Degree Attainment Rates at American Colleges and Universities

Revised Edition

Alexander W. Astin
Leticia Oseguera

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Higher Education Research Institute • University of California, Los Angeles

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COOPERATIVE INSTITUTIONAL RESEARCH PROGRAM

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Executive Summary

This national study of degree completion is based on longitudinal retention data provided by 262 baccalaureate-granting institutions that are participants in the Cooperative Institutional Research Program (CIRP). Four-year and six-year degree completion data were obtained in the year 2000 on 56,818 students who entered college as first-time, full-time freshmen in the fall of 1994. Data were differentially weighted so as to approximate the results that would have been obtained if degree completion data had been obtained on all freshmen entering baccalaureate-granting colleges and universities in the fall of 1994.

Slightly more than one student in three (36.3 percent) earned a bachelor's degree within four years. This figure increases substantially--to 57.6 percent--when students who take five or six years to finish are included. If students who are still enrolled after six years are counted as completers, the national baccalaureate completion rate rises to 60.6 percent.

Four-year completion rates have been declining during the past decade for virtually all types of students--men, women, and students from various racial/ethnic groups--and the declines have been especially large in the public colleges and universities.

Analyses of the effects of entering student (freshman) characteristics show that more than two-thirds of the variation among institutions in their degree completion rates is attributable to differences in their entering classes rather than to differences in the effectiveness of their retention programs. Under these conditions, comparisons between institutions in their degree completion rates can be very misleading if the academic

preparation and other characteristics of their students at the time of entry are not taken into account.

This report includes several different formulas that individual institutions can use to compute "expected" degree completion rates. By comparing these expected rates with their actual degree completion rates, institutions can more accurately gauge the effectiveness of their student retention programs.

Degree Attainment Rates at American Colleges and Universities[1]
(Revised Edition)

by

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Few topics in higher education generate more interest among more different

constituent groups than student retention. Students and their parents have an obvious

interest in retention, since attending college is of little value in career development unless

the student is able to persist through completion of some degree. College and university

faculty and student affairs personnel care about degree attainment[2] because it signifies

that their work with students has been successful. Degree attainment is also of great

interest to administrators and admission officers because of the considerable cost of

recruiting additional students to fill spaces created by dropouts. Finally, legislators and

policy makers are increasingly focused on an institution's graduation rate because they

see it as a measure of institutional "performance" or "accountability." Today, given the

challenge of diminishing resources and the prospects of continuing enrollment growth

facing institutions nationwide, colleges and universities are increasingly concerned with

graduating their students (and reducing the time to graduation) in order to accommodate

the more than 2 million new full-time students expected by 2010 (Maclay, 2000).

The purpose of this study is to make generally available to the higher education

community quantitative information about degree attainment rates. Specifically, we

report national degree completion figures for first-time, full-time entering freshmen

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[1] The authors are indebted to William Korn, Elaine Kuo, and Tracy Davis for their assistance in many phases of this project.
[2] The terms degree attainment and degree completion are used synonymously, and in this study refer to the earning of a bachelor's degree.

covering two time intervals--four years and six years after entry. We also report a third longer point--"completed degree or still enrolled after six years"--together with separate figures broken down by institutional type, gender, and race. Also included in this report is a section on trends in degree attainment. We will present and compare data that were produced almost a decade earlier (See Astin, Tsui, & Avalos' "Degree Attainment Rates at American Colleges and Universities: Effects of Race, Gender, and Institutional Type" (1996)).

The current study examines freshmen entering institutions nine years after the cohort examined in the previous study. We believe that the differential trends by race will be of particular interest, given the ongoing demographic changes in our colleges and universities. We also present information which will allow individual institutions to calculate "expected" retention rates based on the characteristics of the freshmen that enroll. Finally, comparisons will be made between these retention rates and the retention figures from the previous decade.

Method

The data for this study were obtained from a national sample of 262 baccalaureate-granting institutions that participated in the Cooperative Institutional Research Program's (CIRP) annual survey of entering freshmen in the fall of 1994 (The American Freshman: National Norms for Fall 1994). Four-year and six-year degree attainment data were obtained in the summer of 2000 by sending to the registrar at each institution rosters containing names of selected entering freshmen who had completed the 1994 survey. Additionally, we present data on students who were still enrolled after six years of college entry as "upper bounds" estimates of eventual degree completion rates.

To minimize the institutional workload involved, an average of 200 names were selected at random from each of the institutions in the national sample. In order to obtain more reliable data by race, we added to the list all Mexican American/Chicana/o, Puerto Rican, Asian American, and American Indian students as well as 50% of all African American students who had participated in the original 1994 survey.

Degree attainment data were eventually received on 56,818 cases of the 90,619 freshmen for whom information was requested. Since data were obtained on virtually 100% of the students at institutions that responded to our request, "nonresponse" was entirely attributable to institutions (rather than students) that did not comply with our request. A careful comparison of curricular, financial, and other institutional data between responding (N= 262) and non-responding (N= 162) institutions within stratification cells failed to reveal any institutional self-selection bias within stratification cells (as already noted, the CIRP sample is stratified by type, control, race, and selectivity level; see below as well as The American Freshman: National Norms for Fall 1994).

In order to compare figures from the previous study, we utilized identical weighting procedures as reported in the Astin, Tsui, and Avalos (1996) monograph. The weighting scheme is designed to allow us to approximate the results that would have been obtained if all baccalaureate-granting institutions from 1994 had participated and responded to our registrar's survey. This weighting scheme initially inflates the number of respondents within each institution to the total freshman enrollment by gender, then compensates for differential sampling of institutions within stratification cells. The CIRP stratification scheme compensates for any institutional sampling bias associated with institutional type (four-year vs. university), control (public, private-nonsectarian, Roman

Catholic, Other Christian), race (historically black versus nonblack), and selectivity level (institutions are stratified by selectivity separately within type and control; see The American Freshman National Norms for Fall 1994). Differential weights were also used to compensate for the oversampling of certain minority groups (see above). All data reported here are weighted to approximate the national norms for all first-time, full-time entering freshmen in the fall of 1994.

Before considering the results we should acknowledge that some "dropouts" from their first institution can and do transfer to one or more other institutions and eventually complete their bachelor's degrees (for a comprehensive analysis of transferring, "stopping out," and the reasons for leaving one's first institution, see Avalos, 1996). We have limited this study to degree completion at the institution of initial entry because the Student Right-to-Know and Campus Security Act, as well as most individual institutions, continue to define retention this way.

Results

Table 1 shows the overall degree attainment rates using two different time periods plus the category, "six plus years." Only about 1 in 3 students (36.3 percent) was able to complete a bachelor's degree within four years of entering college. However, this number rises by an astounding 21.3 percent (to 57.6 percent) if we allow six years for degree completion.[3] If we assume that those students who are still enrolled will eventually become degree completers, the rate increases by an additional 3 percent to 60.6 percent.[4]

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[3] These figures compare favorably with a 5-year rate of 47 percent (with an additional 9 percent still enrolled) derived from the Beginning Postsecondary Student (BPS) Longitudinal Study, which followed up 1989-90 entering freshmen in 1994 (Choy, 2002).

[4] These rates would, of course, be somewhat higher if we were to count as "completers" those dropouts who obtained their degrees after enrolling in a different institution. However, from the point of view from the faculty and staff at any given institution, the important question is whether the students who enter as first-time, full-time freshmen are able to complete their degree programs at that institution.

Table 1
Four-year, Six-year, and Six plus years* Degree Attainment Rates, by Institutional Type

Institutional Type	Unweighted N		Weighted Percent Completing Bachelor's Degree Within		
	Students	Institutions	4 years	6 years	6 plus years *
Public University	6,650	20	28.1	57.7	61.5
Private University	4,931	18	67.1	79.6	80.2
Public 4-year College	7,457	27	24.3	47.4	51.9
Nonsectarian 4-year College	17,610	75	57.9	67.0	67.6
Catholic 4-year College	5,436	38	46.4	60.2	62.1
Other Christian 4-year College	14,734	84	50.6	61.3	61.8
All Institutions	56,818	262	36.3	57.6	60.6

*Considers students who are still enrolled six plus years as degree completers.
Note: Weighted to approximate national norms for 1994 freshmen.

These four-year results reinforce the popular conception that four-year degree completion rates in American higher education have been declining. Looking at all three time periods makes it clear that students today may also be taking longer to graduate.

Today, degree attainment rates vary substantially by type of institution. The highest six-year rate is in the private university (79.6 percent), with the lowest rate in the public college (47.4 percent). These differences by institutional type are no doubt partially attributable to the preparation levels of the students entering different types of institutions. For example, nearly 70 percent of the students entering private universities, compared to only about 30 percent of those entering public four-year colleges, have an "A" grade average from high school (Sax, Astin, Korn, & Mahoney, 2000). Similarly, while each of the three types of private four-year colleges enrolls freshmen who are better prepared than those entering the four-year public colleges (39-42 percent versus 30 percent have an "A" grade average from high school), their freshmen are substantially

less well prepared than those entering private universities (where 70 percent have an "A" grade average from high school). The public university is the only type of institution that does not follow this pattern: while their entering freshmen are better prepared (50 percent have an "A" average from high school) than freshmen at all other types of institutions except private universities, their four-year degree attainment rates continue to be much lower than the rates at all three types of private colleges, and even their six-year rates remain slightly lower. Apparently, the relatively low degree completion rate shown by students attending public universities cannot be attributed solely to their level of academic preparation at the time of college entry.

The data in Table 1 also suggest that certain types of institutions are especially likely to prolong the time students spend in obtaining a bachelor's degree. For example, the percent difference between four-year and six-year degree attainment rates is 29.6 and 23.1 percent, respectively, for public universities and public colleges, compared to only 12.5 percent for private universities and 9.1 percent for nonsectarian colleges. Why the students at public institutions should be taking so long to complete their degrees is not clear, but it would certainly appear to be an important topic for future research.

Table 2 shows the four and six-year degree attainment rates for men and women and a third higher rate which counts students who are still enrolled after six years as if they were degree completers. Women are more likely than men are to attain the bachelor's degree, regardless of the time period or category. This finding confirms and extends earlier national studies (Astin, 1971, 1975, 1982, 1993b; Astin, Tsui, & Avalos, 1996), which have consistently shown that women, as compared with men, are more likely to complete their bachelor's degree in four years. These data show that such gender

Table 2
Four-year, Six-year, and Six plus years* Degree Attainment Rates, by Gender

	Weighted Percent Completing Bachelor's Degree		
	Men	Women	Total
4 years	32.6	39.7	36.3
6 years	55.2	59.6	57.6
6 + years*	59.0	62.0	60.6

*Considers students who are still enrolled six plus years as degree completers

differences decrease with time. The greatest gender gap in degree attainment occurs four years after college entry (7.1 percent). This differential is reduced to 4.4 percent after six years and is reduced again to 3.0 percent when we consider those students still enrolled after six years as eventual degree completers. This last figure for men (59.0 percent) still lags slightly behind the six-plus years rate for women (62.0 percent).

Table 3 reveals dramatic differences in degree attainment rates by racial group. For the six-year period, Asian American students show by far the highest degree completion rate (65.2 percent), followed by White students (58.8 percent). Puerto Ricans (41.8 percent) and American Indians (42.1 percent) show the lowest rates, although the rates for African Americans (46.3 percent) and Mexican Americans/Chicanas/os (46.0 percent) are also relatively low. These findings are somewhat troubling, given that all of these latter four ethnic groups are already substantially underrepresented among entering college freshmen (Perna, 2000). What these differential rates show is that the underrepresentation of these minority groups among entering college freshmen is being substantially exacerbated by their relatively low degree attainment rates during the

undergraduate years. In other words, the undergraduate years represent a major "leak" in the educational pipeline for students from underrepresented ethnic/minority groups.

Table 3
Four-year, Six-year, and Six plus years* Degree Attainment Rates, by Racial Group

Racial Group	Unweighted N	Weighted Percent Completing Bachelor's Degree Within		
		4 years	6 years	6 + years*
White	45,889	37.9	58.8	61.6
African American	2,465	23.0	46.3	49.4
American Indian	1,283	21.4	42.1	45.8
Asian American	2,897	38.8	65.2	69.4
Mexican American/Chicana/o	1,323	21.3	46.0	53.2
Puerto Rican	569	23.8	41.8	44.6
Other Race	2,392	37.0	54.3	59.4

*Considers students who are still enrolled six plus years as degree completers.

In all likelihood, the same factors that contribute to the underrepresentation of these groups among entering college freshmen--poor academic preparation, poverty, lack of education in the parental family (Astin, 1982)--also contribute to their higher dropout rates during college.

