

Trends in Higher Education Series

Education Pays 2019

THE BENEFITS OF HIGHER EDUCATION FOR INDIVIDUALS AND SOCIETY

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Trends in Higher Education Series

Education Pays **2019**

THE BENEFITS OF HIGHER EDUCATION FOR INDIVIDUALS AND SOCIETY

Jennifer Ma, Matea Pender, and Meredith Welch

With an Introduction by Jessica Howell

Highlights

As in previous editions, *Education Pays 2019: The Benefits of Higher Education for Individuals and Society* documents differences in the earnings and employment patterns of U.S. adults with different levels of education. It also compares health-related behaviors, reliance on public assistance programs, civic participation, and indicators of the well-being of the next generation.

In addition to reporting median earnings by education level, this year's report presents data on variation in earnings by different characteristics such as gender, race/ethnicity, occupation, college major, and sector. *Education Pays 2019* also examines the persistent disparities across different socioeconomic groups in college participation and completion.

We present correlations between various outcomes and educational attainment. It is worth noting that not all of the observed differences in outcomes are attributable to education. However, reliable statistical analyses support the significant role of postsecondary education in generating the benefits reported and we cite causal evidence when possible.

PARTICIPATION AND SUCCESS IN HIGHER EDUCATION

Although college enrollment rates continue to rise, gaps in enrollment rates persist across demographic groups.

- In 1998, 59% of black and 55% of Hispanic recent high school graduates enrolled in college within one year of high school graduation, compared with 68% of white students. In 2018, enrollment rates were 60%, 66%, and 70% for black, Hispanic, and white students, respectively. (Figure 1.1A)
- Since 1989, the enrollment rate for recent female high school graduates has consistently exceeded that of their male counterparts. Annual enrollment rates fluctuate, but the average gender gap increased from 4 percentage points between 1988 and 1998 to 5 percentage points the following decade and 7 percentage points between 2008 and 2018. (Figure 1.2A)
- Among students with similar high school math test scores, college enrollment rates are higher for those from higher socioeconomic status (SES) quintiles than for those from lower SES quintiles. (Figure 1.3A)

While overall educational attainment is increasing, college completion rates and attainment patterns differ considerably across demographic groups.

- The percentage of young adults in the U.S. between the ages of 25 and 34 with at least a bachelor's degree grew from 11% in 1960 to 24% in 1980 and 1990. In 2018, 39% of adults in this age group had earned at least a bachelor's degree. (Figure 1.5A)
- In 1998, the percentage of female adults age 25 to 29 who had completed at least a bachelor's degree was 17%, 11%, and 34% for blacks, Hispanics, and whites, respectively. By 2018, these percentages had increased to 25%, 22%, and 47%. (Figure 1.6)

- In 1998, the percentage of male adults age 25 to 29 who had completed at least a bachelor's degree was 13%, 10%, and 31% for blacks, Hispanics, and whites, respectively. By 2018, these percentages had increased to 20%, 17%, and 39%. (Figure 1.6)
- Within each sector, students with higher family incomes were more likely to complete a degree than their lower-income peers with similar high school GPAs. (Figure 1.4)

Participation in postsecondary education differs considerably across states.

- The percentage of 18- to 24-year-olds enrolled in college in 2017 ranged from 29% in Alaska and 31% in Nevada to 56% in the District of Columbia and 57% in Rhode Island. (Figure 1.7)
- In 2017, the percentage of adults age 25 and older with at least a bachelor's degree ranged from 20% in West Virginia and 22% in Mississippi to 44% in Massachusetts and 57% in the District of Columbia. (Figure 1.7)

THE BENEFITS OF HIGHER EDUCATION AND VARIATION IN OUTCOMES

Individuals with higher levels of education earn more, pay more taxes, and are more likely than others to be employed.

- In 2018, the median earnings of bachelor's degree recipients with no advanced degree working full time were \$24,900 higher than those of high school graduates. Bachelor's degree recipients paid an estimated \$7,100 more in taxes and took home \$17,800 more in after-tax income than high school graduates. (Figure 2.1)
- The typical 4-year college graduate who enrolls at age 18 and graduates in 4 years can expect to earn enough relative to a high school graduate by age 33 to compensate for being out of the labor force for 4 years and for borrowing the full tuition and fees and books and supplies without any grant aid. (Figure 2.2A)
- In 2018, among full-time year-round workers between the ages of 25 and 34, median earnings among women with at least a bachelor's degree were \$52,500, compared with \$29,800 for those with a high school diploma. Median earnings among men with at least a bachelor's degree were \$63,300, compared with \$39,800 for those with a high school diploma. (Figure 2.6)
- In 2018, among adults between the ages of 25 and 64, 69% of high school graduates, 73% of those with some college but no degree, 78% of those with associate degrees, and 83% of those with 4-year college degree were employed. (Figure 2.11)
- The unemployment rate for individuals age 25 and older with at least a bachelor's degree has consistently been about half of the unemployment rate for high school graduates. (Figure 2.12A)
- In 2018, the unemployment rate for 25- to 34-year-olds with at least a bachelor's degree was 2.2%, compared with 5.7% among high school graduates. (Figure 2.12B)

Median earnings increase with level of education, but there is considerable variation in earnings at each level of educational attainment.

- The percentage of full-time year-round workers age 35 to 44 earning \$100,000 or more in 2018 ranged from 2% of those without a high school diploma and 5% of high school graduates to 28% of those whose highest attainment was a bachelor's degree and 43% of advanced degree holders. (Figure 2.3)
- Between 2016 and 2018, median earnings of individuals age 25 to 34 working full time year-round with a bachelor's degree ranged from \$42,100 among black females and \$43,900 among Hispanic females to \$72,300 among Asian males. The earnings premium for a bachelor's degree relative to a high school diploma was the highest among Asian males and females. (Figure 2.4)
- In 2018, median earnings of female 4-year college graduates working full time year-round were \$56,700. However, 25% of them earned less than \$40,500, and another 25% earned more than \$81,600. (Figure 2.5)
- In 2018, median earnings of male 4-year college graduates working full time year-round were \$75,200. However, 25% of them earned less than \$50,400, and 25% earned more than \$110,000. (Figure 2.5)
- Between 2013 and 2017, among occupations that employ large numbers of both high school graduates and college graduates, the median earnings of those with only a high school diploma ranged from \$31,400 (in 2017 dollars) for retail salespersons to \$60,100 for general and operations managers. The median earnings of those with at least a bachelor's degree ranged from \$41,800 (in 2017 dollars) for administrative assistants to \$89,500 for first-line supervisors of nonretail workers. (Figure 2.8)
- In 2016 and 2017, median earnings for early career bachelor's degree recipients ranged from \$32,100 a year for early childhood education majors to \$62,000 for computer science majors. For those in mid-career, median earnings ranged from \$41,000 to \$95,000. (Figure 2.9)
- Institutional median earnings vary by sector. From 2014 to 2015, the typical 4-year college's median earnings of 2003-04 and 2004-05 federal student aid recipients ranged from \$34,600 at for-profit institutions to \$42,800 at private nonprofit institutions and \$42,950 at public institutions. (Figure 2.10A)

College education increases the chance that adults will move up the socioeconomic ladder and reduces the chance that adults will rely on public assistance.

- Among those who attended the most selective colleges, 68% of children from the lowest parent income quintile were in the top two income quintiles as adults, compared with 72% of children from the middle-income quintile and 76% from the highest income quintile. (Figure 2.15A)

- Children from lower-income backgrounds were less likely to attend more selective institutions. Children whose parents were in the top 1% of the income distribution were nearly 50 times more likely to attend the most selective institutions as those whose parents were in the bottom 20%. (Figure 2.15B)
- In 2018, 4% of bachelor's degree recipients age 25 and older lived in poverty, compared with 13% of high school graduates. (Figure 2.16A)
- In 2018, 7% of individuals age 25 and older with associate degrees and 9% of those with some college but no degree lived in households that benefited from the Supplemental Nutrition Assistance Program (SNAP), compared with 12% of those with only a high school diploma. (Figure 2.17)

Having a college degree is associated with a healthier lifestyle, potentially reducing health care costs. Adults with higher levels of education are more active citizens than others and are more involved in their children's activities.

- In 2018, 69% of 25- to 34-year-olds with at least a bachelor's degree and 47% of high school graduates reported exercising vigorously at least once a week. (Figure 2.19A)
- Children of parents with higher levels of educational attainment are more likely than other children to engage in a variety of educational activities with their family members. (Figures 2.20B and 2.21A)
- Among adults age 25 and older, 19% of those with a high school diploma volunteered in 2017, compared with 42% of those with a bachelor's degree and 52% of those with an advanced degree. (Figure 2.22A)
- Voting rates are higher among individuals with higher levels of education. In the 2016 presidential election, 73% of 25- to 44-year-old U.S. citizens with at least a bachelor's degree voted, compared with 41% of high school graduates in the same age group. (Figure 2.23A)

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Introduction

Jessica Howell
Vice President, Research, College Board

Education Pays: The Benefits of Higher Education for Individuals and Society documents the substantial individual payoff from investments in higher education, the variation in outcomes experienced by different individuals, and the benefits we all enjoy from a more educated populace. Since 2004, College Board has been publishing updates to this report every three years. *Education Pays* rounds out the *Trends in Higher Education* series that includes *Trends in Student Aid* and *Trends in College Pricing*. These reports provide a foundation for evaluating public policies to increase educational opportunities.

This report combines publicly available government statistics and academic research to paint a detailed and integrated picture of the benefits of higher education and the distribution of those benefits across society. Many graphs in this report compare the experiences of people with different education levels and illustrate straightforward correlations between education and various outcomes. When possible, we cite causal evidence of the direct impact of higher education on both financial outcomes and behavior patterns.

COLLEGE ACCESS AND SUCCESS

Education Pays provides information about college enrollment patterns, completion rates, and educational attainment levels across demographic groups in the United States. The nation has made progress increasing the share of young adults who invest in postsecondary education. The percentage of 18- to 24-year-olds who enroll in college increased from 25% in 1978 to 41% in 2018 (Figure 1.1B). The growth in college enrollment over time translates into 67% of adults age 25 to 34 in the U.S. having at least some college experience in 2018, an increase from 57% in 2000 and from 46% in 1980 (Figure 1.5A).

Although the share of all young adults age 25 to 29 who had a bachelor's degree or higher rose to 36% in 2018, this share ranged from 19% for Hispanics and 23% for blacks to 43% for whites and 66% for Asians (Page 15). Gaps in college enrollment and completion rates can be partially explained by differences in academic preparation in K–12. Yet, even among students with similar academic achievement levels in high school, students from lower-socioeconomic-status families enroll and graduate at lower rates than those from higher-socioeconomic-status families (Figures 1.3A and 1.4). Moreover, there are stark differences by student socioeconomic status in types of postsecondary institutions students with similar academic preparation choose, which likely contributes to uneven college completion rates (Figure 1.3B).

THE PAYOFF OF HIGHER EDUCATION FOR INDIVIDUALS

Most college students report improved job prospects and financial security as a primary reason for college attendance. The data are clear: adults with postsecondary credentials are, in fact, more likely to be employed and to earn more than individuals who did not attend college. In 2018, 83% of adults with bachelor's degrees or higher were employed, compared with 69% of adults with a high school diploma (Figure 2.11). In 2018, median earnings of full-time workers with associate and bachelor's degrees were 24% and 61% higher, respectively, than that of their peers with only a high school diploma. The earnings premium for workers with postbaccalaureate credentials is even higher (Figure 2.1). Though not all the earnings premia cited above are attributable to differences in educational attainment, a growing body of research clearly identifies postsecondary education as causally impacting earnings (Zimmerman, 2014; Hoekstra, 2009).

The benefits of a college education extend beyond financial gains. More educated citizens have greater access to health care and retirement plans. They are more likely to engage in healthy behaviors, be active and engaged citizens, and be in a position to provide better opportunities for their children.

Because the price of college continues to rise over time, even substantial benefits from investing in education must be compared with costs in order to assess whether college is a worthwhile investment. Figures 2.2A and 2.2B indicate that a 4-year college graduate who enrolls at age 18 with median earnings can expect to earn enough by age 33 to compensate for being out of the labor force for four years and for borrowing the full tuition and fees and books and supplies without any grant aid. An associate degree is both faster and less expensive to acquire but yields smaller earnings, on average, than a bachelor's degree, so it is unsurprising that the break-even age of an associate degree is similar (age 31). Over the course of a lifetime, and accounting for the costs of obtaining a degree, individuals with a bachelor's degree earn about \$400,000 more than individuals with a high school degree. The financial benefits of an associate degree are roughly half as large.

The average payoff to college is considerable, but not all students reap the same financial rewards. Several analyses in this report focus on the variation in the outcomes of higher education across and within demographic groups, types of credentials, and institutional sectors. The distribution of earnings in Figure 2.3 tells a more nuanced story about the mid-career earnings of full-time workers with the same level of education. While 28% of employed adults with a bachelor's degree working full time earn more than

\$100,000, 17% earn less than \$40,000. This disparity in earnings outcomes reflects, among other underlying factors, geographic differences in wages, variation in types of colleges attended, and differences in fields of study and occupations (Figures 2.8 through 2.10B). Although these nuances are important to our understanding of the circumstances under which educational investments pay off, the overall patterns are clear—more education is associated with increased opportunities for the vast majority of students.

This report also reveals earnings differentials among individuals with similar levels of education by race and gender. Underrepresented minorities continue to earn less than their white and Asian counterparts and females continue to earn less than their male counterparts (Figures 2.4 through 2.6). Though issues of equity exist in the workplace, postsecondary education remains a catalyst for social mobility. Figure 2.15A shows that a college education can be a powerful equalizer. When students attend similar postsecondary institutions, the percentage of students who end up in the top two income quintiles as adults is nearly the same for students from the lowest-income-quintile families as it is for those from top-income-quintile families. Although Figure 2.15B illustrates that affluent students are still considerably more likely to attend selective colleges than their less affluent peers, expanding access to selective colleges remains a promising avenue to economic mobility.

THE PUBLIC BENEFITS OF HIGHER EDUCATION

Society at large also gains from increases in postsecondary attainment. A more productive economy generates a higher standard of living. We can all enjoy the benefits of having a more well-educated populace. Increases in wages generate higher tax payments at the local, state, and federal levels. In 2018, four-year college graduates paid, on average, 82% more in taxes than high school graduates and, for those with a professional degree, average tax payments were more than three times as high as those of high school graduates. Spending on social support programs such as unemployment compensation, the Supplemental Nutrition Assistance Program (SNAP), and Medicaid is much lower for individuals with higher levels of education. Figure 2.17 shows that SNAP participation among individuals with a high school diploma is four times as high as that among those with a bachelor's degree or higher.

Education is associated with healthful behaviors and civic engagement. Over time, rates of smoking have dropped the most precipitously among college-educated adults (Figure 2.18A). Rates of reported exercise rise with educational attainment for individuals of all ages (Figure 2.19A). Adults with greater educational attainment are more likely to volunteer and to vote. In the 2016 presidential election, 73% of young adults age 25 to 44 with at least a bachelor's degree voted, compared with 41% of their peers with a high school diploma (Figure 2.23A).

The data in *Education Pays* provide a strong argument for increasing access to and support for successful postsecondary pathways. Research suggests that increased public commitment to this priority through public subsidies for higher education institutions is the most promising approach to increasing degree completion and realizing greater private and public benefits (Deming & Walters, 2017; Avery, Howell, Pender, & Sacerdote, 2019).

IS COLLEGE WORTH IT?

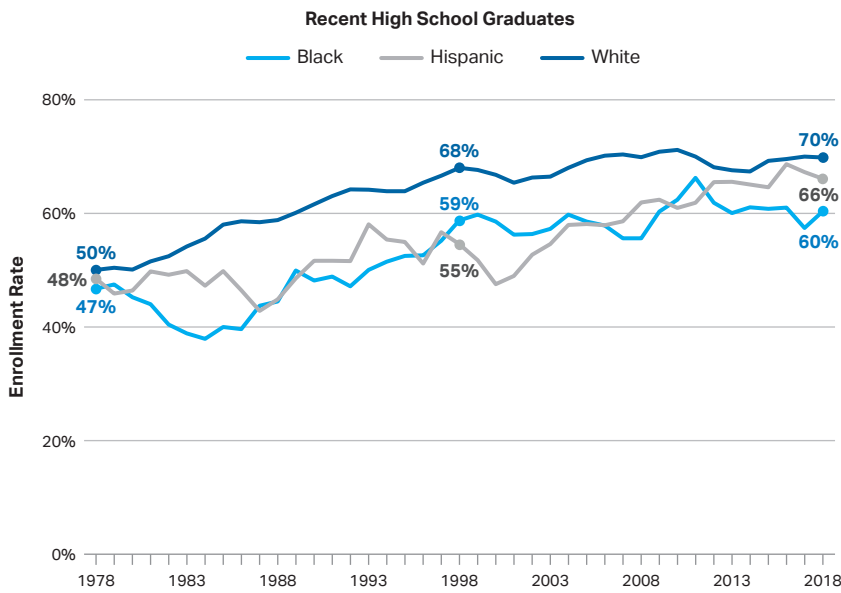
A postsecondary education opens the door to many opportunities. As the price of college continues to rise, more students and families are asking if college is worth it. Media headlines highlight stories of college students saddled with debt without gainful employment. Although these stories do exist, they are far from typical. As illustrated in this report, college is a worthwhile investment that pays off over time for most students. Of course, students and families face crucial choices—which institution, which field of study, and how to finance it all—that factor into their eventual answer to the question, “Was college worth it?” Additional data and transparency about the costs and benefits of postsecondary education are needed to inform these choices.

Education Pays shows the variation in earnings by institutional sector based on the college-level earnings data from the Department of Education's College Scorecard (Figures 2.10A and 2.10B). In 2019, the Department of Education expanded upon the college-level earnings data it began releasing in 2015. It provided program-level data for every college, including median debt data and median first-year earnings data. This is the first time such detailed data about labor market outcomes of students from specific majors and colleges have been made available at the national level. The earnings data include information for associate and bachelor's degrees, certificate programs, and graduate degrees—a substantial step toward transparency around the monetary benefits of specific postsecondary investments. Continued progress in providing data on the benefits and costs of postsecondary investments at the institution and program levels will give students, families, institutions, and policymakers the information they need to quantitatively evaluate which postsecondary opportunities best serve individual and public educational goals.

College Enrollment by Race/Ethnicity

In 1998, 59% of black and 55% of Hispanic recent high school graduates enrolled in college within one year of high school graduation, compared with 68% of white students. In 2018, enrollment rates were 60%, 66%, and 70% for black, Hispanic, and white students, respectively.

FIGURE 1.1A Postsecondary Enrollment Rates of Recent High School Graduates by Race/Ethnicity, 1978 to 2018

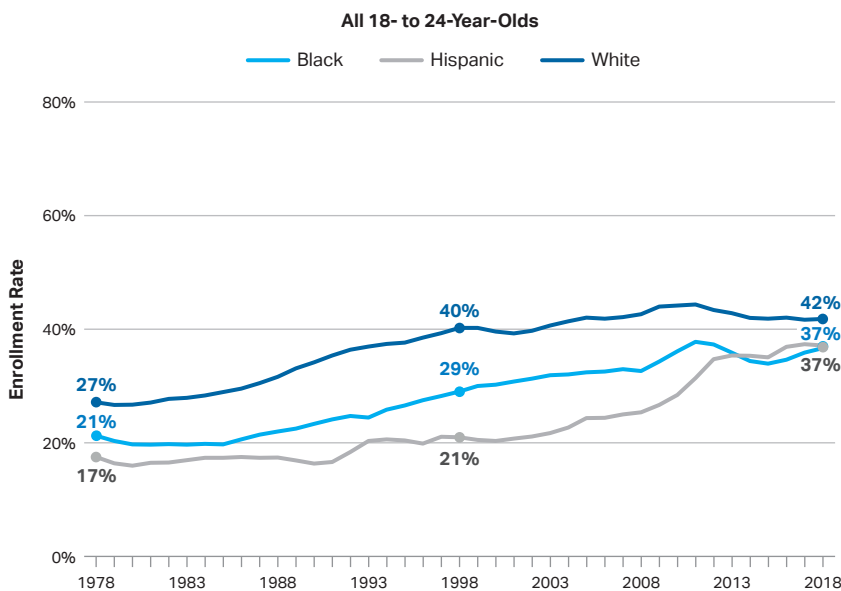


- Enrollment rates of young adults between the ages of 18 and 24 are lower than enrollment rates of all recent high school graduates.
- In 1998, 29% of black and 21% of Hispanic young adults between the ages of 18 and 24 were enrolled in college, compared with 40% of white young adults. In 2018, enrollment rates were 37% for black and Hispanic and 42% for white young adults.

ALSO IMPORTANT:

- College enrollment rates are higher for Asians than for other racial/ethnic groups. In 2018, 83% of Asians enrolled in college within a year of graduating from high school. (NCES, *Digest of Education Statistics, 2019*, Table 302.20; calculations by the authors)
- Differences in high school graduation rates account for some of the college enrollment gaps graphed in Figure 1.1B. In 2016-17, 89% of white, 78% of black, and 80% of Hispanic public high school students graduated from high school in four years. (NCES, *Digest of Education Statistics, 2018*, Table 219.47)

FIGURE 1.1B Postsecondary Enrollment Rates of All 18- to 24-Year-Olds by Race/Ethnicity, 1978 to 2018



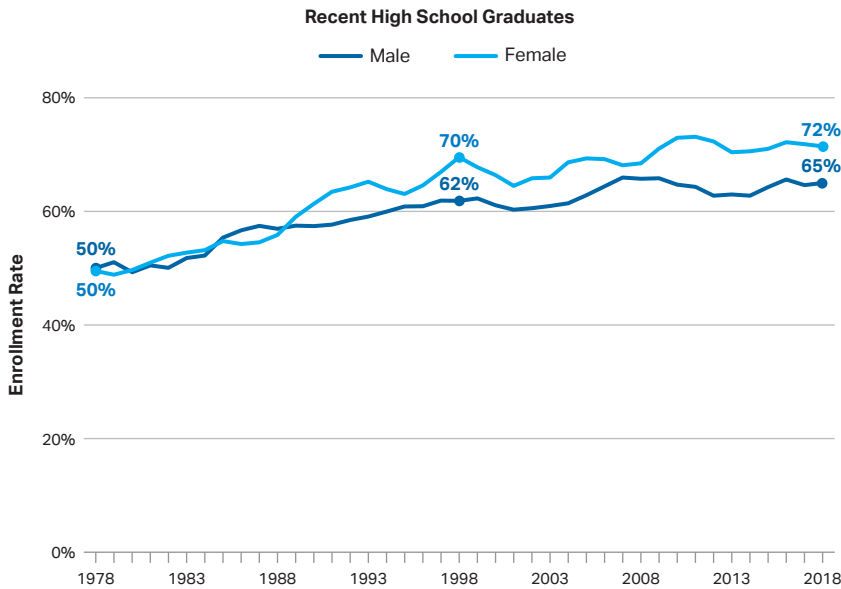
NOTES: "Recent high school graduates" include those who graduated from high school in the previous 12 months. "All 18- to 24-year-olds" also include those who have not completed high school. "Postsecondary enrollment rates" are three-year moving averages and include both undergraduate and graduate students. Some 18- to 24-year-olds have completed college and are no longer enrolled. Because of small sample sizes for Hispanics and blacks, annual fluctuations in enrollment rates may not be significant.

