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ABSTRACT

Changes in high school graduates' college choices between 1972 and 1980 were investigated, with attention to the importance of different enrollment influences and the distribution of these influences. Analysis of the National Longitudinal Study (NLS) of the High School Class of 1972 and the High School and Beyond (HSB) surveys revealed that 46.4% of the NLS subsample attended two- or four-year colleges in the fall of 1973, compared to 46.0% of the HSB subsample. The data suggest that high school seniors decided whether to enter college in 1980 much as they nad in 1972, which means that the Middle Income Student Assistance Act and the end of U.S. involvement in Vietnam had no substantial effect on students' decisions. The effect on college attendance of the following high school graduate attributes were assessed: race (Black/Hispanic), sex, geographic region, local cost in 1980 dollars, parents' education, family income in 1980 dollars, test scores, grades, academic programs, college-going peers, and receipt of financial aid. The strongest zero-order correlates of college entry in both 1972 and 1980 were academic track placement, test score, college-going peers, and grades. Bivariate regression coefficients corresponding to the correlations were also determined. (SW)

MISAA, the Fall of Saigon, and College Choice, 1972 to 1980

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MISAA, the Fall of Saigon, and College Choice, 1972 to 1980

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Fred didn't finish high school, which never attracted him much in any case; the local economy was doing well, and there were numerous incentives to work rather than study. Terry finished high school, but he never gave much thought to college, and didn't enroll; it was enough, he figured, that he had finished high school whereas losers like Fred hadn't. One of Terry's friends ended up enrolling at the local community college, and another -- someone he didn't know that well -- even went to State.

Pat, in contrast, never thought seriously about not going to college; her parents had both gone, and they encouraged her to continue. Good test scores and grades helped, too; she wrote to about fifteen colleges, and ended up applying to four, being admitted to all, and choosing Chatham College in Pittsburgh. Her best friend Sara also applied to several schools, although her parents were less enthusiastic about this than Pat's, and was admitted to all save one. Sara entered Berkeley, but she ended up dropping out after two years and two majors.

[1]I am indebeted to the National Institute of Education for supporting this research and to Dawn Terkla, Janet Schwartz, Elizabeth Schoenherr, Beverley Robinson, and Harry Levit for assisting me.

Paul faced a tough decision. His grades and scores were good, and counselors pushed college. His parents were enthusiastic too, partly because neither of them had been to college, but the family was not well off, and Paul knew his earnings might prove important to his family. Moving away was out of the question, part-time study an attractive option. Paul spent considerable time analyzing his finances and college costs, and ended up applying for financial aid and enrolling at State while working part-time at an electronic repair service.

Aggregate college participation rates change either (a) when the distribution of prospective students across these types changes or (b) when the decision making of any one type changes. Decision making changes either influences on decisions change or when their effects vis à vis other influences change. Thus, for example, Paul's decision might have been different if financial aid became hard to get; Pat and Sara, on the other hand, might choose a different college but probably would still enroll. A change in the local economy would influence Fred, Terry, and to a lesser extent Paul, but not the others. These both represent changes in forces. A change in effects might arise if, for example, a major statewide change in admissions and campus assignment policies made academic performance relatively less important than it had been, so that students could choose the flagship state university campus despite less-than-stellar grades. Even with influences and their effects steady, an increase in the relative numbers of Pats and Saras would increase aggregate participation.

These five extremely simplistic stereotypes illustrate the difficulty in analyzing influences on college choice. The major difficulty, of course, is that we do not know how many students are like Pat or Sara, how many like Paul, how many like Fred or Terry. We tend to presume that higher family income, more parent education, and academic achievement produce Pats and Saras, and that the absence of all these produces Freds and Terrys. A mixture produces Pauls. We therefore tend to analyze the effects of family background, academic achievement, and other variables on choice, using these variables as proxies for the underlying classification. Since the variables are not independent of each other, we analyze their joint effects as well. The results are adequate, but far from ideal.

There are other complications. To identify Freds (high school dropouts) we need data on individuals' high school experiences. To distinguish Pats from Saras (college completers from college dropouts) we need data on college experiences. But such longitudinal data are rare, and so we make do with analyses of high school graduates' college entry decisions -- which means Fred doesn't exist, and Sara behaves the same as Pat. In technical terms, where the ideal outcome variable for college choice runs on some scale from no high school diploma at the low end to college completion at the high end, we are left with a dichotomy between no college entry and college entry, and with samples that exclude high school dropouts.

High school graduates' college entry decisions are in a sense the least important of the three major educational-persistence decisions.

