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2 Patterns of Enrollment and Completion

The first step in examining the demand for undergraduate college education is to describe patterns and trends in enrollments. It is not just initial enrollments that are of importance, however. Because educational attainment, not enrollment per se, is by far the most important "output" of higher education, it is necessary to consider what happens after students first enroll. The demand for college therefore must consider both college-going and college-completing behavior. The purpose of this chapter is to establish the basic facts concerning both of these, to be used as a foundation for the following chapters, which focus on demand and the role of financial aid policy.

As a starting point, Table 2.1 offers a snapshot of undergraduate enrollments in 1988, broken down by age, type of institution, and full-time/part-time status. Of the 10.6 million undergraduates enrolled in that year, almost two-thirds were in four-year institutions. Those in the two-year colleges tended to be older (almost 40 percent were 25 or older) and were more likely to be enrolled part-time. A tabulation such as this is helpful in thinking about who the "typical" college student is. When one thinks of college students, the most common image may be that of a young person who is studying full-time at a four-year college, but this image is in fact representative of only about half of all undergraduates. In 1988, about 18 percent of undergraduates were enrolled full-time at two-year colleges, while 32 percent were enrolled part-time at both two- and four-year colleges. The tabulations presented in this chapter generally do not reflect all three of these distinctions at the same time. For example, data on total enrollments typically lump together full-time and part-time students. Some series distinguish between two- and four-year institutions, while others do not, and so on. Thus, it is useful to keep in mind a rough idea of the distribution suggested in Table 2.1: two-year institutions enroll about one-third of all college students, and another third are part-timers.

Table 2.1 **Undergraduate Students by Type of Institution, Age, and Attendance Status, 1988**

	Four-Year College or University	Two-Year College	Total
Number enrolled (in millions):			
14 to 24 years old	5.2	2.3	7.5
(% full-time)	(91)	(67)	(84)
25 years and over	1.6	1.5	3.1
(% full-time)	(39)	(23)	(31)
Total	6.8	3.8	10.6
% distribution:			
Full-time	50.5	17.9	68.4
Part-time	13.3	18.3	31.6
Total	63.8	36.2	100.0

Source: U.S. Bureau of the Census, *Current Population Reports,* Series P-20, *School Enrollment—Social and Economic Characteristics of Students: October 1988 and 1987,* No. 443 (1990), table A.

Going beyond these broad classifications, this chapter examines distinctions of demography, race, and economic status, and it focuses on both the size and the composition of the college-going population. Section 2.1 examines college enrollments in historical perspective, noting their impressive growth and several important changes in their composition. The rise of public institutions, particularly the growth of two-year community colleges, has transformed the nature of college demand dramatically during this century. Perhaps the most prominent change, however, has been the steady increase in the numbers of female students, though the growing importance of part-time status is also evident. Changes in the size and composition of the population will contribute to shifts in enrollment, holding changes in enrollment rates constant. In particular, the continued decline in the 18- to 24-year-old population implies a reduction, albeit a milder one, in total enrollment. Following more general population trends, college enrollments are likely to become still older on average and to have an increasing proportion of nonwhites.

The remainder of this chapter focuses on the economic and demographic composition of college enrollments. Section 2.2 shows that there are dramatic differences in enrollment patterns by economic status. Both the probability of entering college and the probability of completing college rise with family income and socioeconomic status as well as with measured aptitude. Among higher education institutions, there is an unmistakable pecking order, with a comparatively small number of highly selective institutions enrolling a disproportionate number of high-achieving and affluent high school students. More generally, such students are also more likely to enroll in four-year than in two-year institutions. One result of these patterns is that the student bodies of

colleges differ dramatically in racial composition and income distribution. Section 2.3 examines the progress of students once enrolled. The chance of completing a four-year degree program differs greatly depending both on the type of institution initially enrolled in and on economic status. The chapter ends with a brief concluding section.

2.1 Enrollments over Time

2.1.1 Historical Patterns of Growth

In the fall of 1988, there were some 13.1 million Americans enrolled in institutions of higher education. This figure represents a historical peak. In fact, the growth in college enrollments in this country over the last century has been little short of phenomenal. Table 2.2 gives information on total enrollments from the 1869–70 school year up to 1988–89. Over this period, during which the country's population grew at an average annual rate of 1.5 percent, the number of students enrolled in colleges grew at an average annual rate of 4.8 percent.[1] One benchmark useful for measuring the relative growth of enrollments is the population aged 18–24, which approximates the traditional college-age population. Over the period shown, total enrollments increased from about 1 percent to over 49 percent of the size of this age group.

One clear result of this expanded enrollment has been a steady rise in the level of educational attainment in the population. This increase has been especially sharp for Americans born after World War I. As Table 2.3 shows, the median number of years of schooling for the population increased from 10.3 in 1940 to 12.8 in 1988. The rise in college completion has been much more dramatic. In 1940, the percentage of 25- to 29-year-olds (those born between 1921 and 1925) who had finished four or more years of college was 5.9. This increased about 2 percentage points in the 1940s, 3 in the 1950s, 5 in the 1960s, and 6 in the 1970s, to stand at 22.1 percent in 1980. During the 1980s, both the growth of college enrollments and college attainment have slowed down. The annual rate of enrollment growth dropped to 1.1 percent, and the percentage of 25- to 29-year-olds who had completed college rose only slightly, to 22.7 percent. Also worth noting is the convergence in the education levels of whites and blacks. By 1988, there was little difference by race in the median years of schooling. The percentage of whites with four years of college continued to exceed that of blacks by a large margin, but the growth in the black percentage has been more rapid.[2]

1. The population of the United States grew from 39.9 million in 1870 to 248.2 million in 1989 (United States Bureau of the Census, *Historical Statistics of the United States* [Washington, D.C.: U.S. Government Printing Office, 1960], 7; and U.S. Bureau of the Census, *Current Population Reports*, Series P-25, *State Population and Household Estimates: July 1, 1989*, No. 1058 (1990).

2. There has been continual progress in educational attainment rates for both blacks and whites in the United States over the past century. Smith (1984, 689), e.g., reports the following percentages of black and white males, respectively, with more than 12 years of schooling for selected cohorts: 1886–90, 3.3 and 9.8; 1926–30, 12.1 and 26.7; and 1946–50, 27.5 and 44.4. Although

Table 2.2 Enrollment in Institutions of Higher Education, 1970–86

	Fall Enrollment (1000s)[a]	% of Population 18 to 24 Years Old
1869–70	52	1.1
1879–80	116	1.6
1889–90	157	1.8
1899–1900	238	2.3
1909–10	355	2.9
1919–20	598	4.7
1929–30	1,101	7.2
1939–40	1,494	9.1
1949–50	2,659	16.5
1959–60	3,640	22.3
1969–70	8,005	32.6
1979–80	11,570	39.7
1988–89	13,116	49.2

Sources: U.S. Bureau of the Census, *Historical Statistics of the U.S.*, Series H700-715 (Washington, D.C.: U.S. Government Printing Office, 1960), p. 383; U.S. Department of Education (1989, table 147, p. 166); U.S. Bureau of the Census, *Current Population Reports*, Series P-20, *School Enrollment—Social and Economic Characteristics of Students: October 1988 and 1987*, No. 443 (1990), table A-8.

[a]From 1869–70 to 1949–50, numbers are for degree credit resident enrollment. For 1959–60 and 1969–70, the comparable figures were 3,216 and 7,545, respectively. Thus, the growth between 1949–50 and 1959–60 in degree credit enrollment was 21 percent.

Table 2.3 Trends in Educational Attainment by Race, Persons 25–29, 1940–88

	Median Years of School Completed			% with Four or More Years of College		
	All	White	Black	All	White	Black
1940	10.3	10.7	7.0	5.9	6.4	1.6
1950	12.0	12.2	8.6	7.7	8.2	2.7
1960	12.3	12.3	9.9	11.1	11.8	4.8
1970	12.6	12.6	12.1	16.3	17.3	6.0
1980	12.9	12.9	12.6	22.1	23.7	11.4
1988	12.8	12.9	12.7	22.7	23.5	12.3

Sources: U.S. Department of Education (1989, table 8, p. 15); U.S. Bureau of the Census, *Statistical Abstract of the United States* (Washington, D.C.: U.S. Government Printing Office, 1990), table 215, p. 133.