SOURCES: National Center for Education Statistics (NCES), *Digest of Education Statistics, 2019*, Tables 302.20 and 302.60; calculations by the authors.

College Enrollment by Gender

In 1998, 62% of male and 70% of female recent high school graduates enrolled in college within one year of high school graduation. In 2018, enrollment rates were 65% and 72% for male and female students, respectively.

FIGURE 1.2A Postsecondary Enrollment Rates of Recent High School Graduates by Gender, 1978 to 2018

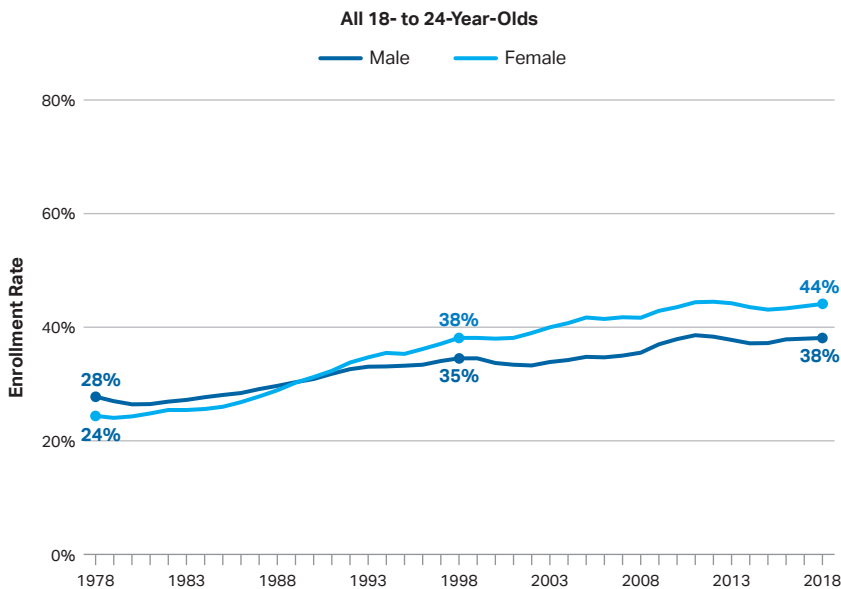


- Since 1989, the college enrollment rate of recent female high school graduates has consistently exceeded that of recent male high school graduates.
- In 2018, 38% of all male and 44% of all female young adults between the ages of 18 and 24 were enrolled in college. The gender gap in enrollment for this age group was 3 percentage points in 1998 and 6 percentage points in 2008.

ALSO IMPORTANT:

- In 1977, female students accounted for 49% of all college students. By 2017, this percentage had grown to 57%. (NCES, *Digest of Education Statistics, 2018*, Table 303.10)

FIGURE 1.2B Postsecondary Enrollment Rates of All 18- to 24-Year-Olds by Gender, 1978 to 2018



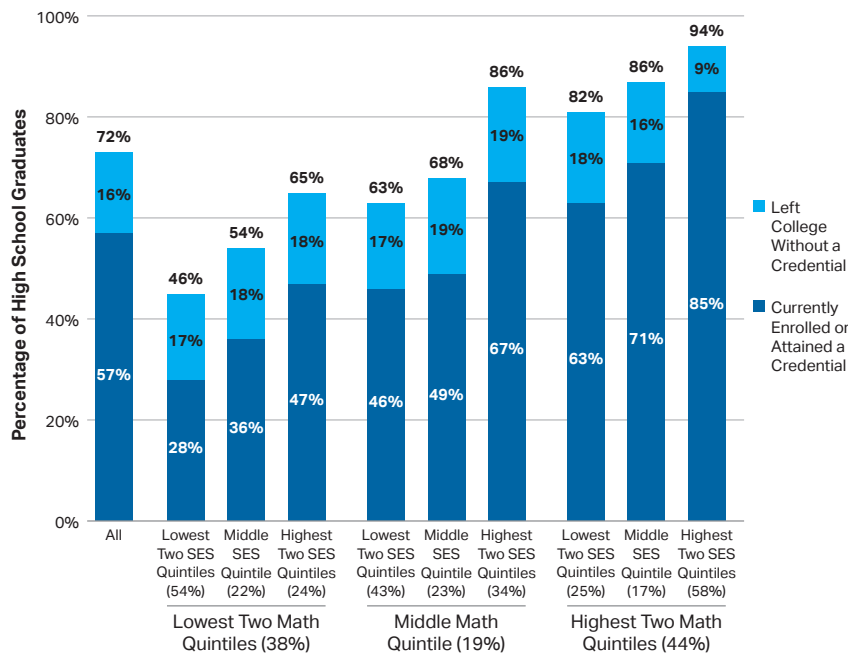
NOTES: "Recent high school graduates" include those who graduated from high school in the previous 12 months. "All 18- to 24-year-olds" also include those who have not completed high school. "Postsecondary enrollment rates" are three-year moving averages and include both undergraduate and graduate students. Some 18- to 24-year-olds have completed college and are no longer enrolled.

SOURCES: NCES, *Digest of Education Statistics, 2019*, Tables 302.10 and 302.60; calculations by the authors.

College Enrollment by Math Score and Socioeconomic Status

Among students with similar high school math test scores, college enrollment rates are higher for those from higher socioeconomic status (SES) quintiles than for those from lower SES quintiles.

FIGURE 1.3A Postsecondary Enrollment Status in 2016 by Math Quintile and Parents' Socioeconomic Status: High School Class of 2013

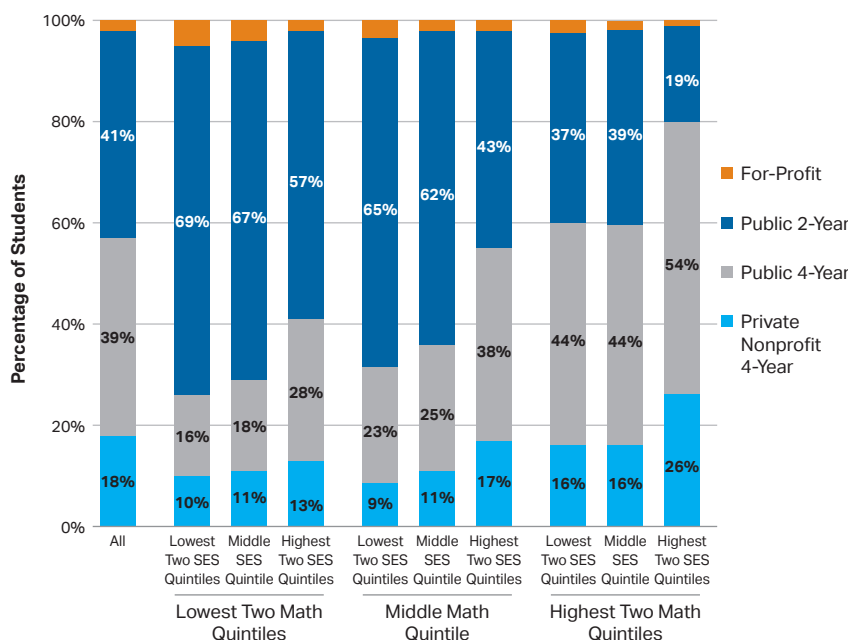


- For the high school class of 2013, gaps in college enrollment rates between students from different SES backgrounds are larger for those with lower math scores.
- Among students in the lowest two math quintiles, 46% of those from the lowest two SES quintiles had enrolled in college by 2016 (three years after high school graduation), and 65% of those from the highest two SES quintiles had enrolled.
- Among students in the highest two math quintiles, 82% of low-SES and 94% of high-SES students had enrolled in college by 2016.
- High-SES students are more likely to enroll in a public or private nonprofit 4-year institution than their lower-SES peers with similar math scores.

ALSO IMPORTANT:

- Figure 1.3B shows the sectors of first institutions students attended. Some students begin in one sector before transferring to another type of institution. For example, about 30% of students who first enrolled in a public 2-year college in 2012 had transferred to a 4-year institution by 2018. (Shapiro et al., 2019, Table 4a)

FIGURE 1.3B Sector of First Postsecondary Institution by Math Quintile and Parents' Socioeconomic Status: High School Class of 2013



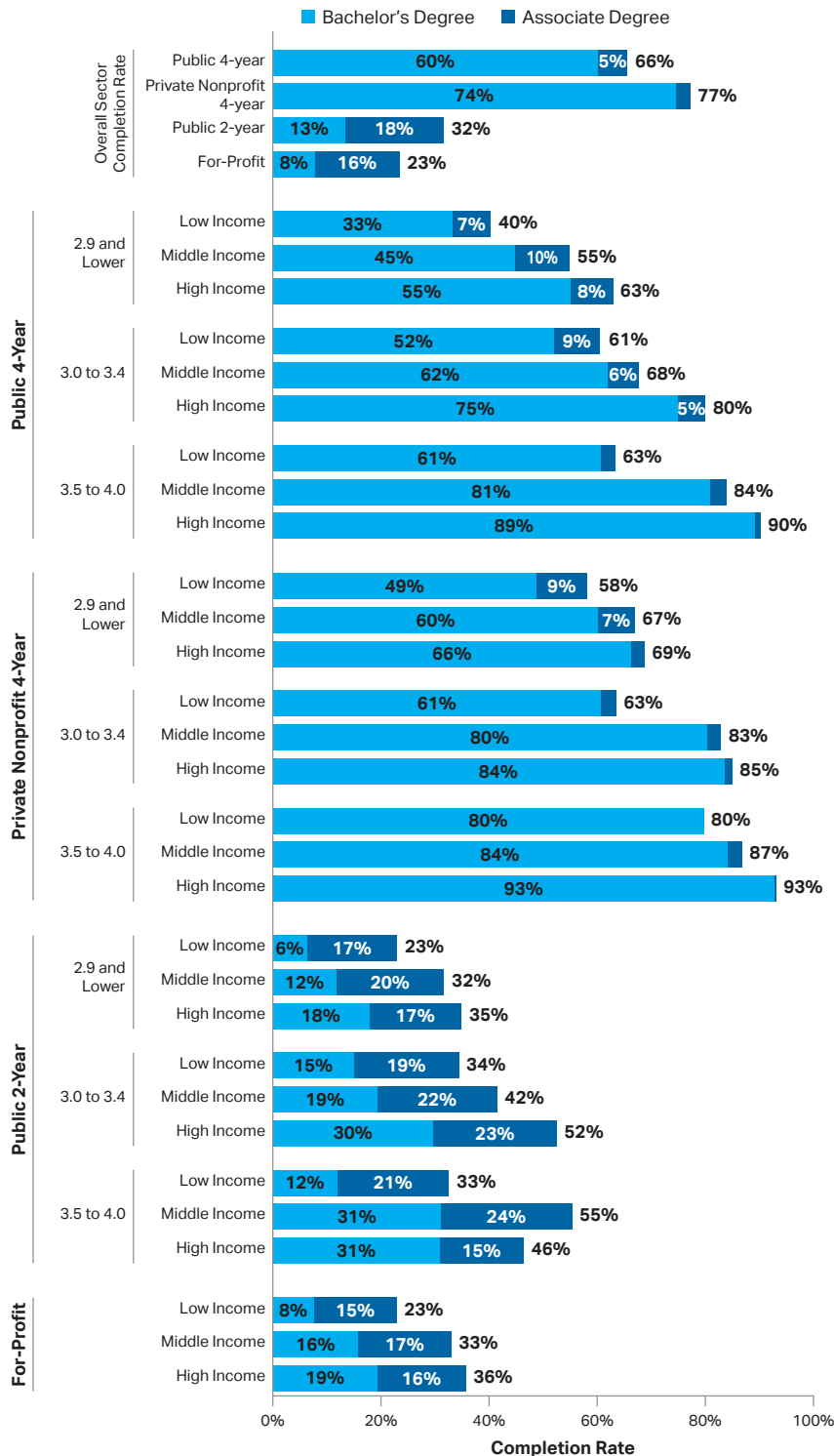
NOTES: Math quintiles were based on students' 11th-grade math scores. Socioeconomic status was measured by a composite score of parental education, occupations, and family income in 2011 when students were in 11th grade. Components may not sum to totals because of rounding.

SOURCES: NCES, High School Longitudinal Study of 2009; PowerStats calculations by the authors.

College Completion Rates

Within each sector, students with higher family incomes were more likely to complete a degree than their lower-income peers with similar high school GPAs.

FIGURE 1.4 Six-Year Completion Rates by Sector, High School GPA, and Family Income: 2011-12 Beginning Postsecondary Students



- Among public 4-year students in the highest high school GPA (HSGPA) category, 63% of low-income students completed a degree within 6 years while 90% of high-income students did.
- Among public 4-year students in the lowest HSGPA category, 40% of low-income students completed a degree within 6 years while 63% of high-income students did.
- Among undergraduate students who started college for the first time in 2011-12, 66% of those whose first enrollment was at a public 4-year institution and 77% of those who started at a private nonprofit 4-year institution completed either an associate or a bachelor's degree within 6 years. In contrast, 32% of public 2-year students and 23% of for-profit students completed an associate or bachelor's degree within 6 years.

ALSO IMPORTANT:

- Figure 1.4 shows the shares of students who had completed an associate or bachelor's degree within 6 years. In addition, 2% of public 4-year, 1% of private nonprofit 4-year, 8% of public 2-year, and 24% of for-profit students had completed a certificate within 6 years. (NCES, BPS 2012/2017; calculations by the authors)
- Full-time students are more likely to complete credentials than part-time students. Among students who first enrolled in college in 2012, 80% of those who enrolled full time had completed a credential 6 years later while only 21% of those who enrolled part time had. (Shapiro et al., 2018, Table 16)
- While students' academic preparation is perhaps the most important predictor of their likelihood of completing a credential, studies have shown that initial college choice has a causal impact on completion. For example, among college students in the public sector, access to 4-year institutions substantially increases bachelor's degree completion rates, particularly for low-income students. (Goodman, Smith, & Hurwitz, 2015)

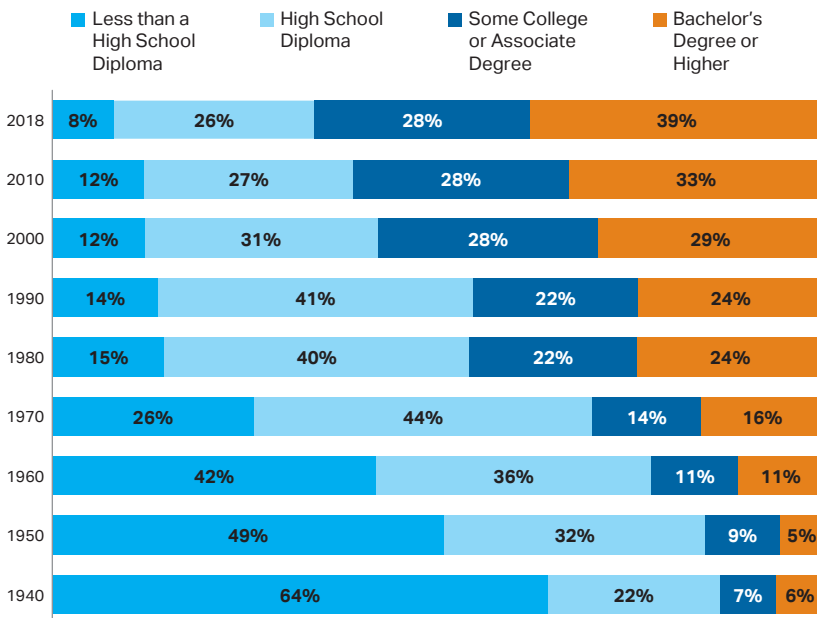
NOTES: Includes first-time undergraduate students who began their study in 2011-12. Completion status was as of June 2017. Parents' income groups of dependent students were based on 2010 income: Low (less than \$50,000), Middle (between \$50,000 and \$99,999), and High (\$100,000 or higher). For-profit sector is not broken down by HSGPA because of small sample size. Components may not sum to totals because of rounding.

SOURCES: NCES, Beginning Postsecondary Students 2012/2017; PowerStats calculations by the authors.

Educational Attainment

The percentage of young adults in the U.S. between the ages of 25 and 34 with at least a bachelor's degree grew from 11% in 1960 to 24% in 1980 and 1990. In 2018, 39% of adults in this age group had earned at least a bachelor's degree.

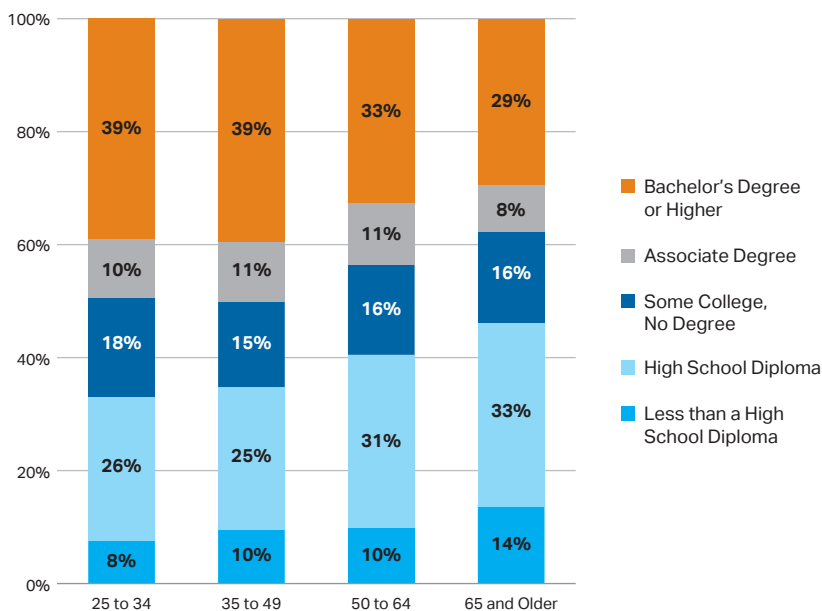
FIGURE 1.5A Educational Attainment of Individuals Age 25 to 34, 1940 to 2018, Selected Years



NOTE: Percentages may not sum to 100 because of rounding.

SOURCE: U.S. Census Bureau, Educational Attainment in the United States, 2018, Table A-1.

FIGURE 1.5B Educational Attainment of Individuals by Age Group, 2018



NOTE: Percentages may not sum to 100 because of rounding.

SOURCE: NCES, *Digest of Education Statistics*, 2018, Table 104.30.

- The percentage of adults age 25 to 34 with some college or an associate degree grew rapidly in the 1970s and again in the 1990s. It has stabilized since 2000 at 28%.
- In 1940, 86% of adults in the U.S. age 25 to 34 had no postsecondary education experience. By 1980, that percentage had decreased to 55% and has since decreased by another 21 percentage points to 34% in 2018.
- In 2018, about 10% of adults age 25 to 49 held an associate degree, and 39% held at least a bachelor's degree.

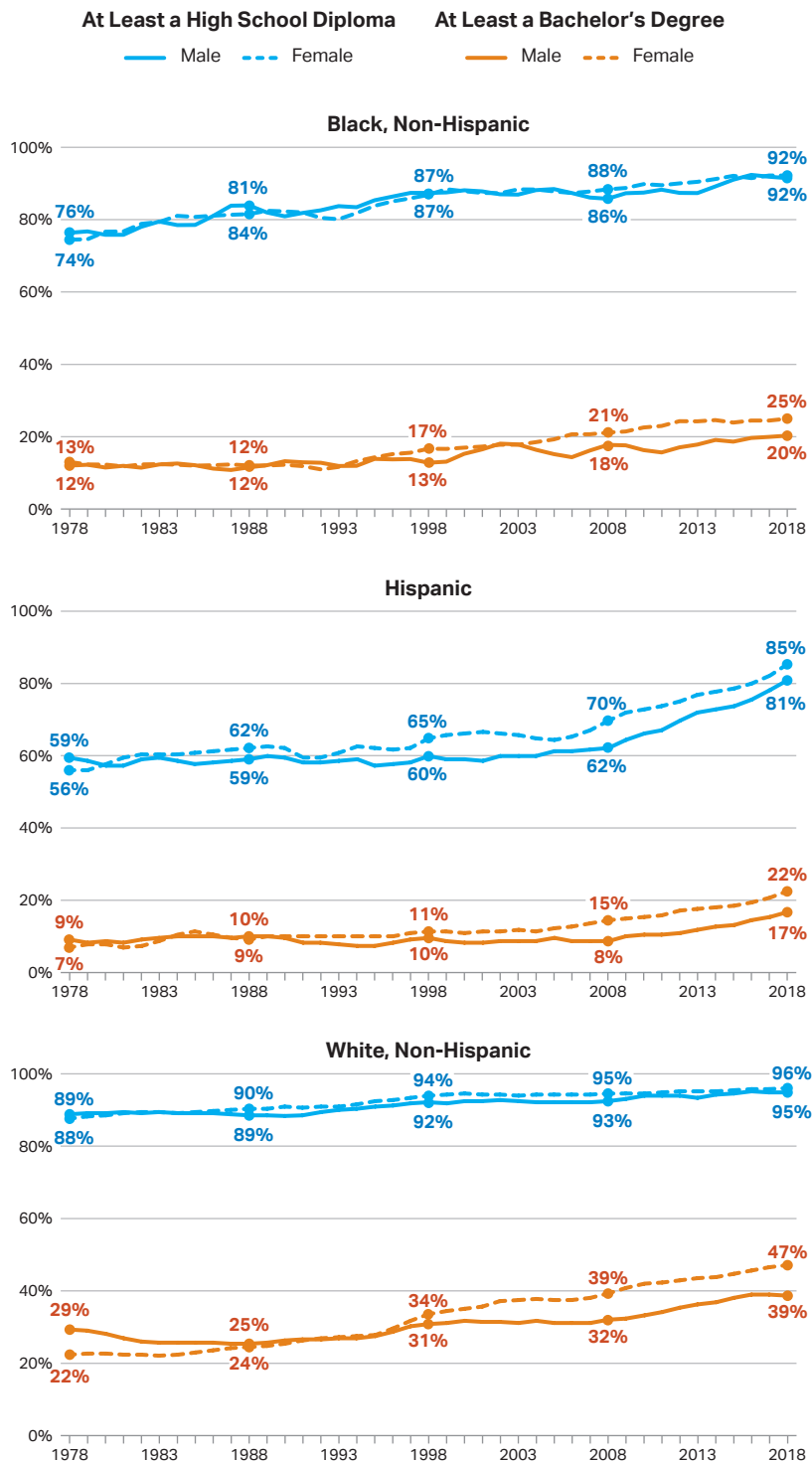
ALSO IMPORTANT:

- The fact that the earnings differential between high school graduates and college graduates has increased over time despite the increasing prevalence of college degrees indicates that the demand for college-educated workers in the labor market has increased more rapidly than the supply. (See Goldin & Katz [2008] and Autor [2010] for discussion of the failure of the supply of college graduates to keep up with the demand.)
- According to the Organisation for Economic Co-operation and Development (OECD), Korea had the highest educational attainment among all OECD countries in 2018 with 70% of 25- to 34-year-olds having completed tertiary education. (OECD, 2019, Chart A1.2)

Educational Attainment by Race/Ethnicity and Gender

Among blacks, whites, and Hispanics between the ages of 25 and 29, females outpace males in terms of both high school and bachelor's degree completion. This gender gap emerged in the 1990s.