Consider, for example, the crest of the baby boom, children born in 1957. Among the resulting 4,096,000 seventeen-year-olds in the United States in 1974, about 3,080,000 completed high school: of these about 2,394,000 entered college, and of these about 1,243,000 completed degrees. Of the 2,853,000 who did not complete college, therefore, the largest fraction, 40.3 percent, started but did not complete college; the next largest fraction, 35.6 percent, did not complete high school (Jackson, 1981 and 1985).

The college choices of high school graduates may have changed over time, further complicating analysis. Major instances of historical change in college choice include the creation of the land-grant university system in the late 1900s, which brought higher education to regions and economic sectors which had had little use for it, and the assorted veterans' programs which followed World War II and the Korean War. Each of these programs sought to encourage new kinds of students to think about higher education, sometimes because educating them would have social benefits and sometimes because it would reward individuals (perhaps keeping them out of the labor force in the process).

Between 1960 and 1970 the Interstate highway system spread its web within and between cities, increasing mobility for everything from furniture to farmworkers to physicists. The draft and the war in Vietnam led many males to think of college not only as education, but as sanctuary. Community colleges sprang up across the nation, often bringing higher education near neighborhoods and within financial reach for the first time. The federal government, responding to perceived

Russian superiority, began to provide greater financial incentives, primarily in the form of loans, for postsecondary education. Partly in response to these forces, and partly in response to competitive and social pressures, degree credit enrollment in higher education rose from 22.2 percent of eighteen to twenty-four year olds in 1960 to 32.1 percent in 1970 (Grant and Snyder, 1984); entry rates among high school graduates rose commensurately.

Environmental changes since 1970 have continued, but somewhat less dramatically. The Higher Education Amendments of 1972, for example, created a new program of need-based grants for higher education, now called Pell grants, and reworked the existing system of federally guaranteed loans into a much broader, more expensive system. Later legislation, the Middle Income Student Assistance Act or MISAA, extended these programs to middle-income families and students, and so things remained until the program's cost and political changes brought retrenchment and restrictions in 1980 and 1982.

Other changes came as well. Students rediscovered economic success and professional status; conservatism returned to campuses in various guises. Costs rose sharply, increasing the number of part-time students and employed students. High school graduates became fewer in the mid-1970s, and colleges began to woo adult learners. Moreover, in January 1973, largely in response to antiwar activities, military service in the United States became voluntary, although draft registration continued. (In 1970 the previous system of 2-S educational

deferments had been replaced by a lottery, eliminating educational sanctuary.)

One last complication requires discussion before I move on. Most surveys of college choice, although they follow students over time, are essentially cross-sectional; that is, most variation is between individuals surveyed, not between observation points. This makes it hard to analyze the effects of changes over time. Consider, for example, local economic conditions, so important to Fred, Terry, and Paul. There is evidence that if unemployment rises over time so does enrollment in higher education, presumably because education is a productive alternative to nonwork and helps one compete in a tough market. To analyze this one relates unemployment rates to enrollment rates over time, using aggregate data. In a typical college-choice study one has data on numerous high school graduates who live in different places, and it is tempting to see whether inter-place unemployment-rate differences have an effect on choice. They generally don't, which seems contradictory. The point is that unemployment-rate changes, rather than differences, affect choice. Such problems constrain the usefulness of longitudinal surveys of individual high school graduates.

In this paper I consider changes in high school graduates' college choices between 1972 and 1980. I choose these years because each offers a longitudinal study of high school graduates, the sine qua non of choice research. But the period has intrinsic interest as well. 1972 marked the beginning of major federal involvement in student financial aid; the election of Ronald Reagan in 1980 marked the beginning of a

return, or at least the perception of a return, to a more restricted federal role. The research questions are two: How did the importance of different influences on college choice change over these eight years? How did these changes interact with distributional changes to produce the general trend, a very modestly increasing college-entry rate?

Influences on College Choice

As the stereotypes made clear, several forces influence high school graduates' college decisions, chief among them socioeconomic background, academic aptitude and performance, and social context[2]. A general model is as follows:

Attend = f(Locale,
Family Background,
Academic Achievement,
Peer Context,
College Attributes),

with the first few variables having recursive effects on later ones.

These forces produce change in higher education participation rates over time two ways. First, the effects of individual forces influencing choices may remain constant, while the distribution of these forces changes. For example, the proportion of students receiving financial aid may increase while the effect of financial aid on decisions remains constant; the result will be increased participation. Second, the

[2]Detailed discussion of the theoretical and empirical basis for student choice research can be found in Terkla and Jackson (1984a, 1984b).

effects of individual forces may change, with or without accompanying changes in the distribution of forces. If financial aid becomes a more positive influence on college choice, participation will increase even if no more students receive aid.

College admissions decisions play a remarkably small role in college choice, except for a small group of talented, affluent students. Most students seriously consider only colleges relatively near their homes, and presenting no extraordinary financial or academic obstacles. In 1972 some 90 percent of college applicants were admitted to their first choice, and over 97 percent were admitted to one of their top three choices (although only about a third of applicants apply to more than one school)[3].