Table 3 also compares degree attainment rates for different racial groups across the three time periods. The differences between four-year and six-year rates are substantial for all groups, with the largest differences involving Asian American (26.4 percent) and Mexican American (24.7 percent) students. The smallest difference, which involves Puerto Ricans, is still rather large: 18.0 percent. The largest proportions who are still enrolled after six years involve Mexican American/Chicana/o students (7.2 percent)

and Asian American students (4.2 percent). Although these students have not attained a degree, they are still enrolled at the same institution they entered six years earlier.

These figures have several implications. First, differences in degree completion rates between Whites and Asian Americans, on the one hand, and members of underrepresented minority groups, on the other, persist regardless of time period examined. Second, most members of some underrepresented groups are taking a longer time to complete their baccalaureate work. This is especially true for Mexican Americans/Chicanas/os, whose "still enrolled after six years" rate of 53.2 percent is more than 150 percent higher than their four-year rate of only 21.3 percent. These figures also suggest, once again, that the same factors that contribute to low college attendance rates and low retention rates among underrepresented minorities may also be prolonging the time that it takes them to complete the bachelor's degree.

Do degree attainment rates differ by gender within racial groups? Of particular interest is the following finding: although we have already seen that women are more likely than men are to complete the bachelor's degree within the time periods of four, six, and more than six years (see Table 2), the figures in Table 4 reveal that this overall trend is not consistent across all racial groups. In terms of earning the bachelor's degree within six years, women have higher rates than men do in all ethnic groups except for American Indians (41.1 and 43.6 percent for women and men, respectively). Additionally, the differences between the sexes vary among the other ethnic groups. The largest differences favoring women are for Puerto Ricans (23.0 percent), African Americans (14.5 percent) and Mexican Americans/Chicanas/os (8.3 percent). White (3.9 percent) and Asian American (4.7 percent) groups show the smallest gender differences.

Table 4
Weighted Six-year Degree Attainment Rates by Gender and Racial Group

Racial Group	Percent Completing Bachelor's Degree Within Six Years		
	Women	Men	Total
White	60.6	56.7	58.8
African American	51.9	37.4	46.3
American Indian	41.1	43.6	42.1
Asian American	67.7	63.0	65.2
Mexican American/Chicana/o	49.7	41.4	46.0
Puerto Rican	51.7	28.7	41.8
Other Race	59.8	48.5	54.3

Do degree attainment rates differ by gender and institutional type? Table 5

provides some interesting answers to this question using six-year completion rates.

Clearly, women have higher rates than do men at all types of institutions. Of the six

categories of institutional type, public four-year colleges show the largest gender

difference (7.9 percent), followed closely by public universities (4.0 percent). The

smallest gender differences occur at private universities (.4 percent) and Catholic four-

year colleges (2.9 percent).

Table 5
Weighted Six-year Degree Attainment Rates by Gender and Institutional Type

Institutional Type	Percent Completing Bachelor's Degree Within Six Years		
	Women	Men	Total
Public University	59.6	55.6	57.7
Public 4-year College	50.9	43.0	47.4
Private University	79.8	79.4	79.6
Nonsectarian 4-year College	68.8	65.0	67.0
Catholic 4-year College	61.2	58.3	60.2
Other Christian 4-year College	62.8	59.4	61.3
All Institutions	59.5	55.3	57.6

Do six-year undergraduate degree attainment rates differ by type of institution and race? Table 6 provides some striking results. For example, the finding (reported earlier in Table 1) that bachelor's degree attainment rates are highest at private universities (79.6 percent) *holds true for every racial/ethnic group*. Six-year completion rates at private universities range from a high of 86.6 percent for Asian Americans to a low of 67.4 percent for Puerto Ricans. The figure of 67.4 is by no means "low" when one considers that overall *six-year degree attainment rates for Puerto Ricans are at least 20 percent lower at all other types of institutions*. Indeed, if we look at the 35 separate figures shown for other types of institutions (five institutional types by seven racial groups), only three of these figures exceed the "low" rate of 67.4 percent for Puerto Rican at private universities: White (67.7 percent), Asian American (76.1 percent), and Other Race (70.4 percent), all at nonsectarian four-year colleges.

Table 6
Weighted Six-year Degree Attainment Rates by Race and Institutional Type

Racial Group	Public University	Public 4-year	Private University	Non-sectarian 4-year	Catholic 4-year	Other Christian 4-year	Total
White	59.0	48.8	80.0	67.7	63.8	63.1	58.8
African American	45.3	41.4	73.2	49.8	48.1	45.7	46.3
American Indian	43.5	36.9	72.0	56.1	32.1	51.7	42.1
Asian American	64.9	51.0	86.6	76.1	57.6	57.8	65.2
Mexican American/ Chicana/o	39.6	38.4	67.7	61.7	30.0	48.2	46.0
Puerto Rican	42.5	32.1	67.4	44.3	37.2	40.6	41.8
Other Race	52.5	34.7	77.5	70.4	61.5	47.1	54.3
Total	57.7	47.4	79.6	67.0	60.2	61.3	57.6

Since the stratification by race and type of institution as shown in Table 6 substantially reduces the sample size upon which each of these percentages is based, the reader is forewarned that these figures for the smallest racial groups (Puerto Ricans, in particular) should be regarded with some caution. With this qualification in mind, it is useful to note that the lowest figures for all groups except Mexican American/Chicana/o and American Indian are found in either the public universities or public colleges. The lowest rates for Mexican American/Chicana/o and American Indian groups are in Catholic four-year colleges.

Input Effects

Our earlier discussion of degree attainment differences by institutional type

(Tables 1 and 6) suggests that some of these differences may be attributable to

differential characteristics of entering freshmen. More specifically, since certain types of

institutions (e.g. private universities) are much more selective than other types (e.g.

public colleges), it may well be that differences in their degree completion rates are, at

least in part, a reflection of differential characteristics of entering freshman classes rather

than differential institutional effects.

To explore the potential effects of entering student characteristics, we have

produced below a series of cross-tabulations involving the two characteristics of entering

freshmen that are most frequently used in making admissions decisions: average high

school grade (HSG) and composite score (Verbal plus Mathematical) on the Scholastic

Aptitude Test[5] (SAT). Let us first examine the independent effects of HSG and SAT, and

then examine their joint effects on the student's chances of completing college in four or

six years.

Table 7 shows the effect of high school grades on each of the three degree

attainment measures. The data clearly show that school grades are indeed a major

determinant of the student's chances of completing college, regardless of whether degree

completion is set at four, six, or more than six years. Thus, if we look at degree

completion within six or six-plus years, we find that students who enter college with "A"

grade averages are three to four times more likely to finish college than are students with

"C" grade averages or less. When it comes to completion within four years, the ratio is

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[5] ACT composite scores were converted to equivalent SAT composite scores using a procedure developed by Astin and Henson (1977) (See Appendix E).

more than seven to one. Despite the relatively crude nature of our seven-letter grade categories, differences between categories are quite similar, ranging from a low of about 7 percent to a high around 12 percent for those completing within six years. This would suggest that the relationship comes reasonably close to being linear (especially for 6-year completion), despite the arbitrary nature of letter grades. The intervals producing the largest differences (ranging from 9.3 to 11.2 percent) are "B" to "B+" and the top one: "A-" to "A or A+", whereas the smallest differences--ranging from 4.6 to 7.0 percent--are associated with the next to lowest interval: "C+" to "B-".

Table 7
Degree Attainment Rates by Average High School Grade (HSG)

Average High School Grade	Unweighted N	Percentage of Students Who Received Bachelor's Degrees Within		
		4 years	6 years	6 + years*
A, A+	12,112	58.2	77.5	79.2
A-	12,261	47.1	68.2	70.5
B+	12,090	35.4	59.0	61.7
B	11,434	25.1	47.8	51.8
B-	4,527	19.2	39.5	43.6
C+	2,582	14.6	32.5	37.2
C or less	1,212	8.0	20.0	25.3

*Considers students who are still enrolled six plus years as degree completers.
Note: Weighted to approximate national norms for 1994 freshmen.

The effect of the SAT composite score is shown in Table 8. Students in the highest test score interval (SAT composite of 1300 or greater) are about three times more likely to obtain a bachelor's degree than are students in the lowest interval (below 700). Furthermore, the differences between four and "six plus years" completion rates get

larger as the test scores decrease. In other words, the college completion gap between test scores narrows over time. The differences in four-year rates between the SAT composite of 1300 or greater (62.3 percent) and the SAT composite of less than 800 (18.2 percent) is 44.1 percent, but by "six plus years" this same difference has decreased to 34.8 percent (78.6 versus 43.8 percent).

Table 8
Degree Attainment Rates by SAT Composite Score

SAT Verbal + Math Score		Weighted Percentage of Students Who Received Bachelor's Degrees Within		
	Unweighted N	4 years	6 years	6 + years*
1300+	5,685	62.3	76.5	78.6
1200-1299	6,772	55.2	73.1	74.8
1100-1199	8,707	48.0	68.0	69.9
1000-1099	9,150	40.2	63.2	65.9
900-999	9,583	29.6	52.3	56.0
800-899	6,309	21.7	45.2	49.1
Less than 800	2,688	18.2	39.8	43.8

*Considers students who are still enrolled six plus years as degree completers.

Even larger differences in degree completion probabilities can be observed when we combine HSG and SAT. Table 9 shows comparative rates for the four-year period. The data indicate that both HSG and SAT contribute independently to the prediction of student degree attainment. Thus, if we control for SAT composite score by picking any column of data, we find a steady increase in degree completion chances as we move from the lower to the higher levels of HSG. Similarly, if we control for high school grades by looking only at SAT differences across any row, we find a steady upward progression in retention chances as SAT increases.

Table 9
Four-Year Degree Attainment Rates by High School Grades and Test Scores (Weighted)

Average High School Grades	SAT Verbal + Math Score						
	Less than 800	800 to 899	900 to 999	1000 to 1099	1100 to 1199	1200 to 1299	1300 or more
A, A+	27.4 (71)	41.4 (272)	42.0 (966)	54.1 (1721)	59.5 (2505)	63.2 (2739)	68.9 (3088)
A-	20.6 (155)	32.2 (700)	40.5 (1841)	46.1 (2277)	51.7 (2499)	60.5 (2024)	61.0 (1471)
B+	21.7 (449)	24.6 (1354)	33.7 (2394)	39.2 (2365)	42.5 (1922)	47.5 (1177)	50.8 (674)
B	21.0 (853)	20.1 (1993)	23.3 (2593)	32.5 (1807)	33.6 (1176)	27.6 (561)	36.4 (283)
B-	14.9 (489)	17.8 (974)	18.0 (1008)	24.8 (590)	28.8 (340)	31.9 (126)	15.3 (78)
C+	15.5 (399)	13.0 (670)	14.6 (490)	16.3 (245)	19.6 (116)	12.2 (46)	
C or less	7.8 (252)	7.5 (295)	7.2 (206)	7.1 (73)	22.4 (57)		

Note: No data are reported for cells containing fewer then 45 students; the figures in parentheses are the unweighted n's.

The absolute differences shown in Table 9 are far from inconsequential. Thus, as we move from the extreme lower left cells to the extreme upper right cells, we observe more than an *eightfold* increase in the student's chances of completing college. When one compares students who have the lowest test scores and grades with those who have the highest test scores and grades, there is an absolute difference of 61 percent in the student's chances of completing college. These differences would probably be even greater if we could extend the SAT continuum in both directions, and/or extend the average HSG below "C".

Table 10
Six-Year Degree Attainment Rates by High School Grades and Test Scores

Average High School Grades	SAT Verbal + Math Score						
	Less than 800	800 to 899	900 to 999	1000 to 1099	1100 to 1199	1200 to 1299	1300 or more
A, A+	51.2	65.2	70.4	75.7	78.9	80.4	82.6
A-	53.2	52.0	64.7	69.9	71.7	76.8	75.3
B+	47.3	54.0	55.9	64.2	63.6	65.6	67.3
B	44.5	43.1	47.3	54.4	55.4	51.9	51.3
B-	35.2	41.1	37.4	49.8	44.5	43.2	26.7
C+	29.3	34.5	32.5	33.8	37.4	22.4	
C or less	20.4	22.0	16.9	23.2	25.0		

Note: No data are reported for cells containing fewer then 45 students. For cell n's see Table 9. Data are weighted to approximate national norms for 1994 freshmen.