Behind the dramatic growth in college enrollments lie several fundamental changes in the nature and function of American higher education. Colleges of the nineteenth century were anything but broadly representative of the general population. According to Veysey (1973), their primary functions were to pro-

the rate of growth in black attainment rates was larger, the percentage difference between the two rates actually grew over this period. It is possible, therefore, that increases over time in attainment may have increased rather than decreased the black-white difference in attainment over some periods.

mote Christianity and to teach classical subjects in a disciplined manner. In addition, he argues, "an unstated but very real aim was the maintenance of a numerically tiny social elite against the hostile pressures of Jacksonian egalitarism" (p. 1). A central function of colleges was to train teachers, ministers, and other professionals. Normal schools, many of which offered only two years of instruction, were the primary institution for accomplishing the first function. These normal schools evolved into the state colleges and gradually added two more years to their offerings. By 1920, as shown in Table 2.4, there were slightly more than a thousand institutions offering undergraduate education, and almost all these offered four-year programs.

The years since 1920 have witnessed rapid growth in public institutions, especially two-year community colleges. Since 1920, the number of four-year institutions has doubled, reflecting growth in the number of both public and private colleges and universities. The number of two-year colleges, however, exploded in the 1920s, in the 1930s, and then again after 1960. These two-year colleges became a keystone to the educational policy of states and localities and now constitute a large part of the higher education offerings in this country. From 1963 to 1987, a period in which enrollments in four-year institutions doubled, the number of students in two-year colleges increased by a factor of five and a half (U.S. Department of Education 1989, 168). There has been greater growth in the public sector than in the private. Since 1950, the number of public institutions has doubled, while the number of private insti-

Table 2.4 Number of Undergraduate Institutions, 1920–88

School Year Ending:	Four-Year Colleges and Universities			Two-Year Colleges		
	Total	Public	Private	Total	Public	Private
1920[a]	989	[b]	[b]	52	10	42
1930[a]	1,132	[b]	[b]	277	129	148
1940[a]	1,252	[b]	[b]	456	217	239
1950[a]	1,327	344	983	524	297	227
1960[a]	1,422	367	1,055	582	328	254
1970[a]	1,639	426	1,213	886	634	252
1980[a]	1,863	464	1,399	1,112	846	266
1986[d]	1,915	461	1,454	1,240	865	375[c]
1986[d]	2,029	566	1,463	1,311	932	379[c]
1988[d]	2,135	599	1,536	1,452	992	460[c]

Sources: 1920–40: U.S. Bureau of the Census, *Historical Statistics of the United States,* Series H689-699 (Washington, D.C.: U.S. Government Printing Office, 1960), 382–93; 1950–88: U.S. Department of Education (1989, table 19.6, p. 217).

[a]Excluding branch campuses.

[b]Not available.

[c]Reflects increase in number of accredited trade and technical schools. See U.S. Department of Education (1989, table 196n).

[d]Including branch campuses.

tutions increased by only half that rate. Measured by the size of enrollments, public institutions have increased their share of total college enrollments from 49 percent in 1950 to 78 percent in 1970, at which level it has remained during the 1980s.[3]

Community colleges are worthy of special attention, owing to their size and spectacular growth. On the one hand, they have been hailed as "democracy's colleges," especially because the option of transferring to four-year institutions following successful completion of the associate degree allows those of modest means to have an affordable option for attaining a college degree. Yet these same institutions have also been attacked as tools of the ruling class, functioning to keep the children of the working class out of four-year college classrooms.[4] Given this contrast in views, it is important to examine how community colleges fit into the overall enrollment patterns in higher education.

2.1.2 Female and Part-time Students

Two trends evident in the 10-year comparison shown in Chapter 1—the rising importance of women and part-timers—are among the most significant long-term changes in college enrollments in the postwar period. There has been no more striking trend in college enrollments since World War II than the steady rise in participation by women. As shown in Table 2.5, the growth in the number of college students of both sexes has been dramatic. After the postwar GI Bill bulge, the number of men enrolled in college increased from 1.5 million in 1950 to 6.0 million in 1988 (before 1972, students 35 and older were not counted), at an average growth rate of 3.7 percent. Yet the growth in female enrollments has outstripped this rate by a wide margin—from 0.7 million in 1950 to 7.2 million in 1988, for an average annual rate of 6.3 percent.[5] Outnumbered by men two to one in 1950, women now constitute the majority of college students. It is not difficult to find parallels for this increased participation in the rising status of women in the labor market and increases in female labor force participation. An interesting component of the change in college enrollment that may also complement these other changes is the shift in the age distribution of female college students. In the postwar period, a sizable majority of female students were comparatively young, probably reflecting both earlier high school graduation and the larger percentage who attended college for only two years. While the percentages of male and female students under 20 have converged over time so that there is now little difference by gender to be observed, there has been and continues to be a significant

3. The percentage of college students enrolled in public-controlled institutions was 49.4 in the fall of 1949; 59.9 in 1959; 73.7 in 1969; and 78.1 in 1979 and 1987 (U.S. Department of Education 1973, 74; U.S. Department of Education 1989, 167).

4. For a statement of the latter thesis, see Karabel (1972).

5. U.S. Bureau of the Census, *Current Population Reports*, Series P-20, *School Enrollment—Social and Economic Characteristics of Students: October 1988 and 1987*, No. 443 (1990), table A-4.

Table 2.5 **College Students by Sex and Age, October of Selected Years**

	Number (in thousands)			% Under 20 Years Old		% 35 and Over	
	Total	Male	Female	Male	Female	Male	Female
Students 14–34:							
1947	2,311	1,687	624	25	61		
1950	2,175	1,474	701	32	63		
1960	3,570	2,339	1,231	36	56		
1970	7,413	4,401	3,013	34	46		
1972	8,313	4,853	3,459	31	42		
1980	10,180	5,025	5,155	29	33		
1988	10,937	5,223	5,714	27	32		
Students 14 and over:							
1972	9,096	5,218	3,877	29	38	7	11
1980	11,387	5,430	5,957	27	29	7	13
1988	13,116	5,950	7,166	24	25	12	20

Source: U.S. Bureau of the Census, *Current Population Reports*, Series P-20, *School Enrollment—Social and Economic Characteristics of Students: October 1986*, No. 429 (1988), table A-4, p. 83.

difference between the percentages who are 35 and older. In 1988, 20 percent of the women enrolled in college—full- and part-time—were 35 or older, as compared to just 12 percent of the men. This increase in later school enrollment among women could well reflect delays in education due to household formation and child rearing.

A second trend is the increasing importance of part-time enrollment. The ratio of part-time to total college enrollment increased from 32 percent in 1970 to 41 percent in 1980 to 43 percent in 1987 (U.S. Department of Education 1989, 167). This increase corresponds to the trend noted by Hauser (1990, 5) for young people to pursue employment and schooling at the same time. The increase in part-time enrollment also corresponds to an increase in the number of older students, most of whom are presumably employed or have families before they undertake part-time college work.

2.1.3 Enrollment by Minority Groups

Because of the importance of race in matters of public policy, including education policy, trends in college enrollment by race and ethnic group are prominent facts to be considered in any description of the demand for college education. A diminishing but persistent vestige of America's history has been large disparities in educational attainment between whites and blacks, and these have certainly included differences in the portion of adults with college degrees. As Table 2.3 above shows, the black-white gap in median years of schooling has practically disappeared, falling from 3.7 years in 1940 to 0.2 years in 1988. However, the difference in the percentage finishing four years of college has remained sizable. In 1940, 6.4 percent of whites aged 25–29

Table 2.6 **Percentage Distribution of College Students Age 3–34, by Race and Ethnicity and Attendance in Public Institutions, Selected Years**

	1955	1965	1975	1985	1988
Enrollments as % of total:					
White	93.5	93.7	87.8	85.9	84.5
Nonwhite	6.5	6.3	12.2	14.1	15.5
Total	100.0	100.0	100.0	100.0	100.0
Detail:					
Black	[a]	[a]	9.8	9.7	10.2
Hispanic[b]	[a]	[a]	4.2	5.3	6.0
% in public institutions:					
White	64.3	67.1	79.0	76.4	79.0
Nonwhite	55.5	76.0	83.0	81.6	80.4
Total	63.7	67.7	79.4	77.1	79.2

Source: U.S. Bureau of the Census, *Current Population Reports*, Series P-20, *School Enrollment—Social and Economic Characteristics of Students: October 1988 and 1987*, No. 443 (1990), table A-2.

[a]Not available.

[b]Persons of Hispanic origin may be of any race.

had completed at least four years of college, compared to only 1.6 percent of blacks. Since then, there has been steady progress in college attainment, but even today the percentage of blacks who complete four years of college remains smaller than that of whites. In 1960, the rates for whites and blacks were 11.8 and 4.8 percent, respectively; in 1988, the corresponding rates were 23.5 and 12.3 percent.