The United States appears to have a higher-education system open to all who seek it. This is not quite correct, however. First, surveys asking about first, second, and third choices tend to be retrospective; students most likely denote colleges which rejected them and promote the one they attend. Second, if cost or the prospect of rejection dissuade students from applying to college, as is also likely, then the system is not truly open to all.

The college retention rate -- the percentage of high school graduates who continue to college -- was 57.9 percent in 1972, counting any

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[3]These data come from an earlier analysis of NLS data (Jackson, 1978). They are consistent with Cooperative Institutional Research Program (CIRP) data on the college preferences of enrolled students. Trends in the CIRP surveys suggest the proportion of multiple applicants has increased modestly but steadily over time (CIRP, 1972 et seq.).

Table 1

Traditional College-Age Populations and Participation in Higher Education, 1970-1980

Year	Population Age 18-24 (1,000)	Population Age 17 (1,000)	High School Graduates (1,000)	High School-College Retention (%)	First Time College Students (1,000)
1970	24,712	3,825	2,896	61.5	2,080
1972		3,973	3,008	57.9	2,171
1974		4,132	3,080	60.2	2,393
1976	28,645	4,272	3,155	58.1	2,377
1978	29,662	4,286	3,134	58.8	2,422
1980	30,337	4,263	3,058	62.2	2,625

Sources:

Grant and Snyder (1984), Tables 76 (col. 1) and 56 (cols. 2,3)
Ottinger (1984), Tables 105 (col. 4) and 58 (col. 5)

enrollment creditable to a bachelor's degree. In 1980 it was 62.2 percent. Table 1 details the trends in these and other statistics between 1970 and 1980. Although the pool of traditional students levelled off in the mid-1970s, first-time enrollments (including nontraditional and part-time students) and college entry rates continued to rise over the decade.

The NLS and HSB Subsamples

The two surveys I analyze provide slightly different indications, largely because of more careful definitions but partly because of timing. 53 percent of the respondents to the National Longitudinal Study (NLS) of the high school class of 1972 were participating in postsecondary education in the fall of that year; 46 percent were enrolled in two-year or four-year academic institutions. 54 percent of the respondents to the High School and Beyond (HSB) survey of 1980 high school seniors entered postsecondary institutions that fall; 49 percent entered academic institutions (Pliska and Stern, 1985, table 5.9).

The National Longitudinal Study of the high school class of 1972 comprised over twenty thousand respondents, about three quarters of whom were originally surveyed and tested in the spring of their senior year in high school. Survey records also include data drawn from school transcripts, from school questionnaires, from banks of labor-market indicators, and other sources. There have been four followup surveys.

The working subsample for this study includes data on almost fifteen thousand respondents.

The High School and Beyond surveys of the senior and sophomore classes of 1980 replicated NLS in key respects, but for various reasons only samples of the original fifty thousand respondents in each group have been followed over time. The present analytic subsample includes data on almost ten thousand 1980 seniors; second followup data on the sophomores were not available in time.

I concentrate on college and university enrollment fifteen months following high school graduation; that is, fall 1973 for 1972 seniors and 1981 for 1980 seniors. This permits the use of contemporaneous rather than retrospective enrollment reports, since these are the years of the NLS and HSB followup surveys. Enrollment at this point also represents a more stable decision, I believe, that immediate enrollment: it encompasses students who have stuck with higher education and students who have begun it following some reflection. Most data other than college choice come from the NLS and HSB baseline surveys, which took place in the spring of 1972 and 1980[4].

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[4]Detailed subsampling procedures appear in Jackson (1986), Appendix A. The subsamples exclude individuals for whom key data were missing or, in the case of NLS, whose baseline surveys were administered retrospectively in 1973. They also exclude certain individuals with excessively inconsistent responses. Riccobono et al. (1981) provide detailed documentation of the NLS surveys; Jones et al. (1983) document HSB. Jackson (1978) and Manski and Wise (1983) describe earlier choice analyses based on NLS; to my knowledge no comparable analysis of HSB is in print.

