

# What's It Worth? Field of Training and Economic Status

*Household Economic Studies*

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As the economic rewards of education continue to increase, so too do the numbers of people in the United States with degrees and credentials.<sup>1</sup> With an increasing number of adults returning to school and young people making choices about education, it is valuable to know more about earnings and degrees. Education often entails important choices about field of study, alternative credentials, and the time to start and complete studies beyond high school. This report explores school completion and degrees, fields of training, occupations pursued, and earnings obtained. It also examines the education and earnings of people who obtain a General Educational Development (GED) certificate, the different educational results of women and men, and trends across generations in various aspects of schooling. The report uses data collected in the Survey of Income and Program Participation (SIPP) in August through November of 1996, representing the civilian noninstitutional population of the United States.

<sup>1</sup>See Robert D. Mare, "Changes in Educational Attainment and School Enrollment," in *State of the Union: America in the 1990s*, Volume 1: Economic Trends, Reynolds Farley, ed., New York: Russell Sage Foundation, 1995, pp. 155-214.

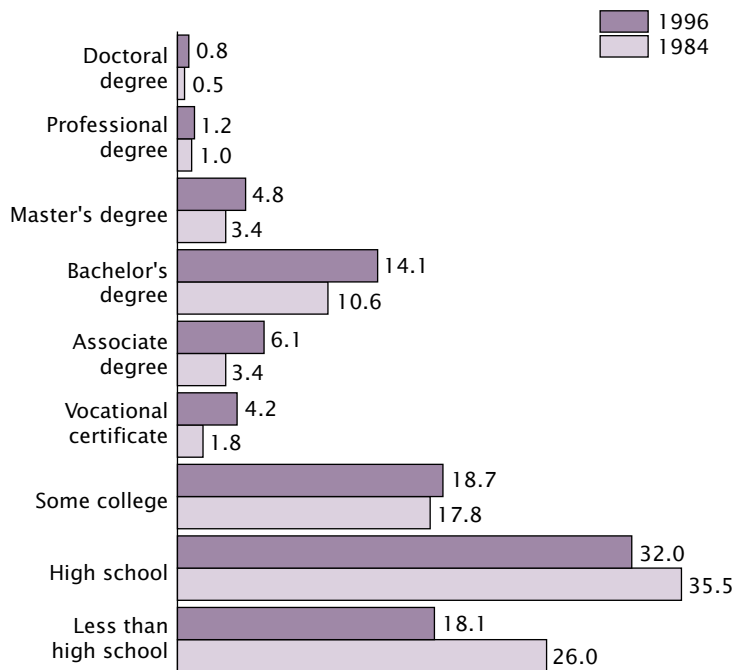
## Degrees Held by Adults in the United States

In 1996, more people in the United States held postsecondary education credentials than ever before.<sup>2</sup> Thirty-one percent of the adult population (18 and over) had

<sup>2</sup>The 31.2 percent of people over 18 with postsecondary degrees in the 1996 SIPP data is significantly greater than the percentages in earlier SIPP surveys dating back to 1984. The percentage of people with postsecondary credentials did not exceed 25 percent before 1984, according to estimates which can be calculated from the report *Educational Attainment in the United States: March 1999*.

Figure 1.  
**Educational Attainment Levels of the Adult Population in 1984 and 1996**

(Percent of population age 18 and over)



Source: U.S. Census Bureau. *What's It Worth? Educational Background and Economic Status: Spring 1984*, P70-11; Survey of Income and Program Participation, 1996 Panel.

## Current Population Reports

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Table A.

**Detailed Fields of Postsecondary Degrees of the Adult Population: 1996**

(Population age 15 and over with vocational certificate or higher degree. Numbers in thousands)

Field of degree	Highest degree level			
	Vocational certificates	Associate degrees	Bachelor's degrees	Advanced degrees <sup>1</sup>
<b>Total</b> .....	<b>7,908</b>	<b>11,758</b>	<b>40,539</b>	<b>13,164</b>
Agriculture/forestry/horticulture .....	(B)	(B)	564	(B)
Art/architecture.....	(X)	(X)	1,155	204
Auto mechanics.....	342	(X)	(X)	(X)
Business/management.....	1,564	2,760	7,499	1,927
Communications.....	(X)	271	951	(B)
Computer and information science.....	337	621	843	227
Construction trades.....	266	(X)	(X)	(X)
Cosmetology.....	762	(X)	(X)	(X)
Education.....	(X)	421	6,150	2,945
Electronics.....	472	(X)	(X)	(X)
Engineering/drafting.....	(B)	624	3,256	809
English/literature.....	(X)	(X)	1,399	375
Foreign languages.....	(X)	(X)	383	(B)
Health care/health sciences.....	1,544	1,785	2,144	(X)
Law.....	(X)	(X)	(X)	1,126
Liberal arts/humanities.....	(X)	1,021	2,715	272
Mathematics/statistics.....	(X)	(X)	834	265
Medicine/dentistry.....	(X)	(X)	(X)	996
Natural sciences.....	(X)	246	2,579	490
Nursing/pharmacy/public health.....	(X)	(X)	(X)	424
Philosophy/religion/theology.....	(X)	(X)	507	366
Police and protective services.....	(B)	280	(X)	(X)
Preprofessional.....	(X)	(X)	526	(X)
Psychology.....	(X)	(X)	1,564	461
Social sciences/history.....	(X)	203	2,224	431
Other vocational.....	749	1,407	(X)	(X)
Other.....	1,872	2,119	5,246	1,846

(B) Fewer than 200,000 people. (X) Category not in questionnaire for given education level.

<sup>1</sup>Advanced degrees include master's, professional, and doctoral degrees.

Source: U.S. Census Bureau. Survey of Income and Program Participation, 1996 Panel.

degrees or certificates above the high school level in 1996, up from 21 percent in 1984, the first year covered by a report from this series (see Figure 1). Bachelor's degrees, associate degrees, and vocational certificates accounted for most of the increase. People with bachelor's degrees accounted for 3 percent more of the adult population in 1996 than in 1984, while associate degree holders increased their share by 2 percentage points. The 2 percentage-point increase in people with vocational certificates was even more dramatic, given that they

represented only 2 percent of the adult population in 1984.<sup>3</sup>

Advanced degree holders accounted for a smaller part of the increase in people with postsecondary credentials. The 1996 tally showed a 1 percentage point increase in master's degree holders, and less than 1 percentage point increases in the share of adults with professional degrees and doctoral degrees.

<sup>3</sup>The growth in the percentage with associate degrees and the growth in percentage with vocational certificates were not significantly different.

A greater portion with postsecondary degrees means a smaller one with a high school education or less. From 1984 to 1996, the percentage of adults reporting a high school diploma as their highest education fell from 35 percent to 32 percent. The percentage of adults with less than a high school diploma fell from 26 percent in 1984 to 18 percent in 1996.