These figures on attainment reflect in part a steady increase in the number of blacks enrolled in college. Between 1955 and 1988, the number of nonwhites enrolled in college increased over tenfold, while the number of whites enrolled quadrupled over the same period.[6] Combined with the desegregation of the 1960s and 1970s, these enrollment trends have transformed the composition of most colleges and universities. Table 2.6 summarizes some of these changes. Overall, nonwhites have grown from 6.5 percent of all students in 1955 to 15.5 percent in 1988. Blacks now constitute about two-thirds of the nonwhite total. The percentages of both racial groups enrolled in public institutions have grown over the period, but the growth for nonwhites has been especially rapid. The proportion of nonwhites attending public institutions rose from slightly over half in 1955 to four-fifths in 1988, probably reflecting the desegregation of public institutions in the South. Because the nonwhite population is growing at a faster rate than the white population, the prospects are good for continued increases in the percentage of college students who are

6. Ibid., table A-2.

Table 2.7 **College Enrollment Rates of 18- to 24-Year-Olds by Race/Ethnicity, 1967–88**

	Enrollment as % of 18- to 24-Year-Olds				Enrollment as % of High School Graduates 18–24			
	All	White	Black	Hispanic	All	White	Black	Hispanic
1967	25.5	26.9	13.0	[a]	33.7	34.5	23.3	[a]
1968	26.0	27.5	14.5	[a]	34.2	34.9	25.2	[a]
1969	27.3	28.7	16.0	[a]	35.0	35.6	27.2	[a]
1970	25.7	27.1	15.5	[a]	32.7	33.2	26.0	[a]
1971	26.2	27.2	18.2	[a]	33.2	33.5	29.2	[a]
1972	25.5	26.4	18.1	13.4	31.9	32.3	27.1	25.8
1973	24.0	25.0	16.0	16.0	29.7	30.2	24.0	29.1
1974	24.6	25.2	17.9	18.1	30.5	30.5	26.6	32.3
1975	26.3	26.9	20.7	20.4	32.5	32.4	32.0	35.5
1976	26.7	27.1	22.6	19.9	33.1	33.0	33.5	35.8
1977	26.1	26.5	21.3	17.2	32.5	32.2	31.5	31.5
1978	25.3	25.7	20.1	15.2	31.4	31.1	29.7	27.2
1979	25.0	25.6	19.8	16.6	31.2	31.2	29.5	30.2
1980	25.6	26.2	19.2	16.1	31.6	31.8	27.6	29.8
1981	26.2	26.7	19.9	16.7	32.5	32.5	28.0	29.9
1982	26.6	27.2	19.8	16.8	33.0	33.1	28.0	29.2
1983	26.2	27.0	19.2	17.2	32.5	32.9	27.0	31.4
1984	27.1	28.0	20.4	17.9	33.2	33.7	27.2	29.9
1985	27.8	28.7	19.8	16.9	33.7	34.4	26.1	26.9
1986	27.9	28.3	21.9	17.6	34.0	34.1	28.6	29.4
1986[b]	28.2	28.6	22.2	18.2	34.3	34.5	29.1	30.4
1987	29.6	30.2	22.8	17.6	36.4	36.6	30.0	28.5
1988	30.3	31.3	21.1	17.0	37.3	38.1	28.1	30.9

Sources: U.S. Department of Education (1989); and U.S. Bureau of the Census, *Current Population Reports*, Series P-20, *School Enrollment—Social and Economic Characteristics of Students: October 1988 and 1987*, No. 443 (1990), table A-7, pp. 180–85.

Note: To illustrate the variability of these estimates, the approximate standard errors for the percentages of 18- to 24-year-olds for 1988 are 0.5 for whites, 1.1 for blacks, and 1.2 for Hispanics. See U.S. Bureau of the Census, *Current Population Reports*, Series P-20, *School Enrollment—Social and Economic Characteristics of Students: October 1988 and 1987*, No. 443 (1990), app. C.

[a]Not available.

[b]The Census Bureau changed its methods of classification and estimation after 1986. Estimates using the revised methodology for 1986 are given on this line.

nonwhite. In 1985, nonwhites accounted for 20.5 percent of all births, and blacks alone accounted for 16.2 percent.[7]

An issue that has received considerable attention in recent years, and one that has raised alarm in policy circles, is the apparent decline in the college enrollment rate among blacks and Hispanics since the mid-1970s.[8] Table 2.7

7. U.S. Bureau of the Census, *Statistical Abstract of the United States* (Washington, D.C.: U.S. Government Printing Office, 1988), 60.

8. See, e.g., "Fewer Blacks on Campus," *Newsweek*, 29 January 1990, p. 75.

summarizes these trends by showing college enrollment rates for all 18- to 24-year-olds and for those in that age group who are high school graduates. Although there are drawbacks to both these measures, they provide two easily understood metrics for reflecting trends in enrollment.[9] For whites, there is in each series a slight dip during the 1970s, but the enrollment rates by 1988 were at their all-time highs. For blacks and Hispanics, however, enrollment rates hit peaks in 1975 or 1976 and quickly fell, leveling off after about 1978. The only minority enrollment rate that regained its previous high is that for 18- to 24-year-old blacks in 1987, but the change in Census methodology adopted in 1986 probably accounts for all that difference.

These trends in minority enrollment rates have been a source of much concern. Some have pointed to them as an indication that financial aid programs have failed in their objective of opening up college to traditionally disadvantaged groups. These trends can also be seen within a larger context of the deteriorating social and economic conditions experienced by minorities, especially blacks. A report issued in 1990, for example, claimed that young black males were more likely to be under the control of an institution of the criminal justice system (prison, jail, probation, or parole) than to be enrolled in college.[10] The enrollment trends also complement recent reports of a growing gap between whites and blacks in health and life expectancy.[11] However, Hauser (1990) argues that the declines in black enrollment rates cannot be explained by changes in income. And not all trends point toward a widening racial gap. There is evidence that black-white differences in measured achievement have been shrinking. The gap between white and black average reading scores on the National Assessment of Educational Progress (NAEP) given to 17-year-olds fell from 53 points in 1975 to 21 points in 1988.[12]

2.1.4 Implications of Demographic Changes

If there has been one constant over the past thirty years, it has been that college enrollment rates have continued to change. As we have seen, models attempting to predict enrollment rates have had only limited success. Before examining in more detail differences in enrollment rates and economic models

9. One drawback of these two measures is that those who graduate from college before the age of 25 and stop attending college have the effect of lowering the college enrollment rate. Hauser (1990, 18) points out several other problems: because these measures are based on a large population, they are not very sensitive to year-to-year changes in the enrollment of high school graduates; they reflect high school graduation rates as well as college enrollment rates; and they are not sensitive to the rate of progress and part-time nature of enrollment. Another imperfection in these data is the exclusion of active military personnel. How this conclusion affects the resulting measures is unclear, but some effect is not unlikely since minorities are overrepresented in the military.

10. Robert Hauser, in personal correspondence, has criticized this claim, noting that the age group covered (20–29) excludes many college students and that college graduates are ignored. For a discussion of this finding, see Hauser (1990, 4).

11. "Health Report Shows Racial Gap Widening," *Raleigh News and Observer*, 23 March 1990, p. 3A.

12. The standard deviation of these scores was approximately 40 points (see Smith and O'Day 1990, table II and p. 18).

Table 2.8 Enrollment Rates by Race, Age, and Sex, 1988

	Male	Female
White:		
16–17	1.7	3.1
18–24	31.4	31.2
25–34	6.2	7.2
35+	1.4	2.5
Black:		
16–17	1.1	4.8
18–24	18.0	23.8
25–34	5.2	7.2
35+	1.4	2.3
Other nonwhite:		
16–17	1.7	7.3
18–24	46.5	37.4
25–34	22.1	8.3
35+	3.1	1.9

Source: See Table 2.9 below.

used in explaining such differences, it is useful to consider the implications of a set of changes that are comparatively easy to predict, namely, population shifts. Using current enrollment rates, it is possible to use population projections to produce a set of predicted enrollments. Projections of this sort should then be seen as estimates of future enrollments based on the assumption that enrollment rates remain constant. To calculate the projections, the population was divided into 24 groups, by sex, age, and race. Projected future enrollments were calculated by applying the 1988 college enrollment rate for each group to projections of the size of each group. The 1988 enrollment rates are shown in Table 2.8. Needless to say, the recent past gives ample reason to believe that enrollment rates will not, in fact, remain constant. The rates for those 35 and older have been rising steadily, for example. However, the simple approach used here has the virtue of producing projections that can be easily interpreted and are the result only of predicted changes in the size and composition of the population.[13]

Projections were made for five-year intervals from 1990 to 2010; these are summarized in Table 2.9. Crucial to the determination of college enrollment is the size of the population in the traditional college-going age group. As noted above, the number of 18-year-olds in the United States has been projected to decline by about 25 percent between 1980 and 1992. This decrease

13. Between 1986 and 1988, some of these enrollment rates changed markedly. For example, the rates for whites aged 18–24 increased from 28.9 to 31.4 percent for males and from 27.8 to 31.2 percent for females. Part of these increases is due to changes in Census methodology for tabulating enrollments (see U.S. Bureau of the Census, *Current Population Reports*, Series P-20, *School Enrollment—Social and Economic Characteristics of Students: October 1988 and 1987*, No. 443 (1990), p. 190).

