particular HBCU, recruiters might be well advised to focus on more distant origins outside Chatham County.

Second, Newbies might be recruited from larger high schools with stronger than average academic cultures where they have become adjusted to a greater degree of academic pressure than is experienced in less pressured high schools.

Third, Newbies from moderate economic backgrounds (neither wealthy nor poor) and with more moderate academic preparation (not the top 10% of their high school class, for example) might be targeted for recruitment in lieu of their academically more advanced classmates. They may be less likely to Transfer Out than their more highly trained and more affluent classmates.[104]

Fourth, once matriculated, huge efforts might be expended to socialize Newbies with others in the college setting, find them friends, mentors, and a multitude of other

[103] However, the argument of one recent publication is insightful and should be enacted rigorously. After documenting the paucity of work substantiating what purport to be "best practices," this publication calls for seriously testing the effectiveness of interventions intended to enhance persistence using quality research standards (St.John & Wilkerson, 2006).

[104] There is, however, considerable room for further research on this issue. Mitigating influences could also include the rank order of the subject institution among Newbies' possible college choices, and student sophistication regarding college rankings—particularly among first-generation college students.

live, human linkages to the organizational context. By the same token, no opportunity can be left un-exploited to develop top-quality interpersonal relationships between the Newbies and all types of other stakeholders on campus. Personnel on campus exhibiting other than quality interpersonal relations with Newbies would require immediate extraction (or minimally, complete isolation from students) in the interests of far greater retention.

Fifth, teaching and learning techniques and practices from top to bottom across the curriculum might be reviewed with an eye to making them more extensively interactive rather than passive. Specific interactive experiences that were documented by the NSSE survey to be correlated somewhat with Stayer behavior include students working with each other on assignments, holding substantive course-related discussions out of class, making presentations in class, communicating with the instructor individually, etc. These activities essentially conform to well known principles of participatory learning long advocated by a wide range of thoughtful scholars and practitioners including most famously Chickering and Gamson (1987; 1991) and others (McKeachie, 1986; Cross, 1981). Interactive learning techniques may have an especially strong connection with keeping Newbies engaged with the HBCU institution. This issue is particularly important among older, male, and minority Newbies.

Sixth, since a higher freshman GPA was found to be highly correlated with the Stayer and Transfer Out outcome (Figures 7.19-7.20), explicit strategies designed to enhance Newbies' earning higher GPAs might be explored and incorporated in university practices. For example, curricular paths might be revised experimentally to provide incremental and nearly fail-proof small stepping stones to success while providing immediate feedback on those successes—perhaps drawing upon the early lessons of mastery learning (Guskey, 1996), individualized instruction (Cross, 1976), competency-based learning (Burke, 1989), or a general systems approach to curriculum design (Dick, Carey, & Carey, 2004) in which learners are led successfully by small incremental steps through a sequence of tasks carefully building on prior mastered outcomes (Stark & Lattuca, 1997). It is clear that Newbies who are doing well and are rewarded with better grades and, in turn, those with better freshman grades are more inclined to stay. If the curriculum could be designed in such a way as to ensure successful small steps leading

gradually up the ladders of knowledge (instead of, as is often the case, as a series of "gate-keeping" and "road-block" courses designed to prevent the more inept from passing through), Newbies could be taught to expect success and the expectation could be crafted, by an artful faculty, into a self-fulfilling prophecy.

Seventh, while the sixth suggestion (above) related to enhancing Newbies' actual learning success by various curricular adjustments so that they might *earn* higher GPAs, special attention also could be given to institutional processes for providing timely and regular positive feedback to Newbies about their demonstrated success in coursework. The feedback could be developed in formal, institutionally supported ways so that Newbies come to be associated with an image of themselves being academically successful. Any past practice, such as in the institution investigated here, of formally supplying only negative grade feedback should definitely cease.[105]

Eighth, in counseling and teaching situations—in fact in any interaction with Newbies—efforts might be expended to re-direct learners' focus of attention away from those longer and medium-term life achievements measured by the CIRP survey instrument (Table A3) towards a heightened experience of intrinsic rewards from more immediate learning tasks and a growth in personal understandings (Csikszentmihalyi, 1990). It may be that a subtle focus on the use of life achievement goals as a motivation for schooling in the HBCU is counter-productive; it may raise learners' expectations and frustrations to the level that Newbies abandon higher education in favor of more expedient or near-term external routes to life achievement agendas.

Ninth, particular efforts could be made to ensure that all Newbies have, *in their first term*, some experiences that engage their attention to matters outside themselves. They could become affiliated with causes, initiatives, or organizations undertaking civil, workplace, or scholarly undertakings that would engage Newbies affectively and socially. This intervention would maximize "Social Engagement", a factor consistently seen

[105] SSU, for example, for many years required instructors to record mid-term grades only for students at risk of failure (i.e.: D and F grades) to the Registrar so that students would receive formal institutional notification of their eminent risk of failure—institutionalized negative feedback, in effect. In recent terms, influenced in part by this study, the institution has encouraged instructors to record all mid-term grades so that students might also be informed systematically of their good and excellent course work—providing, thereby, formal positive feedback on their work.

facilitating greater persistence, although perhaps not academic success as measured by grades (Pascarella & Terenzini, 2005, Ch. 8).