**Fields of Training**

Business was a popular field of training at all levels beyond high school (see Table A). This major was the

Table B.  
**Detailed Fields of Bachelor's Degrees of People Who Went on to Get Advanced Degrees: 1996**

(Population age 15 and over with bachelor's or higher degree. Numbers in thousands)

Field of bachelor's degree	Advanced degree recipients <sup>1</sup>					
	Number	Percent of all BAs	Advanced degree field			
			Same field	Law	Medicine	Other
<b>Total.....</b>	<b>13,164</b>	<b>32.5</b>	<b>43.1</b>	<b>8.6</b>	<b>7.6</b>	<b>40.7</b>
Agriculture/forestry/horticulture .....	151	26.8	35.8	4.0	-	60.3
Art/architecture.....	242	20.9	55.0	2.5	4.1	38.4
Business/management .....	1,408	18.8	69.5	9.2	1.7	19.7
Communications .....	168	17.6	33.9	7.7	1.2	57.1
Computer and information science .....	157	18.6	62.4	2.5	1.9	33.1
Education .....	2,310	37.6	80.0	1.2	0.5	18.3
Engineering/drafting .....	1,154	35.4	61.6	6.5	2.3	29.5
English/literature .....	594	42.4	32.0	10.3	1.2	56.6
Foreign languages.....	175	45.6	32.6	8.0	-	59.4
Health care/health sciences .....	532	24.8	41.0	2.1	29.7	27.3
Liberal arts/humanities .....	956	35.2	16.5	19.9	6.3	57.3
Mathematics/statistics.....	362	43.5	49.2	3.9	1.9	45.0
Natural sciences .....	1,141	44.2	30.7	2.8	31.6	35.0
Philosophy/religion/theology .....	263	51.9	56.7	6.1	1.1	36.1
Preprofessional .....	379	72.1	(X)	34.7	48.9	16.3
Psychology .....	675	43.2	37.6	8.0	3.9	50.5
Social sciences/history .....	861	38.7	27.3	21.5	2.2	49.0
Other .....	1,637	31.2	(X)	9.7	5.7	84.7

- Represents zero or rounds to zero. (X) Does not apply.

<sup>1</sup>Advanced degrees include masters, professional, and doctoral degrees.

Source: U.S. Census Bureau. Survey of Income and Program Participation, 1996 Panel.

most popular choice of those with associate and bachelor's degrees and was one of the most common majors among those with vocational certificates and advanced degrees.<sup>4</sup> In 1996, 7.5 million people had bachelor's degrees in business, 2.8 million had associate degrees, and 1.9 million had MBAs or other advanced degrees in business. Other common fields of training for degree and certificate holders were education, engineering, and health care.

<sup>4</sup>Among those with vocational certificates, the two most popular majors were business and health. The number with business majors and the number with health care/health sciences majors were not significantly different. At the advanced level, business was the second most common major. Education majors were significantly more numerous than business majors, and the business majors significantly more numerous than those majoring in law.

By contrast, few people had degrees in computer science and computer-related subjects. This may be due, in part, to the fact that computer science degrees were relatively rare before 1975.<sup>5</sup>

Some fields of training provide skills used directly in the labor market; other fields are more likely to lead to higher degrees. This phenomenon is clearest among those with a bachelor's degree who reported their college major as "preprofessional" (such as

<sup>5</sup>In 1970, around 0.3 percent of bachelor's degrees awarded were in computer and information sciences, compared with 2.3 percent in 1998. See National Center for Education Statistics, *Digest of Education Statistics, 1999*, NCES 2000-031, by Thomas D. Snyder and Charlene M. Hoffman, Washington, DC, 2000, Table 255, p. 292.

premedicine or prelaw). The majority (72 percent) of them went on to earn an advanced degree (see Table B). At the opposite end of the spectrum were college graduates who majored in art/architecture, business, communications, or computer science: 20 percent of these people completed studies beyond the bachelor's degree. Between 25 percent and 50 percent of people with other fields of training completed advanced degrees.<sup>6</sup>

<sup>6</sup>Although art/architecture, business, communications and computer sciences are classified at 20 percent, and agriculture and health sciences are classified as 25 percent or higher, the only significant difference is between health care and business majors completing advanced degrees. All other differences between the proportion of these six majors completing advanced degrees were not significant.

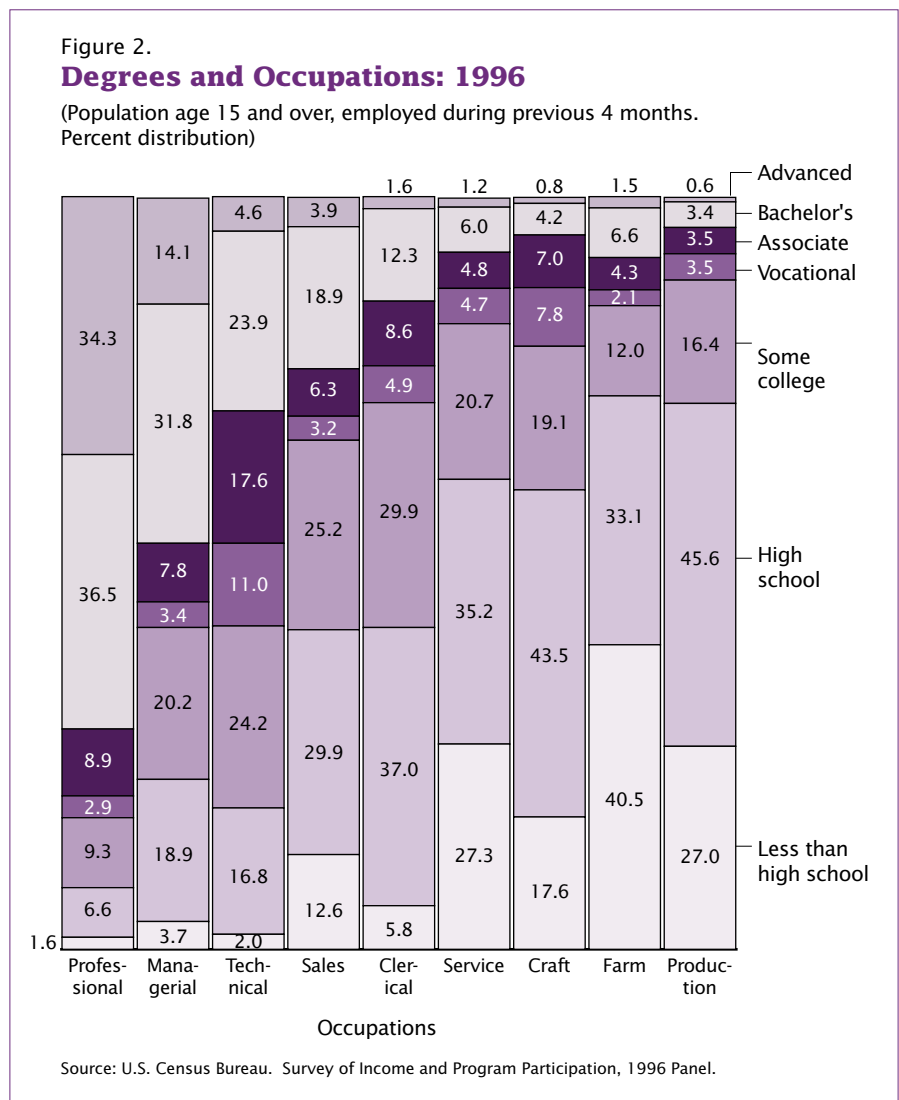
People who had preprofessional college majors and went on to earn advanced degrees usually received them in law or medicine (84 percent). Among people whose college major was education, 80 percent who obtained advanced degrees did so in the same field. Overall, however, the transition from undergraduate major to advanced degree field followed diverse pathways. People with college majors in agriculture, communications, English, foreign language, health care, liberal arts, natural sciences, psychology, and social sciences obtained advanced degrees in the same or related fields less than half the time.<sup>7</sup>

### Occupations

One reason that people pursue higher education is to gain access to professional and managerial occupations. Of the people with managerial jobs, 46 percent had bachelor's or higher degrees. Of people in professional occupations, 71 percent had this much education. By comparison, no more than 8 percent of those in craft, service, farm, and production occupations had bachelor's or higher degrees (see Figure 2).