Table 2

Attributes of High School Graduates

1972 (NLS) and 1980 (HSB)

Variable	Units	Means		Standard Deviations	
		1972	1980	1972	1980
black	1/0	0.082	0.106	0.274	0.308
hispanic	1/0	0.032	0.092	0.176	0.289
female	1/0	0.500	0.526	0.500	0.499
south	1/0	0.269	0.307	0.443	0.461
northeast	1/0	0.271	0.233	0.444	0.423
west	1/0	0.170	0.167	0.376	0.373
local cost	$1,000	2.151	2.774	0.767	0.700
(1980 dollars)		4.243	2.774	1.513	0.700
father education	years	12.516	13.120	2.428	2.626
mother education	years	12.224	12.716	1.897	2.072
family income	$1,000	11.703	21.776	5.953	10.978
(1980 dollars)		23.083	21.776	11.742	10.978
test score	m=5,sd=1	5.101	5.225	0.854	0.857
grades	0-4.0	2.786	2.881	0.705	0.715
academic program	1/0	0.465	0.387	0.499	0.487
leader	#	0.302	0.398	0.459	0.489
college peers	1/0	0.586	0.702	0.493	0.457
any aid	1/0	0.243	0.357	0.429	0.479
aid (incl zero)	$1,000	0.284	0.695	0.678	1.366
(1980 dollars)		0.560	0.695	1.337	1.366
aid (excl 0)		1.169	1.947		
(1980 dollars)		2.305	1.947	0.000	0.000
applied	1/0	0.561	0.657	0.496	0.475
attend	1/0	0.464	0.460	0.499	0.498
n (max)		14,863	9,665		

All statistics calculated using weights for baseline and first followup surveys, adjusted so weighted n equals sample size

Table 2 presents means and standard deviations for sixteen student attributes (as opposed to attitudes) one might expect to influence college choice. Missing from this list, unfortunately, are measures of local economic conditions and detailed descriptions of nearby colleges and universities. HSB suppresses the location of students' high schools. Although NLS generally suppresses these data as well, I had access to these locations and was able, for some earlier work, to construct local-area variables. Constructing similar variables for HSB proved impossible, and the limited file of local-area variables NCES made available was incompatible with data available for NLS. The only surviving measure of local conditions is average college cost, an average based on student estimates. My earlier work, not constrained by comparability, suggested local-area variables had no or very modest zero-order effects on choice, and no effects in a multivariate framework.

Comparability was a major concern in this research. It is quite well established in other contexts that apparently minor differences in the coding of variables can have substantial effects on statistical results, particularly in recursive social models[5]. Since the primary research question here involved comparison, variable comparability received much attention[6]. The local-variable problem illustrates an

[5]See, for example, chapters 10 and 11 in Jencks et al. (1979).

[6] Jackson (1986), Appendix B, details the construction of each variable for each survey. Since the HSB questionnaire drew heavily on the NLS instrument, the construction of most variables proceeded identically for the two surveys.

extreme result of this concern, but there were others. For example, the composite test scores in NLS and HSB reflected different subscales, and so new composites were required. HSB's list of potential extracurricular activities was longer than NLS's, complicating the construction of the Leader variable. In several cases one of the surveys offered several versions of a variable; for example, NLS offered both high school and student grade reports, HSB only student reports. In such cases I chose to maximize comparability, which sometimes meant ignoring better or more detailed data in one of the surveys.

Attributes and Outcomes

46.4 percent of the NLS subsample attended two-year or four-year academic colleges or universities in the fall of 1973 (Table 2, "Attend"). 46.0 percent of the HSB subsample did so. Given the entry data above, HSB respondents thus either were somewhat more likely to leave college after one year than their NLS counterparts, somewhat less likely to enter after a year's wait, or both. In general, however, college participation remained stable between 1972 and 1980. One explanation of this stability might be that both the attributes of students and the effects of those attributes on college choice were the same in 1972 and 1980.

Table 2 belies this. There were, for example, three times as many hispanic respondents in 1980 as in 1972, which corresponds to population trends over the period; changes in the proportion of black respondents and in regional distributions were more modest. Students estimated that

the cost of four-year public colleges or universities averaged $2,151 in 1972, $2,774 in 1980[7]. This is a 35 percent decline, adjusting for changes in the consumer price index[8]; it represents a decline from 18.4 to 12.7 percent of average gross family income.

Socioeconomic variables also changed between 1972 and 1980. Father's education increased from an average of 12.5 years to 13.1 years, mother's education from 12.2 to 12.7 years. Gross family income, reported by students in categories, rose from an average of $11,703 to $21,776 -- a small decline in purchasing power, after CPI adjustment[9].

Academic variables changed more modestly. The NLS and HSB tests were developed separately and standardized similarly to a mean of 5 and standard deviation of one, and this (rather than any secular trend) accounts for their similarity. Student reports of their grades in 1972 averaged 2.8 or B- on a four-point scale, and 2.9 in 1980. Fewer students reported being in an academic program in 1980 than did so in 1972[10].

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[7]Tuition, fees, room, and board and four-year public universities actually averaged $1,760 in 1974, the earliest year for which comparable data are available. The figure for 1980 was $2,711. Other four-year publics averaged slightly less in each year (Grant and Snyder, 1984, table 123).