Table 2.9 **Projected College Enrollments, 1990–2010, Based on 1988 Age-, Race-, and Sex-Specific Enrollment Rates (enrollments in millions)**

Total Enrollment	18–24 Population as % of 1988	Enrollment		% of College Students Who Are:			FTE Enrollment[a]	
		Total	As % of 1988	Black	Other Nonwhite	35+	Total	As % of 1988
Actual:								
1988	100	13.1	100	10.1	5.3	16.6	9.5	100
Projected:								
1990	102	13.4	103	10.4	5.7	17.2	9.7	102
1995	94	12.9	99	10.9	6.7	19.8	9.2	97
2000	98	13.2	101	11.2	7.5	21.1	9.4	99
2005	105	13.8	105	11.3	8.2	21.3	9.9	104
2010	106	14.1	107	11.6	8.6	21.8	10.0	106

Source: Author's calculations based on Census population projections and 1988 enrollment rates by age, sex and race. U.S. Bureau of the Census, *Current Population Reports*, Series P-25, *Projections of the Population of the United States, by Age, Sex and Race: 1988 to 2080*, No. 1018 (1989), and Series P-20, *School Enrollment—Social and Economic Characteristics of Students: October 1988 and 1987*, No. 443 (1990), table 1.

[a]Based on age- and sex-specific rates for part-time enrollment in 1986 (U.S. Department of Education 1989, 169). For these calculations, part-time enrollees are assumed to be equivalent to one-third of a full-time enrollee, and the rates used for age 16–17 are based on the observed rates for ages 14–17.

is evident in the projected size of the population aged 18–24, which is predicted to drop by about 6 percent between 1988 and 1995 but which will then rebound. Projected total enrollments increase after 1995, slightly exceeding the 1988 level again by 2000 and continuing to increase to 14.1 million by 2010. The composition of college enrollments will change as well, with growing proportions of students who are nonwhite and who are 35 or older. When measured in terms of FTE enrollments, the growth of enrollments is slightly less, owing to the projected increase in part-time study.

2.2 Who Goes to College?

A useful first step in considering the demand for college is to document existing patterns of college enrollment. Enrollments can be related to such categories as sex, age, race, aptitude, and economic class. In fact, each of these categories can produce clear relations when compared to college enrollment one at a time, and such simple correlations are one useful way of describing the population of college students. However, a fuller picture may be obtained by examining these patterns when other things are held constant. For this reason, some of the findings in this section apply to the relations between college enrollment and two or more variables at a time, either through regression analysis or through tabular presentations. This section begins by focusing on how college enrollment relates to characteristics of students; it then consid-

ers how these patterns lead to differences among the student bodies of various kinds of institutions.

2.2.1 Characteristics of Students

Socioeconomic Status

Viewed from the perspective of the economics of education, probably the most revealing characteristic of college students is their economic class. Both college enrollment and educational attainment are strongly associated with parents' income and social status. Table 2.10 illustrates this correlation for college enrollment in 1988. It shows the percentage of dependents aged 18–24 enrolled in college by family income. For all such dependents, this percentage rises steadily with income, from 18 percent for those families with incomes under $10,000 to 59 percent for those families with incomes of $50,000 or more. It is also apparent that this positive income effect applies generally to whites, blacks, and those of Hispanic origin, although the smaller sample for the latter two groups makes for less precise estimates of percentages. Table 2.10 can also be used to compare enrollment rates for the three racial and ethnic groups at given income levels. Looking across rows at dependents from the same income class shows that the rates for whites consistently exceed those for blacks and Hispanics. Holding family income constant therefore reduces, but does not eliminate, differences in enrollment rates associated with race and ethnicity.

The association between college enrollment and economic status is worth exploring in detail. Not only is this relation basic to our understanding of the social and economic effects of higher education, but it is also central to the

Table 2.10 **College Enrollment by Family Income, 1988 (percentage of dependent family members 18 to 24 years old enrolled in college)**

Family Income	Total	White	Black	Hispanic
Under $10,000	17.9	18.8	13.9	14.6
$10,000–$14,999	26.8	27.4	24.1	16.1
$15,000–$19,999	31.5	32.0	26.9	30.6
$20,000–$24,999	35.5	38.6	21.2	32.6
$25,000–$34,999	39.2	41.0	26.6	29.3
$35,000–$49,999	47.0	47.7	41.6	43.8
$50,000 and over	58.7	59.2	49.5	47.9
Not reported	41.9	40.7	40.5	6.5
Total	41.7	44.2	26.9	26.5

Source: U.S. Bureau of the Census, *Current Population Reports,* Series P-20, *School Enrollment—Social and Economic Characteristics of Students: October 1988 and 1987,* No. 443 (1990), table 15. To illustrate the variability of these estimates, the approximate standard error of the enrollment rate for dependents with family incomes from $35,000 to $49,999 is 1.8 percentage points for whites, 5.2 for blacks, and 6.5 for Hispanics. Calculations are based on eq. 4 in app. C of the report.

Table 2.11 **College Enrollment by Socioeconomic Status, Sex, and Type of Institution, High School Classes of 1961, 1972, and 1982 (percentage enrolled in college)**

Type of Institution and Socioeconomic Quartile	Males			Females		
	1961	1972	1982	1961	1972	1982
Four-year:						
Lowest	23	20	24	22	20	24
Second	33	23	29	28	21	33
Third	40	29	39	32	27	41
Highest	53	42	55	48	44	62
Two-year:						
Lowest	7	12	15	6	13	18
Second	7	18	19	7	17	21
Third	8	19	22	6	17	25
Highest	11	15	20	12	14	22

Source: Clowes, Hinkle, and Smart (1986, 126).

evaluation of public policies designed specifically to weaken that correlation. Does this association differ by type of institution? What has been the effect of financial aid programs on it? Has it grown weaker or stronger over time? The first of these questions is addressed in the present chapter, while the other two are taken up in later chapters.

From its beginnings in this country, college was popularly viewed as the meeting place of the affluent. Although certainly not accurate in all particulars, this perception was by and large correct. Few from the working classes attended college in the nineteenth century. According to Veysey (1965, 271), while some colleges were quite exclusive as to social position, few enrolled anything close to a cross section of the population: "The undergraduate population of the turn of the century seems remarkably homogeneous: a parade of Anglo-Saxon names and pale, freshly scrubbed faces." Even the emerging public institutions tended to enroll children of upper- and middle-income families. A survey of the occupations of fathers of Michigan students in 1902, for example, showed six times as many businessmen as mechanics, craftsmen, and skilled laborers put together (Veysey 1965, 291–92).

Modern surveys have made it possible to be more precise in relating social and economic position to college enrollment. Table 2.11 presents data on college enrollment and socioeconomic status for students who were high school seniors in 1961, 1972, and 1980.[14] The measure of socioeconomic status is a statistical composite based on family income, parents' education, father's occupation, and household possessions. There are two advantages of using this

14. Although Clowes, Hinkle, and Smart (1986) label the most recent class as 1982, their description of the data (p. 122) indicates that their figures are based on the class of 1980.

measure as an alternative to reported family income: its components are correlated to permanent income, and it is typically available for a larger portion of the samples than is income.[15] Rates of college enrollment in the fall of the given years are broken down by sex and type of institution.

Looking first at four-year institutions, the figures clearly indicate that enrollment rises with socioeconomic status, supporting the strong income correlation shown above. Roughly speaking, those in the top quartile of socioeconomic status are slightly more than twice as likely to be enrolled in a four-year college than those in the lowest quartile, and this relation did not change over the two decades covered by the tabulation. The only important qualification to this generalization arises from the increase in enrollments of women over the period in the upper three quartiles. Beginning at rates below those of men in 1961, women were enrolling at rates as high or higher than those of men in every quartile by 1980. This is just one reflection of the overall surge in female enrollments, but one dimension of it was an apparent increase in the socioeconomic disparity in enrollment rates in 1980.