At nearly every level of education, there were certain fields of training strongly associated with professional and managerial occupations. Business majors were more likely than others at the same education level to have managerial occupations — even among those with vocational certificates and associate degrees (see Table C). People who

<sup>7</sup>Note that the percentage of college graduates earning advanced degrees in the same field depends in part on how narrowly the field is defined. If respondents were asked to pick from a different list of fields, a somewhat different rate of continuation might be apparent.



majored in other subjects, by contrast, were increasingly likely to be found in professional occupations as their education level increased.<sup>8</sup> At the associate degree level or higher, a person with a degree in engineering, arts, sciences, or education, was more likely to have a professional than a management occupation.

<sup>8</sup>The difference in percentage with professional occupations was not significant for people who received vocational certificates in vocational subjects compared with people who received associate degrees in these subjects. In addition, note that even among business majors, increase in education to the bachelor's and advanced degree levels was accompanied by a larger portion in professional occupations. However, even at the advanced level, only 20 percent of business degree holders had professional occupations, compared to 55 percent or more of other degree holders.

### Earnings

In 1996, the monthly earnings of full-time workers with professional degrees were approximately \$7,000 (see Table D). By contrast, full-time workers who did not complete high school earned less than \$2,000 per month, on average. Other degree levels ranged in between.

Even small amounts of postsecondary education were associated with higher earnings. People who had "some college but no degree" studied one year past high school or

Table C.

**Occupation by Degree Level and Field of Training: 1996**

(Employed population age 15 and over. Numbers in thousands)

Degree and field of degree	Occupation									
	All	Profes- sional	Manage- rial	Techni- cal	Sales	Clerical	Service	Craft	Farm	Produc- tion
<b>Total</b>										
Number .....	111,659	17,931	14,617	3,339	12,322	14,191	16,271	11,777	3,865	17,346
Percent .....	100.0	16.1	13.1	3.0	11.0	12.7	14.6	10.5	3.5	15.5
<b>Advanced Degree</b>										
Number .....	11,084	6,772	2,593	201	636	328	249	117	66	122
Percent .....	100.0	61.1	23.4	1.8	5.7	3.0	2.2	1.1	0.6	1.1
Business .....	100.0	20.0	56.0	1.8	15.0	2.7	2.1	1.4	0.6	0.5
Engineer/computer .....	100.0	61.9	23.5	3.5	4.1	1.3	1.2	2.6	0.2	1.9
Arts, sciences .....	100.0	74.4	12.2	2.1	3.6	3.0	2.3	0.5	0.5	1.5
Education .....	100.0	68.7	19.3	1.2	3.0	3.3	2.1	0.4	1.2	0.8
Other fields .....	100.0	59.5	23.0	0.8	6.4	3.9	3.3	2.2	0.3	0.5
<b>Bachelor's Degree</b>										
Number .....	22,527	7,209	5,830	1,052	3,119	2,479	1,233	611	288	706
Percent .....	100.0	32.0	25.9	4.7	13.8	11.0	5.5	2.7	1.3	3.1
Business .....	100.0	11.0	42.0	2.4	21.6	12.9	3.9	2.8	0.6	2.7
Engineer/computer .....	100.0	45.9	23.0	9.4	8.0	4.2	2.1	4.6	0.5	2.4
Arts, sciences .....	100.0	38.0	19.0	6.2	11.7	11.3	6.3	2.0	2.1	3.4
Education .....	100.0	52.1	11.6	0.7	9.2	13.1	6.1	2.2	1.3	3.7
Other fields .....	100.0	26.8	27.5	4.6	13.6	10.8	9.0	3.1	1.2	3.3
<b>Associate Degree</b>										
Number .....	9,668	1,765	1,422	775	1,038	1,742	994	1,022	187	723
Percent .....	100.0	18.3	14.7	8.0	10.7	18.0	10.3	10.6	1.9	7.5
Business .....	100.0	5.5	24.9	2.9	16.1	31.1	7.5	5.6	1.4	5.0
Engineer/computer .....	100.0	19.1	12.7	12.2	9.4	13.3	6.4	16.3	2.5	8.2
Arts, sciences .....	100.0	30.7	11.1	11.6	8.0	14.4	11.3	4.5	2.6	5.7
Education .....	100.0	28.1	11.7	3.2	16.1	21.1	13.6	2.8	1.6	1.9
Vocational .....	100.0	9.5	10.4	7.0	7.0	7.2	12.3	30.6	1.8	14.3
Other fields .....	100.0	17.1	11.8	7.4	10.8	16.5	12.8	12.1	1.3	10.1
<b>Vocational Certificate</b>										
Number .....	6,104	566	627	484	522	986	971	1,129	91	728
Percent .....	100.0	9.3	10.3	7.9	8.6	16.2	15.9	18.5	1.5	11.9
Business .....	100.0	5.7	18.6	2.6	12.3	37.5	9.7	4.0	1.5	8.1
Drafting/computer .....	100.0	7.3	9.0	10.2	8.1	13.9	7.1	31.3	0.6	12.4
Vocational .....	100.0	11.2	7.1	10.5	7.0	10.2	20.2	19.9	1.6	12.3
Other fields .....	100.0	8.8	11.8	5.1	9.3	14.9	16.2	18.7	1.6	13.7
<b>Some College</b>										
Number .....	27,782	1,829	3,709	1,067	4,152	6,041	4,257	2,787	529	3,411
Percent .....	100.0	6.6	13.4	3.8	14.9	21.7	15.3	10.0	1.9	12.3
<b>High School</b>										
Number .....	42,410	1,305	3,467	739	4,930	7,481	7,227	6,340	1,453	9,468
Percent .....	100.0	3.1	8.2	1.7	11.6	17.6	17.0	14.9	3.4	22.3
<b>Less than High School</b>										
Number .....	19,866	314	678	88	2,077	1,175	5,597	2,558	1,780	5,599
Percent .....	100.0	1.6	3.4	0.4	10.5	5.9	28.2	12.9	9.0	28.2

Source: U.S. Census Bureau. Survey of Income and Program Participation, 1996 Panel.