[8]The CPI stood at 125.3 in 1972, 246.8 in 1980.

[9]According to data from the Bureau of the Census median family income in the United States was $11,116 in 1972 and $21,023 in 1980, remarkably close to these student-reported figures (Ottinger, 1984, table 18).

[10]School reports on these two variables are available in NLS but not HSB. They suggest that students sometimes report being in academic programs when schools say otherwise, and that except for students with

Students reported leading an average of 0.3 extracurricular activities in high school in 1972, 0.4 in 1980 (based on comparable lists of activities; the trend for participation is similar). 58.6 percent of 1972 students reported that "most of [their] f nds" planned to attend college; by 1980 this had risen to 70.2 percent.

56.1 percent of 1972 seniors applied to college, which includes students who simply entered an institution -- often a community college -- in the fall of 1972 without a formal application. In 1980 65.7 percent did so. This is one case where coding is not strictly comparable, since NLS asked detailed questions about the 1972 institution while HSB did not. Apply plays no further role in this analysis.

In the spring of 1972 24.3 percent of all seniors received some financial-aid offer from a college or university. By 1980 this proportion had increased to 35.7 percent. These offers typically consisted of loans plus some grant and perhaps a job. The increase almost certainly reflects increased federal involvement in financial aid, and particularly its extension to middle income students. The maximum aid offers students received from colleges in 1972 averaged $284, including the 75.7 percent who had zero awards; the average for students who received some aid was $1,169, or 54.3 percent of mean estimated four-year college cost. Maximum offers in 1980 averaged $695; this represented $1,947 for

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D averages student grade reports are accurate. D students, interestingly, seem to be more likely than C students to report B averages.

Table 3

Bivariate and Multivariate Relationships between Attributes of High School Graduates and Attendance

1972 (NLS) and 1980 (HSB)

Variable	Correlation		Bivariate Regression		Multivariate Regression	
	1972	1980	1972	1980	1972	1980
black	-0.046	-0.039	-0.084	-0.063	0.096	0.080
hispanic	-0.029	-0.086	-0.082	-0.148	0.106	0.051
female	-0.033	0.024	-0.033	0.024	-0.037	0.011
south	-0.034	-0.061	-0.038	-0.066		
northeast	0.059	0.058	0.066	0.068		
west	0.015	-0.003	0.020	-0.004		
local cost	-0.002	-0.007	-0.001	-0.005	0.001	-0.011
(1980 dollars)	-0.002	-0.007	-0.001	-0.005	0.001	-0.011
father education	0.280	0.319	0.058	0.060	0.013	0.014
mother education	0.268	0.295	0.070	0.071	0.017	0.018
family income	0.231	0.239	0.019	0.011	0.005	0.004
(1980 dollars)	0.231	0.239	0.010	0.011	0.003	0.004
test score	0.399	0.442	0.233	0.257	0.075	0.095
grades	0.315	0.384	0.223	0.267	0.070	0.100
academic program	0.426	0.450	0.426	0.460	0.211	0.216
leader	0.186	0.230	0.202	0.234	0.053	0.067
college peers	0.384	0.332	0.389	0.362	0.176	0.153
any aid	0.083	0.103	0.097	0.107	0.065	0.078
maximum aid	0.072	0.108	0.053	0.039		
(1980 dollars)	0.072	0.108	0.027	0.039		
apply	0.823	0.664	0.828	0.696		
constant	-	-	-	-	-0.775	-1.066

All statistics computed using weights for baseline and first followup surveys, adjusted so weighted n equals sample size

those who received some aid offer, or 70.2 percent of college cost[11]. These financial aid data, unlike the other student attributes, come from the followup survey fifteen months after high school graduation, and thus may incorporate recollection errors[12].

Attribute/Outcome Relationships

The strongest zero-order correlates of college entry in both 1972 and 1980 were academic track placement, test score, college-going peers, and grades. As Table 3 shows, these and other correlations generally rose by 1980. Table 3 also presents bivariate regression coefficients corresponding to the correlations, which give a better picture of how individual attributes' effects on college entry changed over the eight years. Student attributes interact to influence college entry decisions, however, and a still better picture of individual variables' effects on college choice comes from a comparison of bivariate abd multiple regression coefficients, which also appear in Table 3.

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[11]There are myriad ways to scale financial aid awards, including maximum total aid (used here), single types rather than total aid, averages rather than maxima, awards at the first choice rather than aggregates, and so on. Among these maximum aid predicts choice best, tied with maximum grant aid; other scalings do less well.

[12]The financial-aid variables required extensive manipulation, which is summarized in Jackson (1986), Appendix B. Most of this involved data erroneously flagged as missing: students offered only a loan from an institution, say, apparently were coded "missing" for grants and jobs instead of zero. Some financial-aid data were internally inconsistent or reflected serious misapprehension; for example, several respondents reported grants of $40,000 from service academies and a few reported $5,000 Pell grants. I excluded such students from the subsamples.