An equally important aspect of the association between college enrollment and socioeconomic status shown in Table 2.11 is the marked difference in patterns between four-year and two-year institutions. Among the latter, a positive correlation between status and enrollment again appears, but the differences are quite a bit less than with the four-year institutions. In general, students from the top quartile were less than twice as likely to enroll in two-year colleges as those from the bottom. If enrollments for both types of institutions were combined, of course, the resulting enrollment rates would be strongly correlated with socioeconomic status, as are the four-year rates. The figures in the table also reflect the rapid growth of two-year colleges over the period, with rates generally doubling. In the process of growth, two-year institutions have in effect specialized in lower-income students. While four-year enrollment rates of students from the lowest quartile have remained roughly constant over the period, the two-year rates for this group have more than doubled.

Aptitude

Another characteristic of students that has not been mentioned is aptitude, which is often measured by standardized test scores. Ignoring for the moment the question of whether standardized tests are biased or whether they measure the appropriate traits, few would dispute the proposition that a student's potential for gaining from college training depends on his or her ability and

15. Using data for the 1980 base year questionnaire, each of the five components of the socioeconomic status variable was converted to a standardized variable with a mean of zero and a standard deviation of one. The composite variable was then formed as the simple average of nonmissing components. Of the 11,995 persons in the High School and Beyond sample (see n. 18 below), this variable is available for 11,130 of them. Of those not included, 495 were not surveyed in the base year, and 370 had insufficient data to form the measure. Tabulations of family income against the socioeconomic status variable show that the two are highly correlated.

Table 2.12 **Enrollment in Four-Year and Two-Year Institutions, by Academic Preparedness and Socioeconomic Status, High School Class of 1980, Fall 1980 (percentage enrolled in college, fall 1980)**

Type of Institution, Sex, and Aptitude Score Quartiles	Socioeconomic Status Quartiles		
	Lowest	Middle two	Highest
Four-year institutions:			
Men:			
Lowest	4.6	5.9	11.6
Middle two	18.1	22.4	34.7
Highest	34.0	59.9	65.3
Women:			
Lowest	7.1	10.2	13.2
Middle two	19.0	27.1	50.6
Highest	52.6	58.8	81.6
Two-year institutions:			
Men:			
Lowest	4.5	6.7	19.1
Middle two	11.1	17.0	21.9
Highest	12.4	15.5	8.0
Women:			
Lowest	9.8	11.6	18.5
Middle two	15.2	20.3	24.7
Highest	12.0	17.1	7.9

Source: Peng (1983, tables 4, 5).

academic training. In addition, while colleges have sometimes had explicit policies favoring certain applicants on the basis of race or social class, aptitude has virtually always been one criterion for admission. For these reasons, one would expect to see an association between measured aptitude and college attendance, and, indeed, that is what is observed.

Table 2.12 illustrates this association for students in the high school class of 1980. The test scores used for classification in the table are based on short standardized tests similar to the Scholastic Aptitude Test (SAT). The table shows how enrollment rates classified by sex, socioeconomic status, and type of institution differ according to scores on a standardized achievement test. Enrollment in four-year colleges is strongly associated with test scores, with those scoring in the top quartile at least five times as likely to enroll as those in the bottom quartile. But the table also shows that the previously noted effects of sex and socioeconomic status do not disappear when measured aptitude is taken into account. Particularly striking is the strong association that remains between four-year enrollment rates and socioeconomic status. Also noteworthy is the 16 percentage point difference in enrollment rates between men and women in the highest socioeconomic and test score quartiles.[16]

16. The standard error of the difference in these two percentages is approximately 4.9 percentage points.

The effect of measured aptitude on enrollment in two-year colleges is decidedly more ambiguous. While those scoring in the middle two quartiles are more likely to enroll, in most cases the enrollment rate drops off in the highest test quartile. It is also interesting to see how socioeconomic status and test score interact. For those below the top test score quartile, the two-year college enrollment rates rise with social class, but this is not the case for those scoring in the top quartile. For example, among men whose test scores fell into the top quartile, the percentage enrolling in two-year colleges dropped from 15.5 in the middle socioeconomic group to 8.0 in the top quartile. Clearly, these declines in two-year enrollment rates among those in the top socioeconomic and aptitude quartiles reflect their high rates of enrollments in four-year institutions. Enrollment rates based on both two-year and four-year institutions show strong positive correlations to both socioeconomic status and test scores.

As clear as the association between achievement test scores and college enrollment is, the interpretation of that association is a complex issue indeed. Tests such as the SAT have been criticized as being culturally biased, in favor of middle- and upper-income students and against minority students (see, e.g., Fallows 1980). They are certainly highly correlated with income (see, e.g., Bishop 1977, 291; Baird 1984, 378; or Nairn et al. 1980, 201). Nairn et al. (1980) argue that the SAT contains a two-pronged class bias: an inherent bias in the test questions themselves and an advantage obtained from pretest coaching, which he argues increases scores. A survey reported in 1979 showed that 41 percent of students who had received coaching had family incomes over $30,000 while only 17 percent of those who had not received coaching had family incomes over $30,000 (Nairn et al. 1980, 98). According to Nairn et al., the observed high correlation between family income and measured aptitude overstates the relation, if any, between income and achievement potential. Racial differences in achievement scores are subject to much the same argument. It is relevant to note in this connection that, when test scores are held constant, blacks show higher rates of enrollment in four-year colleges than whites.[17]

Other Influences

Having looked separately at how college enrollment correlates to several different kinds of variables, it is useful to conclude by asking about the joint effect of the entire set of variables. In their model of college-going behavior, Manski and Wise (1983, 79–80) present regressions explaining the probability that a student will apply to college, the quality of the college (measured by the average SAT score of its students), and the probability that the student will be admitted. The estimated effects of student attributes in these equations pro-

17. For those scoring in the top quartile, e.g., 71 percent of blacks attended four-year institutions compared to 63 percent of whites and 51 percent of Hispanics (see Peng 1983, 14).

vide an interesting comparison to the data presented above. Two variables that have consistently positive and significant effects in all three of these equations are SAT score and high school grades. In addition, the following variables have positive and significant effects on both the probability of applying to college and college quality: parents' income, parents' education, being a leader in high school, and being an athlete. Blacks had a higher probability of applying to college, other things being equal, but the quality of the schools they applied to was lower in the South and higher outside the South.

2.2.2 Type of Institution

To answer more completely the question of who goes to college, it is necessary to go beyond the two-year/four-year distinction. As the introduction to this volume stresses, higher education in the United States is nothing if not diverse, and one manifestation of this diversity is the existence of a number of quite distinct kinds of undergraduate institutions. This diversity among institutions of higher education exists within a larger set of post–high school options, some of which offer training quite similar to that available in some colleges. One way of summarizing these options is given in Table 2.13, which is based on High School and Beyond, a national survey that followed a sample of high school sophomores and seniors for six years.[18] This table summarizes the enrollment decisions of the high school class of 1980 in the fall of that year. Students are divided into four racial and ethnic groups and further separated by socioeconomic quartile. Students of Hispanic descent were classified as Hispanic regardless of race and are not included in any other grouping. Several kinds of college enrollment options are specified, including two-year versus four-year and part-time versus full-time. In addition, four-year colleges are split up into three categories: highly selective, other public, and other private. The highly selective group includes 85 institutions with median freshman SAT scores of 575 or more or median ACT scores of 28 or more in 1980.[19] The table also shows enrollment in vocational programs and military enlistment as two alternatives to college enrollment.

The table's bottom row shows that, in October 1980, 44 percent of the entire cohort were enrolled in college, 4 percent were enrolled in vocational programs, 2 percent were in the military, and the remaining 50 percent were not enrolled in any postsecondary program. Of those in college, 2 percent were in one of the selective colleges, and 19 percent were in other public and 8 percent in other private four-year programs as full-time students. The pro-

18. The High School and Beyond survey covered about 60,000 high school sophomores and seniors in about 1,000 schools in the spring of 1980 and at two-year intervals to 1986. The National Center for Education Statistics has published numerous descriptions of the data. For example, see National Center for Education Statistics, *Contractor Report: High School and Beyond 1980 Senior Cohort First Follow-Up (1982), Data File User's Manual* (Washington, D.C., May 1983).

19. These institutions were categorized as "most competitive" or "highly competitive" in *Barron's Profiles of American Colleges* (1980, x, xi). Most of the institutions included were private.