Table D.  
**Monthly Earnings by Degree Level: 1996**

(Population age 18 and over with earnings, employed full-time for previous 4 months. Earnings in dollars)

Earnings category, characteristic, and field	Highest degree level								
	Less than high school	High school diploma	Some college	Vocational	Associate	Bachelor's	Master's	Professional	Doctorate
<b>Measures of Earnings</b>									
Average .....	1,699	2,279	2,614	2,491	2,841	3,767	4,635	7,224	6,047
25th percentile .....	1,000	1,295	1,471	1,488	1,722	2,044	2,719	3,029	3,166
Median .....	1,400	1,894	2,146	2,125	2,478	3,000	3,850	5,230	4,860
75th percentile .....	2,044	2,700	3,136	3,060	3,420	4,388	5,355	8,333	6,600
<b>Average Earnings by Race and Ethnicity</b>									
White .....	1,733	2,340	2,709	2,524	2,862	3,864	4,715	7,410	6,465
Non-Hispanic .....	1,891	2,394	2,767	2,543	2,881	3,913	4,721	7,500	6,539
Black .....	1,542	1,904	2,151	2,045	2,634	3,185	3,611	(B)	(B)
Hispanic (of any race) .....	1,488	1,862	2,130	2,275	2,710	2,832	(B)	(B)	(B)
<b>Average Earnings by Age</b>									
18-29 .....	1,344	1,766	1,813	1,972	2,206	2,575	3,019	(B)	(B)
30-49 .....	1,773	2,356	2,832	2,568	2,993	4,052	4,749	7,435	6,040
50+ .....	1,829	2,620	3,023	2,780	2,907	4,189	4,840	7,749	6,262
<b>Average Earnings by Field of Training</b>									
Business .....	(X)	(X)	(X)	2,373	2,727	3,962	5,579	(B)	(B)
Computers .....	(X)	(X)	(X)	(B)	2,996	4,416	(B)	(B)	(B)
Engineering .....	(X)	(X)	(X)	3,046	3,208	4,680	5,513	(B)	(B)
Liberal arts .....	(X)	(X)	(X)	(B)	2,586	3,455	3,460	(B)	(B)
Social science, law .....	(X)	(X)	(X)	(B)	2,660	3,292	3,657	7,378	(B)
Science, medicine .....	(X)	(X)	(X)	2,412	2,783	3,645	4,427	8,481	7,397
Education .....	(X)	(X)	(X)	(B)	(B)	2,802	4,280	(B)	(B)
Vocational .....	(X)	(X)	(X)	2,429	3,197	(X)	(X)	(X)	(X)
Other .....	(X)	(X)	(X)	2,578	2,804	3,808	4,045	(B)	(B)

(B) Fewer than 200,000 people. (X) Category not in questionnaire for given degree level.

Source: U.S. Census Bureau. Survey of Income and Program Participation, 1996 Panel.

less, on average.<sup>9</sup> However, this level of additional education was enough to increase earnings by \$340 per month. High school completion paid off as well. Average earnings for people whose highest degree was a high school diploma were \$580 per month higher than

<sup>9</sup>The majority of people who say they have "some college but no degree" report that they have completed one year or less postsecondary schooling. See Robert Kominski and Paul M. Siegel, "Measuring Education in the Current Population Survey," *Monthly Labor Review*, September 1993, p. 35.

for those people who did not complete high school.

Blacks earned less than White non-Hispanics at almost every education level. In fact, even if Black education levels were equal to White non-Hispanic education levels, 77 percent of the earnings gap would still be there. Hispanic earnings were also lower than those of White non-Hispanics.<sup>10</sup> Making Hispanic education levels equal to White non-Hispanic levels would

<sup>10</sup>Hispanics may be of any race.

leave 59 percent of the earnings gap.<sup>11</sup>

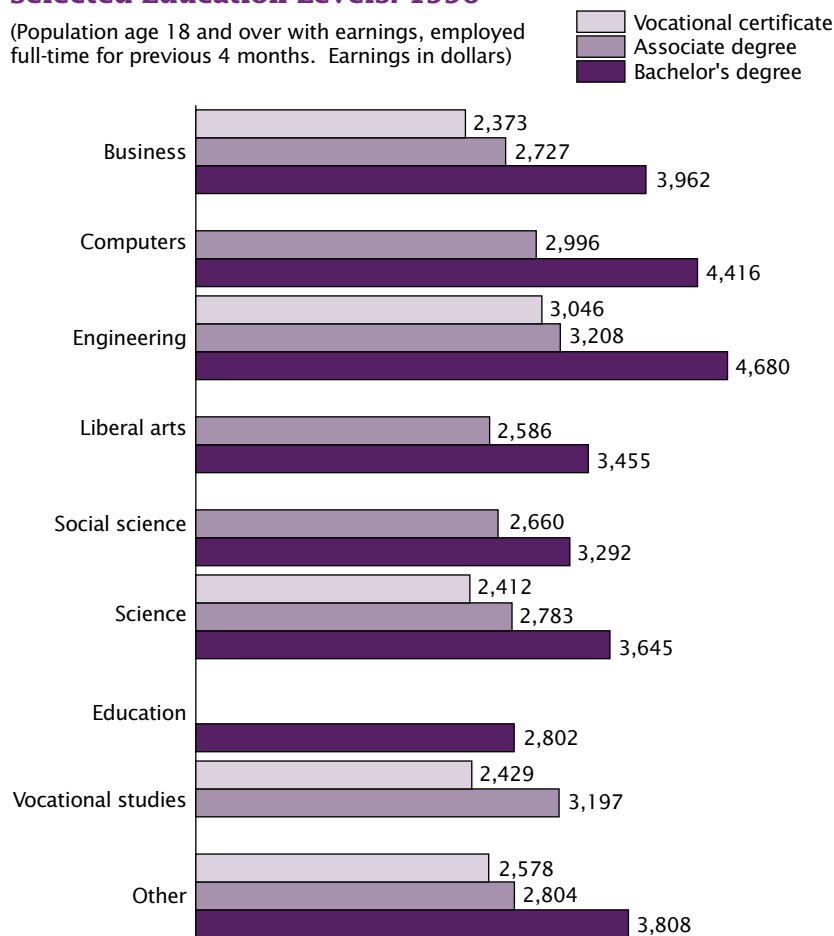
<sup>11</sup>The comparisons between race and ethnic group differences in earnings "even if they had the same education level" were based on standardization, using all levels of education (even those with a small number of cases). The high variance associated with higher education categories is offset by the small number of cases, keeping the overall variance small. In Table D, the difference in earnings between Blacks and White non-Hispanics at the associate level is not significant. The differences in earnings between Hispanics and White non-Hispanics at the vocational and associate levels are not significant. Comparisons at the professional and doctoral levels were not possible, due to the small number of cases. Earnings differences between Hispanics and Blacks were not significant at the educational levels that could be tested.



Figure 3.

### Monthly Earnings by Field of Training for Selected Education Levels: 1996

(Population age 18 and over with earnings, employed full-time for previous 4 months. Earnings in dollars)



Source: U.S. Census Bureau. Survey of Income and Program Participation, 1996 Panel.

People age 18-29 earned less than older people in all educational categories.<sup>12</sup> For those with some college but no degree, earnings were especially low under age 30. At that age, people with associate degrees earned more than those with some college but no degree. At age 50 and over, people with some college but no degree earned as much as those with associate degrees.

<sup>12</sup>There were two exceptions. Professional degree recipients and doctoral degree recipients could not be compared because of too few people 18-29.