Table 11
Six Plus Years* Degree Attainment Rates by High School Grades and Test Scores

Average High School Grades	SAT Verbal + Math Score						
	Less than 800	800 to 899	900 to 999	1000 to 1099	1100 to 1199	1200 to 1299	1300 or more
A, A+	51.2	66.5	73.3	77.1	80.6	81.9	84.0
A-	55.7	55.6	67.9	72.9	73.0	78.0	77.8
B+	51.3	56.9	59.2	66.3	65.2	67.3	71.3
B	48.4	47.3	51.2	58.8	58.6	56.6	56.1
B-	38.5	45.6	42.3	53.3	47.9	43.4	27.0
C+	34.2	39.9	37.4	36.0	44.0	22.4	
C or less	27.2	26.9	21.4	24.1	30.5		

* Considers students who are still enrolled six plus years as degree completers.
Note: No data are reported for cells containing fewer then 45 students. For cell n's see Table 9. Data are weighted to approximate national norms for 1994 freshmen.

The differences in degree attainment rates shown in Tables 10 (six-year rates) and 11 (still enrolled after six plus years) are similar, except that the gap between the best- and poorest-prepared students narrows slightly when we look at six plus years. What this tells us is that students with the weakest academic preparation are the ones most likely to take longer than the traditional four years to complete the bachelor's degree.

These results make it clear that it makes little sense to examine any institution's "retention rate" without also taking into account the level of academic preparation of the students who enroll. Indeed, research suggests that at least half of the variation in degree attainment rates among institutions can be attributed to differences in HSGs and SAT scores of the students who enroll (Astin, 1996). Under these conditions, raw retention rates may unfairly penalize those institutions that admit less-well-prepared students, and bestow undeserved credit on those that are highly selective in their admissions policies. The real question of "institutional effectiveness," especially as it relates to degree completion, cannot be adequately addressed without considering the academic preparation levels of the students when they initially enroll. For this and other reasons set forth earlier by one of us (Astin, 1993a), the Federal Student Right-to-Know and Campus Security Act of 1991, which requires institutions to report raw degree completion rates without simultaneously reporting data about the students when they enrolled, should be seriously questioned. Similarly, efforts at the state level to make institutions more "accountable" by comparing their raw retention rates are misguided, at best, and perhaps even detrimental to state interest. The danger in such state policies is that they discourage institutions from enrolling relatively poorly prepared students in order that they be able to maximize their raw retention rates. In any state that strives to promote the quality of

economic and social life for its citizens, being able to effectively educate the less well-prepared student should be given high priority, since such students pose the greatest risk of eventually becoming dependent on the state. All states, in other words, have a vested interest in raising the educational level of their underprepared students to the maximum. Therefore, any state policy that discourages institutions from admitting and educating underprepared students basically works in opposition to long-term state interests.

Predicting Degree Attainment from Entering Student Data

In order for institutions to be in a better position to evaluate their own degree attainment rates, we present here a series of linear regression formulas[6] that any institution can utilize to obtain an "estimated degree attainment rate." We hasten to add that these formulas were derived using first-time, full-time entering freshmen; we do not recommend using them for part-time or transfer students.

Each formula was developed with the dependent variable, degree attainment, scored as "1 (degree attained)" or "0 (degree unattained)." Separate sets of formulas are presented for degree completion within four years (Table 12), six years (Table 13) and "still enrolled six plus years" (Table 14). We shall limit our discussion of how to use these formulas to Table 12 (degree completion in four years), but the procedures are identical in every case for Tables 13 and 14. The only differences are the actual coefficients which, of course, differ from table to table.[7]

We have confined these regressions to only four independent variables--average high school grade (HSG), SAT, gender, and race. Note that race includes potentially

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[6] We have conducted similar analyses using logit and probit analyses (Dey & Astin, 1993) with virtually identical results. We present regression results here because regression is a more familiar form of multivariate analysis.

[7] All regression coefficients are statistically significant (p<.0001).

seven dummy variables (White, African American, American Indian, Mexican American/Chicana/o, Asian American, Puerto Rican, and Other), bringing the total number of potential variables to ten. The tables include only those variables that added significantly ($p<.0001$) to the prediction of degree attainment. Although several other entering freshman characteristics have been shown to add significantly to the prediction of degree completion (Astin, 1993b), these ten variables (especially HSG and SAT) account for the bulk of the variance in degree completion that can be predicted from entering freshman characteristics. Also, it is likely that most institutions already have information about these variables on their entering students. Information about other entering freshman variables that add to the prediction of degree attainment is provided at the end of this monograph. These include such variables as socioeconomic status, religion, self-ratings, and values. Institutions that participate in the annual CIRP survey of entering freshmen can use these more elaborate formulas to get better control over their student "input" characteristics.

To give maximum flexibility to potential users of these formulas, and to accommodate institutions that may not have data available on all four entering student characteristics, we are reporting four different formulas for each degree completion measure: (1) HSG only, (2) HSG plus SAT, (3) HSG plus SAT plus gender, and (4) HSG plus SAT plus gender plus race. These four formulas are shown, respectively, in columns 1-4 of Table 12. Formula 1 is the simplest, employing only the student's average grade in high school. Note that the high school grades must be first converted to the same coding scheme shown in footnote "a" of Table 12. (This grade conversion must be done regardless of which formula is used.)

Table 12 (Weighted)
Predicting Bachelor's Degree Completion in 4 years
Using Different Combinations of Input Variables (N= 757,169)

Input Variable	b coefficient using formula			
	1	2	3	4
Average High School Grades	.0947	.0670	.0615	.0619
SAT Verbal + Math		.0005218	.0005690	.0005537
Gender: Female			.0717	.0717
Race: American Indian				-.1327
Race: Puerto Rican				-.0559
Race: Mexican American/Chicana/o				-.0922
Race: African American				-.0298
Race: Asian American				-.0195
Race: Other				.0221
Constant (a)	-.1972	-.5633	-.6879	-.3587
Multiple R	.3084	.3486	.3559	.3601

[a] High School grading coding scheme: A or A+=8, A-=7, B+=6, B=5, B-=4, C+=3, C=2, D=1

[b] Gender coding scheme: Female=2, Male=1

[c] Race coding scheme: White (yes=2, no=1), African American (yes=2, no=1), American Indian (yes=2, no=1), Asian American (yes=2, no=1), Mexican American (yes=2, no=1), Puerto Rican (yes=2, no=1), Other Race (yes=2, no=1)

Note: Degree completed=1; not completed=0.

Thus, to estimate a student's chances of completing a degree in four years using only high school grades, the first formula would be applied as follows:

Probability of
completing a degree
in four years   =   a   +   b (high school grades)

"   = -.1808   +   .0924 (high school grades)

For example, if a student has an average grade of "A-" (code=7; see footnote "b" in Table 12), you would multiply 7 by .0924 and subtract .1808, yielding a probability of .466. In other words, roughly 47 percent of college students with a high school grade

average of "A-" complete college within four years after entering. By contrast, if the student's average grade in high school is "C+" (code=3), the probability of completing a degree in four years is 3 x .0947 minus .1972, or .087. Thus an entering freshman with an average high school grade of "C+" has only about one chance in ten of finishing college within four years.[8]

Formula 2 in Table 12 is for use by institutions that have available to them both high school grades and college admissions test scores of their students. Institutions that use the ACT rather than the SAT can use the table in Appendix E to convert the ACT composite scores into equivalent SAT composite scores. The use of formula 2 follows once again the usual regression formula, except in this case there are two predictor variables, each with its own coefficient. Formula number 2 thus looks like this:

Probability of
completing a degree
in four years $\quad = \quad$ a $\quad + \quad b_1$(grades) $+ \quad b_2$ (SAT composite)

" $\quad = -.5633 \quad + \quad$ .0670 (grades) + .000522 (SAT composite)

Let's say we have an outstanding freshman with an "A-" average from high school (code=7) and a SAT composite score of 1400 on the verbal and math tests. Multiplying each of these three input variables by its respective coefficient, summing the products, and adding the (negative) constant yields a probability of .637. Thus, almost two-thirds of freshmen who enter college with such academic credentials would be expected to earn a bachelor's degree within four years. On the other hand, applying the

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[8] A very few cases (44 out of 56,818) actually had GPAs of "D," which, depending on their SAT/ACT scores, could theoretically generate a slightly negative expected probability of being retained. Such rare instances of "impossible" probabilities represent one of the reasons commonly given for preferring logistic regression over OLS regression. However, a recent study (Dey & Astin, 1993) suggests that when we are dealing with aggregates of students, the mean expected retention rate (and the correlation between expected and actual rates) are virtually identical regardless of which regression method is used.

same formula to a freshman who enters college with only a "C+" average (code =3) and SAT composite score of 850, yields a probability of only .0814. In other words, slightly less than one student in ten who enters college with such grades and test scores would be expected to complete college within four years. While the multiple correlation involving these two variables is only .349 (accounting for a little more than twelve percent of the variance in retention), these two hypothetical students have very different chances of completing the degree within four years. Thus, the student with high grades and test scores is nearly eight times more likely to complete college (64 percent) than is the student with low test scores and grades (8 percent).

Similar procedures should be followed in using formulas 3 and 4. Formula 3 is available for those institutions that also have gender data on their students, whereas formula 4 is available for those institutions that have gender as well as racial/ethnic data. An important point to remember about using gender and race data is how these variables are coded: these "dummy" variables are coded either "2 or 1," rather than the traditional "1 and 0" (see footnotes "b" and "c" in Table 12). Special attention should be paid to the racial variables, since it is essential that each student receive a score on all six race variables.[9] In other words, an American Indian student would receive a score of "2" on the variable Race: American Indian and scores of "1" on the five other race variables. A student who is from some racial group other than the ones shown in Table 12 should receive a score of "1" on all six race variables.

Note that the multiple correlation coefficients shown for each of the four formulas in Table 12 increase slightly with the addition of more variables (from .308 in formula 1

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[9] While we understand that a student may be multiracial, for purposes of the analyses, each student could only be assigned to one of the six race variables in the equation.

to .360 in formula 4). What this means is that the accuracy of the prediction is increasing as additional variables are added to the equation. Although the racial variables increase the multiple correlation by only a slight amount (.004), the b coefficients for the six race variables suggest that race can make a potentially important difference in the student's chances of finishing college in four years. To assess the comparative advantage or disadvantage associated with being a member of one versus another of the racial groups shown in Table 12, coefficients of like sign should be subtracted, and coefficients of opposite sign should be added. For example, among students of the same sex and with identical high school grades and test scores, an African American student would have a .103 better chance of finishing college in four years than would an American Indian student (.1327 - .0298) and an Asian American student would have a .073 better chance than would a Mexican American/Chicana/o student (.0922 - .0195).

Investigators wishing to compute expected retention measures for six or "still enrolled after six plus years" should employ the formulas shown in Tables 13 and 14. Note, however, that the multiple correlation coefficients (R) decline as the length of time to degree completion increases. What this means, in essence, is that the most stringent measure--completing a bachelor's degree within four years--is easier to predict than the other two measures. (It also suggests that the reason why some students take more than four years may have as much to do with the institution as with the student.) This finding is consistent with a national retention study done almost thirty years ago (Astin, 1975), which showed that the students who take longer to complete a bachelor's degree more closely resemble the permanent stop-outs than those who complete the degree within four years.

Table 13 (Weighted)
Predicting Bachelor's Degree Completion in 6 years
Using Different Combinations of Input Variables (N= 757,169)

Input Variable	b coefficient using formula			
	1	2	3	4
Average High School Grades	.0963	.0777	.0758	.0760
SAT Verbal + Math		.0003222	.0003382	.0003139
Gender: Female			.0243	.0249
Race: American Indian				-.1454
Race: Puerto Rican				-.1024
Race: Mexican American/Chicana/o				-.0992
Race: African American				-.0469
Race: Asian American				.0327
Race: Other				-.0201
Constant (a)	.0057	-.2092	-.2513	.1603
Multiple R	.3055	.3187	.3196	.3257

Note: See Footnotes on Table 12

Table 14 (Weighted)
Predicting Bachelor's Degree Completion for Students Enrolled After 6 years
Using Different Combinations of Input Variables (N= 757,169)

Input Variable	b coefficient using formula			
	1	2	3	4
Average High School Grades	.0896	.0724	.0716	.0717
SAT Verbal + Math		.0002986	.0003053	.0002819
Gender: Female			.0102	.0112
Race: American Indian				-.1439
Race: Puerto Rican				-.1090
Race: Mexican American/Chicana/o				-.0660
Race: African American				-.0457
Race: Asian American				.0470
Constant (a)	.0760	-.1231	-.1407	.2043
Multiple R	.2876	.3004	.3006	.3070

Note: See Footnotes on Table 12

Computing an Estimated Degree Completion Rate

Investigators desiring to compute an estimated degree completion rate for any entering cohort of students are advised to follow a four-step procedure:

1. Decide which degree completion measure is most appropriate for your purposes (Table 12, Table 13, or Table 14).

2. Choose from that table the formula (1, 2, 3, or 4) that suits the data that are currently available on your entering cohort of freshmen (the more variables that are available, the better the estimate).