Tenth, given that stronger prior academic preparation and better college grades are clearly associated with Transfer Out as well as Stay, it my be possible to counter this departure probability with an increased emphasis on an honors curriculum led by the most talented faculty. The observation gains further support from the negative association found between Academic Work Focus and the predicted probability of Stayer—although the later relationship was not statistically proven with an appropriate level. It may be that superior students are sometimes put off by some less than sterling classes and/or faculty in the expectation that they would find higher quality elsewhere. Thus, a sort of reverse at risk practice could be developed where students at particular risk of doing well could be identified and routed into an experience of special challenging programs, courses, or instructors. Similar practices have become well developed in some institutions and are known to be positively associated with a range of outcomes, including retention and degree attainment. (Astin, 1993, p.379).

Eleventh, and finally, there is some evidence that Newbies' attendance patterns themselves are strongly related to persistence. Recall that the data sets for the present study declined in inclusiveness as the first year wore on. 3413 originally enrolled became 2654 sampled in freshman orientation classes in September, became 1509 sampled in second-semester required English classes in April, etc. Although the present study cannot directly support the contention, it would appear that monitoring attendance for signs of impending attrition might be fruitful if suitable intervention strategies could be devised.

Implications for further Study: Reviewing the factors utilized in this study, and the variables with which they were constructed, several near voids appear in retrospect that future study might profitably fill to the advantage of greater, more comprehensive understanding of early HBCU departure.

First, the construct representing High School Academic Culture, surprisingly found to be such a robust influence, could be greatly enriched by expanding the set of variables used in constructing it. In its expanded form, the High School Culture construct might prove even more robust. The only variables included here related to senior

achievement test pass rates and high school size. That data might be joined by further information documenting a more comprehensive understanding of high school culture, including data about the faculty, the institutions' funding, the physical resources, the curriculum, etc.

Second, the construct representing Neighborhood Culture was an objective factor developed primarily from basic demographic variables derived from census data. It could be enriched by including other details, perhaps including employment data, crime data, religious data or any other bits of local culture (for which data series might be compiled) that may come to be understood as important in the formative stages of Newbies' earlier lives. But, further, information related to Newbies' individual subjective attitudes about their home culture, as well as the objective facts about the culture itself as sampled here, might prove even more useful in understanding Newbies' initial orientation towards life and valuing of college education. Indeed, collecting survey data reflecting Newbie attitudes about home and/or high school culture might require less labor-intensive work than mining public data and merging files and it could provide more sensitive, student-centered data that would enhance statistical significance levels as a result of demonstrating more individual variation.

Third, the Extramural Demand factor employed here only included variables representing dependent care, working off-campus, athletics, and co-curricular activities. It might be intentionally expanded by including other extramural issues such as marriage, church obligations, legal obligations, or civic responsibilities. Not much exploration has been undertaken in this domain and it deserves greatly expanded attention, as has been noted elsewhere in the departure literature (Nora, Cabrera, Hagedorn, & Pascarella, 1996; Bean, 1983) as well as in studies of worker turnover in business and industry (Price & Mueller, 1981).

Fourth, since it loomed so dominant in this study, the Quality Stakeholder Relations factor could use more detailed fleshing out with a finer grained understanding to see what tightly packed nuances might be of greater use in understanding Newbies' early departure. The Quality Relations factor used here summarized a few variables representing Newbies' views of their educational and advising experience, their relationships with faculty, staff, and students, and whether or not they would return to the

institution again, given an opportunity to start over. It might prove instructive to further unpack these general glosses to see if the frequency of interpersonal contacts and interactions, the depth of those relationships, or a general satisfaction with them is the dominant response being recorded. The Stakeholder Relations domain could be quickly expanded by exploring a wide range of individual identity issues (Chickering & Reisser, 1993) and institutional culture and sub-culture patterns (Denison, 1990; Berquist, 1992; Schein, 1992; Trice, 1993; Cameron & Ettington, 1988; Cameron & Quinn, 1999) as well as institutional climate (Denison, 1996; Ashkanasy, et. al., eds., 2000; Baird, 1988, 2000, Bonous-Hammarth, 2000), campus environment (Baird, 1988) and interpersonal and organizational communications issues (Knapp & Daly, 2002; Jablin & Putnam, 2000).

Fifth, while this study relied on multiple explanatory factors as a technique for incorporating a wide variety of variables without suffering the confounding complexities of multicollinearity, the factors themselves could be dis-aggregated and parallel studies undertaken in which the influence of just the primary variables loading heavily on each factor would be analyzed separately. With such a treatment, it is possible that the surviving variables of interest might be found to have greater impact on the outcome than these earlier general factors since they would not be, in effect, diluted by the influence of minor variables loading lightly on the factors.