FIGURE 1.6 Percentage of 25- to 29-Year-Olds Who Have Completed High School or a Bachelor's Degree, by Race/Ethnicity and Gender, 1978 to 2018



- Between 1978 and 2018, the percentage of black females age 25 to 29 who held a bachelor's degree nearly doubled from 13% to 25%, while the percentage of black males with a bachelor's degree increased from 12% to 20%.
- Between 1978 and 2018, the percentage of Hispanic females age 25 to 29 who held a bachelor's degree tripled from 7% to 22%, while the percentage of Hispanic males with a bachelor's degree nearly doubled from 9% to 17%.
- Between 1978 and 2018, the percentage of white females age 25 to 29 who held a bachelor's degree more than doubled from 22% to 47%, while the percentage of white males with a bachelor's degree increased from 29% to 39%.
- Between 2008 and 2018, the percentage of white and Hispanic males or females age 25 to 29 with a bachelor's degree increased by about 7 to 9 percentage points, while the increase was about 2 to 4 percentage points among black males or females over this time period.

ALSO IMPORTANT:

- The share of all young adults age 25 to 29 with at least a bachelor's degree was 36% in 2018; this share ranged from 19% for Hispanics and 23% for blacks to 43% for whites and 66% for Asians. (NCES, *Digest of Education Statistics*, 2018, Table 104.30)

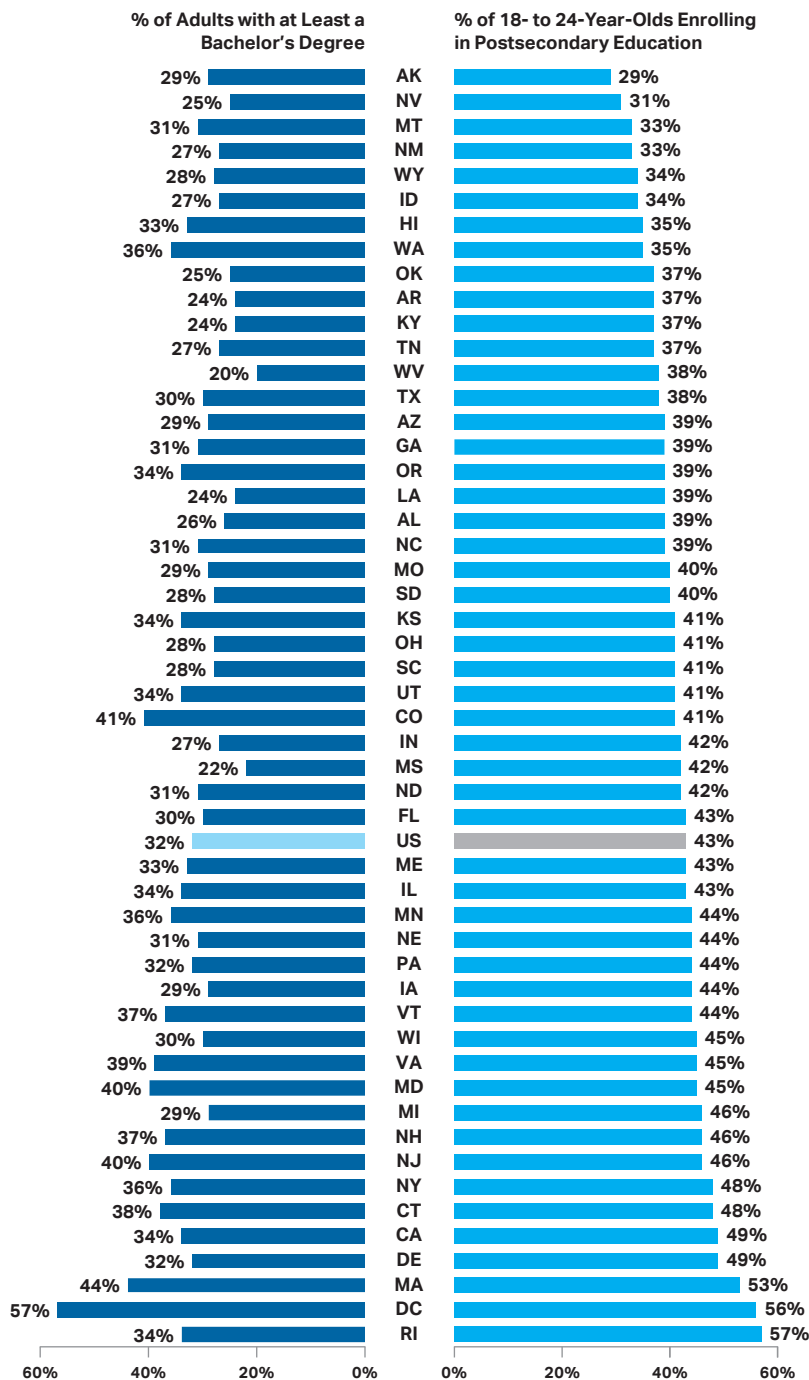
NOTE: Attainment rates are three-year moving averages.

SOURCES: NCES, *The Condition of Education*, 2007, Table 27; *Digest of Education Statistics*, 2018, Table 104.30.

College Enrollment and Attainment by State

The percentage of 18- to 24-year-olds enrolled in college in 2017 ranged from 29% in Alaska and 31% in Nevada to 56% in the District of Columbia and 57% in Rhode Island.

FIGURE 1.7 Postsecondary Enrollment Rates of 18- to 24-Year-Olds and Percentage of All Adults with at Least a Bachelor's Degree in 2017



- In 2017, the percentage of adults age 25 and older with at least a bachelor's degree ranged from 20% in West Virginia and 22% in Mississippi to 44% in Massachusetts and 57% in the District of Columbia.
- Iowa, Michigan, Nebraska, and Wisconsin have college enrollment rates above the national average of 43%, but bachelor's degree attainment rates are slightly lower than the national average of 32%.

ALSO IMPORTANT:

- In 2018, median household income in the United States was \$63,200. Median household income was under \$50,000 in Mississippi, New Mexico, Arkansas, Alabama, and Louisiana; it was over \$80,000 in Hawaii, New Hampshire, District of Columbia, Maryland, and Massachusetts. (U.S. Census Bureau, Social and Economic Supplement, Table H-8)

SOURCES: NCES, *Digest of Education Statistics*, 2018, Tables 104.88 and 302.65.

Education, Earnings, and Tax Payments

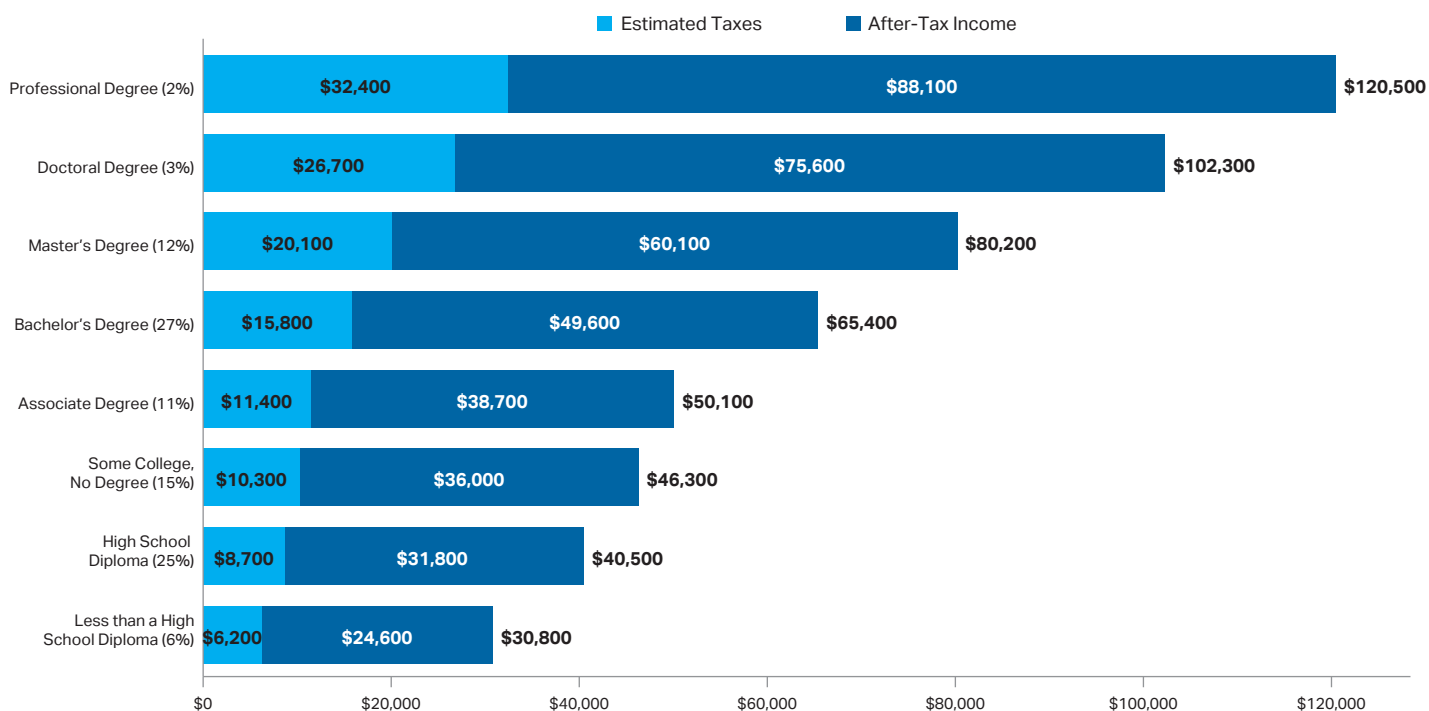
In 2018, median earnings of bachelor’s degree recipients with no advanced degree working full time were \$24,900 higher than those of high school graduates. Bachelor’s degree recipients paid an estimated \$7,100 more in taxes and took home \$17,800 more in after-tax income than high school graduates.

- On average, taxes take a larger share of the incomes of individuals with higher earnings, so the after-tax earnings premium is slightly smaller than the pretax earnings premium.
- Median earnings for individuals with associate degrees working full time were 24% higher than median earnings for those with only a high school diploma. After-tax earnings were 22% higher.
- The median total tax payments of full-time workers with a professional degree in 2018 were over 3.7 times as high as the median tax payments of high school graduates working full time. After-tax earnings were about 2.8 times as high.

ALSO IMPORTANT:

- In 2018, 76% of 4-year college graduates age 25 and older had earnings and 59% worked full time; 59% of high school graduates age 25 and older had earnings, and 44% worked full time.
- Not all the differences in earnings reported here may be attributable to education level. Educational credentials are correlated with a variety of other factors that affect earnings, including parents’ socioeconomic status and some personal characteristics.
- While the average high school graduate may not earn as much as the average college graduate simply by obtaining a bachelor’s degree, rigorous research on the subject suggests that the figures cited here do not measurably overstate the financial return to higher education. (Card, 2001; Carneiro, Heckman, & Vytlačil, 2011; Rouse, 2005; Harmon, Oosterbeek, & Walker, 2003; Oreopoulos & Petronijevic, 2013)

FIGURE 2.1 Median Earnings and Tax Payments of Full-Time Year-Round Workers Age 25 and Older, by Education Level, 2018



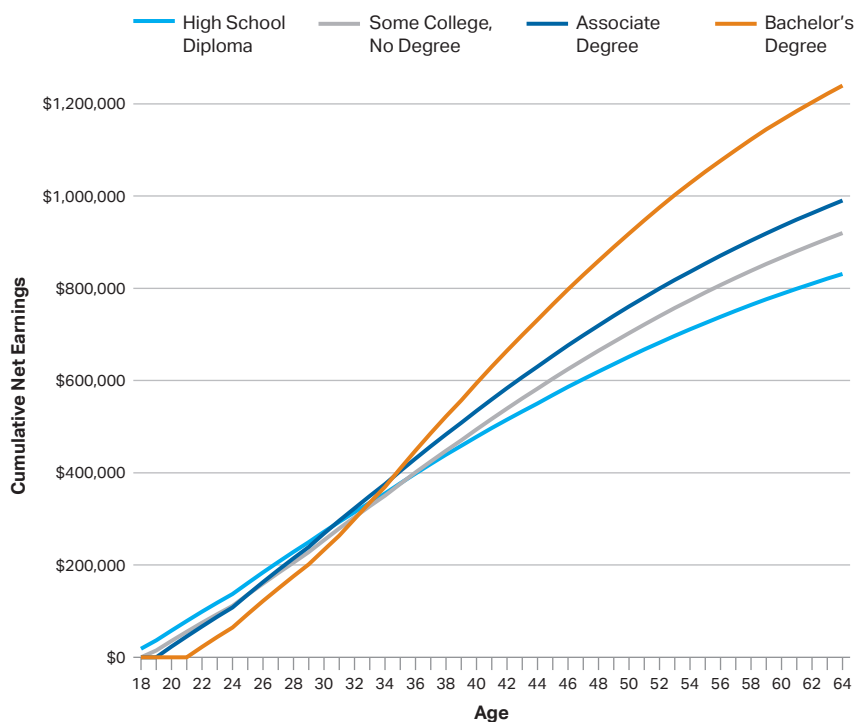
NOTES: The percentages in parentheses on the vertical axis indicate the shares of all full-time year-round workers age 25 and older with each education level in 2018. The bars in this graph show median earnings at each education level. The light blue segments represent the estimated average federal income, Social Security, Medicare, state and local income, sales, and property taxes paid at these income levels. The dark blue segments show after-tax earnings. Percentages may not sum to 100 because of rounding.

SOURCES: U.S. Census Bureau, Income, Poverty, and Health Insurance in the United States, 2018, Table PINC-03; Internal Revenue Service, 2017; Wiehe et al., 2018; calculations by the authors.

Earnings Premium Relative to Price of Education

The typical 4-year college graduate who enrolls at age 18 and graduates in four years can expect to earn enough relative to a high school graduate by age 33 to compensate for being out of the labor force for four years and for borrowing the full tuition and fees and books and supplies without any grant aid.

FIGURE 2.2A Estimated Cumulative Full-Time Median Earnings (in 2017 Dollars) Net of Loan Repayment for Tuition and Fees and Books and Supplies, by Education Level



- For the typical associate degree recipient who pays the published tuition and fees and books and supplies at a community college and earns an associate degree 2 years after high school graduation, total earnings exceed those of high school graduates by age 31.
- For the typical student who attends a public college for a year and leaves without a degree, total earnings exceed those of high school graduates by age 36.
- The longer college graduates remain in the workforce, the greater the payoff to their investment in higher education.

ALSO IMPORTANT:

- Figure 2.2A shows the cumulative earnings for full-time year-round workers. Individuals with higher levels of education are more likely to work full time year-round than those with lower levels of education.
- Figure 2.2A shows the cumulative earnings using median earnings and weighted average 4-year tuition and fees and books and supplies. Results using some alternative assumptions are shown in Figure 2.2B.

Assumptions for Figure 2.2A

Education Level	Age Starting Full-Time Work	Price of Tuition and Fees and Books and Supplies
High School	18	None
Some College, No Degree	19	Weighted average of public 2-year and public 4-year price. 2017-18: \$9,230.
Associate Degree	20	Average public 2-year price. 2017-18: \$4,960; 2018-19: \$5,070.
Bachelor's Degree	22	Weighted average of public and private nonprofit 4-year price. 2017-18: \$18,840; 2018-19: \$19,300; 2019-20: \$19,830; 2020-21: \$20,420.

NOTES: Excludes bachelor's degree recipients who earn advanced degrees. Assumes students borrow the cost of tuition and fees and books and supplies and pay it off over 10 years after graduation with a 4.45% annual interest rate during and after college. Tuition/loan payments and earnings are discounted at 3%, compounded every year beyond age 18. The 2020-21 price is projected using the 2019-20 price and a 3% annual increase.

SOURCES: U.S. Census Bureau, American Community Survey, 2013–2017 Five-Year Public Use Microdata Sample; College Board, *Trends in College Pricing, 2019*; calculations by the authors.

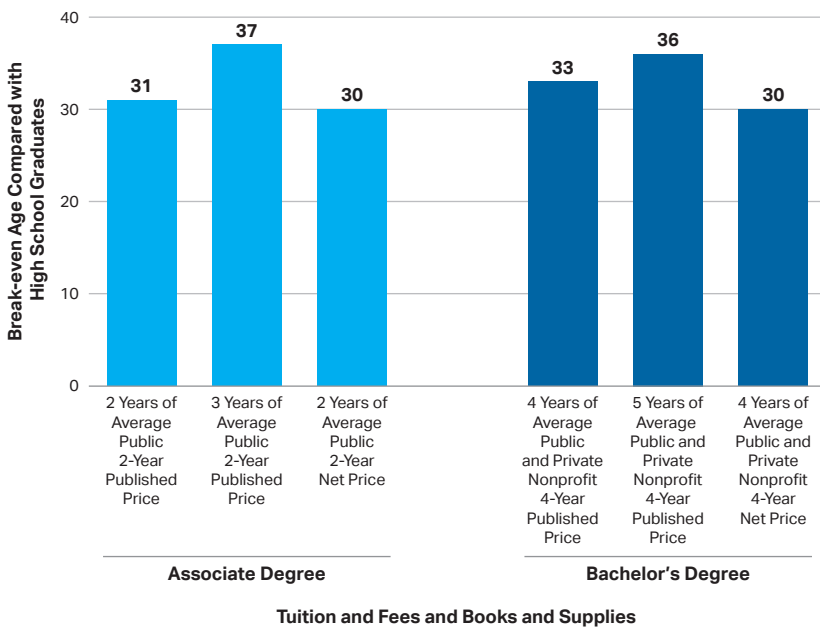
Median Earnings by Education Level and Age, 2013–2017

Age	High School Diploma	Some College, No Degree	Associate Degree	Bachelor's Degree
18	\$18,600	\$0	\$0	\$0
19	\$18,600	\$16,600	\$0	\$0
20	\$22,600	\$23,000	\$25,600	\$0
21	\$22,600	\$23,000	\$25,600	\$0
22 to 24	\$22,600	\$23,000	\$25,600	\$35,400
25 to 29	\$29,300	\$31,400	\$35,400	\$46,000
30 to 34	\$31,900	\$37,100	\$41,200	\$55,200
35 to 39	\$36,300	\$41,900	\$46,600	\$65,700
40 to 44	\$37,300	\$45,500	\$49,500	\$70,800
45 to 49	\$40,100	\$47,800	\$51,800	\$74,300
50 to 54	\$41,200	\$49,400	\$52,300	\$75,800
55 to 59	\$41,200	\$49,600	\$52,600	\$73,600
60 to 64	\$40,400	\$49,300	\$52,300	\$70,000

Earnings Premium Relative to Price of Education: Alternative Scenarios

The break-even age (age at which cumulative earnings of college graduates exceed those of high school graduates) increases with amount of time students take to earn their degrees. Grant aid that reduces the net price of college shortens the break-even period.

FIGURE 2.2B Age at Which Cumulative Earnings of College Graduates Exceed Those of High School Graduates, by Degree and College Cost



- The break-even age depends on the length of study. As an example, for students paying the published price and taking 5 years to complete a bachelor's degree, the break-even age is 36. Full-pay students who complete a bachelor's degree in four years have a projected break-even age of 33.
- Compared with high school graduates with median earnings working full time, the break-even age for associate degree recipients with median earnings is 31 if they pay the average public 2-year published tuition and fees and books and supplies for 2 years. The break-even age increases to 37 if they pay these expenses for 3 years; it is 30 if they receive the average amount of grant aid and pay net tuition and fees and buy books and supplies for two years.

ALSO IMPORTANT:

- The calculations for Figures 2.2A and 2.2B are based on median earnings for full-time year-round workers. There is considerable variation in earnings within each education level (Figure 2.3).
- Figures 2.2A and 2.2B assume that students have no earnings while attending school full time. Many students work part time while in school.