3. Using the appropriate formula, compute for each student in the cohort an estimated probability of degree completion.

4. Calculate an expected degree completion rate for the entire cohort by averaging the individual probabilities.

If mean scores for the cohort are available on the relevant input variables, the computational process can be greatly simplified, since multiple linear regression is an "additive" model. Thus, all one needs to do is to compute mean scores on each predictor (GPA, SAT, gender, race) and then multiply each mean by its respective coefficient, sum the products, and add the "a" constant. In taking this short cut it is important to realize that means for race and gender will range between 1.0 and 2.0. Thus, if the entering cohort includes 60 percent women, the mean for the gender variable should be 1.60. Similarly, if 25 percent of the cohort are Mexican American/Chicana/o, the mean for Race: Mexican American/Chicana/o should be 1.25. It should also be emphasized that the high school grade averages must be converted to the eight-point scale (see footnote "a" in Table 12) before the mean is calculated.

Evaluating Expected and Actual Degree Attainment Rates

Institutions that are highly successful at retaining their students should have actual degree attainment rates that exceed their expected rates, whereas those institutions that have relatively ineffective retention programs would be expected to have actual degree attainment rates that fall substantially below their expected rates. Institutions with average student degree completion capacity should have expected and actual rates that are very similar. While there are no hard-and-fast rules for deciding if expected and actual rates are essentially "the same," when the difference between these rates exceed $\pm.10$, we are approaching a discrepancy which could be viewed as significant from both a practical as well as a statistical perspective (whether such a difference is indeed statistically significant would depend upon the size of the cohort being studied and the "p" value selected--.05, .01, etc.--that is, the amount of risk that the investigator is willing to take in inferring that the expected and the actual rates are indeed different).

Recent research on retention suggests that there are a number of "environmental" factors that are known to influence an institution's actual retention rate, over and above the influence of student input characteristics (Astin, 1993b). One such factor is the student's major field. Institutions enrolling many students in fields like business, psychology, or other social sciences would be expected to have higher-than-expected retention rates, whereas those enrolling large numbers of students majoring in engineering would be expected to have lower-than-expected rates.

Another factor that increases a student's degree attainment chances is living in a campus residence hall during the freshman year. Thus, institutions with required freshman residency or that house a large percentage of new students in campus residence

halls would be expected to have higher-than-expected student degree completion rates, whereas purely commuter institutions would be expected to have somewhat lower-than-expected rates. Still another positive factor is college selectivity: highly selective institutions tend to have higher-than-expected degree completion rates, while the rates of nonselective institutions tend to be lower-than-expected. Institutional size, on the other hand, tends to have a negative effect on retention.

In short, institutions that are attempting to understand why their actual and expected student degree attainment rates may differ should keep these factors in mind. It is also important to realize that selectivity, small size, and residential facilities do not necessarily create actual rates that are higher-than-expected, nor do large size, nonselectivity, or a lack of residential facilities necessarily cause the institution's actual rate to be lower-than-expected. Rather, there are tendencies for size, selectivity, and residence to affect degree completion in the manner just described (Astin, 1993b).

Trends in Degree Attainment by Race, Gender, and Institutional Type

The following section presents trends in degree attainment. We compare today's student retention rates to those of a cohort of freshmen who began college nearly a decade before the current study's freshmen (See Astin, Tsui, & Avalos, 1996). In particular, we will be examining trends in four-year college completion rates. The authors would like to caution the readers who reference the former study against comparing the earlier six-year rates with the current study. Due to certain methodological errors that were only recently discovered, the reported six and nine-year retention rates may be slightly underestimated in the earlier study. Updated analyses have confirmed that the

earlier four-year rates are accurate and can be directly compared to the four-year retention rates of the current study.

Table 15 shows that, overall, four-year retention rates have decreased 3.6 percent in the last decade (from 39.9 percent in 1989 to 36.3 percent in 1998). The largest decreases are in the public universities (-6.3 percent) and public colleges (-6.3 percent). However, nonsectarian colleges (+10.8 percent) and Protestant (Other Christian) colleges (+7.9 percent) show increases in the percent of students completing college within four years after college entry. Thus, with the exception of Protestant (Other Christian) colleges and nonsectarian colleges, institutions of today seem to be having a harder time graduating their students within four years. Further, the public-private gap in retention rates has also increased substantially during the past decade.

Table 15
Trends in Four-year Degree Attainment Rates, by Institutional Type

	Unweighted N		Percent Completing Bachelor's Degree Within Four Years in		
Institutional Type	1989	1998	1989	1998	Difference
Public University	20,509	6,650	34.4	28.1	-6.3
Private University	16,664	4,931	69.2	67.1	-2.1
Public 4-year College	11,708	7,457	30.6	24.3	-6.3
Nonsectarian 4-year College	17,541	17,610	47.1	57.9	+10.8
Catholic 4-year College	5,755	5,436	49.9	46.4	-3.5
Other Christian 4-year College	7,637	14,734	42.7	50.6	+7.9
All Institutions	79,814	56,818	39.9	36.3	-3.6

Note: Percentages have been weighted to approximate national norms for 1985 and 1994 freshmen.

Table 16 shows the differences in four-year degree attainment rates for men and women. Women (43.2 percent in 1989 and 39.7 percent in 1998) continue to attain their degrees after four years in college at higher rates than men do (36.8 percent in 1989 and 32.6 percent in 1998). At the same time, the male-female gap in four-year retention rates has also increased slightly (from 6.4 to 7.1 percent) during the same period.

Table 16
Trends in Four-year Degree Attainment Rates, by Gender

| | Percent Completing Bachelor's Degree in | |
Gender	1989	1998
Women	43.2	39.7
Men	36.8	32.6

Note: Percentages have been weighted to approximate national norms for 1985 and 1994 freshmen.

Table 17 reveals that differences in degree attainment rates by racial group have persisted over the last decade. With the exception of African Americans (and "Other" races), four-year retention rates for every ethnic group decreased over the last decade. White and Asian American students continue to attain degrees four years after college entry at higher rates than do other ethnic groups (37.9 percent and 38.8 percent, respectively). Interestingly, Asian Americans (-11.4 percent) and Mexican Americans/Chicanas/os (-9.2 percent) have shown the largest declines in four-year completion rates. These figures have immediate policy implications, given the explosion of Asian American and Latino students entering higher education institutions in recent years. College enrollments have increased 101 percent for Asians and 161 percent for Latinos in the last 10 years (Perna, 2000).

Table 17

Trends in Four-year Degree Attainment Rates, by Racial Group

Racial Group	Percent Completing Bachelor's Degree in		
	1989	1998	Difference
White	42.7	37.9	-4.8
African American	19.4	23.0	+3.6
American Indian	22.9	21.4	-1.5
Asian American	50.2	38.8	-11.4
Mexican American/Chicana/o	30.5	21.3	-9.2
Puerto Rican	26.8	23.8	-3.0
Other Race	34.4	37.0	+2.6

Note: Percentages have been weighted to approximate national norms for 1985 and 1994 freshmen.

Trends in Input Effects

In our earlier discussion, we concluded that institutional retention results make little sense if we do not take into account the level of academic preparation of the students who enroll. Indeed, research suggests that more than half of the variation in degree attainment rates among institutions can be attributed to differences in high school GPA (HSG) and SAT composite scores of the students who enroll (Astin, 1996). In this section, we present trends in "academic" predictors of retention and answer the question: have the patterns in completion rates by grades and SAT scores changed over the last decade?

Table 18 shows changes in the effects of HSG on four-year degree attainment. While the data show that high school grades continue to be a determinant of the student's chances of completing college in four years, the likelihood of college completion based on grades has actually decreased for all grade categories in the last decade. However, the effect of HSG on retention is at least as strong as it was a decade earlier. In 1989, students who entered college with an "A" average were five times more likely to finish college than were students with "C" averages or less. Today, students who enter college with an "A" average are <u>seven</u> times more likely to finish college in four years. Moreover, students of today are taking longer to graduate. As the length of time allowed for degree completion increases, the ability to predict college completion based solely on grades declines slightly (see Tables 12 and 13).

Table 18
Trends in Degree Attainment Rates by Average High School Grade (HSG)

Average High School Grade	Unweighted N		Percent of Students Who Received Bachelor's Degrees in 4 years in	
	1989	1998	1989	1998
A, A+	12,518	12,112	62.4	58.2
A-	14,703	12,261	52.4	47.1
B+	18,104	12,090	45.2	35.4
B	17,666	11,434	34.5	25.1
B-	8,195	4,527	26.8	19.2
C+	5,096	2,582	18.4	14.6
C or less	2,649	1,212	11.9	8.0

Note: Percentages have been weighted to approximate national norms for 1985 and 1994 freshmen.

Table 19 shows the changes in the effect of the SAT composite score[10] on degree attainment. With the notable exception of the lowest SAT category (where the Ns are quite small), during the past decade four-year retention rates have decreased in every SAT category: from 9.9 percent in the SAT category 1150-1299 to 13.0 percent in SAT category 850-999. A decade ago, students in the highest test score category (SAT of 1300 or greater) were about four times more likely to obtain a bachelor's degree in four years than were students in the lowest interval (SAT below 700). Today, students in the highest test score category (SAT of 1300 or greater) are about three times more likely to obtain a bachelor's degree in four years than are students in the lowest interval (SAT below 700).

Table 19
Trends in Degree Attainment Rates by SAT Composite Score

SAT Composite Score	Unweighted N		Percent of Students Who Received Bachelor's Degrees in 4 years in	
	1989	1998	1989	1998
1300+	4,321	5,685	73.1	62.3
1150-1299	9,314	10,802	62.8	52.9
1000-1149	13,821	13,827	52.6	42.4
850-999	13,772	12,407	41.4	28.4
700-849	8,396	5,728	30.3	18.4
Less than 700	3,693	445	19.3	22.9

Note: Percentages have been weighted to approximate national norms for 1985 and 1994 freshmen.

When we combine HSG and SAT composite, how has degree attainment changed in the last decade? Table 20 shows comparative rates for the four-year period. The data continue to indicate that both HSG and SAT contribute independently to the prediction of

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[10] In order to compare the current data with the data from the earlier study, SAT categories were recoded using the previous study's categories.

student degree attainment. Thus, if we examine Table 20, we do find a steady increase in degree completion chances when we control for SAT composite score while moving from the lower to the higher levels of HSG, regardless of time period examined. Similarly, we find a steady increase in degree completion chances when we control for HSG while we move from the lower to the higher levels of SAT, regardless of the time period examined. Although the general patterns for HSG and SAT scores have remained similar during the past decade, four-year degree completion has declined in every single grades-by-test scores category. However, the declines have not been systematic at all levels of grades and test scores. For example, for students with high (1000 +) SAT scores and high ("A-" or "A") GPAs, there has been a smaller decline in retention chances than for students with high SAT scores but with lower GPAs. In other words, "underachievers"--students with low grades coupled with high test scores--have shown a larger decline in retention than have students whose grades match their high test scores. Conversely, students with low SAT scores and low grades show smaller declines than do "overachievers"--students with low test scores and high grades. However, the most important conclusion to be drawn from Table 20 is that <u>four-year degree completion rates have declined among students at all levels of academic preparation.</u>

Table 20
Trends in Four-Year Degree Attainment Rates by High School Grades (HSG) and Test scores

| SAT Score | HSGPA Category | Percent Retained | | Difference |
		1985-1989	1994-1998	
1300 or higher	A / A+	80.4	68.8	-11.6
"	A -	72.6	61.0	-11.6
"	B+	62.9	50.8	-12.1
"	B	48.4	36.4	-12.0
1150 to 1299	A / A+	70.9	62.0	-8.9
"	A -	64.8	56.5	-8.3
"	B+	62.3	46.7	-15.6
"	B	51.4	29.2	-22.2
"	B-	43.9	29.3	-14.6
1000 to 1149	A / A+	63.7	56.2	-7.5
"	A -	57.8	48.5	-9.3
"	B+	55.7	39.4	-16.3
"	B	46.2	33.1	-13.1
"	B-	34.8	26.1	-8.7
"	C+	27.4	16.8	-10.6
"	C or less	20.8	9.6	-11.2
850 to 999	A / A+	55.5	42.7	-12.8
"	A -	51.8	39.9	-11.9
"	B+	46.5	31.7	-14.8
"	B	39.4	23.1	-16.3
"	B-	32.6	18.6	-14.0
"	C+	24.5	15.8	-8.7
"	C or less	19.3	7.0	-12.3
700 to 849	A / A+	44.7	34.6	-10.1
"	A -	41.4	26.8	-14.6
"	B+	37.8	23.0	-14.8
"	B	31.7	18.1	-13.6
"	B-	25.6	15.5	-10.1
"	C+	18.5	11.3	-7.2
"	C or less	15.8	7.5	-8.3

Note: Data are not reported for categories containing less than 100 students.