Field of training sometimes had as dramatic an effect on earnings as did level of education. People who studied engineering-related subjects while earning vocational certificates had higher earnings than people with business or vocational majors.<sup>13</sup> People with bachelor's degrees in engineering earned 67 percent more than people with education degrees. Indeed, vocational and associate

<sup>13</sup>Some contrasts with the earnings of engineering/computer majors were larger (in dollar terms) than the contrasts with business and vocational majors. However, the differences were not significantly different from zero, due to small sample sizes.

holders who studied technical fields such as computers and engineering earned not much less than people who held bachelor's degrees in liberal arts, education, or the sciences. People with associate degrees in vocational fields had similarly high earnings (see Figure 3).

Substantial variation in earnings occurred at each level of education. One-quarter of all bachelor's degree recipients earned \$2,000 or less, which is less than the average of people with some college but no degree. The highest paid quarter of bachelor's degree recipients earned \$4,400 or more, approximately the average of people with master's degrees.

### Differences Between Women and Men

Women and men have distinctly different patterns in their degrees, fields of training, and earnings. To begin with, women earned less than men did at every degree level (see Table E). Women with high school or less education earned just under \$600 less per month than comparable men, and women with bachelor's degrees earned, on average, \$1,400 less per month than men. At the advanced degree level, the difference was approximately \$2,000 per month.

In addition to education, labor force experience varies greatly among women. As a consequence, one might expect that women's earnings would be more variable than men's earnings. In fact, the opposite was true: the difference between the 75th percentile and the 25th percentile of earnings was as great or greater for men than for women at every education level. This lack of earnings variation among women may be due, in part,

Table E.  
**Monthly Earnings by Degree Level and Sex: 1996**

(Population age 18 and over with earnings, employed full-time for previous 4 months. Earnings in dollars)

Sex and earnings category	Highest degree level					
	High school or less	Some college	Vocational	Associate	Bachelor's	Advanced <sup>1</sup>
<b>MEN</b>						
<b>Measures of Earnings</b>						
Average .....	2,355	2,947	2,861	3,165	4,325	5,987
25th percentile .....	1,357	1,697	1,838	2,000	2,375	3,172
Median .....	2,000	2,475	2,558	2,751	3,461	4,677
75th percentile .....	2,872	3,573	3,578	3,700	5,000	6,823
<b>WOMEN</b>						
<b>Measures of Earnings</b>						
Average .....	1,780	2,146	2,039	2,439	2,944	4,008
25th percentile .....	1,040	1,273	1,257	1,550	1,808	2,475
Median .....	1,460	1,800	1,771	2,180	2,510	3,444
75th percentile .....	2,025	2,522	2,430	3,000	3,484	4,725

<sup>1</sup>Advanced degrees include master's, professional, and doctoral degrees.

Source: U.S. Census Bureau. Survey of Income and Program Participation, 1996 Panel.

Table F.  
**Monthly Earnings by Degree Level, Sex, and Field of Training: 1996**

(Population age 18 and over with earnings, employed full-time for previous 4 months. Earnings in dollars)

Sex and field	Highest degree level			
	Vocational	Associate	Bachelor's	Advanced <sup>1</sup>
<b>MEN</b>				
<b>Average Earnings by Field of Training</b>				
Business .....	(B)	3,201	4,403	5,845
Computers .....	(B)	3,361	4,859	(B)
Engineering .....	3,072	3,312	4,862	5,662
Liberal arts .....	(X)	2,732	4,035	3,639
Social science, law .....	(B)	(B)	4,124	6,680
Science, medicine .....	(B)	2,839	4,382	7,745
Education .....	(B)	(B)	3,265	5,931
Vocational .....	2,670	3,434	(X)	(X)
Other .....	2,980	3,128	3,994	4,932
<b>WOMEN</b>				
<b>Average Earnings by Field of Training</b>				
Business .....	2,086	2,323	3,092	4,445
Computers .....	(B)	(B)	(B)	(B)
Engineering .....	(B)	(B)	(B)	(B)
Liberal arts .....	(X)	2,440	2,836	3,368
Social science, law .....	(B)	(B)	2,416	5,042
Science, medicine .....	2,249	2,757	2,887	4,777
Education .....	(B)	(B)	2,627	3,386
Vocational .....	(B)	(B)	(X)	(X)
Other .....	1,936	2,381	3,511	3,349

(B) Fewer than 200,000 people. (X) Category not in questionnaire for given degree level.

<sup>1</sup>Advanced degrees include master's, professional, and doctoral degrees.

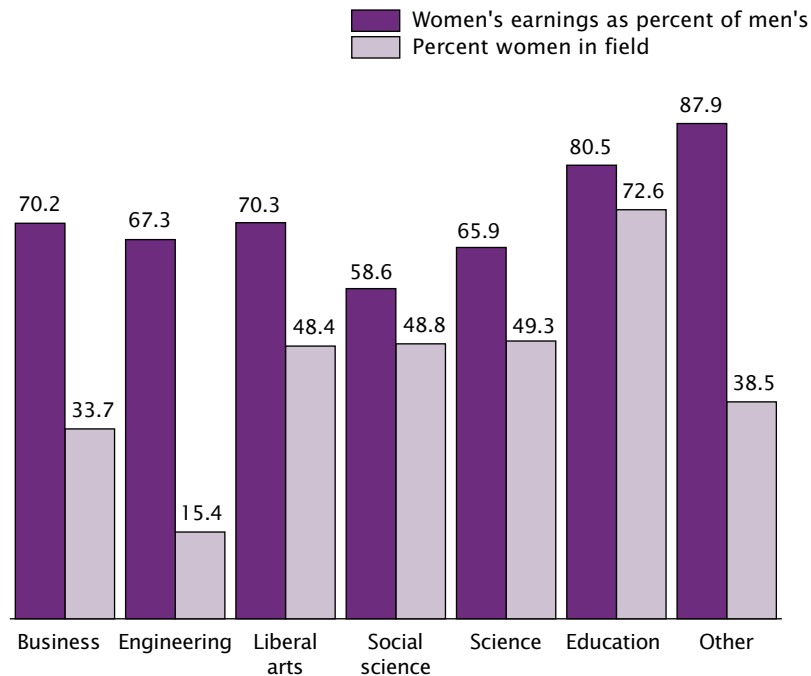
Source: U.S. Census Bureau. Survey of Income and Program Participation, 1996 Panel.



Figure 4.

### Relative Earnings and Proportion of Bachelor's Degree Holders Who Are Women by Field of Training: 1996

(Based on women and men whose highest degree is bachelor's degree, age 18 and over, with earnings, employed full-time for previous 4 months)



Source: U.S. Census Bureau. Survey of Income and Program Participation, 1996 Panel.

to a lack of earnings increase with age.<sup>14</sup>

Women earned less than men in most fields of training where comparisons could be made (see Table F).<sup>15</sup> Yet, differences varied by field and degree level. For example, in natural science and medicine, no earnings differences were apparent for associate degree recipients, but men with bachelor's and advanced degrees earned far more than

women. At the advanced degree level, the \$3,000 earnings advantage favoring men in natural science and medicine was greater than the advantage in the liberal arts (\$300, not significantly different from zero). In other fields, different degree levels produced approximately the same result. Women earned between 70 to 76 percent of what men earned at the associate, bachelor's, and advanced degree levels in business.