Assumptions for Figure 2.2B

Education Level	Age Starting Full-Time Work	Price of Tuition and Fees and Books and Supplies
High School	18	None
Associate Degree		
Baseline (2 years of average public 2-year published price)	20	2017-18: \$4,960; 2018-19: \$5,070.
3 years of average public 2-year published price	21	2017-18: \$4,960; 2018-19: \$5,070; 2019-20: \$5,190.
2 years of average public 2-year net price	20	2017-18: \$910; 2018-19: \$980.
Bachelor's Degree		
Baseline (4 years of average public and private nonprofit 4-year published price)	22	2017-18: \$18,840; 2018-19: \$19,300; 2019-20: \$19,830; 2020-21: \$20,420.
5 years of average public and private nonprofit 4-year published price	23	2017-18: \$18,840; 2018-19: \$19,300; 2019-20: \$19,830; 2020-21: \$20,420; 2021-22: \$21,030.
4 years of average public and private nonprofit 4-year net price	22	2017-18: \$7,990; 2018-19: \$8,030; 2019-20: \$8,350; 2020-21: \$8,600.

NOTES: Excludes bachelor's degree recipients who earn advanced degrees. Assumes students borrow the cost of tuition and fees and books and supplies and pay it off over 10 years after graduation with a 4.45% annual interest rate during and after college. Tuition/loan payments and earnings are discounted at 3%, compounded every year beyond age 18. The 2020-21 and 2021-22 prices are projected using the 2019-20 price and a 3% annual increase.

SOURCES: U.S. Census Bureau, American Community Survey, 2013–2017 Five-Year Public Use Microdata Sample; College Board, *Trends in College Pricing, 2019*; calculations by the authors.

Variation in Earnings Within Levels of Education

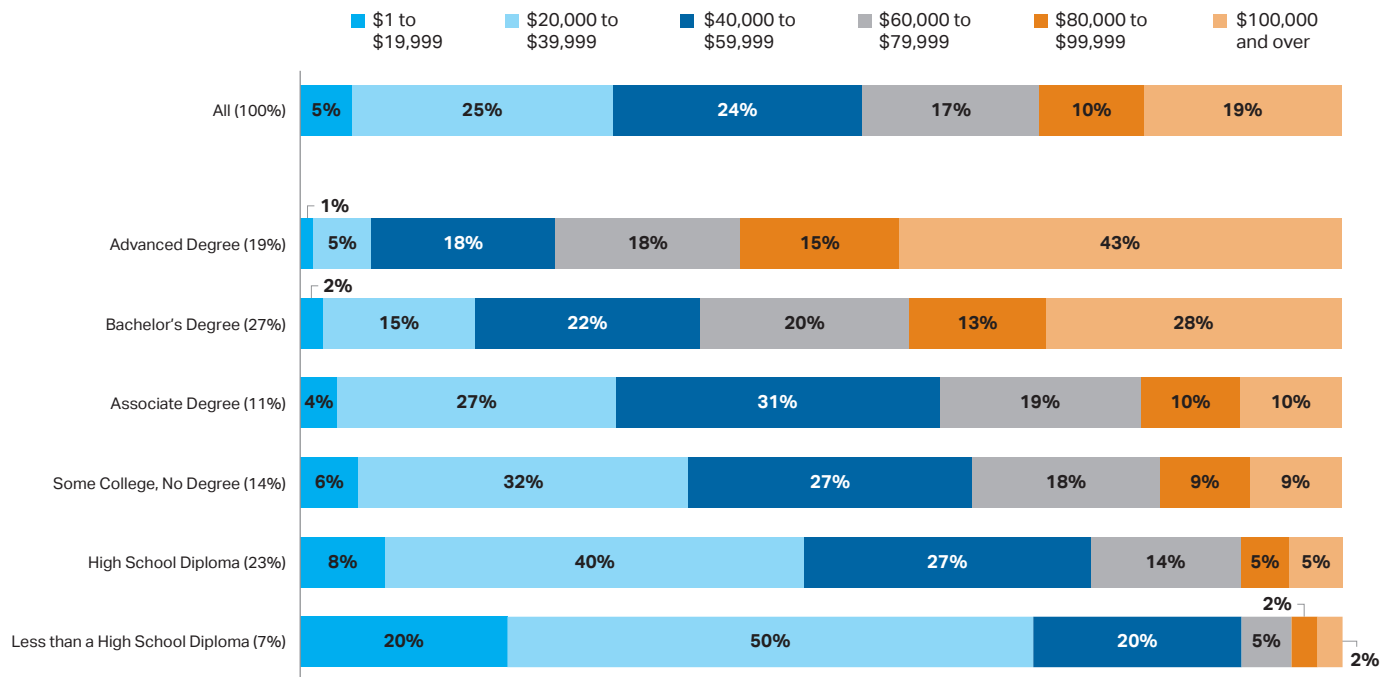
Median earnings are higher for those with higher levels of education, but there is considerable variation in earnings at each level of educational attainment.

- The percentage of full-time year-round workers age 35 to 44 earning \$100,000 or more in 2018 ranged from 2% of those without a high school diploma and 5% of high school graduates to 28% of those whose highest attainment was a bachelor's degree and 43% of advanced degree holders.
- In 2018, while 5% of all full-time year-round workers age 35 to 44 earned less than \$20,000, 20% of those without a high school diploma and 8% of those with only a high school diploma were in this income category. In contrast, only 2% of those whose highest attainment was a bachelor's degree and 1% of those with advanced degrees fell into this category.
- In 2018, 19% of all full-time year-round workers age 35 to 44 held advanced degrees, 27% held bachelor's degrees, while 23% held only a high school diploma and 7% did not graduate from high school.

ALSO IMPORTANT:

- Figure 2.3 includes only full-time year-round workers. The percentage of individuals who are employed rises with level of education, as does the percentage of those employed who work full time. (Bureau of Labor Statistics, Labor Force Statistics from the Current Population Survey)
- Figure 2.3 includes workers between the ages of 35 and 44, an age group when the majority of full-time workers have finished school and started a career.
- Some of the variation in earnings is associated with fields of study, occupation, and location. Earnings also differ by gender and race/ethnicity. (Baum, Kurose, & Ma, 2013)

FIGURE 2.3 Earnings Distribution of Full-Time Year-Round Workers Age 35 to 44, by Education Level, 2018



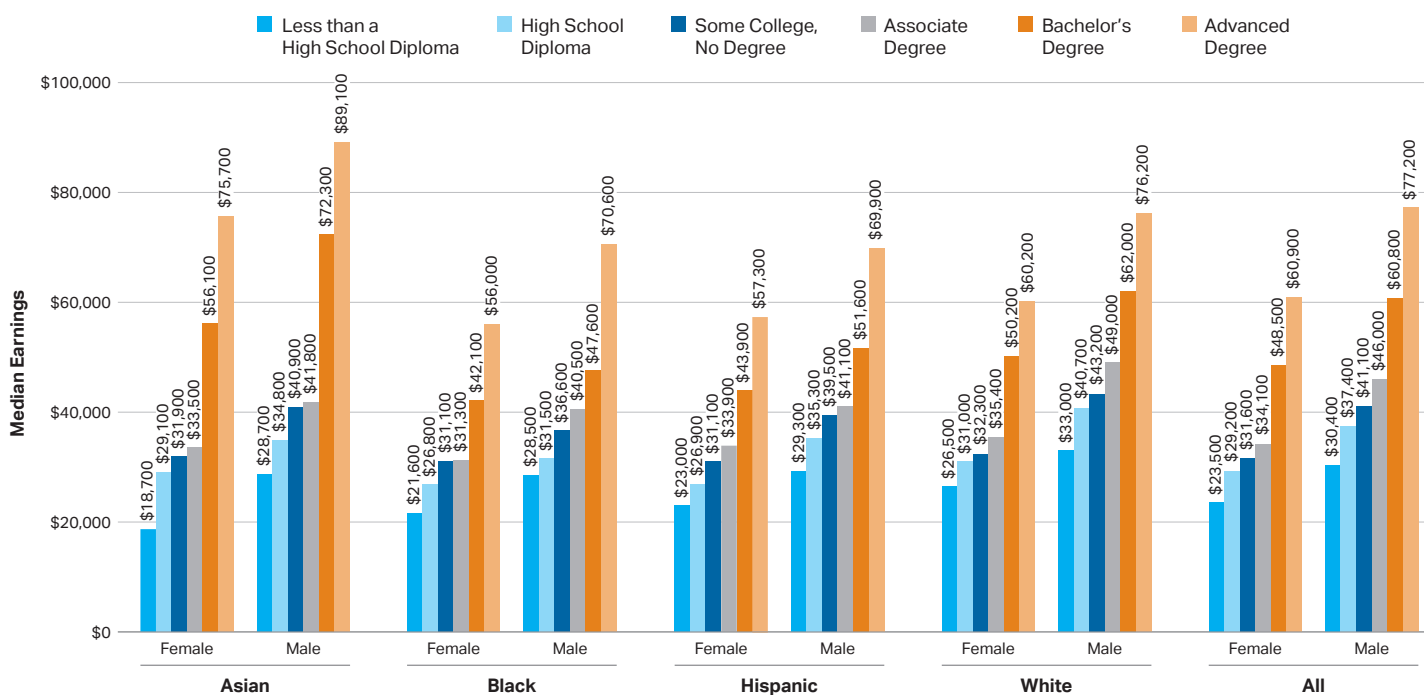
NOTES: The percentages shown in parentheses on the vertical axis represent shares of all full-time year-round workers age 35 to 44 with each education level. Percentages may not sum to 100 because of rounding.

SOURCES: U.S. Census Bureau, Income, Poverty, and Health Insurance in the United States, 2018, PINC-03; calculations by the authors.

Earnings by Race/Ethnicity, Gender, and Education Level

Between 2016 and 2018, median earnings of individuals age 25 to 34 working full time year-round with a bachelor's degree ranged from \$42,100 among black females and \$43,900 among Hispanic females to \$72,300 among Asian males.

FIGURE 2.4 Median Earnings (in 2018 Dollars) of Full-Time Year-Round Workers Age 25 to 34, by Race/Ethnicity, Gender, and Education Level, 2016–2018



NOTES: Based on combined data from the 2017, 2018, and 2019 Annual Social and Economic Supplement of the Current Population Survey. Earnings in 2016 and 2017 are adjusted to 2018 dollars using the Consumer Price Index for all urban consumers. Median earnings are the medians of combined data. The "Asian," "Black," and "White" categories include individuals who reported one race only and who reported non-Hispanic.

SOURCES: U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplement, 2017, 2018, and 2019; calculations by the authors.

- The earnings premium for a bachelor's degree relative to a high school diploma was the highest among Asian males and females, whose median earnings were about twice as high as for those with a high school diploma.
- The earnings gap between 25- to 34-year-old associate degree recipients and high school graduates working full time ranged from 14% (\$4,400) among white females to 29% (\$9,000) among black males.
- Among full-time workers age 25 to 34, median earnings of white males with a bachelor's degree were 23% higher than median earnings of white females with a bachelor's degree. The gender gaps were: 29% among Asian, 17% among Hispanic, and 13% among black bachelor's degree recipients.

Ratio of Median Earnings of Bachelor's Degree Recipients to Median Earnings of High School Graduates, by Race/Ethnicity and Gender, Full-Time Year-Round Workers, 2016–2018

		BA/HS Earnings Ratio	
		Age 25 to 34	Age 25 and Older
Asian	Female	1.93	2.05
	Male	2.08	1.94
Black	Female	1.57	1.67
	Male	1.51	1.50
Hispanic	Female	1.63	1.62
	Male	1.46	1.51
White	Female	1.62	1.57
	Male	1.52	1.61
All	Female	1.66	1.69
	Male	1.63	1.68

ALSO IMPORTANT:

- Between 2016 and 2018, the proportion of individuals age 25 to 34 working full time year-round ranged from 41% for those without a high school diploma to 70% for those with an advanced degree.

Earnings by Gender and Education Level

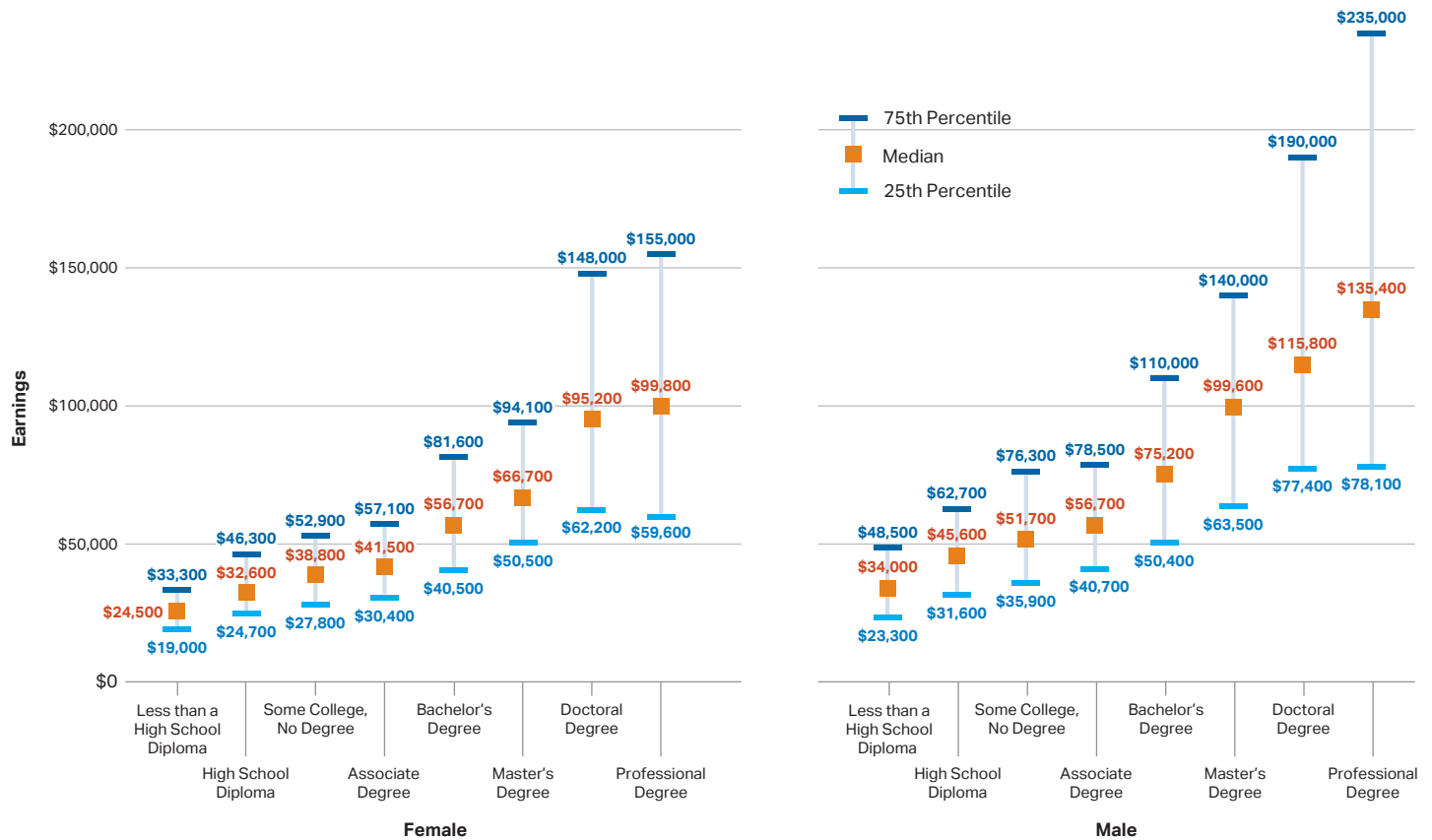
Earnings of full-time year-round workers are strongly correlated with level of education, but there is considerable variation in earnings among both men and women at each level of educational attainment.

- In 2018, median earnings of female 4-year college graduates were \$56,700. This exceeded median earnings of female high school graduates by 74% (\$24,100). Median earnings of male bachelor's degree recipients were \$75,200. This exceeded median earnings of male high school graduates by 65% (\$29,600).
- In 2018, 25% of females with a college degree earned less than \$40,500 and 25% earned more than \$81,600. Among male college graduates, 25% earned less than \$50,400 and 25% earned above \$110,000.
- In 2018, 61% of males with some college education but no degree and 68% of males holding associate degrees earned more than the median earnings of male high school graduates (\$45,600).
- In 2018, 61% of females with some college education but no degree and 67% of females holding associate degrees earned more than the median earnings of female high school graduates (\$32,600).

ALSO IMPORTANT:

- In 2018, 14% of female high school graduates earned more than the median for female college graduates, and 15% of female college graduates earned less than the median for female high school graduates.
- In 2018, 17% of male high school graduates earned more than the median for male college graduates, and 21% of male college graduates earned less than the median for male high school graduates.
- Figure 2.5 includes only full-time year-round workers ages 25 and older. Among both men and women, the percentage of individuals who are employed rises with level of education, as does the percentage of those employed who are working full time. (Bureau of Labor Statistics, Labor Force Statistics from the Current Population Survey)

FIGURE 2.5 Median, 25th Percentile, and 75th Percentile Earnings of Full-Time Year-Round Workers Age 25 and Older, by Gender and Education Level, 2018



NOTES: This graph shows earnings by education level separately for female and male full-time year-round workers age 25 and older. The bottom of each bar shows the 25th percentile; 25% of the people in the group earn less than this amount. The box shows median earnings for the group. The top of the bar shows the 75th percentile; 25% of the people in the group earn more than this amount.

SOURCES: U.S. Census Bureau, Income, Poverty, and Health Insurance in the United States, 2018, PINC-03; calculations by the authors.

Earnings over Time by Gender and Education Level

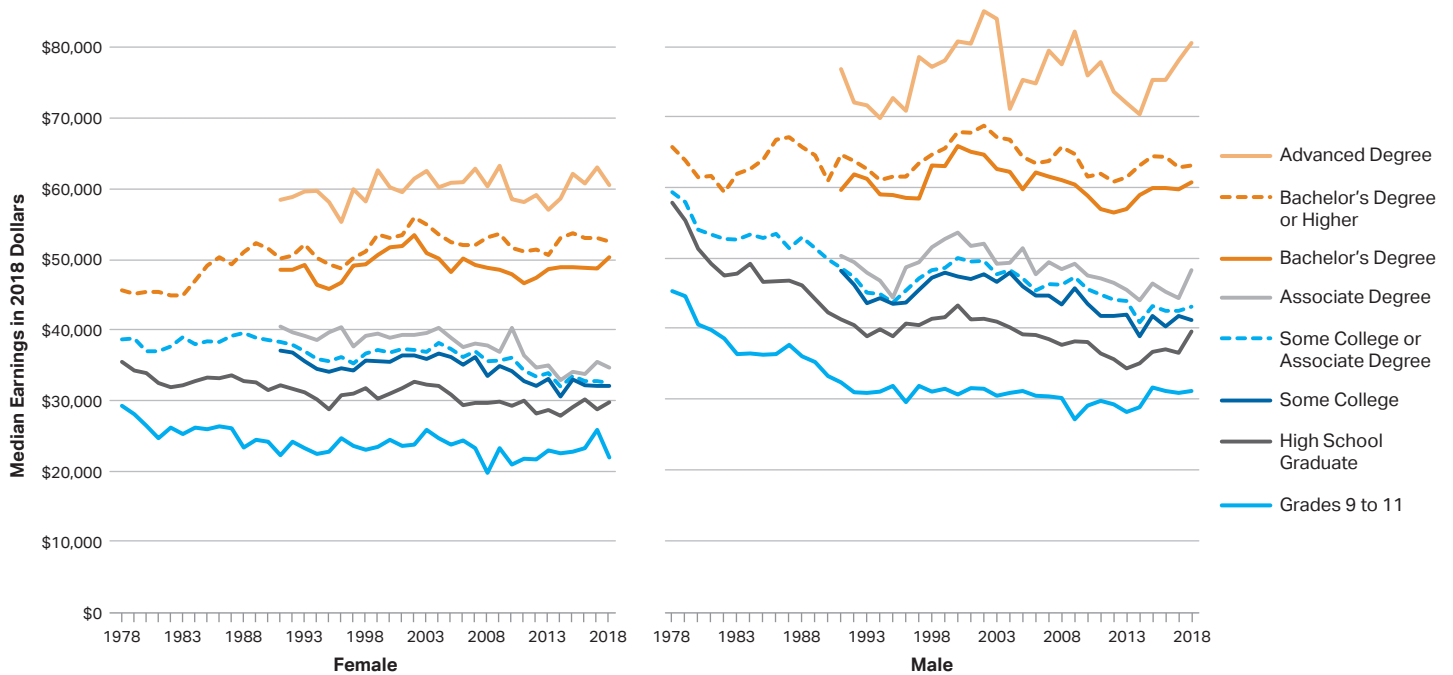
In 2018, among full-time year-round workers between the ages of 25 and 34, median earnings for women with at least a bachelor's degree were \$52,500, compared with \$29,800 for those with a high school diploma.

- In 2018, among full-time year-round workers between the ages of 25 and 34, median earnings for men with at least a bachelor's degree were \$63,300, compared with \$39,800 for those with a high school diploma.
- Between 2013 and 2018, inflation-adjusted median earnings of full-time year-round workers age 25 to 34 increased by 15% for male high school graduates and 3% for men with at least a bachelor's degree. For women, the five-year percentage change was 4% for both high school graduates and those with at least a bachelor's degree.
- Among those with a bachelor's degree or higher, 26% of men and 33% of women had advanced degrees in 2018, compared with 28% of men and 30% of women a decade earlier.

ALSO IMPORTANT:

- In 2018, 54% of 25- to 34-year-old women worked full time, ranging from 26% of those without a high school diploma to 65% of those with at least a bachelor's degree.
- In 2018, 72% of 25- to 34-year-old men worked full time, ranging from 50% of those without a high school diploma to 78% of those with at least a bachelor's degree.