Changes in Prediction Formulas

We now turn to examine the changes in the prediction formulas over the last decade. Using the same combination of inputs, we address the question, how have predicted retention rates changed over the last decade? Since only unweighted regressions were performed in the earlier study, we have rerun the current regressions as unweighted so the coefficients from the two decades would be comparable (note that the 1998 weights shown below differ slightly from those shown in Table 12).

Formula 1: High school grades (HSG)

(See page 21 for directions on how to calculate probabilities)

1989: y hat = -.0052 + .0929 (HSG)

Today: y hat = -.1051 + .0993 (HSG)[11]

Ten years ago a student with an "A-" (code=7) grade point average yielded a degree completion probability of .645. In other words, there was about a 65 percent chance that such a student would receive a bachelor's degree within four years. Today, a student who enters college with the same "A-" average yields a probability of .590, which means that, roughly, there is a 60 percent chance that this student would attain a bachelor's degree within four years after college entry. Similarly, whereas ten years ago a student with a "C" (code=2) average had a probability of .181, today that student has only .094 chance of getting their bachelor's degree in four years. Like the data discussed earlier in Table 18, these figures illustrate that the overall tendency to be retained/graduated within four years of college entry has declined considerably in the past

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[11] Note that these coefficients differ somewhat from those shown in Table 12. The reason is that they were derived from unweighted regressions in order to be comparable to the 1989 formulas (which were derived from unweighted regressions).

decade, regardless of the student's level of achievement in high school. At the same time, the accuracy of predicting completion within four years has actually improved slightly (b coefficient of .0929 in 1989 versus .0993 in 1998).

Now let's examine possible changes in how the addition of SAT composite scores aids in predicting retention.

Formula 2: HSG plus SAT score

1989: y hat = -.2916 + .0622 (HSG) + .000483 (SATV) + .000445 (SATM)

Today: y hat = -.4663 + .0686 (HSG) + .000524 (SAT Composite)[12]

As Table 20 suggested earlier, the chances of completing college within four years have declined for all combinations of SAT and GPA scores of today's students. It is important to again note that the accuracy of predicting retention using these variables has not declined, only the overall chances of retention have declined. A decade ago, an outstanding freshman with an "A-" (code=7) average from high school and an SAT score of 650 and 750, respectively, on the verbal and math test (1400 SAT composite) yielded a probability of degree completion of .7915. Today, a student with the same qualifications (using coefficients from unweighted regressions) yields a probability of .7475. Thus, in the last ten years, the chance that a student with these solid academic qualifications would complete college within four years has declined almost 5 percent. For a poorly prepared student with a "C" average (code=2) and SAT verbal and math scores of 450 and 400, respectively, the probability of degree attainment within four years during the 1980s was .2282, or roughly 23 percent. Today, that same student yields a probability of only .1163, or about 12 percent. In short, the chance that such a poorly prepared student

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[12] See Footnote 11.

would graduate within four years has declined by about half. One explanation for this decline is "grade inflation": since the grades awarded to high school students have continued to climb during the past decade (Sax, et al, 2000), there are fewer students who qualify as "poor" students. Thus, a "C" student of today is perhaps more like a "D" student of ten years ago, since the "C" students are actually much rarer in four-year colleges and universities today than they were a decade ago. At the same time, "A" students are more common.

Now let us examine changes over the last decade when gender is added to the equation.

Formula 3: HSG plus SAT plus Gender

1989: y hat = -.4376 + .0556 (HSG) + .000451 (SATV) + .000588 (SATM) + .0813 (Female)

Today: y hat = -.5785 + .0630 (HSG) + .000559 (SAT composite) + .0695 (Female)

Ten years ago, a female with an "A" (code=8) high school average and an SAT score of 1050 (550 Math and 500 Verbal), yielded a probability of getting the bachelor's degree of .7187. Today, a female with the same credentials yields a probability of only .6515 (using unweighted coefficients), showing a decrease of almost 7 percent in the last decade. The unweighted b coefficient for gender: female has decreased from .0813 in 1989 to .0695 today. Being female continues to be a positive predictor of degree attainment but, once we control for SAT and GPA, it is not as predictive of degree attainment today as it was ten years ago.

Formula 4: HSG plus SAT plus Gender plus Race

Since the trends in predicted degree attainment follow the same patterns as the previous sections, we will discuss here only the changes that have occurred in the race coefficients throughout the two time periods examined. A regression coefficient (b) tells us how much our prediction changes for every one unit increase in the independent variable. For dummy variables like race, the b can be directly interpreted as the change in the predicted score on the dependent variable (degree completion) associated with being a member of a particular racial group. (For a complete explanation see the Appendix in Assessment for Excellence, Astin, 1991).

The same races that entered into the equation ten years ago enter today, except that today Puerto Rican also enters the equation (see Table 21). Puerto Rican students today are .1031 less likely to graduate in four years compared to White students, .0821 less likely to graduate in four years compared to American Indian students, and .0113 less likely to graduate in four years compared to African American students. Puerto Rican students are about as likely as Mexican American/Chicana/o students (.0041 difference) to graduate from college within four years.

Among students of the same sex and who have comparable grades and test scores, White students were 18 percent more likely to graduate from college in four years than were American Indian students, .0944 more likely than Mexican American/Chicana/o students, and .0948 more likely than African American students. Today, these same differences between White students and American Indian students and between White students and Mexican American/Chicana/o students have increased slightly (to .1854 and .0992, respectively). Thus, among students of similar sex and academic preparation, only

the differences between White and African American students have been reduced (and only modestly to .0920), while--relative to White students--the chances of graduating in four years are poorer today if one is either an American Indian or Puerto Rican.

Table 21
Trends in Unweighted b Coefficients for Predicting Four-year Degree Completion

Variable	Unweighted b coefficient		Weighted 1998 b coefficient
	1989	1998	
Average HSGPA	.0554	.0627	.0619
SAT Math + Verbal	.000477	.000538	.000554
Gender: Female	.0803	.0699	.0717
Race: American Indian	-.1403	-.1664	-.1327
Race: Puerto Rican	-----	-.0843	-.0559
Race: Mexican American	-.0566	-.0802	-.0922
Race: African American	-.0570	-.0730	-.0298
Race: White	.0378	.0190	-----
Race: Asian American	----	----	-.0195
Race: Other	----	----	.0221
Constant (a)	-.2004	-.1770	-.3587

In short, underrepresented students of color continue to attain baccalaureate degrees at substantially lower rates than their White counterparts do, and the figures for these ethnic groups have worsened over the years. The one bright light in the findings is the improvement in completion chances for African American students (see also Table 17). Another cause for concern is that degree attainment for White and Asian American students has also declined in the last ten years. In short, higher education personnel and policy makers must attend to the fact that fewer and fewer students today are graduating from institutions of higher education within four years of college entry. Even if some of these students manage to complete their degrees within six or more years, these trends are

disturbing, given that higher education institutions throughout the country are increasingly overcrowded and under-funded. With the swell of enrollment that is expected in the years to come, especially in the public institutions (where retention is declining and time-to-degree is increasing), it becomes increasingly important to identify the reasons why so many students are either not being retained or taking longer and longer to graduate.

Finally, institutions need to be aware that the meaning of traditional academic "qualifications for success" has also changed in the last ten years. That is, the same variables that we continue to rely upon so heavily for college admissions--high school grades and test scores--are predicting lowered chances of student retention. In other words, even though the overall accuracy with which these measures predict has been maintained, any given score (or composite of scores) on these variables uniformly predicts lower chances of retention than was the case ten years ago.

More Complex Formulas Using CIRP Freshman Variables

The final section is intended for use by institutions that participate in the CIRP Annual Survey of Entering Freshmen. What we have done is to take all variables from the survey that are repeated from year to year and to use them as possible predictors of four and six-year retention rates. A total of 145 variables was tried, and only those variables that entered the stepwise regression at $p<.0001$ have been retained. Note that twice as many variables entered the regression equations listed in appendices A-D, however, we terminated the regression equations when variables ceased to produce greater than a .0005 increase in the R-square change.

There are eight formulas, four for four-year degree completion and four for six-year completion rates (See Appendices A-D). The samples used with each set of the four formulas are as follows:

- With SAT scores (N= 48,170)

- With SAT scores <u>and</u> environmental variables (N= 48,170)

- Without SAT scores (N = 55,878)

- With environmental variables and <u>no</u> SAT scores (N=55,878)

Environmental variables are as follows:

First Year Living Arrangements (dummy variables: yes=2; no=1.)
     Plan to Live: Home
     Plan to Live: College dormitory
     Plan to Live: Other on campus, not dorm
     Plan to Live: Off campus, not at home
     Plan to Live: Other living arrangement

Institutional Selectivity (mean SAT Verbal + Math score of entering freshmen; ACT composite has been converted to SAT equivalent; see Appendix E).

Institutional Size (total FTE enrollment)

Institutional Type (dummy variables: yes=2; no=1.)
     Public University
     Private University
     Public Four-year College
     Nonsectarian Four-year College
     Catholic Four-year College
     Other Christian Four-year College
     Women's College

The formulas with environmental variables are for those investigators who want to "discount" the effects of such things as the type of institution and the student's place of residence during the freshman year. Generally speaking, such formulas will produce "expected" degree completion rates that are closer to the actual rates. However, it should be kept in mind that using such formulas may "mask" important factors affecting your

retention rates, factors that you might wish to change. If these environmental formulas are used, we strongly recommend that the results be compared with the results obtained with the first two (non-environmental) formulas.

The results are summarized in Table 22. Note that the *inclusion of other CIRP variables substantially improves the prediction of degree completion over what was possible using only high school grades, test scores, sex, and race (Tables 12 and 13).* In fact, adding the additional CIRP variables increases the proportion of individual student variance accounted for by 72 percent for four-year completion (R^2 increases from .1297 to .2237) and by 58 percent for six-year completion (R^2 increases from .1061 to .1681). Note also that six-year degree completion is, once again, harder to predict than is four-year degree completion. Of particular interest is the fact that the SAT adds very little to the prediction of four-year completion (R =.473 versus .460) and practically nothing to the prediction of six-year completion: R=.410 versus .406! Apparently, *the other CIRP freshman variables contain virtually all of the relevant information that is contained in the SAT.* A comparison of the coefficients (Appendices A & B) suggests that, in the equation that does not use SAT scores, more weight is given to high school grades, foreign language high school study, parental income, father's education, religion: Jewish, and several attitudinal and value measures.

Effects of Institutional Type

Appendices F and G show the effects of institutional characteristics. What we have done here is to use the long formula (including CIRP data) to compute the mean estimated rate of degree completion separately for students in various types of

institutions. When these means are compared with the <u>actual</u> rates, we observe the following:

♦ Both types of public institutions (universities and colleges) have lower-than-expected degree completion rates.

♦ Nonsectarian, Catholic and other Christian colleges and private universities, in particular, have higher-than-expected rates of degree completion.

♦ Public-private differences diminish considerably when six-year degree completion rates are compared. The principal causes of this convergence are that the expected and actual rates for public universities and for all types of private institutions are closer together when six-year rates are used. In effect, this means that *student time-to-degree is prolonged in public universities.*

Table 22
Summary of Full Formula Prediction Equations (Weighted)

Prediction Formulas	N Unweighted	N Weighted	Total Variables Entering	Final R
Four-Year Prediction Formulas				
Inputs with SAT scores	48,170	757,169	38	.473
Inputs and Environments with SAT Scores	48,170	757,169	34	.515
Inputs without SAT scores	55,878	878,298	37	.460
Inputs and Environments without SAT Scores	55,878	878,298	30	.506
Six-Year Prediction Formulas				
Inputs with SAT scores	48,170	757,169	33	.410
Inputs and Environments with SAT Scores	48,170	757,169	34	.422
Inputs without SAT scores	55,878	878,298	31	.406
Inputs and Environments without SAT Scores	55,878	878,298	28	.418

Comparison of Expected and Actual Rates for Individual Institutions

The eight "long" formulas (shown in Appendices A-D) were used to compute mean expected rates for each of the institutions. Institutions with fewer than 50 students were then eliminated from the sample, and the mean expected and mean actual rates were correlated. Appendix H shows the results. Remarkably, more than <u>two-thirds</u> of the variation in degree completion rates among four-year institutions can be accounted for by characteristics of their entering freshmen. These results underscore, once again, two important truths about American higher education institutions:

- Most of the differences among institutions in their degree completion rates is caused by differences in their entering students, rather than by differential institutional "effects."