All of the statistics in Table 3 (and following tables) involve a dichotomous outcome, Attend. Because the variances of such variables depend on their means, and residual errors distribute poorly, least squares estimates of their relationships to other variables (including correlation coefficients) can be problematic. Most of the more technical problems only appear if the dichotomy's mean approaches its extremes, zero or one. In all cases, however, significance tests are inaccurate (generally overestimates), and coefficients of determination R^2 have top limits well below the usual 1.0 value[13]. There are several methods for dealing with these problems, especially conditional-logit analysis, but they general bring new problems of interpretability or unknown robustness. For this analysis least squares methods appear to be convenient, clear, and appropriate.

Bivariate statistics suggest that being black or hispanic works against college entry: blacks were 8.4 percentage points less likely than other high school graduates to enter college in 1972, hispanics 8.2 percentage points less likely. In 1980 blacks were 6.3 and hispanics 14.8 percentage points less likely to enter college, a substantial change. The multivariate statistics suggest that these differences between minority and other students, which may reflect discrimination, stem largely from other relevant characteristics of black and hispanic

[13]Useful discussion of various sophisticated techniques for analyzing dichotomous outcomes appears in Manski and McFadden (1982). A summary comparing these and other methods appears in Jackson (1980); a comparison of logistic to least-squares methods using variables typical of those in choice models and Monte Carlo methods appears in Jackson (1981).

Table 4

Recursive Regression Equations for Background,
Other Attributes of High School Graduates,
and Attendance

1972 High School Graduates, NLS, n=14,863

	Outcome Variable						
Variable	test	grades	acad	leader	peers	any aid	attend
black	-0.711		0.170	0.064	0.090	0.189	0.096
hispanic	-0.545		0.077			0.106	0.106
female	-0.009 ~	0.318	-0.064			-0.042	-0.037
south	-0.023 ~	0.161		0.023 ?		-0.071	
northeast	0.145		0.161	-0.082		-0.004 ~	
local cost						0.002 ~	0.001 ~
father educ	0.059		0.012		0.017	-0.005 ~	0.013
mother educ	0.068		0.017				0.017
fam income	0.014		0.006	0.003	0.006	-0.020	0.005
test score		0.435	0.217	0.022	0.099	0.050	0.075
grades			0.084	0.123	0.064	0.089	0.070
acad program				0.089	0.229		0.211
leader					0.085	0.081	0.053
coll peers							0.176
any aid							0.065
constant	3.417	0.365	-1.328	-0.217	-0.519	0.027	-0.775
rsquare	0.213	0.317	0.282	0.077	0.261	0.126	0.298

1980 High School Graduates, HSB, n=9,665

	Outcome Variable						
Variable	test	grades	acad	leader	peers	any aid	attend
black	-0.611		0.188	0.078	0.137	0.122	0.080
hispanic	-0.520		0.086			0.035 ~	0.051 ?
female	-0.041 ?	0.282	0.003 ~			-0.024 ~	0.011 ~
south	-0.119	0.142		0.058		-0.005 ~	
northeast	0.113		0.102	-0.069		0.071	
local cost						-0.015 ~	-0.011 ~
father educ	0.063		0.023		0.016	-0.015	0.014
mother educ	0.060		0.009				0.018
fam income	0.005		0.002	0.004	0.002	-0.011	0.004
test score		0.434	0.193	0.040	0.057	0.062	0.095
grades			0.119	0.023	0.063	0.070	0.100
acad program				0.084	0.139		0.216
leader					0.066	0.094	0.067
coll peers							0.153
any aid							0.078
constant	3.660	0.422	-1.479	-0.296	-0.116	0.256	-1.066
rsquare	0.250	0.293	0.281	0.088	0.128	0.110	0.354

Statistics calculated using weights for baseline and first followup survey, adjusted so weighted n equals sample size.

~ denotes p>.05 ? denotes .05>p>.01

high school graduates. In the complete model, which includes socioeconomic, academic, contextual, and financial variables, black and hispanic students were more likely to enroll in college than the average student with similar characteristics in both 1972 and 1980.

Black and hispanic students enter higher education less frequently than others in large part because they perform below average on tests, which translates into lower grades. Table 4, which provides unstandardized regressions of test scores, grades, contextual, and financial-aid variables on background variables, documents this. Black and hispanic students scored over half a standard deviation below average in 1972 and 1980, even after controlling other background variables. It is difficult to believe that this difference results solely from differences in innate intelligence, and this accounts for much of the current attention to the experience of minority students with standardized tests.