FIGURE 2.6 Median Earnings (in 2018 Dollars) of Full-Time Year-Round Workers Age 25 to 34, by Gender and Education Level, 1978 to 2018



Percentage of "Bachelor's Degree or Higher" with Advanced Degrees (Master's, Doctoral, or Professional)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Female	24%	23%	22%	24%	26%	27%	27%	27%	28%	31%	30%	28%	32%	31%	32%	31%	32%	34%	32%	32%	33%
Male	22%	22%	21%	23%	24%	25%	25%	25%	25%	24%	28%	27%	24%	25%	25%	28%	28%	28%	30%	27%	26%

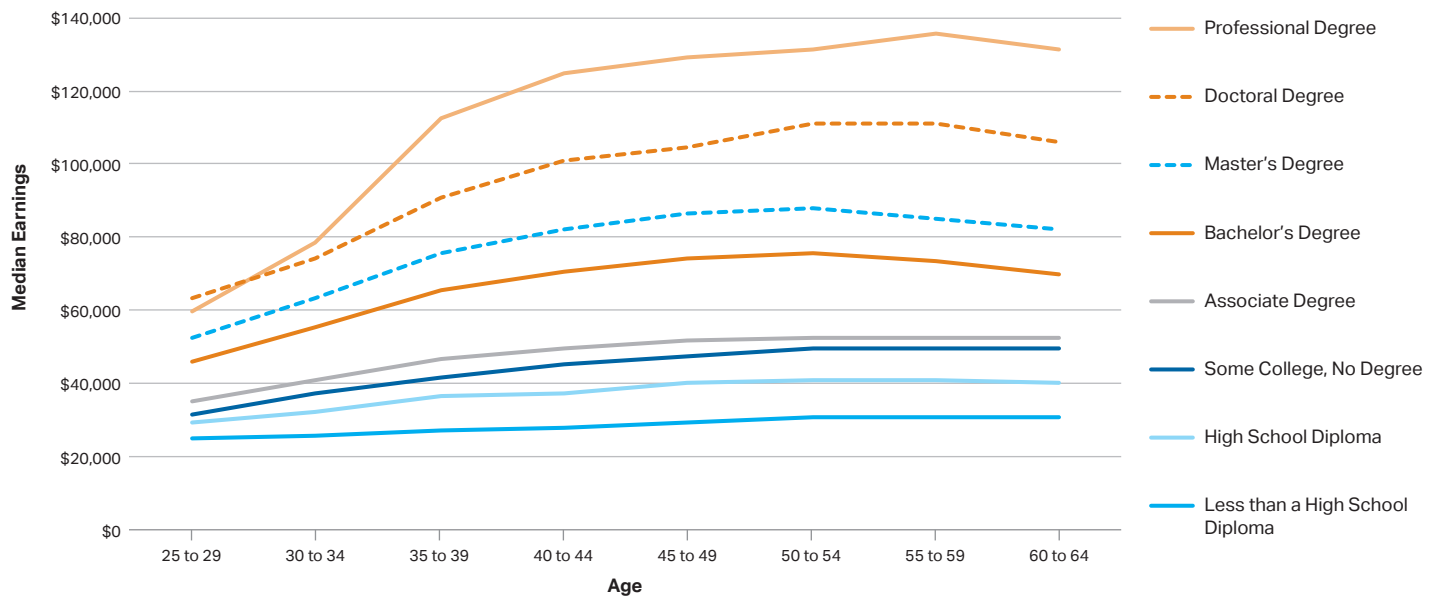
SOURCES: Data for 1993 and prior: NCES, *The Condition of Education, 2014*; Data for 1994 and after: U.S. Census Bureau, Income, Poverty, and Health Insurance in the United States, 1995 to 2018, PINC tables; CPI-U: Bureau of Labor Statistics; calculations by the authors.

Earnings Paths

Across all education levels, earnings generally increase fastest between the ages of 25 and 34 and peak between the ages of 50 and 59.

- Between 2013 and 2017, median earnings for individuals age 50 to 54 working full time year-round whose highest degree was a bachelor's degree were 65% higher than the median earnings for 25- to 29-year-olds with this level of education. For high school graduates, earnings of the older group were 41% higher than earnings of the younger group.
- The gap between median earnings of college graduates without advanced degrees and high school graduates ranged from \$16,700 (57%) for 25- to 29-year-olds to \$34,200 (85%) for 45- to 49-year-olds between 2013 and 2017.
- Between 2013 and 2017, the gap between median earnings of associate degree holders and high school graduates was \$6,100 (21%) for 25- to 29-year-olds and \$12,300 (33%) for 40- to 44-year-olds.
- The earnings path is the steepest for individuals with advanced degrees. Between 2013 and 2017, the gap in median earnings between those with professional degrees and those with bachelor's degrees was 30% for 25- to 29-year-olds and 88% for 60- to 64-year-olds.

FIGURE 2.7 Median Earnings (in 2017 Dollars) of Full-Time Year-Round Workers, by Age and Education Level, 2013–2017



Median Earnings of Full-Time Year-Round Workers, 2013–2017								
	Less than a High School Diploma	High School Diploma	Some College, No Degree	Associate Degree	Bachelor's Degree	Master's Degree	Doctoral Degree	Professional Degree
25 to 29	\$24,900	\$29,300	\$31,400	\$35,400	\$46,000	\$52,300	\$63,700	\$59,600
50 to 54	\$30,600	\$41,200	\$49,400	\$52,300	\$75,800	\$88,100	\$111,200	\$131,500
60 to 64	\$31,100	\$40,400	\$49,300	\$52,300	\$70,000	\$82,600	\$106,200	\$131,500

NOTES: Based on the 2013 to 2017 American Community Survey five-year combined data file. Earnings are adjusted to 2017 dollars using the Consumer Price Index for all urban consumers from the Bureau of Labor Statistics. Median earnings are the median of combined data.

SOURCES: U.S. Census Bureau, American Community Survey, 2013–2017 Five-Year Public Use Microdata Sample; calculations by the authors.

Earnings by Occupation and Education Level

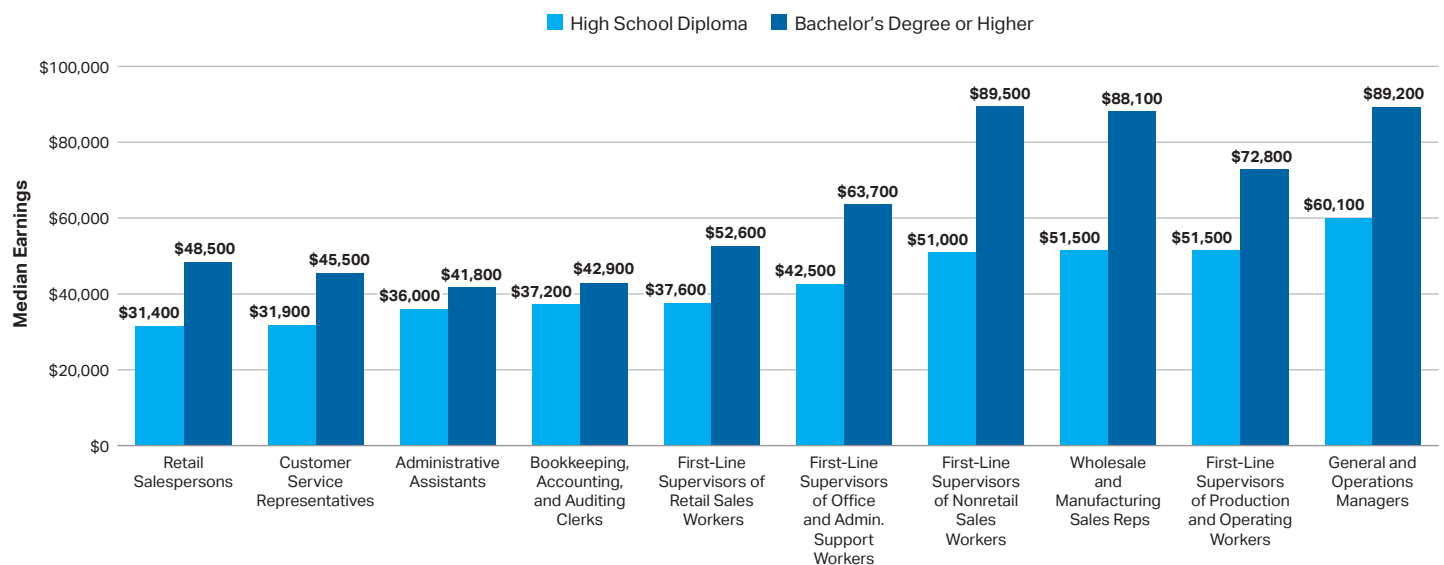
Many 4-year college graduates work in occupations that also employ a significant number of individuals with no college credentials. In all these occupations, bachelor's degree recipients earn more than high school graduates on average.

- Within each education level, earnings vary considerably by occupation.
- Between 2013 and 2017, among occupations that employ large numbers of both high school graduates and college graduates, the median earnings of those with only a high school diploma ranged from \$31,400 (in 2017 dollars) for retail salespersons to \$60,100 for general and operations managers; the median earnings of those with at least a bachelor's degree ranged from \$41,800 (in 2017 dollars) for administrative assistants to \$89,500 for first-line supervisors of nonretail workers.
- Between 2013 and 2017, the earnings gap between those with at least a bachelor's degree and high school graduates working in the same occupation varied significantly, ranging from 15% for bookkeeping, accounting, and auditing clerks to 75% for first-line supervisors of nonretail sales workers.

ALSO IMPORTANT:

- Figure 2.8 shows occupational differences in earnings, which do not necessarily correspond to differences in earnings related to postsecondary fields of study shown in Figure 2.9.
- Some occupations require at least a bachelor's degree. While most of these occupations (for example, doctors and lawyers) have high payoffs in terms of earnings, others (such as teaching) are not as remunerative. (Baum, Kurose, & Ma, 2013, Section 8)

FIGURE 2.8 Median Earnings (in 2017 Dollars) of Full-Time Workers Age 25 and Older with a High School Diploma and Those with at Least a Bachelor's Degree, by Occupation, 2013–2017



	Retail Salespersons	Customer Service Reps	Administrative Assistants	Bookkeeping, Accounting, and Auditing Clerks	First-Line Supervisors of Retail Workers	First-Line Supervisors of Office and Admin. Support Workers	First-Line Supervisors of Nonretail Workers	Wholesale and Manufacturing Sales Reps	First-Line Supervisors of Production and Operating Workers	General and Operations Managers
% of FT Workers with										
High School Diploma	30%	26%	28%	29%	29%	22%	21%	17%	38%	16%
Bachelor's Degree or Higher	26%	27%	22%	18%	26%	35%	44%	49%	17%	47%
BA/HS Earnings Ratio	1.54	1.43	1.16	1.15	1.40	1.50	1.75	1.71	1.41	1.48

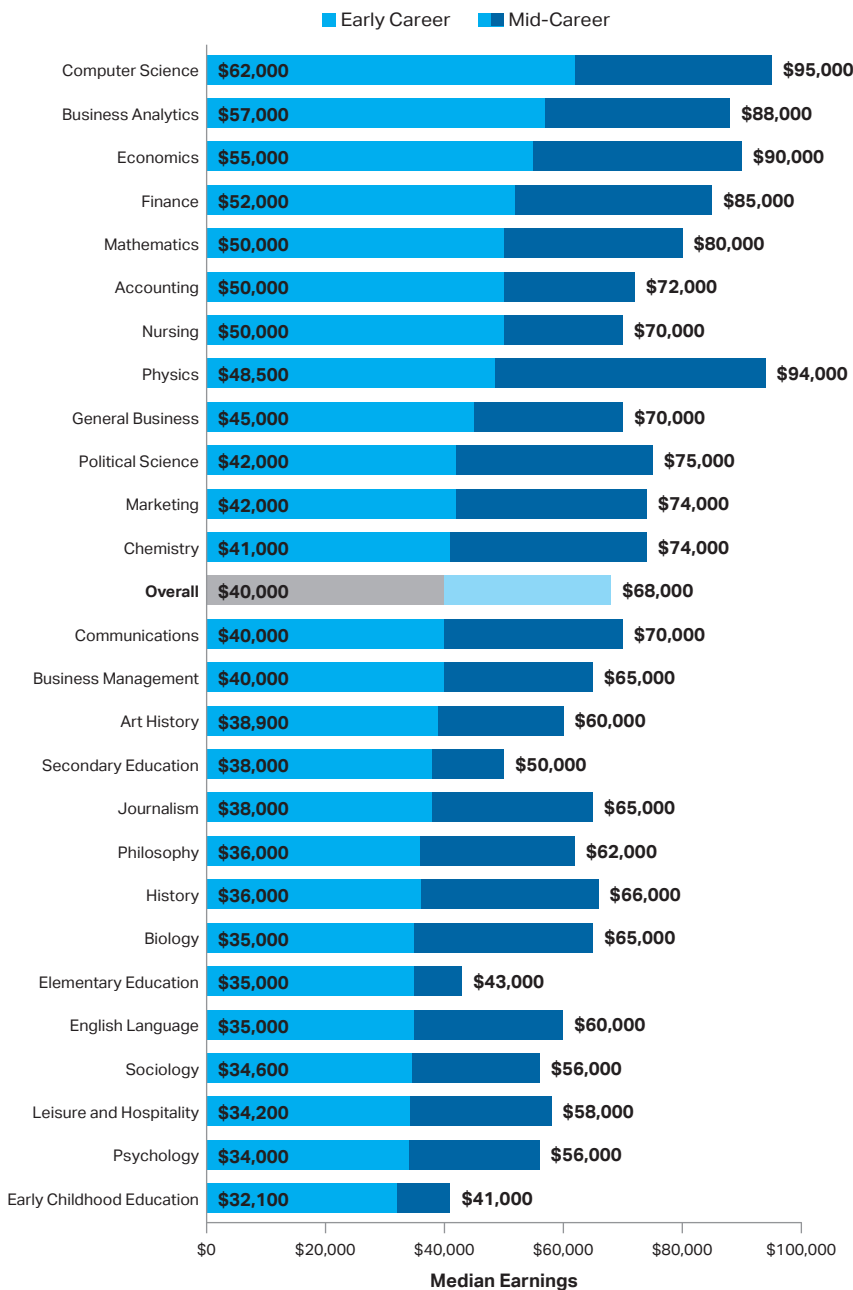
NOTE: Includes 10 largest occupations with at least 15% of full-time workers with only a high school diploma and another 15% with at least a bachelor's degree.

SOURCES: U.S. Census Bureau, American Community Survey, 2013–2017 Five-Year Public Use Microdata Sample; calculations by the authors.

Earnings by College Major

In 2016 and 2017, the median earnings for bachelor’s degree recipients without an advanced degree was \$40,000 per year for those in early career (age 22 to 27) and \$68,000 for those in their mid-career (age 35 to 45).

FIGURE 2.9 Median Earnings of Early Career and Mid-Career College Graduates Working Full Time, by College Major, 2016–2017



In 2016 and 2017, median earnings for early career bachelor’s degree recipients ranged from \$32,100 a year for early childhood education majors to \$62,000 for computer science majors. For those in mid-career, median earnings ranged from \$41,000 to \$95,000.

The differences in earnings between early career and mid-career varies greatly by major. For example, the gap between early career and mid-career earnings is smaller for nursing and accounting majors, who have relatively high early career earnings. By contrast, mid-career earnings are 86% higher than early career earnings for biology majors.

ALSO IMPORTANT:

The share of college graduates who ultimately attend graduate school varies by college major. Overall, 37% of college graduates age 25 to 65 had a graduate degree in 2016 and 2017. This rate ranges from 17% for marketing majors to over 60% for biology, chemistry, and physics majors. (Federal Reserve Bank of New York, 2019)

While recent college graduates have relatively low levels of unemployment across majors, 43% were underemployed in 2016 and 2017. These rates vary from 11% and 16% for nursing and elementary education majors to 60% and 63% for business management and leisure and hospitality majors. (Federal Reserve Bank of New York, 2019)

Research suggests that different fields of study have different labor market payoffs, even after accounting for institution and peer quality. In some cases, the additional labor market payoff to a particular field of study is as large as the college premium itself. (Kirkeboen, Leuven, & Mogstad, 2016).

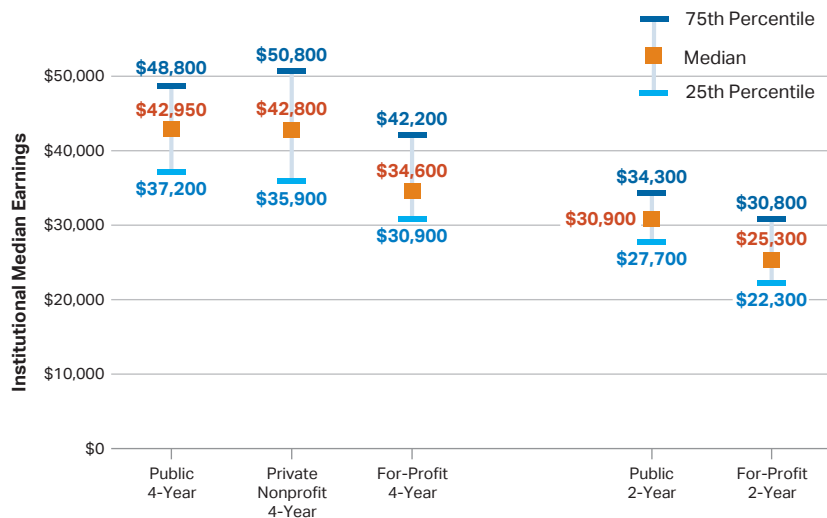
NOTES: Figures represent a 2016 and 2017 average. Median earnings are for full-time workers whose highest education level is a bachelor’s degree only. Early career graduates are those age 22 to 27, and mid-career graduates are those age 35 to 45. All figures exclude those currently enrolled in school.

SOURCE: Federal Reserve Bank of New York, *The Labor Market for Recent College Graduates*, based on Census Bureau’s American Community Survey data.

Variation in Earnings by Institutional Sector

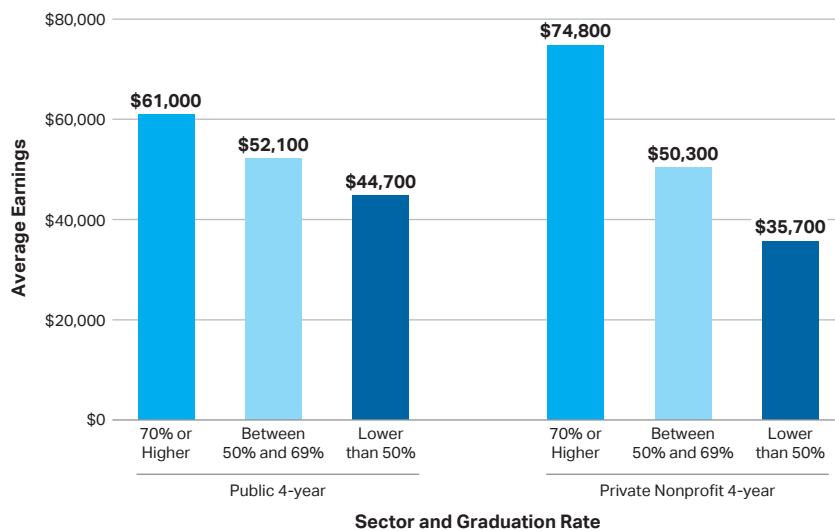
Institutional median earnings vary by sector. From 2014 to 2015, the typical 4-year college's median earnings of 2003-04 and 2004-05 federal student aid recipients ranged from \$34,600 at for-profit institutions to \$42,800 at private nonprofit institutions and \$42,950 at public institutions.

FIGURE 2.10A Distribution of 2014 and 2015 Institutional Median Earnings of Federal Student Aid Recipients in 2003-04 and 2004-05, by Sector



NOTES: Median earnings by sector are based on median earnings of federal student aid recipients in each institution. The bottom of each bar shows the 25th percentile; 25% of institutions in the group had median earnings below this amount. The orange box shows median earnings for the group. The top of the bar shows the 75th percentile; 25% of institutions had median earnings above this amount.

FIGURE 2.10B Average 2014 and 2015 Earnings of Dependent Federal Student Aid Recipients in 2003-04 and 2004-05, by Sector and Graduation Rate



NOTES: Earnings are defined as mean earnings of dependent students working and not enrolled 10 years after college entry. Data for 2003-04 and 2004-05 pooled cohorts and earnings are measured in 2014 and 2015 calendar years. College graduation rate categories are based on six-year bachelor's degree graduation rates for the 2011 entering cohort (150% of normal time).

SOURCES: U.S. Department of Education, College Scorecard Data; NCES, IPEDS fall 2017 data; calculations by the authors.

- The 75th percentile of institutional median earnings at public 2-year colleges was lower than the 25th percentiles of public and private nonprofit 4-year institutions.
- The typical public 2-year college's median earnings were higher than those of for-profit 2-year institutions at \$30,900 and \$25,300, respectively.
- Average earnings were about the same (\$52,100 versus \$50,300) for dependent students who attended public or private nonprofit 4-year colleges with 6-year bachelor's degree graduation rates between 50% and 69%.
- Variation in earnings by colleges' bachelor's degree graduation rate was larger within the private nonprofit sector than in the public sector.

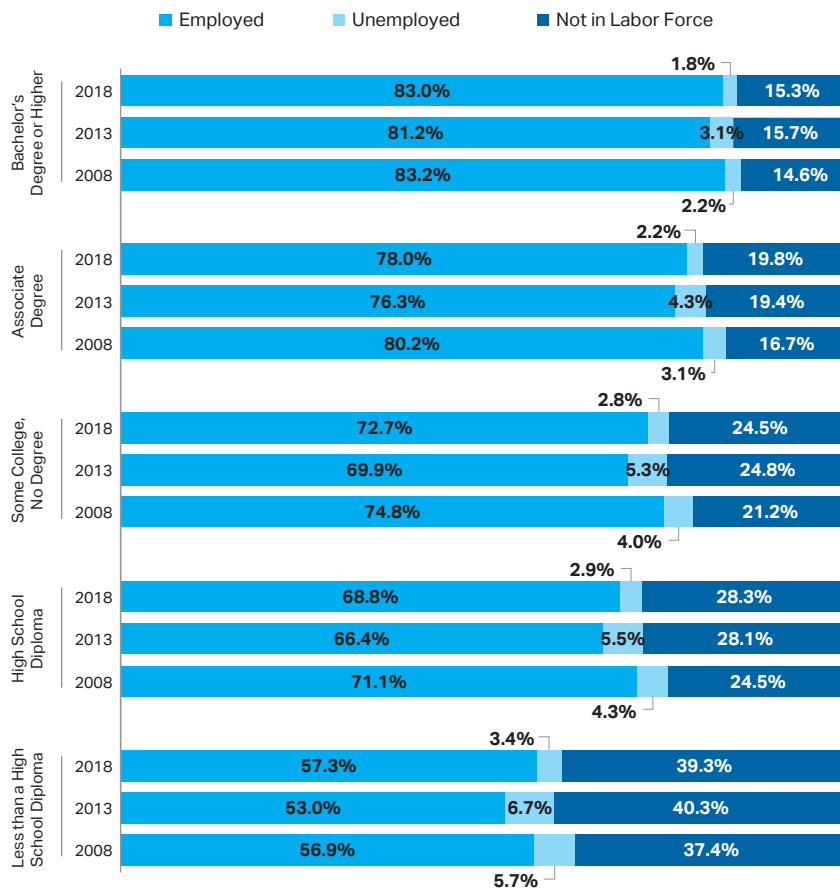
ALSO IMPORTANT:

- The College Scorecard data include median and mean earnings aggregated at the college level for students who have received federal student aid, disaggregated by dependency status. Earnings are calculated among students who are employed and not enrolled in college. Therefore, students who are enrolled in graduate school at the time of measurement are not included. However, students who have completed advanced degrees within 10 years of college entry are included. Finally, reported average earnings include both college degree completers and noncompleters. (The College Scorecard, Data Documentation)
- The amount of time students spend in school, the degrees they earn, field of study, completion rates, and incoming student characteristics all vary across institutional sectors, which influences the earnings data reported here.
- Researchers have found a positive causal relationship between college selectivity and earnings, especially among certain subgroups of students. (Dale & Krueger, 2014; Hoekstra, 2009; Zimmerman, 2014)

Employment

In 2018, among adults between the ages of 25 and 64, 69% of high school graduates, 73% of those with some college but no degree, 78% of those with associate degrees, and 83% of those with 4-year college degree were employed.