Finally, each of the separate outcomes might be studied as a bi-variate outcome independently using conventional OLS regression in order to more easily understand the relative importance of independent variables on the outcome and the relationship between and among them. It is quite likely that a wider audience would find more meaning in standard regression discourse than in that of MNLR, since OLS regression is standard fair in many curricula while MNLR is not.

Factors in Dialog with the Literature: Earlier (Chapter 2) the long history of scholarly and analytical literature treating college persistence and attrition was reviewed briefly, characterizing it in a six-category-format:

1. Academic Readiness
2. Amenable Character
3. Material Resources
4. Institutional Acculturation
5. Societal Redirection
6. Student Voice

The present study originally identified 10 student types and 21 factors that appeared promising in light of prior theory and methodology to help explain and/or predict early college departure in a state-supported minority-serving institution. Each student type identity indicator and eleven of the twenty one factors proved to be statistically significant predictors of one or more early departure patterns, reflected in Table 9.1. It is instructive to review these factors in relation to the study's findings in light of that prior literature to see to what extent earlier understandings may be reinforced, negated, or expanded by the present study.

Sex has long been understood to relate to persistence, with men far more likely to depart early than women (e.g.: Tinto, 1987, 1993; Leppel, 2002). The pattern is national and cuts across all types of institutions. That understanding is further documented and supported in this study where it is found that male sex enhances the probability of Drop Out compared to Stayer, but not the other departure categories.

Table 9.1: Summary of Relationships between Regressors and Departure Outcomes

Domain	Probable Influence	Stop Out Coef.	z	Transfer Out Coef.	Z	Drop Out Coef.	z
Identity Indicators:							
	Male					0.467	5.68
	Black			-0.733	-2.08	-0.635	-3.58
	Adult			-1.023	-2.97		
	Resident	-0.949	-4.04			-0.367	-3.41
	Full-time	-0.997	-3.88			-0.841	-6.33
Assets:							
	Neighborhood Capital			0.306	3.88		
	Neighborhood Culture	-0.515	-3.72			-0.400	-6.62
	High School Culture	-0.443	-2.87	0.238	2.62	-0.387	-6.50
	Academic Preparation			0.341	3.40		
Mentality:							
	Achievement Motive					0.301	2.28
	Social Engagement					-0.309	-2.27
	College Choice			-0.463	*-1.89*		
	Hedonism					0.235	1.99
	Other Directed	-0.616	*-1.70*			0.220	1.99
Experiences:							
	Quality Relations			-0.870	-3.30	-0.495	-2.60
	Freshman GPA	-0.989	*-1.65*			-0.732	-4.18
	Interactive Learning	?	---	?	---	?	---
	Extramural Demands	?	---	?	---	?	---

* Regressors indicated are significant at p > 0.05; strong predictors
Italics are significant at p > 0.10; weak predictors
Factors not statistically significant, though strongly indicated by logic & theory

Minorities have been understood to depart from institutions more rapidly than majority students (Rendon, Jalomo, & Nora, 2000; Hu & St.John, 2001) and these outcomes have been related to students' perceptions of prejudice and discrimination encountered in the college setting (Nora & Cabrera, 1996). The same outcome is apparent in the HBCU—except, of course, in reverse. In the HBCU, non-Blacks are the minority (5% of the whole, in this case). And the minority in the HBCU has a much higher probability of departing early by way of Drop Out or Transfer compared to Staying than the majority Black. An implication of this finding is that it is not race *per se* that is an important predictor of persistence or departure but rather the incongruence between a student's own race and the dominant race of the institution.

Age is found in this study to be an important predictor of early departure—but in a qualified way. This study found that teen-age students have a greater probability of early departure by way of Transfer Out than older students, but not by Stop Out or Drop Out. But Age does not appear to be a variable strongly investigated in the HBCU literature as an independent correlate of persistence or departure, even though it appears as a control variable in regression studies and has been investigated elsewhere in community college transfer studies (Arnold, Kuh, Vesper, & Schuh, 1993).

On-campus residence generally has been understood to be correlated with, if not cause, enhanced persistence, especially among scholars focused on housing issues (Blimling, 1989; 1993; Berger, 1997). This Newbie study strongly confirms that view in the HBCU, finding that commuters have a considerably greater probability of Stop Out or Drop Out compared to Staying than residents. Commuter or resident status was found to not have a statistically significant relationship with Transfer Out.

Full-time involvement (i.e.: 12+ credit hours) in college has been generally understood to be associated with longer persistence (Tinto, 1978; 1993) and the present study reinforces that understanding. It is found that Part-Time Newbies in the HBCU have a greater probability of Stop Out and Drop Out compared to Staying, than Full-Time Newbies. The participation level was not found to relate to Transfer Out compared to Staying. Further studies leading to these four general understandings are scattered through the Amenable Character and Institutional Acculturation literature as detailed in Chapter 2.