- Institutions should not be judged (or compared with each other) on the basis of their degree completion rates unless "input" information on their entering students is also taken into account.

References

Astin, A.W. (1996). "How 'Good' is Your Institution's Retention Rate?" *Research in Higher Education*, 38 (6), 647-658.

_____. (1993a). "College Retention Rates Are Often Misleading." *The Chronicle of Higher Education*, (22 September), A48.

_____. (1993b). *What Matters in College: Four Critical Years Revisited*. San Francisco: Jossey-Bass.

_____. (1991). *Assessment for Excellence: The Philosophy and Practice of Assessment and Evaluation in Higher Education*. New York: Macmillian/Oryx.

_____. (1982). *Minorities in American Higher Education*. San Francisco: Jossey-Bass.

_____. (1975). *Preventing Students from Dropping Out*. San Francisco: Jossey-Bass.

_____. (1971). *Predicting Academic Performance in College*. New York: The Free Press.

Astin, A.W. & Henson, J.W. (1977). "New Measures of College Selectivity." *Research in Higher Education*, 6 (1), 1-9.

Astin, A.W., Korn, W.S., Sax, L.J., & Mahoney, K.M. (1994). *The American Freshman: National Norms for Fall 1994*. Los Angeles: Higher Education Research Institute, UCLA.

Astin, A.W., Tsui, L., & Avalos, J. (1996). *Degree Attainment Rates at American Colleges and Universities: Effects of Race, Gender, and Institutional Type*. Los Angeles: Higher Education Research Institute, UCLA.

Avalos, J. (1996). *The Effects of Time-to-Degree Completion, Stopping Out, Transferring, and Reasons for Leaving College on Students' Long Term Retention, Educational Aspirations, Occupational Prestige, and Income*. Unpublished doctoral dissertation, University of California, Los Angeles.

Choy, S.P. (2002). *Access and Persistence: Findings from 10 years of Longitudinal Research on Students*. Washington, D.C.: American Council on Education.

Dey, E.L. & Astin, A.W. (1993). "Statistical Alternatives for Studying College Student Retention: A Comparative Analyses of Logit, Probit, and Linear Regression." *Research in Higher Education*, 34 (5), 569-581.

Maclay, K. (2000). "Higher Education Faces Flood of Students. UC, Counterparts Nationwide Cope with Rising Enrollments, Tighter Space." *Berkelyan*. Office of Public Affairs. The Regents of the University of California.

Perna, L.W. (2000). "Racial and Ethnic Group Differences in College Enrollment Decisions." In A.F. Cabrera & S.M. La Nasa (Eds.), *Understanding the College Choice of Disadvantaged Students. New Directions for Institutional Research.* 107, pp 45-63. San Francisco: Jossey-Bass.

Sax, L.J., Astin, A.W., Korn, W.S., & Mahoney, K.M. (2000). *The American Freshman: National Norms for Fall 2000.* Los Angeles: Higher Education Research Institute, UCLA.

Appendices

- ◆ Appendix A: Predicting Four-year College Completion Using Student and Institutional Variables *with* SAT scores

- ◆ Appendix B: Predicting Four-year College Completion Using Student and Institutional Variables *without* SAT scores

- ◆ Appendix C: Predicting Six-year College Completion Using Student and Institutional Variables *with* SAT scores

- ◆ Appendix D: Predicting Six-year College Completion Using Student and Institutional Variables *without* SAT scores

- ◆ Appendix E: Converting ACT Composite Scores to SAT Composite Equivalents

- ◆ Appendix F: Table of Actual and Predicted Four-year Retention Figures by Institutional Type

- ◆ Appendix G: Table of Actual and Predicted Six-year Retention Figures by Institutional Type

- ◆ Appendix H: Overall Correlation Between Mean Expected Degree Completion Rates and Actual Degree Completion Retention Rates Using All Eight Full Formulas

- ◆ Appendix I: Variables Used in Regressions for Prediction Formulas

Appendix A

Predicting four-year college completion using student and institutional variables and SAT scores

Formula 1= student variables with SAT scores (4 year)

Formula 2= student and institutional variables with SAT scores (4 year)

Variable Name and Scoring	Mean	SD	b coefficient	
			Formula 1	Formula 2
1. Average High School Grade (8=A+ or A, 7=A-, 6=B+, 5=B, 4=B-, 3=C+, 2=C, 1=D)	6.017	1.559	.04746	.04949
2. SAT Scores* (Combined SAT math + verbal)	1030.659	173.422	.00034501	.00021102
Years of High School Study (7=5 or more years, 6=4, 5=3, 4=2, 3=1, 2=1/2, 1=none)				
3. Foreign language	4.606	1.225	.02945	.02107
4. Physical sciences	3.745	1.088	.01703	.01364
5. Gender (2=female, 1=male)	1.520	0.500	.05146	.05966
Race (2=yes, 1=no)				
6. White	1.824	0.381		.03811
Religion (2=yes, 1=no)				
7. Catholic	1.303	0.459	.02379	
8. Jewish	1.032	0.175	.11858	.09163
9. Parental Income (14= $200,000 or more, 13=$150,000-$199,999, 12=$100,000-$149,999, 11=$75,000-$99,999, 10=$60,000-$74,999, 9=$50,000-$59,999, 8=$40,000-$49,999, 7=$30,000-$39,999, 6=$25,000-29,999, 5=$20,000-$24,999, 4=$15,000-$19,999, 3=$10,000-$14,999, 2=$6,000-$9,999, 1= less than $6,000)	8.615	2.840	.00663	

	Mean	SD	b coefficient	
Variable Name and Scoring			Formula 1	Formula 2
10. Father's Educational Level (8=graduate degree, 7=some graduate school, 6=college degree, 5=some college, 4=postsecondary other than college, 3=high school graduate, 2=some high school, 1=grammar school or less)	5.297	1.952	.01415	.01085
11. Student's Concern About Financing College (3=major concern, 2=some concern, 1=none)	1.873	0.661		-.02173
Sources of Financial Aid (5=over $3,000, 4=$1,500-$3,000, 3=$500-$1,499, 2=$1-$499, 1=none)				
12. Parental or family aid	3.737	1.497	.01578	
13. Savings from summer work	2.004	1.059	.01683	.01582
14. Part-time off-campus work	1.304	0.685	-.03716	-.02011
15. Other college grant/scholarship	1.990	1.494	.01621	
16. Other government aid (ROTC, GI, etc.)	1.094	0.576	.02896	
17. Stafford/guaranteed student loan	1.810	1.222	.01708	
18. Perkins student loan	1.241	0.708	.01640	
Activities in the Past Year (3=frequently, 2=occasionally, 1=not at all)				
19. Smoked cigarettes	1.367	0.645	-.04165	-.03775
20. Attended religious services	2.334	0.706	.01588	.01985
21. Asked teacher for advice after class	2.060	0.602		-.01762
22. Overslept and missed class/appointment	1.311	0.509	-.03781	-.03762
Student's Self-Ratings (5=highest 10%, 4=above average, 3=average, 2=below average, 1=lowest 10%)				
23. Artistic ability	2.850	1.038	-.02532	-.02087
24. Emotional health	3.716	0.857		.01610
25. Popularity	3.390	0.728		-.01480

Variable Name and Scoring	Mean	SD	b coefficient	
			Formula 1	Formula 2
Reasons for Attending College (3=very important, 2=somewhat important, 1=not important)				
26. Become a more cultured person	2.249	0.677	.02140	
Hours Per Week in Last Year Spent (8=over 20, 7=16 to 20, 6=11 to 15, 5=6 to 10, 4=3 to 5, 3=1 to 2, 2=less than one, 1=none)				
27. Studying/doing homework	4.294	1.459	.01424	.01076
28. Working for pay	4.597	2.648	-.00639	-.00428
29. Student clubs/groups	3.042	1.607	.00726	
30. Household/childcare duties	2.891	1.393	-.01341	-.00946
31. Reading for pleasure	2.865	1.442	-.01243	-.01057
Goals and Values (4=essential, 3=very important, 2=somewhat important, 1=not important)				
32. Have administrative responsibility	2.310	0.838	.01723	.02094
33. Be very well off financially	2.983	0.857	-.01971	
34. Be involved in environmental clean-up	2.036	0.810	-.01869	
Possible Future Activities (4=very good chance, 3=some chance, 2=very little chance, 1=no chance)				
35. Get a job to pay expenses	3.117	0.908	-.02118	-.01457
36. Play varsity/intercollegiate athletics	2.166	1.054	.01132	
37. Need extra time to complete degree	2.438	0.797	-.04102	-.02464
38. Participate in volunteer/community service work	2.803	0.839	.02846	.01771
Student's Major (2=yes, 1=no)				
39. Education	1.103	0.305	-.03633	
40. Engineering	1.094	0.291	-.16233	-.15734
41. Health professional	1.129	0.335	-.06141	-.05052

Variable Name and Scoring	Mean	SD	b coefficient	
			Formula 1	Formula 2
Student's Major (2=yes, 1=no) (Continued)				
42. Business	1.148	0.355	.02697	
43. Fine arts	1.041	0.199	-.08150	-.07902
Institutional Variables				
Place of Residence During Freshman Year (2=yes, 1=no)				
44. College dormitory	1.790	0.407		.07559
Institutional Type (2=yes, 1=no)				
45. Public university	1.345	0.475		-.23689
46. Public four-year college	1.328	0.469		-.15280
47. Private university	1.088	0.284		-.05720
48. Institutional Selectivity (average freshmen SAT composite score)	968.437	120.829		.00059324
Constant (a)			-.41225	-.19810

*See Appendix E for ACT to SAT conversions

	Formula 1	Formula 2
Steps:	38	34
Multiple R:	.4728	.5150
Total N:	48,170	48,170

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Appendix B

Predicting four-year college completion using student and institutional variables and no SAT scores

Formula 3= student variables without SAT scores (4 year)

Formula 4= student and institutional variables without SAT scores (4 year)

Variable Name and Scoring	Mean	SD	b coefficient Formula 3	b coefficient Formula 4
1. Average High School Grade (8=A+ or A, 7=A-, 6=B+, 5=B, 4=B-, 3=C+, 2=C, 1=D)	5.928	1.567	.05410	.05106
Years of High School Study (7=5 or more years, 6=4, 5=3, 4=2, 3=1, 2=1/2, 1=none)				
2. Foreign language	4.595	1.228	.03469	.02466
3. Physical sciences	3.724	1.096	.01829	.01404
4. Gender (2=female, 1=male)	1.536	0.499	.03148	.05072
Race (2=yes, 1=no)				
5. White	1.810	0.392	.03456	.04837
Religion (2=yes, 1=no)				
6. Catholic	1.307	0.461	.02768	
7. Jewish	1.030	0.171	.12406	.09600
8. Parental Income (14= $200,000 or more, 13=$150,000-$199,999, 12=$100,000-$149,999, 11=$75,000-$99,999, 10=$60,000-$74,999, 9=$50,000-$59,999, 8=$40,000-$49,999, 7=$30,000-$39,999, 6=$25,000-29,999, 5=$20,000-$24,999, 4=$15,000-$19,999, 3=$10,000-$14,999, 2=$6,000-$9,999, 1= less than $6,000)	8.544	2.862	.00749	