At the bachelor's level, men were more likely to enroll in higher earning fields such as business and engineering, while the most common field of training for women was education (see Figure 4). The fact that men pursued fields with higher earnings is part of the

reason that men's earnings were higher overall. However, if women with bachelor's degrees had pursued fields of training in the same proportion as men with bachelor's degrees, the earnings gap at the bachelor's degree level would be \$1,250 rather than \$1,380 — smaller by only 9.5 percent.

### High School Equivalency

People can complete their high school education in a variety of ways. The General Educational Development test (GED) was developed around the time of World War II as a new pathway to high school completion, in part for the benefit of veterans who had interrupted their schooling to fight in the war. The GED tests provide a "second chance" for many adults to gain a high school credential. To pass the tests, individuals must achieve scores equivalent to those attained by the top 70 percent of graduating high school seniors. Passing the GED test is considered by most states and many federal programs as formally equivalent to high school graduation. In recent years, approximately 700,000 people have taken the GED exam each year, with the majority passing and receiving certification.<sup>16</sup>

In 1996, 15.6 million adults reported they had received their high school certification by means of a GED exam. As shown in Table G, GED recipients were much less likely to go on to higher education than those who earned a regular diploma. For most GED recipients, high school certification represented the highest level of school

<sup>14</sup>This lack of increase of earnings with age may reflect several factors. Many older women have less work experience than similarly aged men. Also, occupations traditionally chosen by women tend to have flatter age-earnings profiles.

<sup>15</sup>Only 17 of 33 possible (field by degree level) comparisons between men and women could be made because of sample size restrictions. Of these, 10 showed significantly higher earnings for men. No field showed higher earnings for women.

<sup>16</sup>For a description of GED history and trends, and a general evaluation of the GED program see: David Boesel, Nabeel Alsalam and Thomas M. Smith, *Educational and Labor Market Performance of GED Recipients*, National Library of Education, U.S. Department of Education, February 1998.

Table G.

### Pathways to High School Completion, Characteristics of GED and High School Diploma Holders: 1996

(Population age 18 and over. Earnings are for population age 18 and over with earnings, employed full-time for previous 4 months. Numbers in thousands, earnings in dollars)

Characteristic	GED holders			Diploma holders		
	Number	Percent	Monthly earnings	Number	Percent	Monthly earnings
<b>Total</b> .....	<b>15,648</b>	<b>100.0</b>	<b>2,451</b>	<b>143,070</b>	<b>100.0</b>	<b>3,061</b>
<b>Highest Degree Level</b>						
High school graduate .....	9,709	62.0	2,096	52,373	36.6	2,309
Some postsecondary education .....	4,663	29.8	2,366	51,430	35.9	2,679
Bachelor's degree or higher .....	1,276	8.2	4,877	39,267	27.4	4,251
<b>Sex</b>						
Men .....	8,225	52.6	2,757	67,881	47.4	3,476
Women .....	7,422	47.4	1,915	75,189	52.6	2,452
<b>Race and Ethnicity</b>						
White .....	12,915	82.5	2,500	122,125	85.4	3,154
Non-Hispanic .....	11,664	74.5	2,574	113,999	79.7	3,219
Black .....	2,025	12.9	1,990	14,784	10.3	2,366
Hispanic (of any race) .....	1,392	8.9	1,906	8,993	6.3	2,338
<b>Age</b>						
18-29 years .....	3,407	21.8	1,758	33,640	23.5	2,058
30-49 years .....	7,210	46.1	2,594	66,195	46.3	3,264
50 years or older .....	5,030	32.0	2,665	43,235	30.2	3,507

Source: U.S. Census Bureau. Survey of Income and Program Participation, 1996 Panel.

Table H.

### Timing of Start and Completion of Postsecondary Certification and Degrees: 1996

(Population age 15 and over)

Characteristic	Degree or certificate									
	Vocational		Associate		Bachelor's		Master's	Profes- sional	Doctorate	
	Years to start of program <sup>1</sup>	Years to complete program	Years to start of program	Years to complete program	Years to start of program	Years to complete program	Years to complete program	Years to complete program	Years to complete program	
<b>Total</b> .....	<b>3.5</b>	<b>2.6</b>	<b>3.0</b>	<b>4.6</b>	<b>0.9</b>	<b>5.6</b>	<b>7.0</b>	<b>5.5</b>	<b>9.7</b>	
<b>Sex</b>										
Men .....	3.4	2.9	3.0	4.4	0.8	5.5	6.2	5.5	9.2	
Women .....	3.6	2.5	3.0	4.7	0.9	5.8	7.8	5.7	10.7	
<b>Race and Ethnicity</b>										
White .....	3.4	2.7	2.9	4.5	0.8	5.6	7.0	5.5	9.8	
Non-Hispanic .....	3.5	2.7	2.9	4.6	0.8	5.6	7.0	5.6	9.9	
Black .....	4.1	2.7	3.4	5.3	1.5	6.1	7.7	(B)	(B)	
Hispanic (of any race) .....	3.2	2.4	3.0	4.1	1.4	5.4	(B)	(B)	(B)	

(B) Fewer than 200,000 people.

<sup>1</sup>Years to start of program measured from high school completion; completion measured from first enrollment in postsecondary education, or in the case of advanced degrees, from completion of bachelor's degree.

Source: U.S. Census Bureau. Survey of Income and Program Participation, 1996 Panel.

they completed. However, a minority (38 percent) completed at least some postsecondary education, and 8 percent earned a bachelor's degree or higher.

GED holders were slightly older than regular degree recipients (a greater portion were 50 or older and a smaller portion were 18 to 29). The GED exam has grown more popular in recent years, which would increase the relative number of young people who have used this means of completing a high school credential. However, in any given year, a large proportion of people receiving the GED are older than the typical age of high school completion.<sup>17</sup> This second factor seems to have offset the first, so that GED holders were older than regular high school degree recipients.

GED holders earned substantially less than people who graduated high school through traditional means. The earnings gap is evident across all sex, age, and race and ethnic groups examined here. Earnings differences by age were especially large: people 18 to 29 with a GED earned around \$300 per month less than people with a regular high school diploma. In the 30- to 49-year-old group, the difference was \$700. An important factor in these earnings differences was eventual education. Comparing GED holders and diploma holders who completed no further education beyond high school reveals a smaller earnings gap than the overall gap. Much, but not all, of the advantage of a high school diploma over a GED results from the higher ultimate education level attained.

<sup>17</sup>See GED Testing Service, *Who Took the GED? GED 1996 statistical report*, Washington, DC: American Council on Education, 1997.

## Time Spent Completing Degrees

On average, people who pursued higher degrees spent more than the minimum number of years to complete a degree or certificate. For example, people averaged more than 2 years to complete vocational programs, even though most are designed to take a year or less (see Table H). Similarly, associate degrees generally require a 2-year course of study, but people took an average of over 4 years to complete them. Bachelor's and higher degrees took an average of 5 or more years to complete. A major reason for this gap may be that people pursued their studies part-time or intermittently. Some people drop out of school only to start again a number of years later. Others take courses part-time while working.