FIGURE 2.11 Civilian Population Age 25 to 64: Percentage Employed, Unemployed, and Not in Labor Force, 2008, 2013, and 2018



- Between 2008 and 2013, the percentage of individuals who were either unemployed or not in the labor force increased across all education levels.
- Between 2013 and 2018, the percentage of individuals who were unemployed declined and the percentage not in the labor force remained stable.
- The percentage of individuals who were not in the labor force was higher in 2018 than in 2008. The increase ranged from 0.7 percentage points for those with a bachelor's degree or higher to 3.8 percentage points for those with a high school diploma.

ALSO IMPORTANT:

- The percentage of individuals who are unemployed (Figure 2.11) differs from the unemployment rate (Figure 2.12A), which is the ratio of unemployed individuals to the sum of employed and unemployed individuals, excluding those who are not in the labor force.
- The length of unemployment spells has also fluctuated over time. In 2018, 1.4% of the civilian labor force was unemployed for 15 weeks or longer. This percentage reached a peak of 5.7% in 2010, at the height of the Great Recession. (Bureau of Labor Statistics, Table A-15, Alternative Measures of Labor Underutilization)

Civilian Population Age 25 to 64, Number in Millions, 2008, 2013, and 2018

	Less than a High School Diploma	High School Diploma	Some College, No Degree	Associate Degree	Bachelor's Degree or Higher
2008	18.4	48.4	28.4	15.7	50.9
2013	17.4	47.8	28.4	17.7	55.6
2018	15.9	47.3	27.3	18.5	63.3

NOTES: To be considered a member of the labor force, individuals must either be employed or be actively seeking employment. Percentages may not sum to 100 because of rounding.

SOURCES: U.S. Census Bureau, Basic Monthly Current Population Survey, January through December 2008, 2013, and 2018; calculations by the authors.

Unemployment

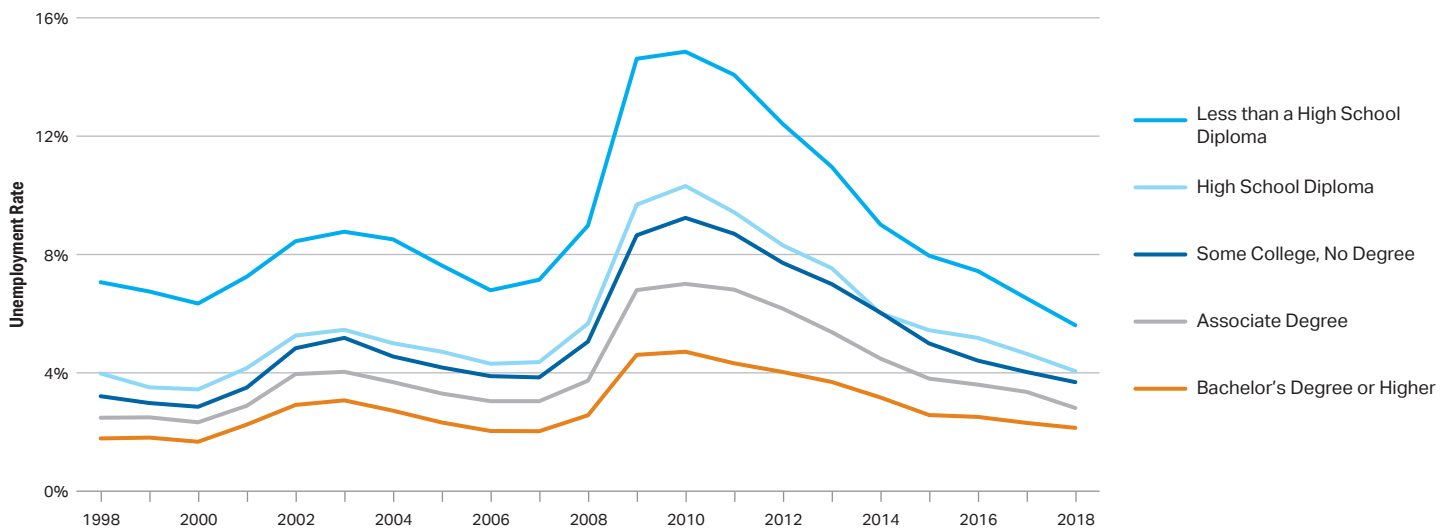
The unemployment rate for individuals age 25 and older with at least a bachelor's degree has consistently been about half of the unemployment rate for high school graduates.

- Unemployment rates for all education groups peaked in 2010 at 4.7% for bachelor's degree holders, 7.0% for associate degree holders, and 10.3% for those with a high school diploma.
- Since 2010, unemployment rates have been declining every year across all education groups. In 2018, unemployment rates were 2.1% for bachelor's degree holders, 2.8% for associate degree holders, and 4.1% for those with a high school diploma.
- Over the 20-year period from 1998 to 2018, the largest gaps between the unemployment rates of bachelor's degree recipients and high school graduates occurred between 2009 and 2011 (about 5 to 6 percentage point gaps). The smallest gaps occurred between 1999 and 2001, as well as in 2018 (about 2 percentage point gaps).

ALSO IMPORTANT:

- Among individuals with the same level of educational attainment, the unemployment rate differs by age and by race/ethnicity (Figure 2.12B and Figure 2.12C).

FIGURE 2.12A Unemployment Rates of Individuals Age 25 and Older, by Education Level, 1998 to 2018



Unemployment Rates of Individuals Age 25 and Older, by Education Level, 1998 to 2018, Selected Years

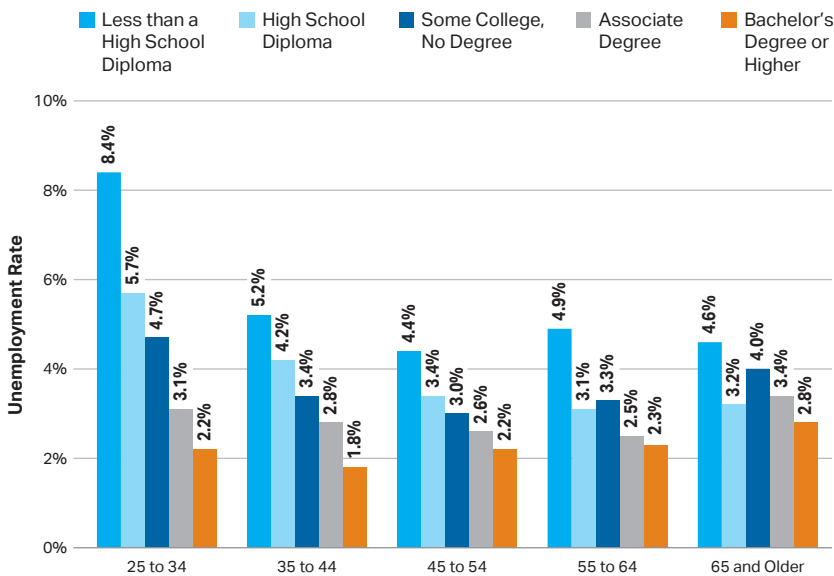
	Unemployment Rate					BA/HS Unemployment Rate Ratio
	Less than a HS Diploma	High School Diploma	Some College, No Degree	Associate Degree	Bachelor's Degree or Higher	
1998	7.1%	4.0%	3.2%	2.5%	1.8%	0.45
2003	8.8%	5.5%	5.2%	4.0%	3.1%	0.56
2008	9.0%	5.7%	5.1%	3.7%	2.6%	0.45
2013	11.0%	7.5%	7.0%	5.4%	3.7%	0.49
2018	5.6%	4.1%	3.7%	2.8%	2.1%	0.53

SOURCES: Bureau of Labor Statistics, Labor Force Statistics from the Current Population Survey; calculations by the authors.

Unemployment

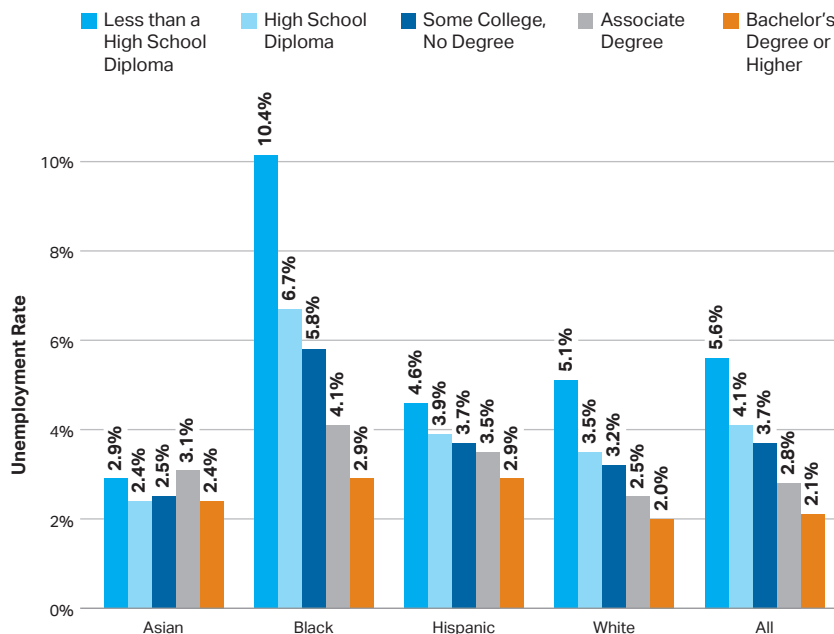
In 2018, the unemployment rate for 25- to 34-year-olds with at least a bachelor's degree was 2.2%, while the unemployment rate for high school graduates was 5.7%.

FIGURE 2.12B Unemployment Rates of Individuals Age 25 and Older, by Age and Education Level, 2018



SOURCES: U.S. Census Bureau, Current Population Survey, January through December 2018; calculations by the authors.

FIGURE 2.12C Unemployment Rates of Individuals Age 25 and Older, by Race/Ethnicity and Education Level, 2018



SOURCE: Bureau of Labor Statistics, Labor Force Statistics from the Current Population Survey, Table 7.

- In 2018, unemployment rates of 25- to 34-year-olds were 4.7% for those with some college but no degree and 3.1% for those with associate degrees.
- Unemployment rates decline between the ages of 25 and 54 for those with an associate degree or less. For those with at least a bachelor's degree, the unemployment rate is lowest for individuals between the ages of 35 to 44.
- The gaps in unemployment rates by education level are larger for blacks than for other racial/ethnic groups. In 2018, the gap between the unemployment rates for blacks with at least a bachelor's degree and black high school graduates was 3.8 percentage points, compared with 1.5 percentage points for whites, 1 percentage point for Hispanics, and no gap for Asians.

ALSO IMPORTANT:

- Research suggests that graduating from college during a recession can result in lower initial earnings driven by adverse labor market conditions. (Oreopoulos, von Wachter, & Heisz, 2012)
- The gap in labor force participation rates between those with at least a bachelor's degree and those with a high school diploma ranged from 9 percentage points for Hispanics to 16 percentage points for Asians and whites, and 18 percentage points for blacks.

Labor Force Participation Rates of Individuals Age 25 and Older, by Race/Ethnicity and Education Level, 2018

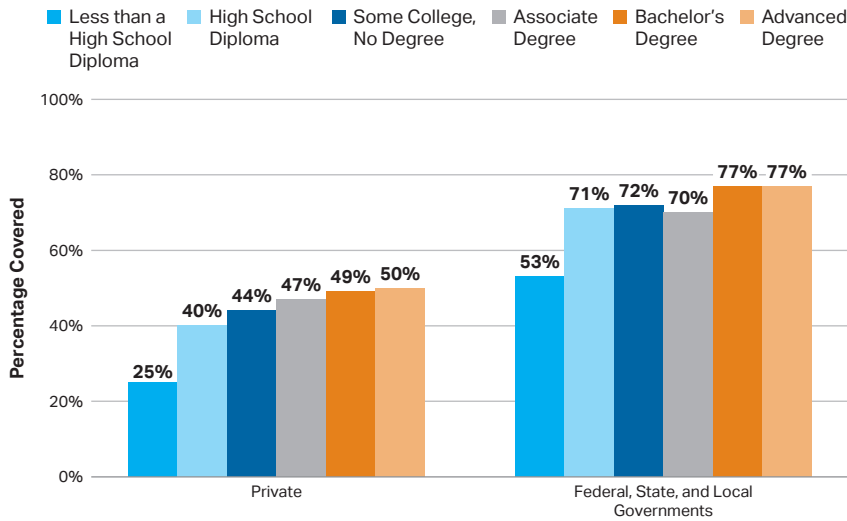
	Less than a High School Diploma	High School Diploma	Some College, No Degree	Associate Degree	Bachelor's Degree or Higher
Asian	41%	59%	66%	70%	75%
Black	36%	60%	67%	73%	78%
Hispanic	59%	70%	73%	76%	79%
White	48%	57%	62%	69%	73%

SOURCE: Bureau of Labor Statistics, Labor Force Statistics from the Current Population Survey, Table 7.

Retirement Plans

Individuals with higher education levels are more likely than others to be offered and to participate in retirement plans provided by their employers.

FIGURE 2.13 Employer-Provided Retirement Plan Coverage Among Full-Time Year-Round Workers Age 25 and Older, by Sector and Education Level, 2018



Participation Rates in Employer-Provided Retirement Plans Among Eligible Full-Time Year-Round Workers Age 25 and Older, by Sector and Education Level, 2018

Sector	Less than a High School Diploma	High School Diploma	Some College, No Degree	Associate Degree	Bachelor's Degree	Advanced Degree
Private	72%	80%	83%	84%	88%	89%
Federal, State, and Local Governments	89%	91%	93%	94%	94%	96%

Employer-Provided Retirement Plan Coverage Among Full-Time Year-Round Workers Age 25 and Older in the Private Sector, by Employer Size and Education Level, 2018

Number of Employees	Less than a High School Diploma	High School Diploma	Some College, No Degree	Associate Degree	Bachelor's Degree	Advanced Degree
Less than 100	13%	24%	28%	30%	33%	37%
100 to 999	32%	45%	49%	50%	51%	52%
1000 or More	44%	55%	55%	59%	57%	56%

SOURCES: U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplement, 2019; calculations by the authors.

- In 2018, 40% of high school graduates age 25 and older working full time year-round in the private sector were offered a retirement plan, compared with 49% of those whose highest degree was a bachelor's degree. In the public sector, these percentages were 71% and 77%, respectively.
- Among those to whom these plans were available, participation rates were higher for individuals with higher education levels. In the private sector, participation rates ranged from 72% among full-time year-round workers with less than a high school diploma to 89% among those with advanced degrees. Participation rates ranged from 89% to 96% in the public sector.
- Within the private sector, larger employers were more likely to offer retirement plans than smaller employers.

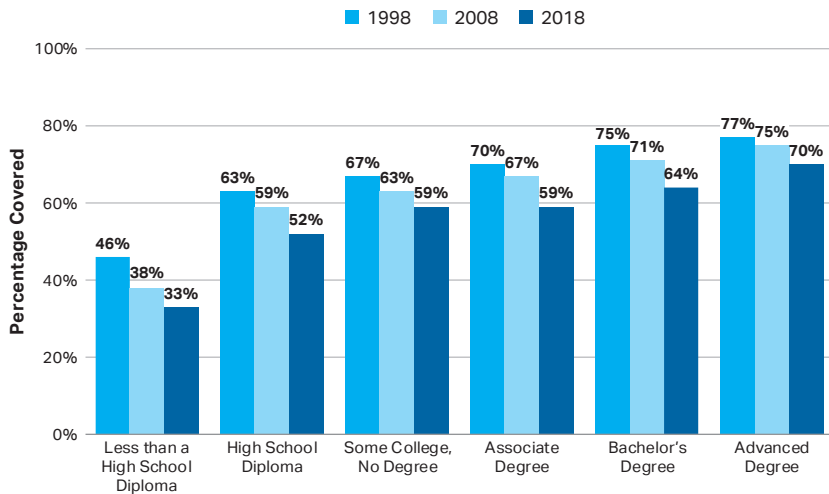
ALSO IMPORTANT:

- In 2018, the percentage of part-time workers (those who worked at least 20 hours a week for at least 26 weeks but less than full time year-round) who were offered retirement plans ranged from 15% for those without a high school diploma and 30% for high school graduates to 41% for bachelor's degree recipients and 47% for those with an advanced degree. (U.S. Census Bureau, 2019 Annual Social and Economic Supplement; calculations by the authors)
- The payout of defined contribution plans depends on the amount accumulated in a personal account. Over time, these plans have become more common than defined benefits plans, which provide a predetermined income level each year after retirement.
- Low earnings levels, which are more common among individuals with lower education levels, may explain some of the difference in participation rates in employer-provided retirement plans that require workers to contribute a portion of their wages.

Health Insurance

Among both full-time and part-time workers, those with higher levels of educational attainment are more likely than others to be covered by employer-provided health insurance.

FIGURE 2.14A Employer-Provided Health Insurance Coverage Among Full-Time Year-Round Workers Age 25 and Older, by Education Level, 1998, 2008, and 2018

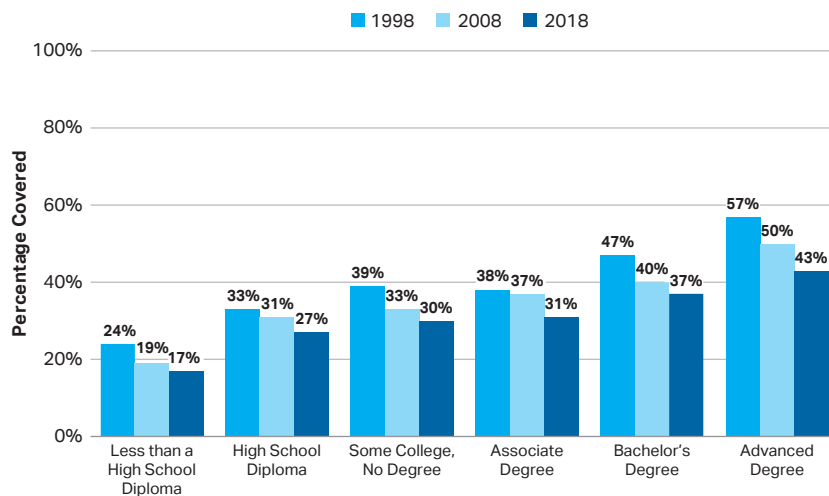


- In 2018, 52% of high school graduates age 25 and older working full time year-round were covered by employer-provided health insurance, compared with 64% of those with a bachelor's degree and 70% of those with advanced degrees.
- Employer-provided health insurance coverage has declined over the past 20 years for both full-time and part-time workers. Between 1998 and 2018, health insurance coverage declined by 7 to 11 percentage points for individuals with at least some college education working full time year-round. The decline was 11 to 13 percentage points for individuals with a high school diploma or less.
- In 1998, 57% of advanced degree holders, 47% of bachelor's degree holders, and 33% of high school graduates working part time were covered by employer-provided health insurance. By 2018, those percentages had declined to 43%, 37%, and 27%, respectively.

ALSO IMPORTANT:

- In 2017, when 10% of adults age 18 and older were not covered by health insurance at any time during the year, only 5% of those with a bachelor's degree or higher were not covered. This was the case for 8% of those with associate degrees, 10% of those with some college but no degree, and 12% of high school graduates. (U.S. Census Bureau, Health Insurance Coverage Status and Type of Coverage by Selected Characteristics, 2017, Table HI01)
- In 2017, when 36% of adults age 18 and older were covered by government health care plans, 26% of adults with a bachelor's degree or higher, 33% of those with an associate degree, 36% of those with some college but no degree, and 43% of high school graduates had government coverage. (U.S. Census Bureau, Health Insurance Coverage Status and Type of Coverage by Selected Characteristics, 2017, Table HI01)

FIGURE 2.14B Employer-Provided Health Insurance Coverage Among Part-Time Workers Age 25 and Older, by Education Level, 1998, 2008, and 2018



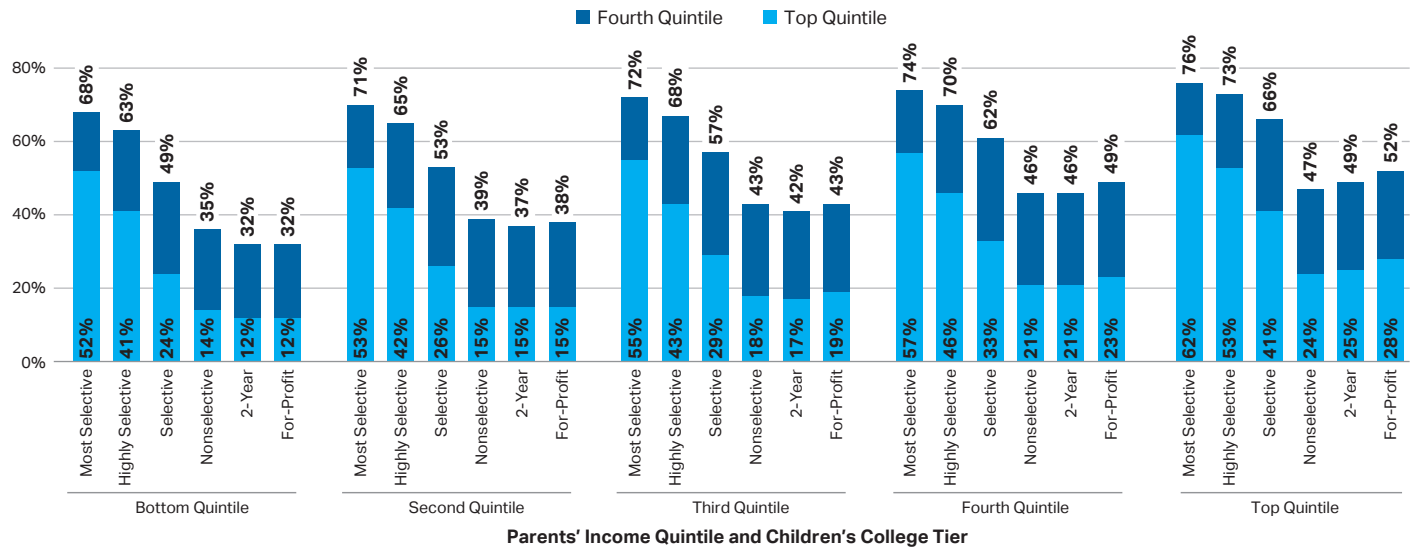
NOTE: Part-time workers are those who worked at least 20 hours a week for at least 26 weeks during the year, but did not work full time year-round.