Economic studies described in the material resources section of Chapter 2 generally have found that students from more financially secure backgrounds persist in college longer than others (St. John, Cabrera, Nora, & Asher, 2000). This study, using a Neighborhood Capital factor rather than individual family income and wealth as a regressor, found that students from wealthier neighborhoods experienced a greater probability of Transfer Out compared to Staying than students from less affluent neighborhoods. The factor was not found to be significantly related to either Stop Out or Drop Out, but the increased probability of Transfer was fairly dramatic for minority Newbies from more affluent neighborhoods. This study fails to confirm however that students from more affluent neighborhoods are more likely to be retained in the HBCU. From this institution, at least, they will incline more to Transfer Out. Further investigation is necessary, however, to disaggregate relationships and influence between and among family affluence, first-generation student status, and college choice rankings.

At least one earlier study noted that students from predominantly white high schools were more likely to attend HBCU's (Freeman, 1999). That study was based on a "qualitative inquiry" conducted in group interviews of 70 high school students clustered in five large urban settings across the country. The Newbie study, in oblique contrast, found that from a population of 3413 students attending the institution, those from more predominantly Black, urban neighborhoods were more likely to Stay in the institution for two years. Newbies from less urban, and less Black neighborhoods had a greater probability of either Stop Out or Drop Out, compared to Staying. This Neighborhood Culture factor did not have a statistically significant relationship with Transfer Out. The Newbie study, therefore, fails to confirm Freeman's earlier finding.

More generally, a variety studies have related the concept of culture to students' college success and persistence, though they are difficult to summarize succinctly (DiMaggio, 1982; Kuh & Love, 2000). But these studies are preoccupied in the main with collegiate and campus cultures and sub-cultures. There are still relatively few ground-breaking studies available linking or relating students' background, home, or "native" cultures to their college persistence (Berger, 2000, p.111).[106] Investigations by

[106] Berger claimed in 2000 that "there has been no research on the effects of students' initial levels of cultural capital on retention."

Hurtado and others (Hurtado and Associates, 1997) has begun to make inroads in this direction. But the Newbie study's foray into characterizing students' home Neighborhood Culture by relying on census data and relating it to college persistence appears therefore to pioneer a new perspective for studying collegiate persistence and early departure.

Findings here relative to Hedonism and Social Engagement are, of course, fully congruent with the theoretical positions of Tinto and Kuh (Tinto, 1987, 1975; Kuh, et. al, 2005) from the institutional fit/acculturation tradition. But to discover as this study has that students' life goal Achievement Motivation may be ultimately incongruent with academic persistence among HBCU Newbies raises new questions about the relationship between real-life goal trajectories and the "n-achievement" motive as it has been considered in the long academic tradition of early departure studies (Epps, 1969; Spady, 1970; Stanfiel, 1973; Freeman, 1998). Indeed there appear to be no large scale investigations of individual student goals among HBCU students—let alone any satisfactory analysis of the relationship between articulated individual student goals and college persistence and departure in the HBCU (Stark, Shaw & Lowther, 1989).

That Careful College Choice may be a positive influence on persistence for all types of students is no surprise based on earlier literature (Mansky & Wise, 1983; Weiler, 1987; Hurtado, Inkelas, Briggs, & Rhee, 1997; Stage & Hossler, 2000). In this study it garnered only a statistically significant inverse relationship with Transfer Out. And for an Other Directed factor to incline students to Drop Out or Stop Out is consistent with the societal re-direction literature (Bean, 1982; 1983, 1985; Bean & Eaton, 2000). Yet in this study the factor garnered a statistically significant *inverse* relation with Stop Out and a direct positive relation with Drop Out. Implications from this divergence are as yet unclear.

A cornerstone of the Institutional Acculturation literature has been that positive affiliation with individuals on campus is a strong influence on persistence. One study, for example, observed "there is no substitute for spending time interacting with students, whether face to face or electronically" (Kuh & Associates, 2005). The present study strongly reinforces that understanding in the HBCU for all types of Newbies based on the strong influence of the Quality Relations factor. Indeed that factor is revealed by this

study to be of such strong influence that it warrants unpacking and much further research, as has been discussed above.

Finally, the relationship between college grades and academic persistence has been clearly understood for a very long time (Adelman, 1999; Bean, 1983; Milton, Poliio, & Eison, 1986). So for the present study to find that excellent grades can raise the probability of staying in the institution by as much as 60% for some kinds of Newbies is merely a hefty confirmation of prior understandings. What is missing, of course, is any clear intervention strategy based on that understanding of persistence (St. John & Wilkerson, eds., 2006). One suggestion relating to an honors program is described above.