People who completed bachelor's or higher degrees started their postsecondary education almost immediately after high school (an average delay of around 1 year). People earning associate degrees or vocational certificates started their postsecondary education a little later in life (an average delay of 3 to 3.5 years). Many students may have used these degrees to switch careers or to improve skills.

Men and women differ in the time to complete a degree, but the difference depends on the degree. At the master's level, women take more than a year longer, while they complete vocational certificates in about the same time.

Blacks take longer than White non-Hispanics to finish bachelor's degrees, but the time for Hispanics is not significantly different than for White non-Hispanics. The

difference between Blacks and Hispanics is significant.

## Age and Education Trends

Vast changes in education have taken place over the last 50 years, and this is reflected in the educational accomplishments of recent generations. A partial picture of these patterns can be seen in the educational history of people of different ages today.

In 1996, twice as many people age 25-34 had vocational certification, associate degrees, bachelor's, or higher degrees than those 65 and over (see Table I). Most of the 65 and over population came of age during the Great Depression or World War II. At that time, high school education was not nearly as common as it is today and college education was relatively rare.

The growth in educational attainment was especially evident among women. Among those age 45 and older, men formed a clear majority of those with bachelor's or higher degrees, whereas among those 25 to 34, more women than men held bachelor's degrees. An opposite trend is apparent in associate and vocational degrees. Among those over age 55, women were a clear majority of both groups. In the youngest age group, the proportion of women to men was much closer, although women were still a majority.

In the 25-34 age group, 30 percent of bachelor's degree holders had majored in business, compared with 15 percent of those in the 65 and over age group. The dramatic rise in bachelor's degrees in business was accompanied by a large decline in bachelor's degrees in education. At the associate and

Table I.  
**Educational Characteristics by Age: 1996**

(Population age 25 and over. Numbers in thousands)

Sex, field, and education timing	Less than high school, high school, or some college						Associate or vocational degree					
	Total	Age					Total	Age				
		25-34	35-44	45-54	55-64	65+		25-34	35-44	45-54	55-64	65+
<b>Total</b> .....	<b>111,942</b>	<b>21,177</b>	<b>26,326</b>	<b>19,696</b>	<b>15,224</b>	<b>25,519</b>	<b>18,547</b>	<b>5,161</b>	<b>5,815</b>	<b>3,748</b>	<b>1,748</b>	<b>2,075</b>
Percent of age group at this education level .....	66.2	62.2	60.7	60.8	72.4	80.2	11.0	12.7	13.4	11.6	8.3	6.5
<b>Sex</b>												
Men.....	46.9	51.0	50.2	46.6	46.0	40.5	42.3	44.1	45.0	43.0	40.2	30.7
Women.....	53.1	49.0	49.8	53.4	54.0	59.5	57.7	55.9	55.0	57.0	59.8	69.3
<b>Field of Training</b>												
Business .....	(X)	(X)	(X)	(X)	(X)	(X)	22.8	18.7	21.6	24.2	26.1	31.6
Engineer, computer .....	(X)	(X)	(X)	(X)	(X)	(X)	10.7	12.6	11.4	10.3	8.7	6.3
Liberal arts .....	(X)	(X)	(X)	(X)	(X)	(X)	5.7	6.3	5.7	5.4	4.3	6.1
Social Science, Law .....	(X)	(X)	(X)	(X)	(X)	(X)	2.6	3.3	2.7	2.3	2.6	1.3
Science, Medicine .....	(X)	(X)	(X)	(X)	(X)	(X)	19.1	18.1	19.2	19.3	21.7	18.3
Education.....	(X)	(X)	(X)	(X)	(X)	(X)	2.3	1.9	2.3	1.9	2.8	3.6
Vocational .....	(X)	(X)	(X)	(X)	(X)	(X)	17.8	19.3	19.0	16.6	15.1	14.8
Other .....	(X)	(X)	(X)	(X)	(X)	(X)	19.1	19.8	18.2	20.0	18.8	18.2
<b>Start of Postsecondary Education After High School</b>												
Same year.....	(X)	(X)	(X)	(X)	(X)	(X)	50.9	53.7	51.7	48.9	45.6	49.1
Next 2 years .....	(X)	(X)	(X)	(X)	(X)	(X)	19.1	23.6	18.2	14.3	16.9	21.1
More than 2.....	(X)	(X)	(X)	(X)	(X)	(X)	30.0	22.6	30.1	36.8	37.6	29.8
<b>Completion of Postsecondary Education</b>												
Within a year.....	(X)	(X)	(X)	(X)	(X)	(X)	9.2	10.2	7.6	7.6	10.6	12.6
In scheduled time <sup>1</sup> .....	(X)	(X)	(X)	(X)	(X)	(X)	46.9	49.7	47.7	45.9	41.2	44.0
Longer than <sup>1</sup> .....	(X)	(X)	(X)	(X)	(X)	(X)	44.0	40.1	44.7	46.5	48.3	43.4
Continuously enrolled .....	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)

See footnotes at end of table.

vocational levels, business degrees declined as a share of all degrees and certificates, with most of the offsetting growth in vocational, engineering, and computer-related credentials. This shift from business to engineering and computer-related degrees across cohorts occurred as the proportion of men among the younger holders of associate and vocational degrees was increasing.

Although it appears that younger cohorts started and completed their postsecondary schooling more quickly than older cohorts, appearances may be deceiving. More

concretely, it appears that among those whose highest degree was a bachelor's degree, 85 percent of the 25-34 age group started college the same year they completed high school, compared with 65 percent of the oldest age group. Once they started school, the youngest group of bachelor's degree holders also appeared more likely to finish within 5 years than were the members of the oldest group. However, many members of the youngest cohort have probably not completed their schooling — especially those who have delayed their postsecondary education or who are taking especially long to complete their degrees.

The longer delays in completing education among the oldest cohort may relate to wartime interruptions of schooling. Allowing for all these factors, there may be no overall trend in the time it takes to start and complete a degree among the cohorts observed here.

A note of caution: the educational patterns of age groups observed in 1996 were influenced by factors other than education choices in youth. For example, other sources show that men with low education are less likely to survive into their older years than are women with low education. Differences in

Table I.  
**Educational Characteristics by Age: 1996—Continued**

(Population age 25 and over. Numbers in thousands)