Table 2.13 Enrollment by the High School Class of 1980 by Demographic Group, October 1980

Racial/Ethnic Group and Socioeconomic Status Quartile	1980 Enrollment Status									
	2-Year Full-Time	4-Year Public, Full-Time	4-Year Private, Full-Time	4-Year Selective, Full-Time	Vocational	4- or 2-Year, Part-Time	Military	High School Graduate, Not Enrolled	Not High School Graduate	% of All Seniors
Hispanic:										
Lowest	6	6	2	1	4	3	2	74	2	4.4
Second	14	9	2	0	4	3	3	64	0	2.2
Third	13	8	4	4	3	9	2	54	3	1.7
Highest	20	24	10	4	3	3	2	35	0	1.0
Other:										
Lowest	17	6	4	3	6	6	3	55	0	.6
Second	15	7	3	1	1	6	5	61	0	.5
Third	19	24	2	3	4	6	4	37	1	.6
Highest	17	40	8	11	1	6	1	14	1	.6
Black:										
Lowest	6	13	3	0	3	2	5	65	2	5.3
Second	7	16	6	0	3	2	4	61	2	2.3
Third	10	23	11	1	2	1	3	48	1	1.6
Highest	12	26	12	2	1	4	0	42	1	1.0
White:										
Lowest	8	9	4	0	6	2	2	68	2	14.6
Second	11	14	5	0	6	4	3	54	1	20.1
Third	14	22	8	1	4	4	2	44	1	21.4
Highest	11	31	14	5	3	5	1	29	0	22.2
Total	11	19	8	2	4	4	2	49	1	100.0

Source: Calculations based on High School and Beyond.

Note: The unweighted sample size for these percentages, from the lowest to the highest socioeconomic status groups, are as follows: Hispanic: 1,115, 452, 333, and 211; other: 119, 94, 111, and 114; black: 1,047, 455, 314, and 183; white: 958, 991, 1,044, and 1,138, for a total of 8,679. Standard errors, calculated as the square root of $P(1 - P)/N$, where P is the calculated percentage and N is the sample size, are generally on the order of 1 or 2 percentage points. For example, the standard error of the 13 percent estimate for third-quartile Hispanics going full-time to four-year public institutions is 1.5; the comparable percentage for third-quartile whites is 1.3.

portion enrolled in two-year programs was 11 percent. Turning to the entries for the separate demographic groups yields a detailed picture of enrollment rates that roughly correspond to the broad relations noted above. Most prominently, enrollment in four-year institutions generally increased with socioeconomic class. In terms of percentage differences in rates, the increases tended to be sharpest in the case of the highly selective colleges. Among students from the top socioeconomic quartile, 5 percent of whites and 11 percent of the residual class (which includes students of Asian descent) were enrolled in these selective institutions; at the same time, these institutions enrolled very few students from the lowest socioeconomic quartile. The patterns for two-year institutions and part-time college enrollment are considerably flatter. The biggest observed difference by socioeconomic group was among Hispanics, with the enrollment rate in two-year colleges rising from 6 to 20 percent from the bottom to the top socioeconomic quartile. These figures support the impression gained above of a much less pronounced class-defined pattern of enrollments in two-year, as opposed to four-year, institutions.[20] Because the table does not control for aptitude, the patterns it shows reflect to some extent the existing correlation between aptitude and socioeconomic status.

Table 2.13 also presents several comparisons by race that are useful to note. Probably the most important is that, if socioeconomic status is held constant, there is little apparent difference in college enrollment rates between blacks and whites in the two largest categories of full-time students in four-year institutions. However, Table 2.13 does reveal white-black disparities in four categories: highly selective, two-year, part-time, and vocational institutions. In each of these cases, the rate for whites equals or exceeds the corresponding rate for blacks in each socioeconomic quartile. As between non-Hispanic whites and Hispanics, there are similar disparities in vocational rates and in the two largest four-year college rates. Finally, the rates for the residual racial group are anomalous, with those in the highest socioeconomic quartile showing the highest enrollment rates for selective and other public four-year colleges and for two-year colleges. In considering these findings, it is useful to emphasize that these tabulations are based on only one cohort and that there may be changes in these patterns over time.

One obvious way that differences in enrollments show themselves is in the makeup of student bodies. Differences in enrollment rates at the individual level translate into differences in composition among institutions. These differences among types of colleges and universities are illustrated in Table 2.14

20. These findings are consistent with statistical studies of college choice. For example, in a regression equation excluding measures of student performance and expectations, Hearn (1988, 72) finds that college cost tended to rise with parents' education and family income, to fall with family size, and to be lower for Hispanics. In an expanded model, however, tested ability, high school grades, high school track, and educational expectations were all found to be significant; of the remaining variables, only mother's education and the indicator for blacks were significant, the latter taking on a positive sign.

Table 2.14 **Income Level and Racial/Ethnic Composition of College Freshmen, by Type of Institution, Fall 1988 (percentage of freshmen)**

	Estimated Parental Income		Racial/Ethnic Group(%)[a]		
	Below $15,000	$75,000 & above	White	Black	Hispanic
All institutions	11.7	16.1	83.2	9.5	3.2
Four-year colleges:					
Public	11.9	11.1	80.7	16.0	1.6
Private nonsectarian	8.4	26.2	80.9	13.1	1.6
Protestant	11.8	17.0	84.9	12.3	1.1
Catholic	9.4	21.5	88.3	3.9	4.9
Universities:					
Public	7.8	21.0	84.9	6.1	2.9
Private	5.2	37.7	84.3	4.4	2.5
Predominantly black colleges:					
Public	31.0	4.7	1.9	97.0	.4
Private	23.4	9.4	.6	99.0	.5
Two-year colleges:					
Public	16.5	8.6	83.0	7.0	5.3
Private	13.2	17.7	87.0	8.0	2.1

Source: Astin et al. (1988, 47–48).

[a]The percentages generally do not sum to 100 because some students may fall into two classes and some into none of them.

by comparing data on racial composition and reported family income of freshmen. The affluence of student bodies differs greatly among institutions of different kinds, with the percentage of freshmen from families with incomes of $75,000 and over ranging from a low of 5 percent in predominantly black public colleges to a high of 38 percent in private universities. The percentages of low-income students tend to vary inversely. Racial composition also differs among these institutional types. The predominantly black colleges stand out in this regard, of course, but there are important differences among the other categories as well. Whites predominate in Catholic and private two-year colleges, while, among predominantly white institutions, blacks are most heavily represented in public colleges. Hispanic students have their largest representation in public two-year colleges, a finding that is probably affected by the wide coverage offered by California's system of community colleges. Of course, the differences among individual institutions are greater than those among types of institutions.

2.3 After Matriculation

Most of the reasons why we are interested in undergraduate enrollment do not have to do with enrollment per se but rather with the outcomes of college

education. Therefore it is important to go beyond the question of who goes to college to a consideration of the transitions following enrollment. One issue that has received a great deal of attention among policy analysts of higher education is that of college dropouts, and many studies have been conducted exploring the determinants of what is called "persistence to degree." As is the case with college enrollment, differences by race and socioeconomic group in rates of college completion have important implications for public policy.

A useful starting place for an empirical understanding of transitions after enrollment is the point made at the beginning of the previous section: only a minority of college students fits the stereotype of the full-time college student who enrolls immediately after high school graduation and proceeds to finish in four years. As an illustration, of those high school graduates in the class of 1982, only 13 percent had completed four years of college by 1986.[21] The percentage of students finishing in four years differs widely among institutions. In the state of North Carolina, for example, the four-year completion rates for students who entered in 1985 ranged from 87 percent at Duke and 59 percent at the University of North Carolina's Chapel Hill campus to 9 percent at Winston-Salem State and 6 percent at Fayetteville State.[22] Of those who do not complete degrees in the initial four years, some will finish later, and others will never in fact graduate with a college degree. College degree attainment thus requires leaping over three distinct hurdles: high school graduation, college enrollment, and completion. By the time all is said and done, only about 30 percent of those in recent college-age cohorts will receive four years of college training (see Table 2.15 below). For one cohort coming of college age in the 1970s, about three-fourths finished high school, about three-quarters of those graduates enrolled in college, and about half those who entered college completed a degree.[23] For the young population as a whole, therefore, dropping out is relatively commonplace at both the high school and the college levels.