Parent educational levels have strong bivariate effects on college going: each additional year of parent education increases the likelihood of enrollment by about six percentage points. Controlling other variables reduces this effect substantially, to about 1.4 percentage points for fathers and 1.8 for mothers.

In 1980 dollars, family income averaged $23,082 (sd = $11,742) in 1972 and $21,776 ($10,978) in 1980. In bivariate terms a student whose family income was one standard deviation above average in 1972 (about twelve thousand 1980 dollars or six thousand 1972 dollars) was 11.3 percentage points more likely to enter college; in 1980, this bivariate effect rose to 12.1 percentage points. Controlling other attributes in

the multiple regression these effects were much smaller: 3.0 percentage points in 1972, 4.4 percentage points in 1980.

The effects of test scores and grades increased modestly between 1972 and 1980. As one would expect, bivariate effects are much stronger than multivariate effects. In bivariate terms, students scoring one standard deviation above the mean on tests were 19.9 percentage points more likely than average to enroll in 1972, 22.0 percentage points in 1980. Students with grades one standard deviation (about 0.7 letter point) above average were 15.7 percentage points more likely to enroll in 1972 and 19.1 percentage points more likely in 1980. Controlling other attributes reduces these estimates substantially: to 6.4 and 9.1 for test scores, and to 4.9 and 7.2 for grades.

As Table 4 makes clear, test scores and grades are closely related, so "controlling" one or the other has limited significance. Students with test scores one standard deviation above average in 1972 had grades 0.371 points above average, controlling background attributes, and any estimate of their likelihood of enrollment must take this into account. Similar comments apply to other endogenous attributes, such as context and financial aid.

Students in academic programs were 42.6 percentage points more likely to enroll in 1972, 46.0 percentage points in 1980. Controlling other attributes, these effects were still substantial: 21.1 and 21.6 percentage points respectively. The strongest influence on track placement in both years, from Table 4, was test score, followed by being black (a positive effect, with other attributes controlled), grades, and

being in the Northeast. Having college-bound friends was almost as important in attendance decisions as academic track; leading extracurricular activities were less so.

Students who received financial-aid awards were 9.7 percentage points more likely to enter college in 1972, 10.7 percentage points more likely in 1980. Controlling other attributes, many of which themselves influence aid awards, reduces these effects somewhat, to 6.5 and 7.8 percentage points respectively. Analyzing the amount of aid yields similar results, but explains choice less well[14]; differences between award recipients and other students appear more important to college going decisions than differences among aid recipients.

1972-1980 Differences

Most variables with substantial positive effects on college going increased between 1972 and 1980, the major exceptions being Family Income (when adjusted for increases in the consumer price index) and Academic Program. At the same time the effects of most family background variables remained steady or increased somewhat, the exceptions being a modest decline in the effects of Black and a sharp decline in the effect of Hispanic. The effects of most other variables increased modestly, with the exception of College Peers.

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[14]For example, the bivariate effect of the maximum award was 5.3 percentage points per thousand dollars of aid in 1972; the average recipient received $1,169 in aid, and therefore was 1.169 x 5.3 = 6.2 percentage points more likely to enter college than a nonrecipient, not controlling other attributes. The corresponding figure for 1980 is 1.947 x 3.9 = 7.6 percentage points.

Table 5

Predicted Differences in Higher Education Enrollment
Based on Attributes and Equations
for 1972 and 1980

Variable	72-80 Change (from tab. 2)		Regression Equation (from tab. 3)		Predicted Difference (raw*reg)	
	raw	raw/sd	1972	1980	1972	1980
black	0.024	0.082	0.096	0.080	0.002	0.002
hispanic	0.060	0.256	0.106	0.051	0.006	0.003
female	0.026	0.052	-0.037	0.011	-0.001	.000
south	0.038	0.084				
northeast	-0.038	-0.088				
west	-0.003	-0.008				
local cost	0.623					
(1980 dollars)	-1.469	-1.327	0.001	-0.011	-0.001	0.016
father education	0.604	0.239	0.013	0.014	0.008	0.008
mother education	0.492	0.248	0.017	0.018	0.008	0.009
family income	10.073					
(1980 dollars)	-1.307	-0.115	0.003	0.004	-0.003	-0.005
test score	0.124	0.145	0.075	0.095		
grades	0.095	0.134	0.070	0.100	0.007	0.009
academic program	-0.078	-0.158	0.211	0.216	-0.016	-0.017
leader	0.096	0.203	0.053	0.067	0.005	0.006
college peers	0.116	0.244	0.176	0.153	0.020	0.018
any aid	0.114	0.251	0.065	0.078	0.007	0.009
attend	-0.004	-0.008	-0.775	-1.066		
predicted change					0.043	0.059

Statistics calculated using weights for baseline and first followup survey, adjusted so weighted n equals sample size

Given these differences between 1972 and 1980, how should college attendance rates have changed? Table 5 provides a partial answer. The first columns present mean differences between 1972 and 1980 variables. They omit current-dollar figures for Local Cost and Family Income, since the units are different, and for Test Score, since the instruments in the two years were standardized separately. The largest differences, in terms of standard deviations, are for Local Cost (a decline, adjusted for CPI change), Any Aid, College Peers, the parents' Educations, and Leader.