SOURCES: U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplement, 1999, 2009, and 2019; calculations by the authors.

Social Mobility

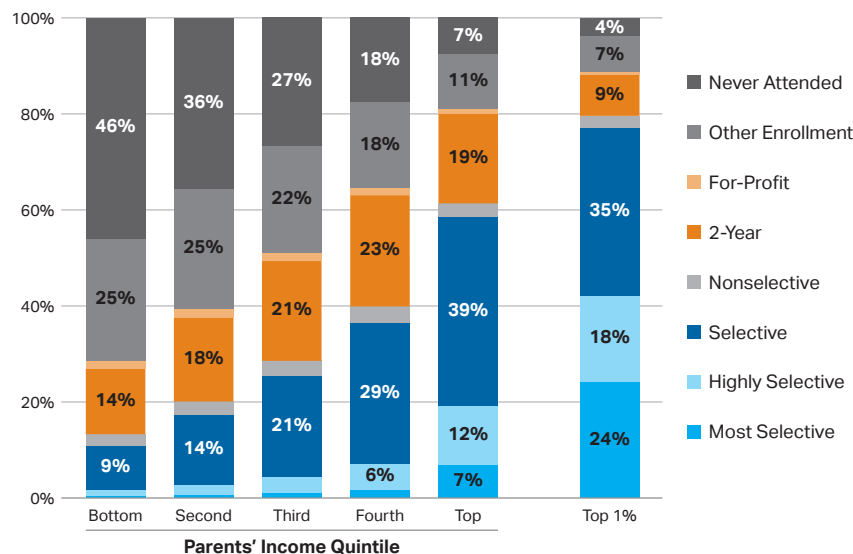
The percentage of students who end up in the top two income quintiles as adults is strongly correlated with the selectivity of the college they attend. However, within each college selectivity level, this percentage is highest for those from more affluent backgrounds.

FIGURE 2.15A Percentage of Children in Top Two Income Quintiles as Adults, by Parents' Income Quintile and Children's College Tier: Children Born in 1980 to 1982



NOTE: Incomes of adult children were as of 2014 and measured in 2015 dollars.

FIGURE 2.15B Distribution of College Enrollment by Parents' Income Quintile, Children Born in 1980 to 1982



NOTES: Other enrollment includes children who attended colleges with fewer than 100 students, those who first enrolled between the ages of 23 and 28, and those who attended less-than-2-year institutions. College tiers are defined using Barron's selectivity categories for 4-year institutions. The 2-year category includes both public and private non-profit schools and for-profit includes both 2-year and 4-year institutions.

SOURCES: Opportunity Insights, Mobility Report Cards: The Role of Colleges in Intergenerational Mobility, Tables 6 and 8; calculations by the authors.

- Among those who attended the most selective colleges, 68% of children from the lowest parent income quintile were in the top two income quintiles as adults, compared with 72% from the middle and 76% from the highest income quintiles.
- Children from lower-income backgrounds were less likely to attend more selective institutions. Children whose parents were in the top 1% of the income distribution were nearly 50 times more likely to attend the most selective institutions as those whose parents were in the bottom 20%.

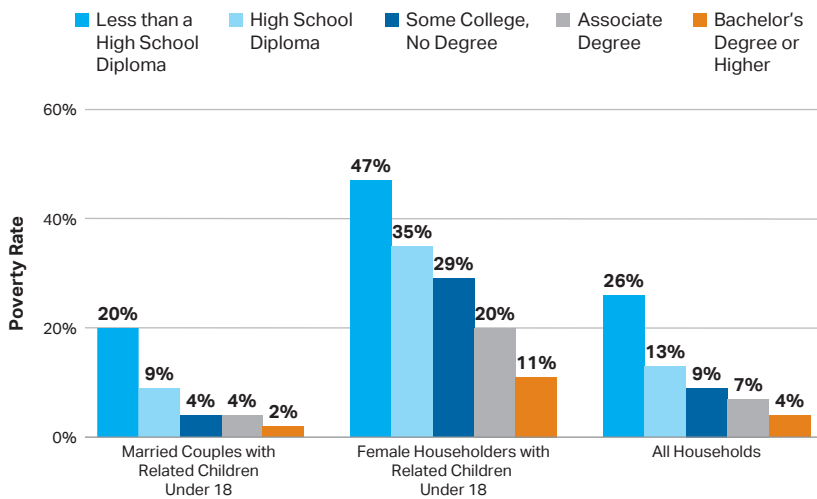
ALSO IMPORTANT:

- Overall, the percentage of children who attend any college that end up in the top two income quintiles as adults range from 36% and 43% in the bottom two parent income quintiles to 55% and 62% for the top two income quintiles.
- Within each college selectivity tier, rates of upward mobility for students from the lowest income quintile differ substantially across colleges with similar earnings outcomes. This is driven by the fact that access for low-income students varies significantly across colleges. (Chetty et al., 2017)
- These data do not take into account whether or not a student earned a degree. Completion rates are higher at more selective colleges.

Poverty

For all household types, the poverty rate falls as the level of education increases. The 2018 poverty rate for individuals with an associate degree was 7%, compared with 13% for high school graduates with no college experience.

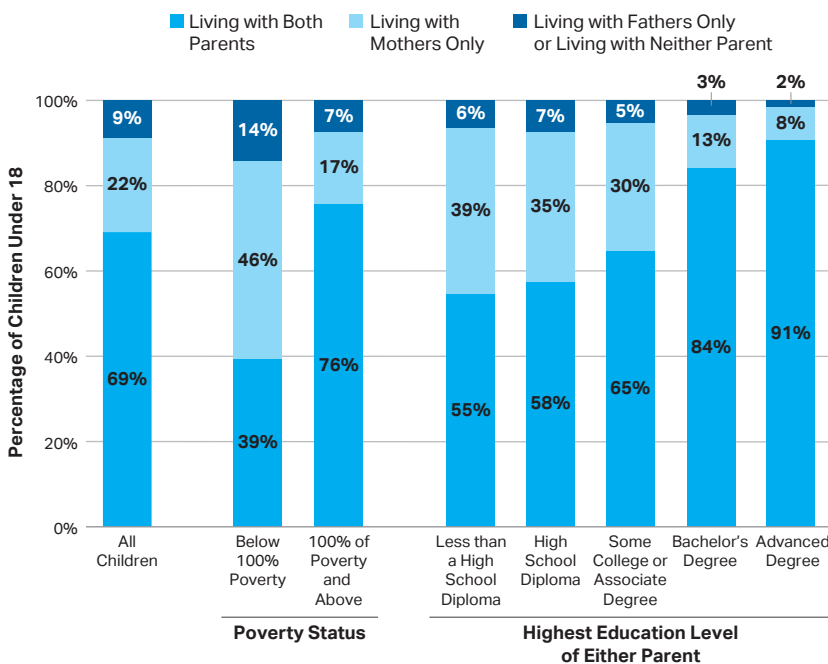
FIGURE 2.16A Percentage of Individuals Age 25 and Older Living in Households in Poverty, by Household Type and Education Level, 2018



SOURCES: U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplement, 2019; calculations by the authors.

- Within each education level, individuals living in households headed by unmarried females with children under 18 have much higher poverty rates than those living in other household types. For example, the 2018 poverty rate for individuals with some college but no degree was 29% for those living in households headed by unmarried females with children, compared with 9% overall for this education group.
- In 2018, 69% of all children under age 18 lived with both parents. Of children under 18, 39% of those below 100% poverty thresholds lived with both parents, compared with 76% of those above 100% poverty thresholds.
- The percentage of children under age 18 who lived with both parents ranged from 55% for those whose parents did not graduate from high school and 58% of those whose parents had a high school diploma to 91% of those whose parents had an advanced degree.

FIGURE 2.16B Living Arrangements of Children Under 18 Years of Age, by Poverty Status and Highest Education of Either Parent, 2018



NOTES: In 2018, 4% of children under 18 did not live with either parent. Percentages may not sum to 100 because of rounding.

SOURCE: U.S. Census Bureau, America's Families and Living Arrangements, 2018, Table C-3.

ALSO IMPORTANT:

- In 2018, 5% of all adults and 15% of adults below the poverty threshold lived in households headed by unmarried females with children. (U.S. Census Bureau, Current Population Survey, 2019 Annual Social and Economic Supplement; calculations by the authors)
- The official poverty threshold varies with family size, number of children under 18, and senior citizen status. In 2018, the poverty threshold was \$13,064 for a single person under age 65, \$20,231 for a family of 3 with 2 children, and \$25,465 for a family of 4 with 2 children. (U.S. Census Bureau, Poverty Thresholds, 2018)
- The poverty threshold is the official measure of poverty and is slightly different from the poverty guidelines used to determine eligibility for public programs. In 2018, the poverty guideline for families of 4 issued by the Department of Health and Human Services was \$25,100. (U.S. Department of Health and Human Services, 2018)

Public Assistance Programs

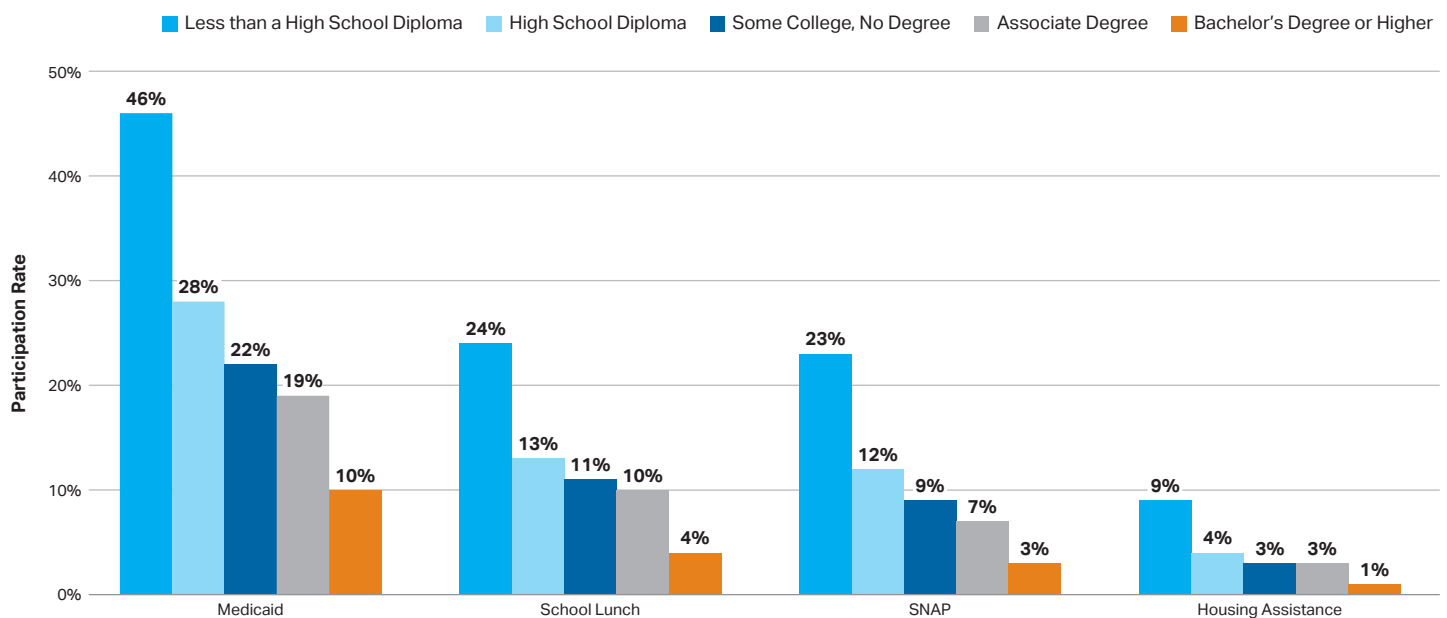
Individuals with higher levels of education are less likely to live in households receiving public assistance.

- Medicaid provides health insurance to many low-income families and other eligible individuals. The National School Lunch Program provides free and reduced-price lunches to eligible school children. The Supplemental Nutrition Assistance Program (SNAP) subsidizes food purchases for eligible low-income households. Housing assistance includes public housing or rent subsidies for eligible low-income households.
- In 2018, 7% of individuals age 25 and older with associate degrees lived in households that benefited from SNAP, compared with 12% of those with only a high school diploma.
- In 2018, 28% of adult high school graduates and 46% of those without a high school diploma lived in households that received Medicaid coverage. Participation rates were 22% for those with some college but no degree, 19% for those with an associate degree, and 10% for those with at least a bachelor's degree.
- In 2018, 4% of adult high school graduates and 9% of those without a high school diploma lived in households that received housing assistance. Participation rates were 3% for those with some college but no degree, 3% for those with an associate degree, and 1% for those with at least a bachelor's degree.

ALSO IMPORTANT:

- The participation rates for Medicaid, SNAP, and the free and reduced-price lunch program were higher in 2018 than in 2008. For example, SNAP participation rose from 8% in 2008 to 12% in 2018 for high school graduates, from 4% to 7% for individuals with an associate degree, and from 1% to 3% for those with a bachelor's degree or higher. (Baum, Ma, & Payea, 2010)
- In fiscal year 2018, 39.8 million individuals in 19.8 million households received an average of \$126 (\$254 per household) per month in SNAP benefits. (U.S. Department of Agriculture Food and Nutrition Service)
- In 2016-17, 26.1 million children—52% of all those enrolled in U.S. public schools—were eligible for free and reduced-price lunches. (NCES, *Digest of Education Statistics 2018*, Table 204.10)
- Research suggests that access to safety net programs as children improved individuals' health and economic outcomes as adults (Hoynes, Schanzenbach, & Almond, 2016).

FIGURE 2.17 Percentage of Individuals Age 25 and Older Living in Households That Participated in Various Public Assistance Programs, by Education Level, 2018

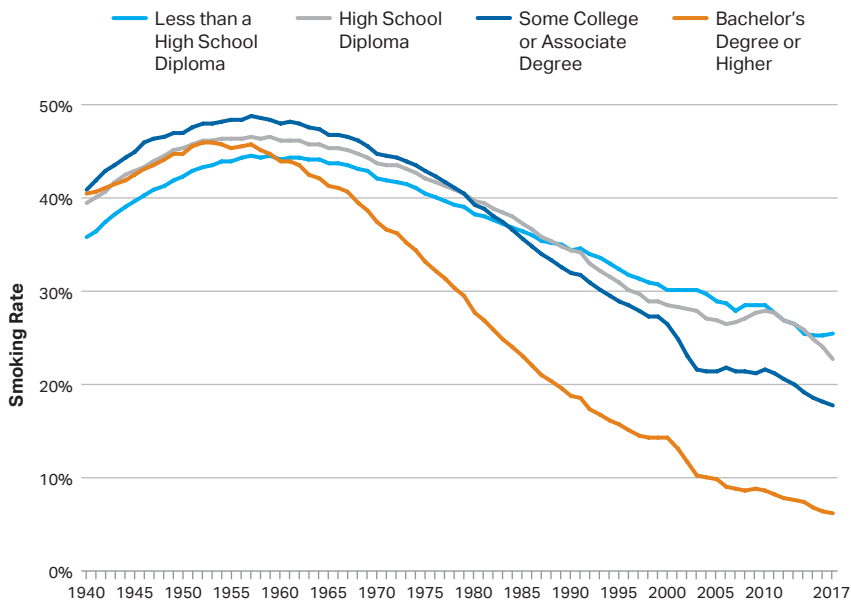


SOURCES: U.S. Census Bureau, Current Population Survey, 2019 Annual Social and Economic Supplement; calculations by the authors.

Smoking

Smoking rates among college graduates have been significantly lower than smoking rates among other adults since information about the risks of smoking became public.

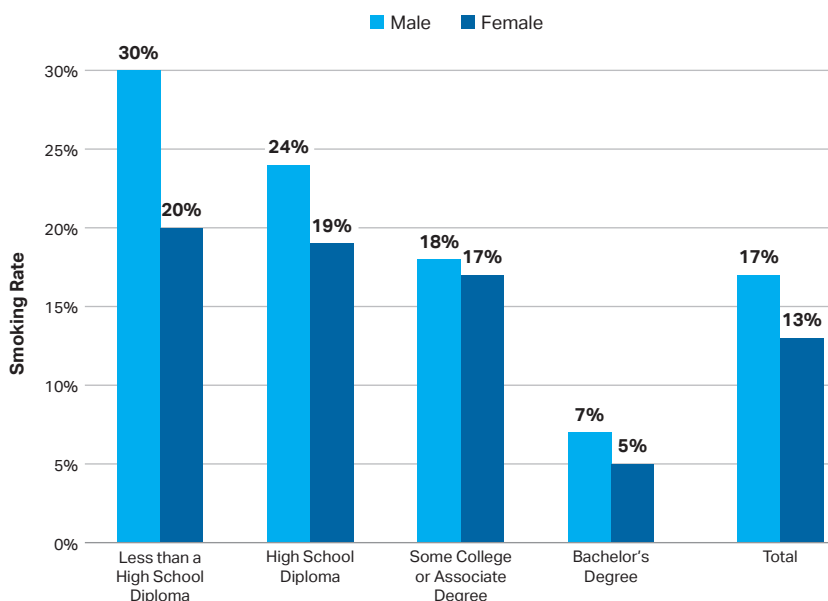
FIGURE 2.18A Smoking Rates Among Individuals Age 25 and Older, by Education Level, 1940 to 2017



NOTE: Data for 1999 through 2017 are three-year moving averages.

SOURCES: de Walque, 2004; National Center for Health Statistics (NCHS), *Health, United States, 2018*, Table 18; calculations by the authors.

FIGURE 2.18B Smoking Rates Among Individuals Age 25 and Older, by Gender and Education Level, 2017



SOURCE: NCHS, *Health, United States, 2018*, Table 18.

- Across all education levels, smoking rates in the United States increased in the 1940s, peaked in the late 1950s, and began a steady decline in the 1960s after the U.S. Surgeon General released the first report on smoking and health in 1964. Smoking rates among college-educated adults declined much more rapidly than smoking rates among other adults.
- College graduates were as likely as other adults to smoke before the medical consensus on the dangers of smoking became clear. By 1970, when information was widespread and clear public warnings were mandatory, the smoking rate among college graduates had declined to 37%, while 44% of high school graduates smoked. In 2017, smoking rates were 6% for college graduates and 23% for high school graduates.
- Within each education level, males are more likely to smoke than females. For example, 24% of males with a high school diploma smoked in 2017, compared with 19% of females. Among those with at least a bachelor's degree, 7% of males and 5% of females smoked.

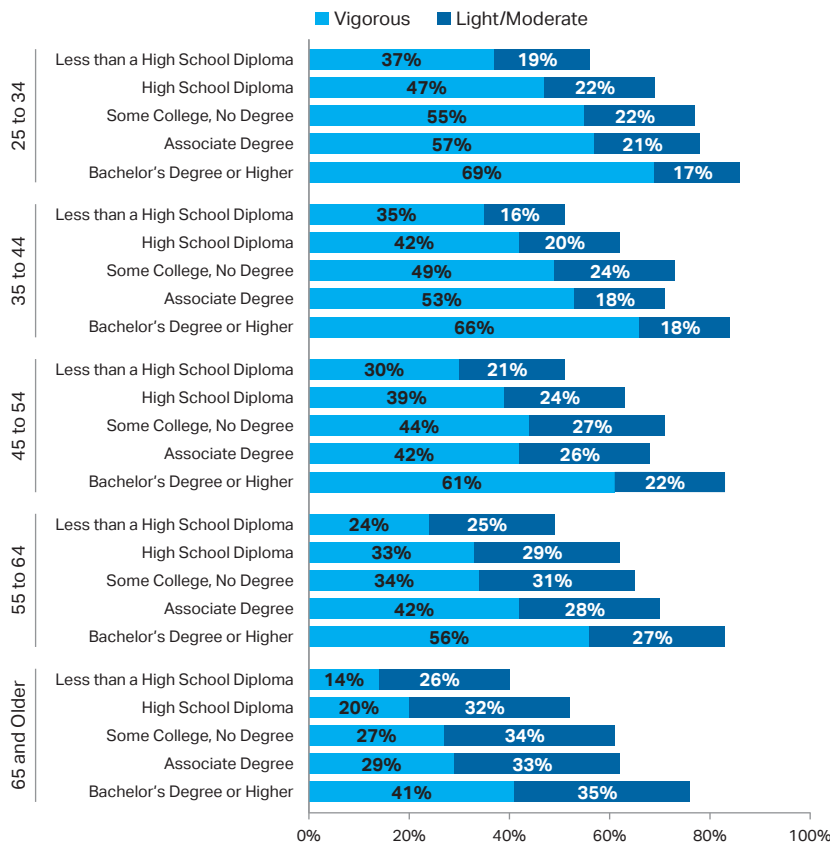
ALSO IMPORTANT:

- Statistical analysis suggests that higher levels of education are not just correlated with lower smoking rates but also cause declines in smoking. (de Walque, 2004; Grimard & Parent, 2007; Rosenbaum, 2012)
- In their analysis of the positive relationship between education and health outcomes, Cutler and Lleras-Muney (2010) find that income, health insurance, and family background account for about 30% of the differences. Knowledge and measures of cognitive ability explain an additional 30% of the differences in behaviors, with social networks explaining another 10%. The authors find that much of the difference seems to be driven by the fact that education raises cognition, which in turn improves behavior.