Towards a 90-Second Gloss: Questions inevitably arise in communicating results of a relatively complex study like this. "How would you explain the gist of your findings in a minute and a half to a busy college administrator or a legislator? And, assume the administrator or legislator is not a research scientist and has no understanding of inferential statistics. Assume too that if you cannot impress the administrator or legislator within a minute and a half, you have no hope of ever influencing institutional policy and practices or funding to affect retention. Furthermore, "While you're at it, describe very briefly why we need be concerned with these different kinds of departure outcomes at all?[107]

Faced with the situation, prudence and experience suggest using a compelling metaphor, as lucidly explicated by Lakoff and Johnson (1980). "What we do everyday is very much a matter of metaphor" (p.3) and "the essence of metaphor is understanding and experiencing one kind of thing in terms of another" (p.5). Therefore, "metaphorical imagination is a crucial skill in creating rapport and in communicating the nature of unshared experience." (p. 231). Rather than expound details of the study with a jargon-laden fast-talk (guaranteed to glaze eyes), far better to develop a solid metaphor to quickly connect with the understanding and conceptual apparatus of a busy administrator. And according to Lakoff and Johnson, a *container* is a basic metaphor of our "shared

[107] Ironically for one accustomed to communicating on a conversational rather than analytical plane, these very questions first arose, albeit in more elegant forms, during Oral Examination of the author—raised by Professors Cameron and Lawrence respectively. I'm grateful for their pressing for descriptions of findings on this level of discourse.

culture" (pp. 29-30). So, it can be used to good effect by describing findings from the Newbie study in terms of "an old leaky bucket." A suitable monologue might run thus:

"Each fall, we cast an old wooden bucket into a pool of prospects and haul it up filled with a new freshman class. The bucket has three holes in it through which soon flows 41% of our matriculated Newbies.

"The smallest hole is "Stop Out." 4% of our Newbies seep through it. Probabilities are that Newbies seeping through here are part-time commuters, from less urban neighborhoods and poorer quality high schools, who though lacking interests outside of college, are not earning top grades here. They were adequately prepared academically to start with.

"The middle-sized hole is "Transfer Out" and 6% of our Newbies drip through it. Probabilities are that dripping through here are young non-Blacks, from more affluent neighborhoods and higher quality high schools, who were better prepared academically, but who did not select their first college very carefully. Then, they experienced low quality relations with stakeholders here and so are now moving on.

"But the truly big hole is "Drop Out." 31% of our freshmen flow through it. And these Newbies disappear from all of higher education. Most probable are that Newbies gushing through here are part-time commuters, especially non-Blacks and males, from poorer quality high schools in less urban neighborhoods, with strong life goals and interests beyond and outside of education, who are not socially engaged here and who experienced poor quality relations on this campus, and earned lower grades their first year. Adequately prepared academically to start with they're now abandoning college education.

"To improve retention we need to counter these probabilities with active specific interventions tailored to the types of Newbies and the influential factors associated with their early departure."

Thus can and will a "bucket with three holes" become the metaphoric basis for general stakeholder discussions about retention on and future planning in this particular HBCU campus.

Reflections on the Study's Plan: Donald Schon argued cogently a generation ago in favor of the value of "reflection-in-action" by which a professional applies

technical knowledge and tacit understandings in specific contexts to frame practices, inform understandings, and adjust rational technical interventions in the light of observed real-world problematic situations—situations that often cannot be predicted in advance (Schon, 1983). In just that spirit, it is worth re-examining the general plan of the Newbie study itself to see how it might be enhanced to gain greater understanding and precision in the event of future iterations.

First, on a theoretical level, it appears in retrospect that the loose social cognitive model framing the study as described and illustrated in Chapter 3 (See Figure 2) could benefit from significant reframing. In fact the distinct boxes depicting pre-college "Assets", entry-level attitudes ("Mentality"), and first year "Experiences" should not all be related by unidirectional arrows. Consider first that Experiences undergone during the first days of school must inevitably inform Attitudes preceding a later Response (or Outcome) so that a bi-directional arrow would better link these boxes. And the leaver outcome "Stop Out" must also be, on logical grounds, an Experience feeding back into Attitudes to form the basis for later intentional re-entry and new Experiences. And the Stayer response similarly must become a further influence on Attitudes framing future Experiences, both from within the college and from extramural sources. So Stayer deserves a bi-directional arrow feeding back through Experience and into Attitudes. Finally, Pre-College Attributes themselves (later in the study articulated as "Assets") need re-framing into at least two different boxes: one to depict Assets gained from Newbies' high-school-era home neighborhoods and a second to depict Assets that may have been gained from Newbies' more recent home neighborhood—particularly in the case of older non-traditional Newbies not arriving immediately from high school who may have re-located their homes and developed other Assets prior to entering college.

Second, on a methodological level, collecting Newbies' perceptions of their experiences taken towards the end of their second semester of college was too late in the year to capture a representative sample of the perceptions of a large proportion of Stop Outs, Transfer Outs, and Drop Outs who, it is now clear, left before their views could be recorded. Accordingly, views on Experiences are greatly biased in favor of Stayers and dramatically under-represent the other outcomes. One result of this now apparent real limitation is that with Experience responses loaded far too heavily on Stayers, robust

statistical significance could not be documented for factors influencing the other three outcomes. Where some factors appear visually to influence the probability curves for various types of students in the Figures depicted in Chapter 7 (Figures 7.1—7.20), the relationships were not statistically significant according to any commonly accepted p levels. It would have been far better for this study to collect the NSSE sample of Experience perceptions near the end of the first term of college (which strongly violates, of course, common NSSE administration precepts) or at an exit interview for those exiting before the conclusion of their first term.