Variable Name and Scoring	Mean	SD	b coefficient	
			Formula 3	Formula 4
9. Father's Educational Level (8=graduate degree, 7=some graduate school, 6=college degree, 5=some college, 4=postsecondary other than college, 3=high school graduate, 2=some high school, 1=grammar school or less)	5.253	1.965	.01718	.01203
Parental Status (2=yes, 1=no)				
10. Both alive, living together	1.749	0.433		.02555
11. Student's Concern About Financing College (3=major concern, 2=some concern, 1=none)	1.884	0.663		-.02384
Sources of Financial Aid (5=over $3,000, 4=$1,500-$3,000, 3=$500-$1,499, 2=$1-$499, 1=none)				
12. Parental or family aid	3.706	1.520	.01262	
13. Savings from summer work	1.969	1.053	.01734	.01467
14. Part-time off-campus work	1.307	0.691	-.04086	-.02519
15. Other college grant/scholarship	1.930	1.463	.02150	
16. Other private grant	1.263	0.775	.01708	
17. Other government aid (ROTC, GI, etc.)	1.093	0.571	.02781	
18. Stafford/guaranteed student loan	1.794	1.213	.01827	
Activities in the Past Year (3=frequently, 2=occasionally, 1=not at all)				
19. Smoked cigarettes	1.375	0.650	-.04173	-.04010
20. Attended religious services	2.323	0.708		.01727
21. Overslept and missed class/appointment	1.312	0.509	-.02882	-.03586
Student's Self-Ratings (5=highest 10%, 4=above average, 3=average, 2=below average, 1=lowest 10%)				
22. Academic ability	3.858	0.723	.02100	.02753
23. Artistic ability	2.852	1.040	-.02190	-.01952

	Mean	SD	b coefficient	
Variable Name and Scoring			Formula 3	Formula 4
Reasons for Attending College (3=very important, 2=somewhat important, 1=not important)				
24. Become a more cultured person	2.253	0.679	.01831	
Hours Per Week in Last Year Spent (8=over 20, 7=16 to 20, 6=11 to 15, 5=6 to 10, 4=3 to 5, 3=1 to 2, 2=less than one, 1=none)				
25. Studying/doing homework	4.283	1.456	.01278	
26. Working for pay	4.617	2.647	-.00687	-.00484
27. Student clubs/groups	3.019	1.619	.00807	
28. Household/childcare duties	2.913	1.418	-.01464	-.00970
Goals and Values (4=essential, 3=very important, 2=somewhat important, 1=not important)				
29. Raise a family	3.025	0.911	.01501	
30. Be very well off financially	2.990	0.856	-.02020	
31. Have administrative responsibility	2.315	0.841		.01741
32. Be involved in environmental clean-up	2.045	0.814	-.01972	-.01456
Possible Future Activities (4=very good chance, 3=some chance, 2=very little chance, 1=no chance)				
33. Get a job to pay future expenses	3.112	0.904	-.01428	
34. Work full-time while attending college	1.802	0.814	-.01349	
35. Need extra time to complete degree	2.442	0.797	-.04075	-.02609
36. Participate in volunteer/community service work	2.789	0.841	.03185	.02019
Student's Major (2=yes, 1=no)				
37. Business	1.149	0.357	.03518	
38. Education	1.106	0.307	-.04702	

Variable Name and Scoring	Mean	SD	b coefficient	
			Formula 3	Formula 4
Student's Major (2=yes, 1=no) (Continued)				
39. Engineering	1.088	0.284	-.13867	-.14638
40. Health professional	1.126	0.332	-.06412	-.05214
41. Fine arts	1.043	0.202	-.07962	-.07420
Institutional Variables				
Place of Residence During Freshman Year (2=yes, 1=no)				
42. College dormitory	1.778	0.415		.07264
Institutional Type (2=yes, 1=no)				
43. Public university	1.340	0.474		-.20546
44. Public four-year college	1.331	0.471		-.13784
45. Institutional Selectivity (average freshmen SAT composite score)	964.756	117.737		.000648031
46. Institutional Size (total enrollment)	11553.790	9201.094		-.00000100847
Constant (a)			-.28387	-.35701

	Formula 3	Formula 4
Steps:	37	30
Multiple R:	.4600	.5057
Total N:	55,878	55,878

Appendix C

Predicting six-year college completion using student and institutional variables and SAT scores

Formula 5= student variables with SAT scores (6 year)

Formula 6= student and institutional variables with SAT scores (6 year)

Variable Name and Scoring	Mean	SD	b coefficient	
			Formula 5	Formula 6
1. Average High School Grade (8=A+ or A, 7=A-, 6=B+, 5=B, 4=B-, 3=C+, 2=C, 1=D)	6.017	1.559	.06182	.06261
2. SAT Scores* (Combined SAT math + verbal)	1030.659	173.422	.00022714	
Years of High School Study (7=5 or more years, 6=4, 5=3, 4=2, 3=1, 2=1/2, 1=none)				
3. Foreign language	4.606	1.225	.02188	.01579
4. Mathematics	5.821	0.589	.02317	.02182
Race (2=yes, 1=no)				
5. American Indian	1.029	0.168	-.06841	
6. Asian American	1.052	0.223		.08756
7. White	1.824	0.381		.04679
8. Father's Educational Level (8=graduate degree, 7=some graduate school, 6=college degree, 5=some college, 4=postsecondary other than college, 3=high school graduate, 2=some high school, 1=grammar school or less)	5.297	1.952	.01734	.01360
9. Student's Concern About Financing College (3=major concern, 2=some concern, 1=none)	1.873	0.661		-.01894
Parental Status (2=yes, 1=no)				
10. Both alive, living together	1.756	0.430	.02534	.02429

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	Mean	SD	b coefficient	
Variable Name and Scoring			Formula 5	Formula 6
Sources of Financial Aid (5=over \$3,000, 4=\$1,500-\$3,000, 3=\$500-\$1,499, 2=\$1-\$499, 1=none)				
11. Parental or family aid	3.737	1.497	.01479	.00977
12. Savings from summer work	2.004	1.059	.01825	.01414
13. Other savings	1.671	1.105	.01211	.01052
14. Part-time off-campus work	1.304	0.685	-.04375	-.03158
Activities in the Past Year (3=frequently, 2=occasionally, 1=not at all)				
15. Attended a religious service	2.334	0.706	.03287	.02924
16. Smoked cigarettes	1.367	0.645	-.05829	-.05564
17. Overslept and missed class/appointment	1.311	0.509	-.04211	-.04168
18. Discussed politics	1.960	0.648	-.01843	
Student's Self-Ratings (5=highest 10%, 4=above average, 3=average, 2=below average, 1=lowest 10%)				
19. Artistic ability	2.850	1.038	-.01477	-.01444
20. Drive to achieve	3.963	0.801	.01754	
Reasons for Attending College (3=very important, 2=somewhat important, 1=not important)				
21. Become a more cultured person	2.249	0.677	.02132	.02001
22. Prepare for graduate school	2.427	0.709	-.01800	-.01908
Student Opinions (4=agree strongly, 3=agree somewhat, 2=disagree somewhat, 1=disagree strongly)				
23. Abortion should be legal	2.640	1.180	.01127	
24. Prohibit homosexual relations	2.078	1.042	-.01316	-.01552
25. Federal government should do more to control handguns	3.171	0.908	.01377	

Variable Name and Scoring	Mean	SD	b coefficient	
			Formula 5	Formula 6
Hours Per Week in Last Year Spent (8=over 20, 7=16 to 20, 6=11 to 15, 5=6 to 10, 4=3 to 5, 3=1 to 2, 2=less than one, 1=none)				
26. Studying/doing homework	4.294	1.459	.01362	.01143
27. Talking with teacher outside of class	2.628	1.015		-.01145
28. Household/childcare duties	2.891	1.393	-.00827	
29. Reading for pleasure	2.865	1.442	-.01876	-.01895
30. Student's Political Views (5=far left, 4=liberal, 3=middle of the road, 2=conservative, 1=far right)	2.991	0.769	-.02244	-.01508
Goals and Values (4=essential, 3=very important, 2=somewhat important, 1=not important)				
31. Promote racial understanding	2.244	0.883	-.01920	-.01935
32. Be a community leader	2.207	0.885	.01713	.01442
Possible Future Activities (4=very good chance, 3=some chance, 2=very little chance, 1=no chance)				
33. Graduate with honors	2.913	0.723	-.02356	
34. Work full-time while attending college	1.789	0.809	-.02156	-.01029
35. Drop out permanently	1.232	0.512		-.02286
36. Participate in volunteer/community service work	2.803	0.839	.02527	.02060
Student's Major (2=yes, 1=no)				
37. Engineering	1.094	0.291	-.06512	-.07100
38. Health professional	1.129	0.335	-.06269	-.05743

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Variable Name and Scoring	Mean	SD	b coefficient	
			Formula 5	Formula 6
Institutional Variables				
Place of Residence During Freshman Year (2=yes, 1=no)				
39. College dormitory	1.790	0.407		.06463
Institutional Type (2=yes, 1=no)				
40. Public four-year college	1.328	0.469		-.04387
41. Public university	1.345	0.475		-.04851
42. Institutional Selectivity (average freshmen SAT composite score)	968.437	120.829		.00040793
Constant (a)			-.08589	-.31089

*See Appendix E for ACT to SAT conversions

	Formula 5	Formula 6
Steps:	33	34
Multiple R:	.4103	.4220
Total N:	48,170	48,170

Appendix D

Predicting six-year college completion using student and institutional variables and no SAT scores

Formula 7= student variables without SAT scores (6 year)

Formula 8= student and institutional variables without SAT scores (6 year)

Variable Name and Scoring	Mean	SD	b coefficient	
			Formula 7	Formula 8
1. Average High School Grade (8=A+ or A, 7=A-, 6=B+, 5=B, 4=B-, 3=C+, 2=C, 1=D)	5.928	1.567	.07143	.06392
Years of High School Study (7=5 or more years, 6=4, 5=3, 4=2, 3=1, 2=1/2, 1=none)				
2. Foreign language	4.595	1.228	.02561	.01691
3. Mathematics	5.805	0.600	.02535	.01874
Race (2=yes, 1=no)				
4. American Indian	1.028	0.166	-.07549	
Religion (2=yes, 1=no)				
5. Jewish	1.030	0.171	.06608	
6. Father's Educational Level (8=graduate degree, 7=some graduate school, 6=college degree, 5=some college, 4=postsecondary other than college, 3=high school graduate, 2=some high school, 1=grammar school or less)	5.253	1.965	.01763	.01372
Parental Status (2=yes, 1=no)				
7. Both alive, living with each other	1.749	0.433	.03066	.03343
8. Student's Concern About Financing College (3=major concern, 2=some concern, 1=none)	1.884	0.663	-.01851	-.01897

Variable Name and Scoring	Mean	SD	b coefficient	
			Formula 7	Formula 8
Sources of Financial Aid (5=over $3,000, 4=$1,500-$3,000, 3=$500-$1,499, 2=$1-$499, 1=none)				
9. Parental or family aid	3.706	1.520	.01228	.00942
10. Savings from summer work	1.969	1.053	.02542	.01732
11. Other savings	1.649	1.090	.01113	.00990
12. Part-time off-campus work	1.307	0.691	-.04599	-.03415
13. Other college grant/scholarship	1.930	1.463	.00911	
Activities in the Past Year (3=frequently, 2=occasionally, 1=not at all)				
14. Attended a religious service	2.323	0.708	.03107	.03248
15. Smoked cigarettes	1.375	0.650	-.05631	-.05602
16. Overslept and missed class/appointment	1.312	0.509	-.04299	-.04568
Student's Self-Ratings (5=highest 10%, 4=above average, 3=average, 2=below average, 1=lowest 10%)				
17. Artistic ability	2.852	1.040	-.01221	-.01351
Reasons for Attending College (3=very important, 2=somewhat important, 1=not important)				
18. Become a more cultured person	2.253	0.679	.01654	.01825
Student Opinions (4=agree strongly, 3=agree somewhat, 2=disagree somewhat, 1=disagree strongly)				
19. Abortion should be legal	2.647	1.176	.01111	
20. Prohibit homosexual relations	2.071	1.038	-.01420	-.01186

	Mean	SD	b coefficient	
Variable Name and Scoring			Formula 7	Formula 8
Hours Per Week in Last Year Spent (8=over 20, 7=16 to 20, 6=11 to 15, 5=6 to 10, 4=3 to 5, 3=1 to 2, 2=less than one, 1=none)				
21. Studying/doing homework	4.283	1.456	.01233	.01211
22. Talking with teacher outside of class	2.632	1.028		-.01225
23. Working for pay	4.617	2.647	-.00404	
24. Household/child care duties	2.913	1.418	-.00868	
25. Reading for pleasure	2.862	1.447	-.01466	-.01662
26. Student's Political Views (5=far left, 4=liberal, 3=middle of the road, 2=conservative, 1=far right)	2.999	0.762	-.02045	
Goals and Values (4=essential, 3=very important, 2=somewhat important, 1=not important)				
27. Promote racial understanding	2.257	0.887		-.01750
Possible Future Activities (4=very good chance, 3=some chance, 2=very little chance, 1=no chance)				
28. Graduate with honors	2.890	0.726	-.01939	
29. Work full-time while attending college	1.802	0.814	-.02177	-.01653
30. Participate in volunteer/community service work	2.789	0.841	.02803	.02553
Student's Major (yes=2, no=1)				
31. Business	1.149	0.357	.03137	.03092
32. Engineering	1.088	0.284	-.04458	-.06800
33. Health professional	1.126	0.332	-.05905	-.05853

Variable Name and Scoring	Mean	SD	Formula 7	Formula 8
			b coefficient	
Institutional Variables				
Place of Residence During Freshman Year (2=yes, 1=no)				
34. College dormitory	1.778	0.415		.06460
Institutional Type (2=yes, 1=no)				
35. Nonsectarian four-year college	1.111	0.314		.03771
36. Institutional Selectivity (average freshmen SAT composite score)	964.756	117.737		.00044379
Constant (a)			-.03520	-.49539
Steps:			31	28
Multiple R:			.4060	.4179
Total N:			55,878	55,878

Appendix E

Converting ACT Composite Scores* to SAT Composite Equivalents

ACT Composite	SAT Composite
12	660
13	690
14	730
15	760
16	800
17	850
18	900
19	950
20	980
21	1020
22	1050
23	1090
24	1130
25	1160
26	1200
27	1240
28	1280
29	1320
30	1360
31	1410
32	1460
33	1510
34	1550
35	1590

*The ACT equivalents were obtained by summing three ACT subtests (English, Natural Sciences, Social Sciences) and converting to SAT equivalents by the equipercentile method (N=14,865).