Exercise

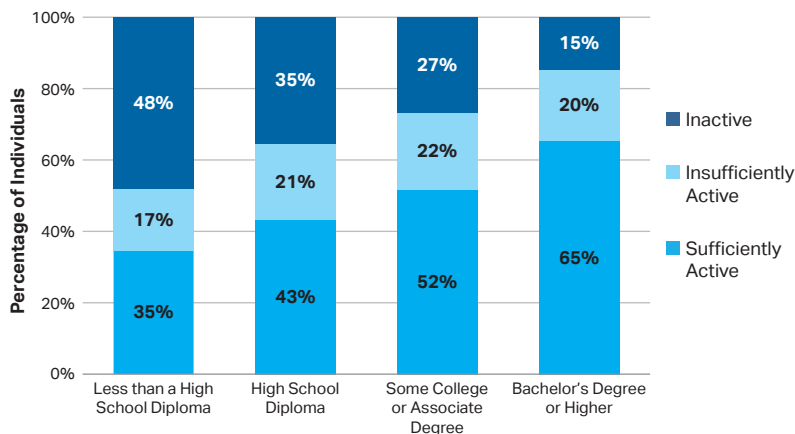
Among adults age 25 to 34, 69% of individuals with at least a bachelor's degree and 47% of high school graduates reported exercising vigorously at least once a week in 2018.

FIGURE 2.19A Exercise Rates Among Individuals Age 25 and Older, by Age and Education Level, 2018



SOURCES: NCHS, National Health Interview Survey, 2018; calculations by the authors.

FIGURE 2.19B Percentage Distribution of Leisure-Time Aerobic Activity Levels Among Individuals Age 25 and Older, by Education Level, 2018



- Among 45- to 54-year-olds, 61% of individuals with at least a bachelor's degree and 39% of high school graduates reported exercising vigorously at least once a week in 2018.
- Within each education level, older individuals are less likely to exercise than younger individuals. However, individuals age 65 and older with at least a bachelor's degree report similar rates of vigorous exercise as 25- to 34-year-olds without a high school diploma.
- In 2018, 65% of individuals with at least a bachelor's degree and 43% of high school graduates reported meeting the federal guidelines for physical activity of at least 2½ hours a week of moderate or 1¼ hours of intensive aerobic activity.

ALSO IMPORTANT:

- Numerous studies investigating the relationship between education and health support the idea that the skills, attitudes, and thought patterns fostered by education lead to more responsible health-related behaviors. (Mirowsky & Ross, 2003)
- Improvements in health are associated with each additional year of schooling, but in contrast to the relationship between education and wages, there does not appear to be a "sheepskin" effect with the completion of a degree having a bigger impact than just the completion of an additional year of education. (Cutler & Lleras-Muney, 2006)

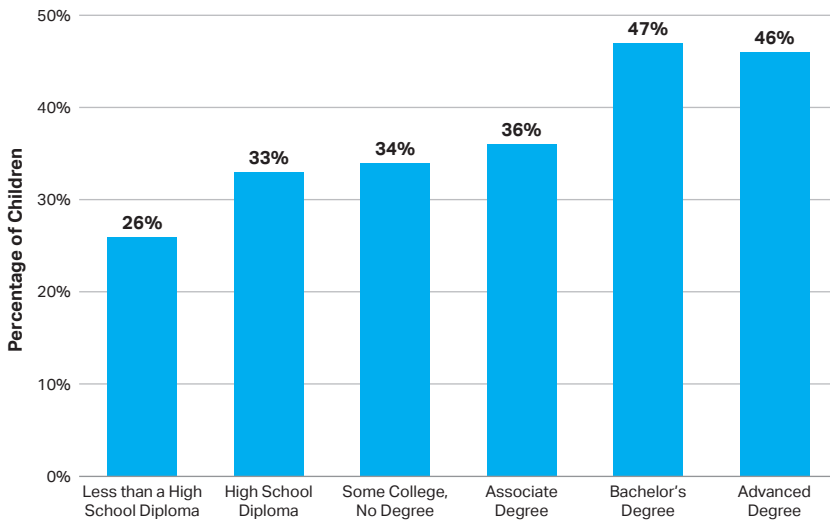
NOTES: "Inactive" is participating in no leisure-time aerobic activity that lasted at least 10 minutes. "Insufficiently Active" is participating in aerobic activities for at least 10 minutes but less than 150 minutes per week. "Sufficiently Active," which meets 2008 federal physical activity guidelines, is participating in moderate-intensity leisure-time physical activity at least 150 minutes per week, or in vigorous-intensity leisure-time physical activity at least 75 minutes per week, or an equivalent combination. Percentages shown were age-adjusted using the projected 2000 U.S. population provided by the U.S. Census Bureau as the standard population. Age adjustment was used to allow comparisons among various population subgroups that have different age distributions. Percentages may not sum to 100 because of rounding.

SOURCE: NCHS, Tables of Summary Health Statistics for U.S. Adults: 2018, National Health Interview Survey, Table A-14a.

Parents and Children: Preschool-Age Children

Children of parents with higher levels of educational attainment are more likely than other children to be enrolled in preschool programs.

FIGURE 2.20A Percentage of 3- to 5-Year-Olds Enrolled in Preschool Programs, by Parents' Education Level, 2017



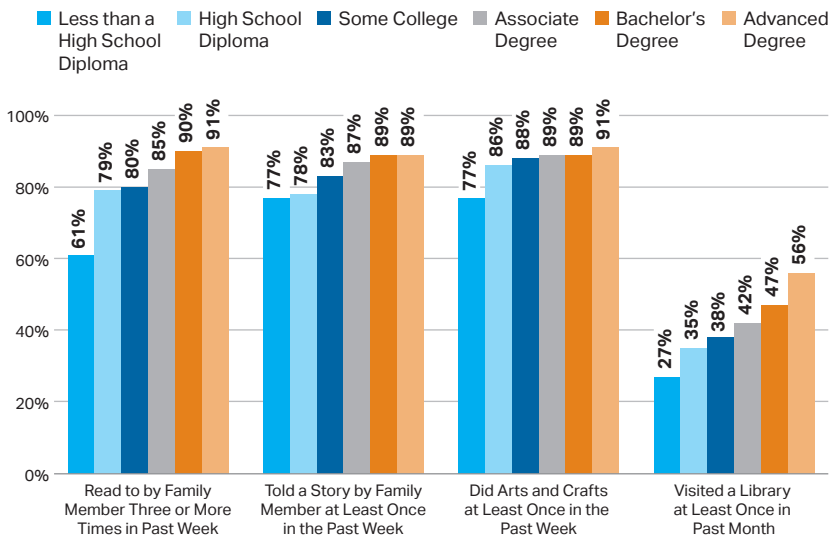
SOURCE: NCES, *Digest of Education Statistics, 2018*, Table 202.20.

- In 2017, 46% of children age 3 to 5 whose parents had an advanced degree enrolled in preschool programs, compared with 33% of children whose parents had a high school diploma and 26% of children whose parents did not obtain a high school diploma.
- In 2016, children age 3 to 5 whose parents had an advanced degree were 12 percentage points more likely to have been read to 3 or more times in the last week than children whose parents had only a high school diploma (91% versus 79%).
- In 2016, children age 3 to 5 whose parents had a bachelor's degree were 12 percentage points more likely to have visited a library at least once in the past month than children whose parents had only a high school diploma (47% versus 35%).

ALSO IMPORTANT:

- Children attending pre-kindergarten programs are more ready for school at the end of their pre-kindergarten year than children who do not attend these programs. (Brookings, 2017)

FIGURE 2.20B Percentage of 3- to 5-Year-Olds Participating in Activities with a Family Member, by Parents' Education Level, 2016

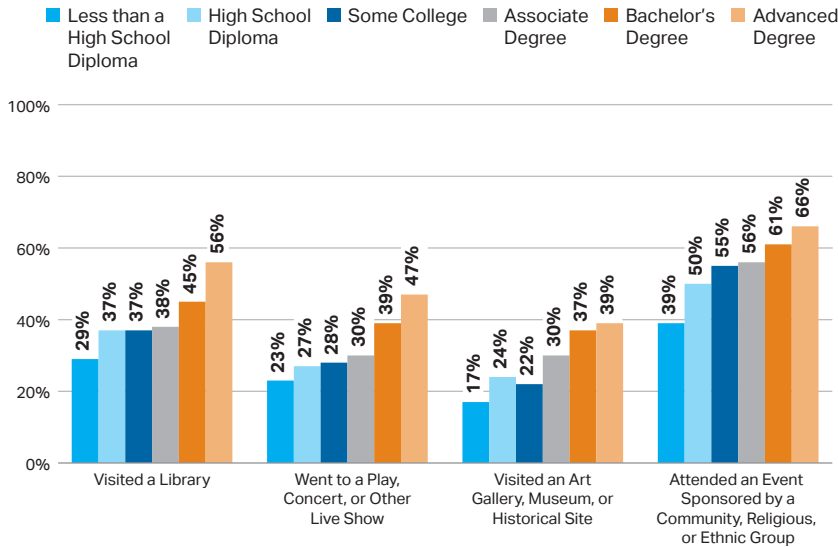


SOURCE: NCES, *Digest of Education Statistics, 2018*, Table 207.10.

Parents and Children: School-Age Children

Children of parents with higher levels of educational attainment are more likely than other children to engage in a wide variety of educational activities with their family members.

FIGURE 2.21A Percentage of Kindergartners Through Fifth Graders Participating in Activities with a Family Member in the Past Month, by Parents' Education Level, 2016



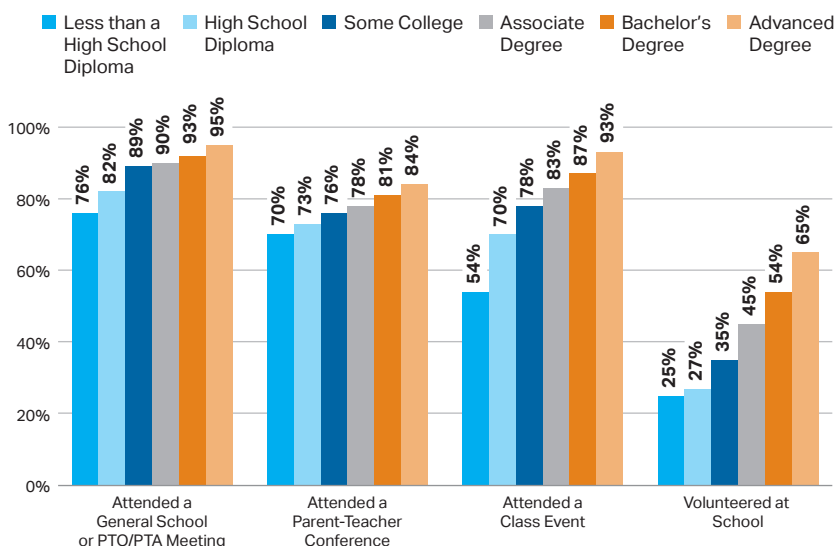
SOURCE: NCES, *Digest of Education Statistics, 2018*, Table 207.20.

- Among kindergartners to fifth graders whose parents' highest education was a bachelor's degree, 45% had visited a library in the past month. This compares with 37% of children whose parents had only a high school diploma and 56% of those whose parents held an advanced degree.
- About one-quarter of children in kindergarten to fifth grade whose parents' highest education was a high school diploma had visited an art gallery, museum, or historical site in the past month; half of children in this group had attended an event sponsored by a community, religious, or ethnic group. This compares with 37% and 61%, respectively, of children whose parents' highest level of education was a bachelor's degree.
- Among parents of elementary and secondary school children, just over a quarter of those whose highest education was a high school diploma volunteered at school; more than half of those with at least a bachelor's degree volunteered.

ALSO IMPORTANT:

- Kalil, Ryan, & Corey (2012) find that "highly educated mothers not only spend more time in active child care than less educated mothers, but that they alter the composition of that time to suit children's developmental needs more than less educated mothers."

FIGURE 2.21B Percentage of Elementary and Secondary School Children Whose Parents Were Involved in School Activities, by Parents' Education Level, 2016

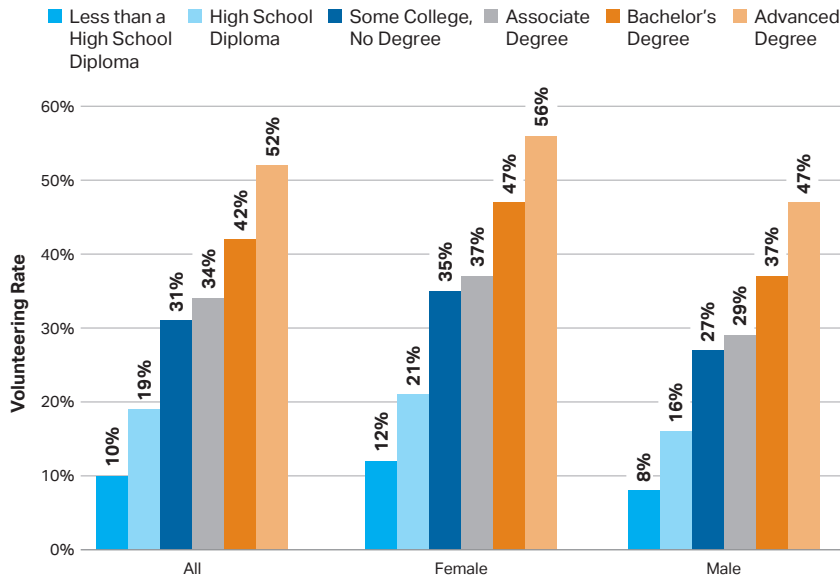


SOURCE: NCES, *Digest of Education Statistics, 2018*, Table 207.40.

Civic Involvement

The share of adults who perform unpaid volunteer activities increases with education. Among those age 25 and older, the volunteering rate in 2017 ranged from 10% for those without a high school diploma to 52% for those with advanced degrees.

FIGURE 2.22A Percentage of Individuals Age 25 and Older Who Volunteered, by Gender and Education Level, 2017

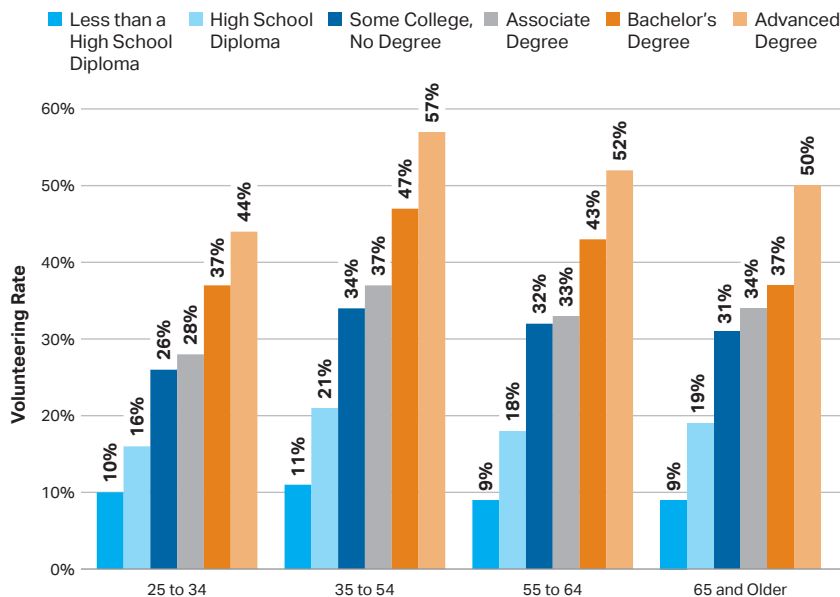


- At each education level, higher percentages of women than of men volunteered. In 2017, among adults whose highest education was a bachelor's degree, 47% of women volunteered while 37% of men did. The gender gap is 5 percentage points among individuals with a high school diploma (21% for women versus 16% for men).
- At each education level, individuals between the ages of 35 and 54 were more likely to volunteer than others.

ALSO IMPORTANT:

- Volunteers were more likely to donate to charity and to invest in community-building than nonvolunteers. (National & Community Service, 2018)
- As is the case with most of the indicators included in this report, the correlation seen here should not necessarily be interpreted as causation. Personal characteristics may make people more likely both to pursue higher education and to volunteer. However, statistical analysis suggests that the actual increments in volunteer activity attributable to increased education are similar to those described here. Enrolling in college significantly increases the likelihood of volunteering, controlling for other demographic characteristics. (Dee, 2004; Oreopoulos & Salvanes, 2011)

FIGURE 2.22B Percentage of Individuals Age 25 and Older Who Volunteered, by Age and Education Level, 2017



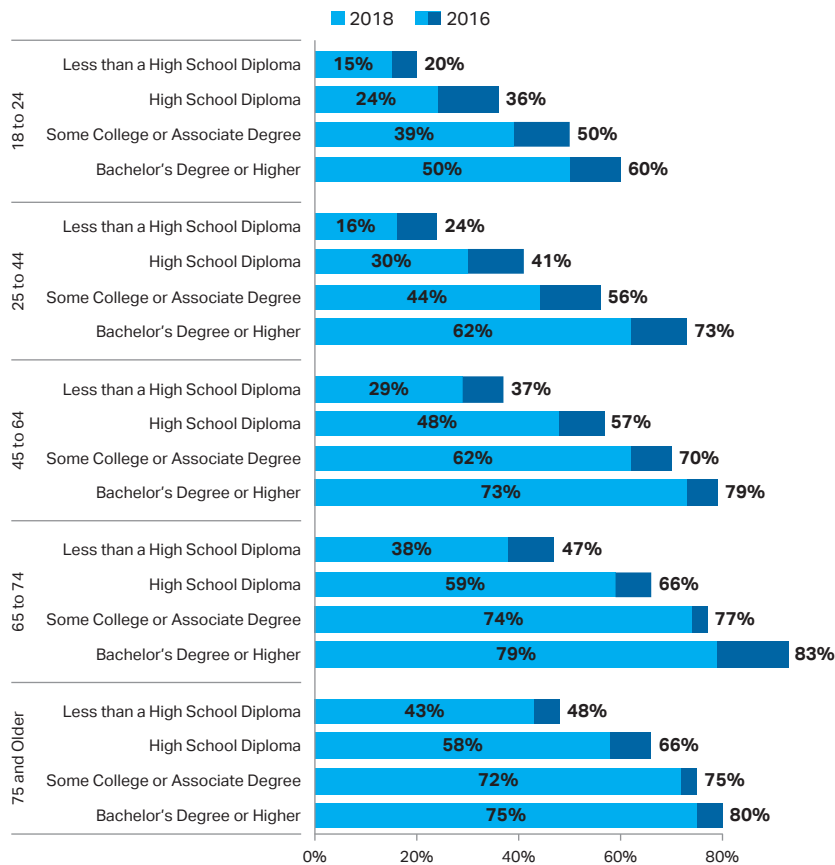
NOTE: Volunteers are defined as individuals who performed unpaid volunteer activities for organizations at any point from September 2016 through September 2017.

SOURCES: U.S. Census Bureau, September 2017 Supplement to the Current Population Survey; calculations by the authors.

Voting

Voting rates are higher among individuals with higher levels of education. In the 2016 presidential election, 73% of 25- to 44-year-old U.S. citizens with at least a bachelor's degree voted, compared with 41% of high school graduates in the same age group.

FIGURE 2.23A Voting Rates Among U.S. Citizens, by Age and Education Level, 2016 and 2018



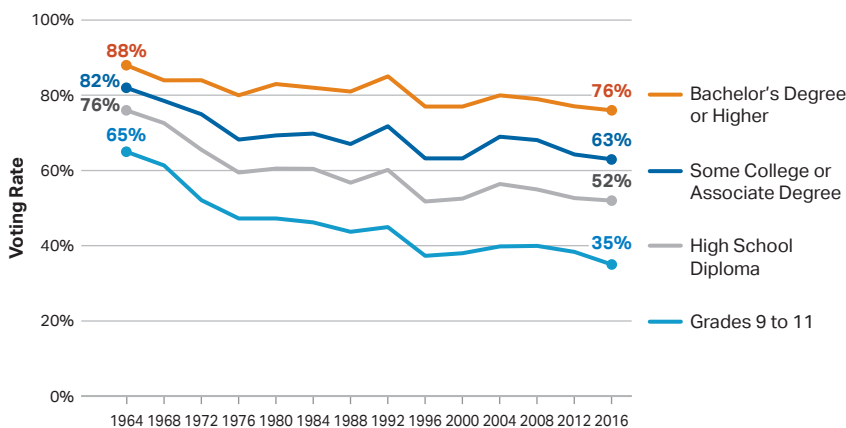
- Within each age group and education level, voting rates were higher in the 2016 presidential election than in the 2018 midterm election.
- At all levels of education, voting rates increase with age.
- Between 1964 and 2016, voting rates during presidential elections declined across all education groups. Declines in voting rates were largest for those without a high school diploma (from 65% in 1964 to 35% in 2016) and smallest for those with at least a bachelor's degree (from 88% in 1964 to 76% in 2016).

ALSO IMPORTANT:

- Voting rates across all age and education groups were higher during the 2018 midterm election than during the 2014 midterm election. The increase in voting rates during the 2018 midterm election was particularly large among younger age groups. (U.S. Census Bureau, Voting and Registration in the Election of November 2014 and 2018, Table 5; calculations by the authors).
- Only U.S. citizens are eligible to vote in elections. Voting rates in Figures 2.23A and 2.23B represent percentages of U.S. citizens who voted. In 2016, 8.7% of the U.S. population ages 18 and older were noncitizens. (U.S. Census Bureau, Voting and Registration in the Election of November 2016, Table 5; calculations by the authors).

SOURCES: U.S. Census Bureau, Voting and Registration in the Election of November 2016 and 2018, Table 5; calculations by the authors.

FIGURE 2.23B Voting Rates Among U.S. Citizens During Presidential Elections, by Education Level, 1964 to 2016



NOTE: Because citizenship status for 1976 and earlier is not available, voting rates in these years represent percentages of all U.S. age-eligible population who voted.

SOURCES: U.S. Census Bureau, Voting and Registration Tables, 1964 to 2016; calculations by the authors.

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