Thirdly, on a phenomenal level, that collection of survey items on which Experience perceptions were collected was so institutional and educational-centered that it severely missed sampling a wide variety of extramural experiences that students—especially commuter and older students—are either known or strongly expected to have encountered in their lives while attending college. Perceptions of even basic extramural influences like marriage, children, work details, religious influences (strong indeed among Southern African-Americans), along with various social, economic, and civic issues remain completely un-tapped and so were not incorporated into factors available for influencing the outcome. The experience survey badly needs revising and pre-testing in an HBCU audience, to capture a host of issues long understood by students of urban affairs (Jones, 2002; McWhorter, 2005; Young, 2004) and workplace turnover and occupational departure (Bean, 1983; MacLean, 2003).

Fourth, on the affective level, it would prove instructive to gather via survey responses Newbies' *perceptions* of their childhood and current home cultures, their High School cultures, and their extramural lives' experience in addition to or in lieu of the type of objective evidences utilized in this study. These individual perceptions surely would supply far more variation than objective data collected from neighborhood-level census tracts and thus resultant factors should prove far more sensitive to individual variation than was the case with much of the Asset data assembled for the present study. With this modification, the Newbie study could be expected correspondingly to yield more statistically reliable findings.

These four after-the-fact reflections about the plan of research could be collectively expected to strongly improve the degree to which findings about early

departure from the HBCU would be robust and transferable to other settings. And yet, until further study is possible, the present study does provide a firm basis for informed interventions in the HBCU. For it is clear, as Kaplan once observed (1964, p. 402) that "by using such knowledge as we have or can acquire, whatever its shortcomings, we can do better than by setting it aside altogether." And further, to act, "it is not required that we know everything, but only that we know something relevant."

A Final Word: Overall, and at a general level, an overriding lesson to be gleaned from this inquiry is one of perspective. Persistence and attrition researchers need to frame inquiries with a clear understanding that college enrollment is, for clients of HBCUs, but one component of life's larger rich reality that includes a multitude of previous and concurrent extramural experiences pressing and tugging for attention. Sometimes and in some ways these extramural demands may be relatively more pressing on HBCU Newbies than on clients of TWCUs. Meanwhile, the opportunity cost of higher education, in light of the available or expected comparative advantages to be derived from it (in light of racially mediated "glass ceilings" in the workplace[108]), may not weigh in with the same coefficients as in the calculus of students in TWCUs. In the end, persistence and attrition research has been largely an institution-centered enterprise, not a student-centered one. Fully understanding this departure issue warrants a more sensitive student-centered approach.

The glaring reality, documented by the Newbie study, is this: different types of students leave college differently at different rates under different influences. Boiling this complex multifaceted early departure reality down to a simple institutional average masks critical differences—differences requiring understanding for adequate planning. While the common attention to a comparative average institutional retention rate (both in the research literature and among practitioners) may inform gross summative institutional comparisons, these very comparisons may be dangerously misleading. First, the comparisons gloss across important differences requiring attention to guide formative actions and useful interventions. Second, the aggregate comparisons may lead to

[108] The term "glass ceiling" was originally coined in reference to limitations on females rising to senior positions in organizations and corporations. It is used here in reference to the same phenomenon relative to minority race members rising to the most senior and lucrative positions in the workplace (Bryant, 1984; Hymowitz Schelhardt, 1986).

undemocratic public policies that begin to withdraw funds from the very institutions addressing the most complex social realities because they may appear, in aggregate, at a glance and superficially, less effective.

But the Newbie study demonstrates that in minority-serving institutions, freshmen are recruited from different types of neighborhood and high school cultures. These differences give rise to differing predicted probabilities of different types of early departure. Further, students arrive from these differing cultures bearing different mentalities and perceptions of their experiences; these too give rise to further differing predicted probabilities of different types of early departure. Ultimately, it must be recognized that the increased heterogeneity found in minority serving institutions legitimately increases the range of probabilities for different types of early departure behaviors—apart for any influence the institution may bring to bear on the outcome. [109]

[109] To penalize institutions focused on educating diverse types of students by withdrawing support (under the guise of accountability) may head down a slippery slope towards an Orwellian future. In the interest of organizational survival, institutional missions and strategic planning may focus on serving less risky types of more privileged students. The practice may lead in time to a bimodal society in which the educated privileged elite restricts higher education access for its own offspring under the illusions of effectiveness, efficiency, and accountability. The unlettered victims barred admission because of their greater predicted probability of early departure will be bred to wallow in ignorant backwaters of a modern civilization managed by the elite. The public will no longer be an educated, heterogeneous citizenry. The broad American middle class will have been undermined not by terrorists but by well-meaning public educational policy guided by illusory "business-like" principles.