The second two columns in Table 5 present multiple regression coefficients from Table 3. These represent the expected difference in enrollment likelihood attributable to a one-unit change in the corresponding independent variable, all else constant. The last two columns are the observed change in each variable, from the first column, times each of the two corresponding regression coefficients. These are the expected changes in enrollment rates attributable to changes in each independent variable, assuming the other variables in the multivariate equation do not change.

If cross-sectional differences among students in a given year generalize to differences in the behavior of similar students over time, then the sum of the predicted differences in the last two columns of Table 5 should correspond to the change in enrollment rates between 1972 and 1980. These sums are 4.3 percentage points using the 1972 coefficients, and 5.9 percentage points using the 1980 ones, implying that

the rise in enrollment rates between 1972 and 1980 lay between these figures.

The enrollment rates in my 1972 and 1980 subsamples were virtually identical, 46.4 and 46.0 percent respectively; the academic enrollment rates for the full NLS and HSB samples (using different definitions of "enrolled") were 46 and 49 percent. From Table 2 high school to college retention, reflecting an "ever attended" definition, rose from 57.9 to 62.2 percent between 1972 and 1980 (although it was 60.2 percent in 1974, and 58.8 percent in 1978). The differences in Table 5 thus seem to overpredict change in college enrollment rates, suggesting that cross-sectional differences in college choice do not predict change over time.

Random variation from year to year might explain this result: if the choice process changed each year, a given year's pattern should have little impact on another's. But the choice processes summarized in Tables 3 and 4 are remarkably similar, a point even more apparent in the last two columns of Table 5. The effects of different variables are quite consistent between the two years, with some exceptions, and this tends to belie the random-variation explanation.

Important variables omitted from these models might also explain the results. But it is hard to see what these might be. This study began with an exhaustive review of earlier research on student choice, followed by a full-day conference at which I asked student-choice researchers to think of important forces not reflected in the review. The resulting conceptual paper specified the important influences on

college choice, and the model includes measures of virtually all. Initial analysis involved multiple indicators of different influences and numerous additional variables. The final analysis reported here reflects all important relationships that appeared in earlier research or preliminary data analysis. In short, no variables with substantial cross-sectional effects are missing from the models.

The models do omit variables with no cross-sectional effects. For example, although the enactment of MIS4A may have increased enrollment likelihoods, it did not vary among individuals, and thus would not figure in a cross-sectional model. The end of the war in Vietnam had a similar effect: it restored military service as a (literally) viable option for many prospective students, but did not treat individuals differently. Each of these changes may well have induced changes in enrollment likelihoods, but neither would appear in models like those estimated here.

Two broad conclusions, neither particularly novel, emerge from all this. First, college choice processes appear remarkably stable over time, and since most influences on college choice also change relatively slowly this means college participation among recent high school graduates does not fluctuate widely. Second, major changes in college participation, when they do occur, typically arise from forces that do not produce cross-sectional differences, and in many cases from one-time policy or social changes.

This cuts both ways for projection. The stability of college choice means that projection methods based on demographic cohort analysis will

generally prove satisfactory. Since such methods do not require extensive attribute or attitude data, they simplify projection. But the history of major changes arising from policy changes and similar imponderables makes long-term projections inaccurate.

What about MISAA, the fall of Saigon, and college choice, then? These NLS and HSB data suggest that high school seniors, taken together, decided whether to enter college in 1980 much as they had in 1972, which means that MISAA and the end of U.S. involvement in Vietnam had no substantial effect on college-going. Other data, such as those in Table 1, suggest that the overall rate of college going remained essentially steady over the same period, which means these forces did not have an overall step effect either.

More than MISAA happened between 1972 and 1980, of course. Pell Grants (then BEOGs) arrived, along with the other programs of the 1972 Higher Education Amendments, and the draft ended. Many of these and other changes would have affected subsets of the college-age population -- specifically Terrys, Freds, and Pauls, to recover the introductory stereotypes -- rather than everybody. Many federal programs of the time were supposed to increase college participation among groups traditionally underrepresented: the poor, particularly, and disadvantaged minorities. Whether these programs had the desired effect -- the evidence is somewhat controversial at this point, although the consensus is that they did -- they produced neither an overall change in enrollment rates nor a substantial change in overall choice patterns.

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