Appendix F

Actual and Expected Four-year Retention Figures by Institutional Type

Institutional Type	Four-Year Rates with SAT*			Four-Year Rates without SAT**		
	Actual	Expected	Difference	Actual	Expected	Difference
Public University (N=20)	.29	.36	-.07	.28	.35	-.07
Private University (N=18)	.68	.58	.10	.67	.55	.12
Public four-year college (N=27)	.26	.29	-.03	.25	.28	-.03
Nonsectarian four-year college (N=75)	.59	.47	.12	.56	.45	.11
Catholic four-year college (N=38)	.49	.41	.08	.47	.40	.07
Other Christian four-year college (N=84)	.53	.42	.11	.51	.41	.10
All Institutions (N=262)	.38	.38	.00	.37	.37	.00

* Utilizing Formula 1 from Appendix A
** Utilizing Formula 3 from Appendix B

Appendix G

Actual and Expected Six-year Retention Figures by Institutional Type

Institutional Type	Six-Year Rates with SAT*			Six-Year Rates without SAT**		
	Actual	Expected	Difference	Actual	Expected	Difference
Public University (N=20)	.59	.60	-.01	.58	.58	.00
Private University (N=18)	.80	.76	.04	.80	.74	.06
Public four-year college (N=27)	.49	.52	-.03	.47	.51	-.04
Nonsectarian four-year college (N=75)	.68	.64	.04	.66	.62	.04
Catholic four-year college (N=38)	.63	.58	.05	.60	.57	.03
Other Christian four-year college (N=84)	.63	.60	.03	.61	.59	.02
All Institutions (N=262)	.59	.59	.00	.58	.58	.00

* Utilizing Formula 5 from Appendix C
** Utilizing Formula 7 from Appendix D

Appendix H

Overall Correlations between Mean Expected Degree Completion Rates and Mean Actual Degree Completion Rates Using all Eight Full Formulas*

Four-Year Rates

Formula**	Correlation	Number of Institutions
1	.851	240
2	.867	239
3	.852	250
4	.865	246

Six-Year Rates

Formula**	Correlation	Number of Institutions
5	.809	240
6	.826	239
7	.811	250
8	.831	246

*Institutions with less than 50 cases have been omitted from the analyses

**See Appendices A-D for a complete list of variables used in these analyses

Formula 1: Student variables and SAT scores (4-year)

Formula 2: Student and institutional variables and SAT scores (4-year)

Formula 3: Student variables without SAT scores (4-year)

Formula 4: Student and institutional variables without SAT scores (4-year)

Formula 5: Student variables and SAT scores (6-year)

Formula 6: Student and institutional variables and SAT scores (6-year)

Formula 7: Student variables without SAT scores (6-year)

Formula 8: Student and institutional variables without SAT scores (6-year)

Appendix I
Variables Used in Regressions for Prediction Formulas

I. Inputs

A. Background
- Father's Education
- Mother's Education
- Parent's Income
- Student's Gender: Female
- Parent's Status
  - *Both Alive- Living Together
  - *Both Alive- Divorced or Separated
  - *One or Both Deceased
- Student's Age
- Student Native English Speaker
- Student's Religion
  - *Catholic
  - *Protestant
  - *Jewish
  - *Other Religion
  - *No Religion
- Student's Race
  - *African American/ Black
  - *American Indian
  - *Asian American
  - *Mexican American/Chicana/o
  - *Puerto Rican
  - *Other Race
  - *Caucasian/ White (referent group)
- Citizenship Status
  - *U.S. Citizen
  - *U.S. Resident
  - *Neither

B. Academic
- High School GPA
- SAT Composite Score
- Degree Aspirations
- Years of High School Subject Study

C. Sources of Financial Aid
- Parental or Family Aid
- Savings From Summer Work
- Full-Time Job While in College

- Part-Time Job While in College
- Pell Grant
- Supplemental Educational Opportunity Grant
- State Scholarship or Grant
- College Work-Study Grant
- Other College Grant
- Other Private Grant
- Federal Guaranteed Student Loan
- National Direct Student Loan
- Other College Loan

D. Undergraduate Student Majors
- Agriculture
- Biological Sciences
- Business
- Education
- Engineering
- English
- Health Professional
- History or Political Science
- Humanities
- Fine Arts
- Mathematics or Statistics
- Physical Science
- Social Science
- Other Technical
- Other Non-Technical
- Undecided

E. Activities in Past Year
- Attended a Religious Service
- Was Bored in Class
- Participated in Organized Demonstrations
- Studied With Other Students
- Was a Guest in a Professor's Home
- Smoked Cigarettes
- Drank Beer or Wine or Liquor
- Performed Volunteer Work
- Came Late to Class
- Played a Musical Instrument
- Overslept and Missed Class or Appointment

- Discussed Politics
- Discussed Religion

F. Self-Ratings
- Academic Ability
- Artistic Ability
- Competitiveness
- Cooperativeness
- Creativity
- Drive to Achieve
- Emotional Health
- Leadership Ability
- Mathematical Ability
- Physical Health
- Popularity
- Public Speaking Ability
- Self-Confidence (Intellectual)
- Self-Confidence (Social)
- Understanding of Others
- Writing Ability

G. Reasons for Attending College
- Parent's Wanted Me to Go
- Could Not Find a Job
- Wanted to Get Away From Home
- Get a Better Job
- Gain a General Education
- Improve Reading and Study Skills
- Nothing Better to Do
- Become a More Cultured Person
- Make More Money
- Learn More About the Things that Interest Me
- Prepare for Graduate or Professional School
- Role Model/ Mentor Encouraged Me

H. Student Opinions
- Too Much Concern for the Rights of Criminals
- Abortion Should be Legal
- Abolish Death Penalty
- Activities of Married Women Best at Home
- Marijuana Should be Legalized

- Prohibit Homosexual Relations
- Employers Can Require Drug Testing
- Federal Government Should Do More to Control Handguns
- College Should Prohibit Racist/Sexist Speech
- Wealthy People Should Pay More Taxes

I. Hours Per Week in Last Year Spent
- Studying or Doing Homework
- Socializing With Friends
- Talking With a Teacher Outside of Class
- Exercising or Sports
- Partying
- Working for Pay
- Volunteer Work
- Student Clubs or Groups
- Watching TV
- Household or Childcare Duties
- Reading for Pleasure

J. Goals and Values
- Become Accomplished in Performing Arts
- Become Authority in Own Field
- Obtain Recognition From Colleagues
- Influence the Political Structure
- Influence Social Values
- Raise a Family
- Have Administrative Responsibility
- Be Very Well Off Financially
- Help Others in Difficulty
- Make Theoretical Contribution to Science
- Write Original Works
- Create Artistic Work
- Be Successful in Own Business
- Develop Meaningful Philosophy of Life
- Participate in Community Action Program
- Promote Racial Understanding
- Keep Up-to-Date With Political Affairs
- Be a Community Leader

K. Possible Future Activities
- Change Major Field

- Change Career Choice
- Graduate With Honors
- Get Job to Help Pay Expenses
- Work Full-Time While Attending College
- Play Varsity or Intercollegiate Athletics
- Make at Least a "B" Average
- Need Extra Time for Degree
- Get a Bachelor's Degree
- Participate in Student Protests
- Drop out Temporarily
- Drop out Permanently
- Participate in Volunteer or Community Service Work

L. Other Inputs
- Concern About Financing College
- Year Graduated From High School

II. Environmental and Institutional Variables

A. First Year Living Arrangements
- Plan to Live: Home
- Plan to Live: College Dormitory
- Plan to Live: Other On Campus, not Dorm
- Plan to Live: Off Campus, not at Home
- Plan to Live: Other Living Arrangement

B. Institutional Size

C. Institutional Selectivity

D. Type/Control
- Public University
- Private University
- Public 4-year College
- Nonsectarian 4-year College
- Catholic 4-year College
- Other Christian 4-year College
- Women's College

III. Dependent Variables
- Retention within Four Years
- Retention within Six Years

Higher Education Research Institute
Publications List

Race and Ethnicity in the American Professoriate, 1995–96

Highlights findings and draws comparisons between various racial and ethnic groups of faculty. Faculty's views and values about undergraduate education, professional goals and institutional climate are examined along with preferred teaching and evaluation methods, levels of work satisfaction and sources of stress.

April, 1997/141 pages $25.00   □

The American College Teacher

Provides an informative profile of teaching faculty at American colleges and universities. Teaching, research activities and professional development issues are highlighted along with issues related to job satisfaction and stress.

National Norms for 2001–02 HERI Faculty Survey report.
    September, 2002/146 pages $25.00   □
National Norms for 1998–99 HERI Faculty Survey report.
    September, 1999/128 pages $22.00   □
National Norms for 1995–96 HERI Faculty Survey report.
    September, 1996/127 pages $22.00   □
National Norms for 1992–93 HERI Faculty Survey report.
    September, 1993/107 pages $20.00   □

Degree Attainment Rates at American Colleges and Universities (Revised Edition)

Provides latest information on four- and six-year degree attainment rates collected longitudinally from 262 baccalaureate-granting institutions. Differences by race, gender, and institutional type are examined. The study highlights main predictors of degree completion and provides several formulas for calculating expected institutional completion rates. The study also provides a section on trends in degree attainment in the last decade.

January, 2005/88 pages $15.00   □

The Black Undergraduate

Examines changes in the characteristics of black college freshmen during two decades (1966–1989). A wide variety of characteristics of black college freshmen are considered in the study: family background, academic experience in high school, reasons for entering college, financial aid, choices of majors and careers, expectations for college, self-concept, values, attitudes and beliefs.

August, 1992/22 pages $8.00   □

The American Freshman: Thirty-Five Year Trends

Summarizes trends in the CIRP survey data between 1966 and 2001, stressing trends in the past half-decade. The report examines changes in family structure; parental income and students' financial concerns, as well as gender differences in educational plans and career aspirations, behaviors and values. Academic trends include: increases in grade inflation and graduate degree aspirations. Trends in students' political and social attitudes are also covered.

December, 2002/222 pages $30.00   □

The American Freshman

Provides national normative data on the characteristics of students attending American colleges and universities as first-time, full-time freshmen. In 2004, data from approximately 300,000 freshmen students are statistically adjusted to reflect the responses of 1.3 million students entering college. The annual report covers: demographic characteristics; expectations of college; degree goals and career plans; college finances; attitudes, values and life goals.

    December, 2004/188 pages $25.00   □
    December, 2003/186 pages $25.00   □
    December, 2002/189 pages $25.00   □
    December, 2001   (out of stock)
    December, 2000/187 pages $25.00   □
    December, 1999/181 pages $25.00   □
    December, 1998   (out of stock)
    December, 1997/181 pages $22.00   □

Note: National norms for most years between 1966–1996 are available.

The American College Student

Provides information on the college student experience two and four years after college entry. Student satisfaction, talent development, student involvement, changing values and career development, and retention issues are highlighted along with normative data from student responses to the HERI Follow-up Surveys.

1990 report: Normative Data for 1986 and 1988 College Freshmen
October, 1991/196 pages $15.00   □

1988 report: Normative Data for 1984 and 1986 College Freshmen
August, 1990/210 pages $15.00   □