Table 2.15 presents one way of summarizing students' progress toward college graduation. It shows, for whites and blacks, the educational attainment of several different cohorts of high school graduates in the fall of 1986. For example, for the high school class of 1982, the table indicates that about 57 percent of whites and 50 percent of blacks were enrolled or had completed at least one year of college four years after high school graduation. The percentages of those who had completed four years of college, however, were only about 15 and 4, respectively. College completion rates tend to rise with the older cohorts, indicating delayed college going, though there are of course

21. U.S. Bureau of the Census, *Current Population Reports,* Series P-20, *School Enrollment—Social and Economic Characteristics of Students: October 1986,* No. 429 (1988), table 8, p. 27.

22. Katie Mosher, "Path to Degree Taking Longer in UNC System," *Raleigh News and Observer,* 16 February 1990, p. A1.

23. These percentages are based on Jackson's (1988, 18) illustration using the cohort born in 1957.

Table 2.15 Years of College Completed by High School Graduates, October 1986

Race and Year of High School Graduation	Proportions of High School Graduates							Conditional Probabilities of:	
		By Number of Years Completed							
	Completed 1 Year or Now Enrolled	< 1; Not Enrolled	< 1; Now Enrolled	1	2	3	4+	Completing 2 Years, Having Completed 1 Year	Completing 4 Years, Having Completed 2 Years
White:									
1986	56.2	43.8	54.8	.8	.2	.1	.3	[a]	[a]
1983–85	54.4	45.6	7.2	24.6	15.3	6.2	1.0	.48	[a]
1982	56.7	43.3	2.7	12.3	14.0	13.0	14.5	.77	.35
1981 or earlier:									
Under 26 years old	52.9	47.1	1.9	9.3	11.9	5.6	24.0	.82	.58
26–28	51.5	48.5	1.8	8.5	10.6	4.8	25.7	.83	.63
29–34	55.9	44.1	1.2	9.3	11.8	4.2	29.6	.83	.65
Black									
1986	39.5	60.5	35.4	2.9	1.3	[a]	[a]	[a]	[a]
1983–85	48.6	51.4	9.1	25.0	11.0	2.8	.8	.37	[a]
1982	50.1	49.9	2.7	15.4	13.8	14.2	3.7	.67	.12
1981 or earlier:									
Under 26 years old	46.7	53.7	1.8	10.5	13.6	9.5	11.0	.76	.32
26–28	44.7	55.3	2.6	9.2	12.7	6.1	14.3	.78	.43
29–34	49.4	50.6	1.2	9.4	15.2	6.6	16.9	.80	.44

Source: U.S. Bureau of the Census, *Current Population Reports*, Series P-20, *School Enrollment—Social and Economic Characteristics of Students: October 1986*, No. 429 (1988), table 8, pp. 28–29.

[a]Not calculated owing to small base.

differences among cohorts when compared at the same age.[24] The last two columns of Table 2.15 give proportions that may be interpreted as conditional probabilities. The first shows the probability that a high school graduate who had finished one year of college had also completed a second. These rates rise as the ages of the cohorts increase and reach roughly 80 percent for both whites and blacks for the oldest cohort, although the rates for blacks tend to lag behind those for whites. The last column gives the probability that a person who had completed two years of college would also have completed four years. These rates also rise with age, reflecting the time needed to complete degrees, but they are markedly different for whites and blacks. For the oldest cohort, this conditional probability for blacks is only two-thirds that for whites. It is this second conditional probability that is the most important explanation for the large gap in four-year completion between the races, given the similarity of initial enrollment rates.

Another way to describe college students' progress toward completion is by examining the careers of individual students over time, which can be done with panel data. Using one such data set, the National Longitudinal Survey (NLS), Manski and Wise (1983) examined patterns of college enrollment of a sample of young people over a five-year period following their high school graduation in 1972. While their data refer to years in which students are enrolled full-time and not to degree completion, their findings provide strong support for the relative rarity of immediate and continuous full-time enrollment leading to a degree. Table 2.16 summarizes some of these findings. The top half of the table shows that only about one-quarter of whites and about 15 percent of blacks could be characterized by the traditional pattern of immediate, full-time enrollment. Although a majority of each race/sex group enrolled full-time in at least one year following high school graduation, relatively few enrolled in college for four straight years after high school. These findings suggest that many students work while they pursue college study. According to Manski and Wise (1983, 44), a quarter of those enrolled in two-year and vocational programs were working full-time. Since these data are based on years of enrollment, four years of enrollment do not necessarily imply completion of a degree. In fact, Manski and Wise (p. 51) report that 26 percent of those who were enrolled for the first four years and 71 percent of those enrolled for all five years did not receive bachelor's degrees.

The bottom part of Table 2.16 focuses on those who attended college for at least two years right after high school. While these rates are much higher than those for continuous four-year enrollment, still only a minority of high school students enrolled for even two years immediately after high school. As with the percentages for continuous four-year enrollment, the rates for whites exceed those for blacks. The bottom row in the table gives the proportion of

24. Table 5.3 below compares rates of enrollment and completion for several cohorts at the same ages.

Table 2.16 **Patterns of Full-Time Postsecondary Enrollment, High School Class of 1972, Fall 1972–76 (percentage of all high school seniors)**

	White		Nonwhite	
	Male	Female	Male	Female
Continuous enrollment for at least four years immediately following high school	26	22	14	15
Enrolled full-time at least one year, some other pattern	40	38	42	47
Never enrolled	35	40	44	39
Total	100	100	100	100
Detail:				
Continuous enrollment for at least two years immediately following high school	40	36	28	30
Portion of the above who were enrolled at least four years all together	70	66	59	55

Source: Calculations based on Manski and Wise (1983, 48).

those enrolling immediately for two years who went on to enroll full-time for another two years between 1974 and 1976. Corresponding to the conditional probabilities shown in Table 2.15, the rates for blacks are lower than those for whites, the difference being about 10 percentage points.

There is in fact a considerable body of research on dropouts, as illustrated by a review of the research on the subject by Tinto (1975). Studies show that college dropouts, as compared to those who remain in school, tend to have lower grades and to have parents with less education and lower incomes. Historically, males have been less likely to drop out than females. Studies have also shown that students who have higher levels of interaction with faculty and other students are less likely to leave school, but such interaction is most likely a function of many of the same factors that influence the probability of dropping out. To what extent dropout rates should constitute a source of concern is another question. According to Stampen and Cabrera (1986, 28), rates of attrition from college have remained fairly stable for at least a century, except during major wars. And, as Manski (1989) has argued, an increase in the number of dropouts from college is not necessarily a bad thing. Enrollment, he argues, is one important way a person has of obtaining information about his or her suitability for college training, and increases in enrollment may well lead to increases in the number of dropouts.

One significant feature of the process that extends from enrollment to completion—and includes dropping out as one option—is the heterogeneity that exists among institutions. Not only can students enroll or drop out, but they

can also enroll part-time or transfer from one type of institution to another. Historically, one of the principal aims of two-year colleges has been to provide a stepping-stone between high school and four-year institutions, although their success in this regard has been questioned (see, e.g., Karabel 1972). The armed forces have also marketed themselves as an avenue for training and further education following service. It is difficult to appreciate the connection between enrollment and attainment without considering the variety of institutions among which high school graduates have to choose and the possibilities of transferring among them.

One way of summarizing the interactions among various postsecondary activities is given in table 2.17, which tracks the progress of the high school class of 1980 from the fall of 1980 to their highest level of educational attainment by the spring of 1986. Ignoring differences among demographic groups, the table shows the probability that a young person in a given enrollment category in the fall of 1980 would obtain a degree or attain a certain level by 1986. Fall 1980 activities for the high school class of 1980 are divided into the nine categories given above in Table 2.9. Another nine possible states of attainment or activity are defined for 1986. Where students attained more than one of the indicated states—for example, a vocational certificate and a two- or three-year degree—the state to the left was used for classification. From the perspective of those interested in college attainment, the first four of these states are especially important—the three groups of bachelor's recipients and those who are enrolled full-time in four-year institutions, who have a high average likelihood of completing degrees as well.

In terms of obtaining bachelor's degrees, the table shows two things: relatively high completion rates for those who enroll in four-year institutions right after high school and relatively low rates for those who do not. The table indicates, for example, that a student who was enrolled full-time in a four-year public institution in the fall of 1980 had a 0.48 probability of having earned a degree from such an institution by 1986 and a 0.01 and a 0.03 chance of obtaining a degree from a highly selective or other private four-year institution, respectively—in other words, a slightly better than even chance (0.52) of obtaining a bachelor's degree within five and a half years. The chances were higher (0.71 and 0.61, respectively) for those who enrolled initially in highly selective or other private institutions, suggesting the existence of demographic differences in completion rates. Far below those completion rates were the ones for students who initially enrolled in college as part-time students (0.18) or as full-time students in two-year institutions (0.21), though in both these cases a significant share of students were enrolled full-time in four-year institutions in 1986, suggesting that eventual completion rates would be higher.