Sex, field, and education timing	Bachelor's degree						Advanced degree					
	Total	Age					Total	Age				
		25-34	35-44	45-54	55-64	65+		25-34	35-44	45-54	55-64	65+
<b>Total</b> .....	<b>25,600</b>	<b>8,033</b>	<b>7,490</b>	<b>5,127</b>	<b>2,379</b>	<b>2,571</b>	<b>13,053</b>	<b>2,136</b>	<b>3,745</b>	<b>3,847</b>	<b>1,686</b>	<b>1,639</b>
Percent of age group at this education level .....	15.1	19.8	17.3	15.8	11.3	8.1	7.7	5.3	8.6	11.9	8.0	5.2
<b>Sex</b>												
Men.....	49.9	46.6	48.5	54.2	54.5	51.7	57.4	54.4	53.3	58.7	61.3	63.9
Women.....	50.1	53.4	51.5	45.8	45.5	48.3	42.6	45.6	46.7	41.3	38.7	36.1
<b>Field of Training</b>												
<b>Business</b> .....	25.4	29.7	26.2	23.4	23.8	15.4	15.5	19.2	17.9	14.4	13.1	10.2
Engineer, computer.....	12.2	12.7	11.4	11.5	12.4	14.0	9.9	14.9	10.9	7.2	9.8	7.4
Liberal arts.....	14.2	13.6	13.6	14.1	14.9	17.3	9.2	7.5	7.6	10.0	11.2	11.3
Social science, law.....	8.4	8.8	8.5	9.5	5.9	7.2	15.4	18.1	15.2	16.1	12.5	13.5
Science, medicine.....	12.5	12.9	13.4	11.2	12.2	11.2	15.1	16.2	15.8	12.6	14.4	18.5
Education.....	14.2	8.7	12.5	18.8	18.9	22.9	22.4	12.5	18.2	26.8	27.3	29.2
Vocational.....	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
Other.....	13.1	13.6	14.4	11.6	11.8	12.0	12.6	11.7	14.3	12.8	11.7	9.9
<b>Start of Postsecondary Education After High School</b>												
Same year.....	<b>78.4</b>	<b>84.8</b>	<b>79.8</b>	<b>75.8</b>	<b>72.1</b>	<b>65.0</b>	<b>81.7</b>	<b>87.4</b>	<b>83.4</b>	<b>84.5</b>	<b>81.3</b>	<b>64.4</b>
Next 2 years.....	11.7	10.4	12.2	10.8	11.1	16.6	11.1	11.6	10.6	9.3	7.9	18.9
More than 2.....	9.9	4.8	7.9	13.3	16.7	18.4	7.2	1.0	6.0	6.2	10.8	16.7
<b>Completion of Postsecondary Education</b>												
Within a year.....	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
In scheduled time <sup>1</sup> .....	71.2	74.9	73.4	65.5	67.1	68.1	7.8	8.8	6.9	7.7	6.4	10.6
Longer than <sup>1</sup> .....	28.8	25.1	26.6	34.5	32.9	31.9	92.1	91.2	93.1	92.3	93.6	89.4
Continuously enrolled .....	73.3	79.9	73.3	67.1	69.9	68.5	80.4	90.8	81.7	78.8	77.3	71.1

(X) Does not apply.

<sup>1</sup>"In scheduled time" refers to those who completed associate degree training at least 1 year but no more than 3 years after entering postsecondary education or who completed bachelor's degree training no more than 5 years after entering postsecondary education. "Longer than" refers to those who did not complete their training within this time.

Source: U.S. Census Bureau. Survey of Income and Program Participation, 1996 Panel.

mortality would act to widen educational differences in favor of men at ages 65 and over. Also, some groups are more likely than others to return to school later in life to obtain higher degrees. These phenomena would dampen the apparent convergence in education of women (towards men) and Blacks (towards Whites), because these groups often extend their education to later years.

### Source of the Data

The estimates in this report come from the Survey of Income and Program Participation (SIPP). The SIPP is a longitudinal survey of people who are at least 15 years old conducted at 4-month intervals by the Census Bureau. Although the main focus of SIPP is information on labor force participation, jobs, income, and participation in federal assistance programs, information on other topics is also collected in topical modules on a rotating basis. Data shown in this report are

from the Education and Training History topical module collected in the second interview of the 1996 panel of the SIPP and covering the 4-month period from August to November 1996. The tabulations reported here refer to experiences in the previous 4 months from the time of interview. Because different households were interviewed at different times, the reference period was different, depending on when the questionnaire was administered.

The Education and Training History topical module included questions on degrees earned, the year in which they were received, and the major field of training. Questions about the type of high school attended, high school course work, and adult work training were not analyzed in this report. Degree status has been defined in this report to include mutually exclusive categories. Those without postsecondary degrees fall in three categories: people who have not completed high school, those completing high school only (high school diploma or equivalent, including GED), and people who have attended postsecondary school but did not receive a degree. Higher degree levels were determined by the highest degree received: diplomas or certificates from a vocational, technical, trade, or business school beyond the high school level; associate degrees; bachelor's degrees (for example: B.A., A.B., B.S.); master's degrees (for example: M.A., M.S., M.Eng., M.Ed., M.S.W., M.B.A.); professional degrees (for example: M.D., D.D.S., D.V.M., L.L.B., J.D.); and doctoral degrees (for example: Ph.D., Ed.D.). Individuals were asked to identify their highest degree, and their implicit ordering of degrees was not examined. Whether one degree actually represents more education than another degree is not at issue. While data may show the highest value on some scale (for example, income) for one degree, the same degree could result in less than the highest score on another scale (e.g., years to complete the degree).

Because the SIPP is a sample survey, there are not always enough sample cases to provide statistically reliable estimates of every field and degree combination. Cells show estimated earnings and other characteristics when they have an estimated base of at least 200,000 people.

Average monthly earnings is computed as the total of all earnings over the 4-month period divided by the number of months in which earnings were received. Earnings refers to wages and/or salary from one or more jobs (including self-employment). Average monthly earnings are calculated this way because some jobs are seasonal, may not pay on a regular monthly basis, or because people may have only recently begun or ended a job.

### **Accuracy and Reliability of the Data**

Statistics from sample surveys are subject to sampling and nonsampling error. All comparisons presented in this report have taken sampling error into account and meet the U.S. Census Bureau's standards for statistical significance. Nonsampling errors in surveys may be attributed to a variety of sources, such as how the survey was designed, how respondents interpret questions, how able and willing respondents are to provide correct answers, and how accurately answers are coded and classified. The Census Bureau employs quality control procedures throughout the production process — including the overall design of

surveys, testing the wording of questions, review of the work of interviewers and coders, and statistical review of reports.

The SIPP employs ratio estimation, whereby sample estimates are adjusted to independent estimates of the national population by age, race, sex, and Hispanic origin. This weighting partially corrects for bias due to undercoverage, but how it affects different variables in the survey is not precisely known. Moreover, biases may also be present when people who are missed in the survey differ from those interviewed in ways other than the categories used in weighting (age, race, sex, and Hispanic origin). All of these considerations affect comparisons across different surveys or data sources.

For further information on statistical standards and the computation and use of standard errors, contact Mark Gorsak, Demographic Statistical Methods Division, at 301-457-4228 or on the Internet at [Mark.Gorsak@census.gov](mailto:Mark.Gorsak@census.gov).

### **More Information**

A detailed set of tables has been prepared showing income, earnings, occupation, and time to degree, by highest degree, field of training, and various social and demographic characteristics. This table package is available on paper for \$26.00 (PPL-141) from the Population Division's Statistical Information Office (301-457-2422). The table package is also available on the Internet ([www.census.gov](http://www.census.gov));

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in the “Subjects A-Z” area, click on “E” for “Education Data” and then on “Field of Training.” Alternatively, go directly to the site: [www.census.gov/population/www/socdemo/fld-of-trn.html](http://www.census.gov/population/www/socdemo/fld-of-trn.html). See also the SIPP Web site: [www.sipp.census.gov/sipp](http://www.sipp.census.gov/sipp).

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### **User Comments**

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