Appendices

Appendix A1: Survey Returns' Reliability: Comparing Valid ID Surveys with All Surveys

How representative are survey responses with valid ID's to the entire set of respondents?

Sample Variables	*Findings*	*Test Statistic*	*Sig. Level*
1. NSSE Survey Data:	508 Freshman Records (2003-4), 460 "valid" SSN (91%)		
Valid ID by Sex?	M=88%; F=87%	x^2=0.41	p=0.27
Valid ID by Nationality?	Means: Domestic=87%; International=88%	x^2=0.51	p=1.00
Valid ID by Ethnicity?	Black=87%; Non-Black=84%	x^2=0.84	p=0.22
Valid ID by Birthyear?	Means: Invalid=1980.26; Valid=1980.43	f =1.33	p=0.09
ID X Rate Coll Positive?	Means: Invalid=64%; Valid=71%	x^2=2.53	p=0.28
ID X Rate Coll Negative?	Means: Invalid=34%; Valid=27%	x^2=2.53	p=0.28
ID X Start here again?	Means: Invalid=57%; Valid=65%	x^2=3.87	p=0.28
ID X Not start here again?	Means: Invalid=43%; Valid=35%	x^2=3.87	p=0.28
ID X Do contrib to class discus.	Means: Invalid=59%; Valid=65%	x^2=8.20	p=0.04
ID X Not contrib to class disc.	Means: Invalid=42%; Valid=33%	x^2=8.20	p=0.04
ID X Hrs prepare for class	Means: Invalid=6-10: Valid =6-10	f = .002	p=0.96
2. CIRP Survey Data:	2657 Records (1995--2004), 1126 "valid" SSN (42%)		
Valid ID by Sex?	M=39%; F=45%	x^2=10.79	p=0.001
Valid ID by Citizenship Status?	USA=43%; Not USA=32%	x^2=3.01	p=0.053
Valid ID by Native Engl.speaker?	Native=42%; Not Native=49%	x^2=0.74	p=0.239
Valid ID by Ethnicity?	Black=43%; Non-Black=37%	x^2=3.27	p=0.078
Valid ID by Age?	Means: Invalid=18-19; Valid=18-19	f =2.70	p=0.100
ID X Perceived academic ability	Means: Invalid=3.58; Valid=3.56	f =0.32	p=0.572
ID X Perceived drive to achieve	Means: Invalid=4.02; Valid=4.07	f =2.47	p=0.116
ID X Perceived self-confidence	Means: Invalid=4.02; Valid=3.99	f =0.71	p=0.400
ID X Avg. HS Grade?	Means: Invalid=4.94; Valid=5.02	f =1.65	p=0.199
ID X Felt overwhelmed.	Means: Invalid=2.10; Valid=2.13	f =1.37	p=0.243
ID X Talk to teacher outside class	Means: Invalid=2.79; Valid=2.80	f =0.45	p=0.832
ID X Campus miles from home	Means: Invalid=3.20; Valid=3.15	f =0.73	p=0.394

Appendix A2: SIRS Panel Factors (principal factors, oblique oblimin rotation)

Fac #	Assigned Name	Variable	Factor Loadings	Variance Expl.
F1	Neighborhood Capital			0.5619
		Average Home Value--HS ZIP	0.852	
		Average Household Income--HS Zip	0.731	
F2	High School Academic Culture			0.5012
		% Pass Senior Achievement Tests	0.636	
		# Taking Senior Achievement Tests	0.614	
		% Zip Pop. Density Change (90-00)	0.439	
F3	Home Neighborhood Culture			0.2179
		% Black Population, HS Zip	0.637	
		Degree Urbanization, HS Zip	0.598	
F4	Academic Preparation			0.1849
		High School GPA	0.601	
		Merit Aid Received, 1st Year	0.509	
		SAT Score (equivalent)	0.336	

Appendix A3: CIRP Panel Factors (8 principal factors, oblique oblimin rotation)

Fac #	Assigned Name	Variable	Factor Loadings	Variance Expl.
F1	**Achievement Motivation (Goals)**			8.773
		to influence social values	0.657	
		to influence political structure	0.649	
		to keep up to date with politics	0.626	
		to promote racial understanding	0.615	
		to participate in community action program	0.599	
		to be a community leader	0.597	
		to develop a meaningful philosophy of life	0.592	
		to be involved in environmental cleanup	0.514	
		to help others in difficulty	0.513	
		to have administrative responsibility	0.505	
		to obtain recognition from colleagues	0.499	
		to be an authority in own field	0.489	
		to write original work	0.453	
F2	**Confident Self-Image**			7.221
		self-confident (intellectual)	0.731	
		self-confident (social)	0.706	
		self-understanding	0.701	
		competitiveness	0.621	
		emotional health	0.596	
		physical health	0.569	
		leadership ability	0.566	
		drive to achieve	0.512	
		popularity	0.508	
		academic ability	0.483	
		creativity	0.430	
		public speaking ability	0.425	
F3	**Social Engagement**			6.607
		have performed volunteer work	0.564	
		hr/wk participate in student club/organ.	0.557	
		hr/wk volunteer work performed	0.518	
		voted in student election	0.457	
		tutored another student	0.435	
		discussed religion	0.432	
		attend public concert/recital	0.416	
		studied with other students	0.412	
		will participate in volunteer work	0.406	
		talked with teacher out of class	0.400	