One thing that the table makes clear is the importance of being enrolled in some college program immediately after high school. For the students who were not, very few had obtained bachelor's degrees by 1986. In particular,

Table 2.17 **Educational Attainment Six Years after High School: Transition Probabilities from Fall 1980 States to Spring 1986 States (entries show the probability a person in 1980 state will attain given 1986 state)**

	1986 Attainment Status								
1980 Enrollment Status	Graduate, Selective 4-Year	Graduate, Other Public 4-Year	Graduate, Other Private 4-Year	Enrolled, 4-Year, Full-Time	2- or 3-Year Degree	Vocational Certificate	Some Post-secondary	High School Only	Not High School Graduate
Enrolled in two-year, full-time	0	.18	.03	.07	.20	.09	.43	0	0
Enrolled in four-year public, full-time	.01	.48	.03	.06	.07	.04	.33	0	0
Enrolled in four-year private, full-time	.01	.12	.48	.04	.06	.04	.26	0	0
Enrolled in four-year selective, full-time	.63	.02	.06	.05	.01	.03	.21	0	0
Enrolled in vocational program	0	.01	0	.03	.19	.28	.48	0	0
Enrolled in four- or two-year, part-time	.01	.12	.05	.05	.12	.12	.52	0	0
Military	0	.01	0	.02	.04	.27	.26	.40	0
High School graduate, not enrolled	0	.05	.02	.03	.05	.12	.29	.44	0
Not high school graduate	0	0	0	0	.03	.07	.19	.30	.41

Source: Calculations based on High School and Beyond.

Table 2.18 **Conditional Probabilities of Receiving a Bachelor's Degree by Spring 1986, High School Class of 1980, by Fall 1980 Enrollment Status and Population Group**

	Fall 1980 Enrollment (full-time)			
		Four-Year Institutions		
	Two-Year College	Public	Private	Selective
All	.20	.51	.61	.71
Male	.26	.53	.56	.68
Female	.16	.49	.66	.74
White	.22	.54	.65	.72
Black	.08	.32	.37	.45
Upper SES	.27	.57	.65	.74
Lower SES	.12	.39	.51	.55

Source: Calculations based on High School and Beyond.

neither the military nor vocational schools offered promising paths to a college degree, at least within the five-and-a-half-year period covered by the survey, although they did often lead to vocational certificates. In fairness, military service necessarily entails some delay in completing postsecondary education, but remarkably few of those who began in the military had finished even a two-year degree program by 1986. Entry into a handful of selective institutions was even more restrictive: virtually the only route to a degree from one of these colleges was through immediate enrollment in one.

As might be guessed from the data discussed earlier in this section, transition probabilities such as these differ by race and economic status. These differences tend to compound the differences that exist in enrollment rates to produce attainment patterns that are strongly correlated to these demographic variables. Table 2.18 examines differences in several key transition probabilities, those indicating the chance of obtaining a degree from some four-year institution by 1986 for those students who were enrolled full-time in college in 1980. Those enrolled in two-year institutions in 1980, for example, had a 20 percent probability of obtaining a bachelor's degree by 1980, which corresponds, rounding aside, to the sum of the first three columns of Table 2.17. As Table 2.18 makes clear, there are large differences in probabilities between whites and blacks as well as between students in the upper two quartiles of socioeconomic status and those in the lower two. No matter which type of college is considered, black students and those from lower socioeconomic backgrounds have lower probabilities than others of obtaining a bachelor's degree within five and a half years of initial enrollment.[25] The factors asso-

25. Anderson (1984, 14) found that, among blacks alone, those in predominantly black institutions had higher completion rates than those who were not. This difference became insignificant,

Table 2.19 **Educational Attainment in 1986, High School Class of 1980, by Demographic Group (percentage of each race/ethnic/socioeconomic status group that had graduated or were enrolled)**

Racial/Ethnic Group and SES Quartile	Graduates of 4-Year Institutions			Enrolled in 4-Year, Full-Time	Graduate of 2- or 3-Year Program
	Selective	Other Public	Other Private		
Hispanic:					
Lowest	0	4	1	2	8
Second	0	9	2	2	11
Third	2	7	2	4	5
Highest	1	17	6	13	6
Other:					
Lowest	0	12	3	4	14
Second	3	16	5	2	12
Third	6	19	3	9	10
Highest	9	28	6	12	10
Black:					
Lowest	0	8	2	3	6
Second	0	7	3	3	6
Third	0	13	6	6	8
Highest	3	20	8	4	6
White:					
Lowest	0	7	2	2	5
Second	0	10	4	4	10
Third	1	19	6	4	9
Highest	5	27	12	6	7

Source: Calculations based on High School and Beyond.

Note: SES refers to socioeconomic status, as defined in High School and Beyond.

ciated with college completion are further analyzed in Chapter 4 in the examination of the effects of various financial aid programs.

The resulting patterns of attainment are illustrated in Table 2.19, using the 1986 levels for 1980 high school graduates. Degree attainment in all three types of four-year institutions rises with socioeconomic status. Particularly striking is the near absence of low-socioeconomic-status students among the graduates of highly selective institutions. If these colleges in fact produce a sizable portion of the leaders in various sectors of the economy, it is clear that few young people from poor families are making their way into this elite. Differences by race are less pronounced once socioeconomic status is controlled for, though there is still a gap evident in degrees from public four-year institutions between Hispanic and black young people on the one side and other nonwhites and whites on the other.

however, when other factors were held constant, including the student's grade point average, whether the student lived on campus, and whether the student knew a faculty member who could write a letter of recommendation for him or her.

Table 2.20 **Selected Demographic Characteristics by Educational Attainment in 1986**

Educational Attainment in 1986	% of Those in Each Attainment Group Who Were Members of Selected Groups		
	Low-SES Black	Low-SES White	High-SES White
Graduate, selective four-year	0	0	68
Graduate, other public four-year	3	7	40
Graduate, other private four-year	2	5	48
Enrolled, four-year, full-time	4	7	34
Two- or three-year degree	4	9	19
Vocational certificate	6	15	15
Some postsecondary	7	14	21
High school only	6	27	6
Not high school graduate	9	32	0
Total	5	15	22

Source: Calculations based on High School and Beyond.

Note: SES refers to socioeconomic status quartile as defined in High School and Beyond.

Another way of looking at these resulting patterns of attainment is to observe the composition of the cohort of graduates from each type of institution, as shown in Table 2.20. Among graduates of very selective colleges and universities, fewer than 1 percent were from the bottom quartile of socioeconomic status, black or white, while 69 percent were top-quartile whites. Other public and private four-year colleges had some low-socioeconomic-status representation among their graduates, but in both cases over 40 percent of their graduates were high-status whites. The pattern was much the same for those still enrolled full-time in four-year institutions. Comparing these percentages to the percentage of these three groups in the entire high school class of 1980, it is clear that high-status whites were greatly overrepresented among four-year college graduates and that the poor were underrepresented.

2.4 Summary

Growth and inequality have been two distinguishing characteristics of college enrollment in the United States. The total number of college students has grown almost without pause for the last century, and this growth has continued in the most recent decade despite a decline in the number of 18-year-olds in the population. Since 1950, this growth has been accompanied by increases in the proportion of women, part-time students, and older students. During these recent decades of growth, the institutional landscape of higher education has been transformed by the expansion of public colleges and universities, especially the two-year community colleges. The growth in college enrollment has been both result and cause of the steady advance in educational at-

tainment in the population. The percentage of those 25–29 who had finished four or more years of college increased from 6 in 1940 to 23 in 1988.

College enrollments are also marked by inequality—that is to say, inequality of composition rather than inequality of access, although remnants of the latter may exist as well. High school graduates face markedly different probabilities of attending college, depending on their aptitude and socioeconomic status. Among college choices, there are also important distinctions between highly selective undergraduate institutions, other four-year institution, and two-year colleges. The economic and racial composition of colleges in each of these classes often differs markedly, ranging from a handful of affluent and predominantly private institutions to the equally small number of historically black colleges and the vast collection of blue-collar community colleges. The overall growth in enrollments noted above has in effect utilized and created the division of labor evident in these institutional differences: the public institutions, especially the two-year colleges, have opened college to those of modest means. Initial enrollment does not guarantee completion, however, and there is evidence that completion rates also differ by race and socioeconomic status, even controlling for the type of institution. Still, whatever differences in enrollment and completion exist, they appear to be considerably smaller than those that would have been observed in the first half of the century, before the enormous growth in total enrollments.