F4:	**Thoughtful College Choice**		6.105
	grads get good jobs	0.662	
	good academic reputation	0.647	
	grads go to top grad schools	0.644	
	good social reputation	0.583	
	offers special educational programs	0.507	
	advise of HS guidance counselor	0.490	
	teacher advised me	0.480	
	rank in national magazines	0.445	
	religious affiliation/orientation	0.441	
	advice of private guidance counselor	0.433	
F5	**Hedonism**		3.266
	partying	0.499	
	socialize with friends	0.438	
	drank wine & liquor	0.418	
	drank beer	0.388	
	should legalize pot	0.385	
	came late to class	0.371	
	was bored in class	0.360	
	overslept-missed class or appointment	0.355	
F6	**Remedial Preparation**		2.962
	had remedial social studies	0.752	
	had remedial science	0.724	
	had remedial reading	0.659	
	had remedial English	0.649	
	had remedial foreign language	0.627	
	had remedial math	0.488	
F7	**Other Directed**		2.931
	goal to create artistic work	0.412	
	expect to drop out permanently	0.356	
	expect to drop out temporarily	0.320	
	goal to be well off financially	-0.404	
F8	**Prior non-credit work**		2.528
	non-credit 4-year college course	0.859	
	non-credit other pse. course	0.854	
	non-credit community college course	0.840	
		total	*40.393*

Appendix A4: NSSE Panel Factors (9 principal factors, oblique oblimin rotation)

Fac #	Assigned Name	Variable	Factor Loadings	Variance Expl.
F1	**College Value Added**			10.253
		school contribute to learning effectively on own	0.677	
		school contribute to speaking clear & effective	0.674	
		school contribute to understanding self	0.651	
		school contributes to develop personal ethics	0.635	
		school contribute to working with others	0.624	
		school contribute to think critical & analytic	0.616	
		school contribute to using computer technol.	0.614	
		school contributes to solving real world problems	0.598	
		school contribute to writing clear & effective	0.556	
		school contributes to understanding others	0.520	
		school contribute to analyze quant problems	0.515	
		school contribute to broad general education	0.451	
		school contribute to voting in public elections	0.445	
		school contributes to community welfare	0.438	
		school contribute to work related abilities	0.426	
F2	**Cognition Required**			7.225
		course emphasizes synthesis	0.717	
		course emphasizes analysis	0.699	
		course emphasizes practical applications	0.697	
		course emphasizes evaluation	0.691	
		course emphasizes memorization	0.371	
F3	**Quality Relations (Stakeholders)**			6.744
		quality of educational experience at SSU	0.623	
		quality of relationships with faculty	0.610	
		quality of academic advising at SSU	0.558	
		quality of relationships w/ admin offices	0.549	
		starting over, would return to SSU	0.538	
		quality of relationships with students	0.427	
		exams challenged best work	0.252	
F4	**Scholarly Emphasis**			6.423
		school emph cope w/ non-academic responsibility.	0.740	
		school emph support for social success	0.723	
		school emph interacting w diverse studs.	0.585	
		school emph support for academic success	0.482	
		school emph attending campus events	0.359	

F5	**Interactive learning (Social)**		6.013
	work w/ others outside class on classwork	0.548	
	used e-mail to communicate w instructor	0.451	
	work w/ others in class on classwork	0.444	
	discuss classwork w/ instr outside class	0.432	
	discuss grades/assignments w/ instructor	0.424	
	talk about career plans w/ instructor	0.423	
	made class presentation	0.423	
	work w/ faculty outside coursework	0.420	
	participate in community project part of course	0.408	
	used computers on tasks	0.367	
	are you in a frat/sorority	0.329	
F6	**Informal dialogues**		4.252
	serious talks w/ different race/ethnic studs	0.689	
	serious talks w/ different religion/politics studs	0.674	
	discuss class reading with others outside class	0.396	
F7	**Literature focus**		3.835
	# written papers 5-19 pps/yr	0.527	
	# written papers 20+ pps/yr	0.562	
	number assigned books/year	0.460	
	# hrs/wk in class preparation	0.380	
	# problem sets req. > 1 hr /yr	0.374	
	number non-assigned books read/yr	0.362	
	# written papers <5 pps/yr	0.262	
F8	**Academic work focus**		2.060
	school emph time on study & academics	0.369	
	school emph using computers in academics	0.335	
F9	**Extramural demands**		1.786
	hr/wk in dependent care	0.480	
	hr/wk working for pay off campus	0.452	
	began college elsewhere	0.253	
	student athlete	-0.344	
	hr/wk in co-curricular activity	-0.449	
		Total	*48.590*

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