

TRENDS IN HIGHER EDUCATION SERIES

Education Pays **2023**

THE BENEFITS OF HIGHER EDUCATION
FOR INDIVIDUALS AND SOCIETY

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College Board

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ACKNOWLEDGMENTS

We thank Dean Bentley, Jessica Howell, and Michael Hurwitz for their thoughtful reviews. We also thank the cooperation and support of many colleagues at College Board, including Connie Betterton, Mark Bloniarz, Auditi Chakravarty, Karen Lanning, and Jose Rios.

BFF Media Work provided expert graphic design work.

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Highlights

As in previous editions, *Education Pays 2023: 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, sector, and state. *Education Pays 2023* also examines the persistent disparities across different socioeconomic groups in college participation, persistence, 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 have risen over time, gaps in enrollment rates persist across demographic groups.

- In 2000, 59% of Black and 48% of Hispanic recent high school graduates enrolled in college within one year of high school graduation, compared with 67% of White and 82% of Asian students. In 2020, enrollment rates were 57%, 62%, 68%, and 82% for Black, Hispanic, White, and Asian students, respectively. (Figure 1.1A)
- Since 1989, the college enrollment rate of recent female high school graduates has consistently exceeded that of recent male high school graduates. (Figure 1.2A)
- Within each PSAT quartile, college enrollment rates are higher for those from lower-challenge (greater educational opportunity) neighborhoods than for those from higher-challenge (lower educational opportunity) neighborhoods. (Figure 1.3)

While overall educational attainment has increased over time, college persistence and attainment patterns differ considerably across demographic groups.

- Between 1981 and 2021, the share of adults age 25 to 29 who held a bachelor's degree more than doubled for Black individuals (from 12% to 28%) and almost tripled for Hispanic individuals (from 8% to 23%). The share with a bachelor's degree increased from 25% to 45% for White individuals. (Figure 1.6A)
- Between 2011 and 2021, the share of Asian adults age 25 to 29 with a bachelor's degree increased from 58% to 72%, while the share of American Indian/Alaska Native adults in the same age group with a bachelor's degree was consistently less than 20%. (Figure 1.6A)

- Between 1981 and 2021, the gaps in the shares of adults age 25 to 29 with a bachelor's degree increased from 13 to 17 percentage points between Black and White adults and increased from 17 to 22 percentage points between Hispanic and White adults. (Figure 1.6A)
- Among four-year college students within the same PSAT quartile, those who came from lower-challenge (greater educational opportunity) neighborhoods had higher first-year retention and persistence rates compared to students from higher-challenge (lower educational opportunity) neighborhoods. (Figure 1.4)

Educational attainment differs considerably across states.

- In 2019, the percentage of adults age 25 and older with at least a bachelor's degree ranged from 22% in West Virginia and Mississippi to 43% in Colorado, 45% in Massachusetts, and 60% in the District of Columbia. (Figure 1.7)
- Between 2000 and 2019, the increases in the share of adults 25 and older with at least a bachelor's degree ranged from 5 percentage points in Mississippi and New Mexico to between 10 and 21 percentage points in 12 states and 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 2021, median earnings of bachelor's degree recipients age 25 and older with no advanced degree working full time were \$29,000 (65%) higher than those of high school graduates. Bachelor's degree recipients paid an estimated \$7,800 (86%) more in taxes and took home \$21,200 (60%) more in after-tax income than high school graduates. (Figure 2.1)
- The typical four-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 34 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)
- In 2021, 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 \$60,540, compared with \$34,590 for those with a high school diploma. Median earnings for men with at least a bachelor's degree were \$75,430, compared with \$42,460 for those with a high school diploma. (Figure 2.6)
- In 2021, among adults between the ages of 25 and 64, 67% of high school graduates, 71% of those with some college but no degree, 76% of those with an associate degree, and 83% of those with at least a bachelor's degree were employed. (Figure 2.12)
- 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 2.13A)

- In 2021, the unemployment rate for 25- to 34-year-olds with at least a bachelor's degree was 3.3%, compared with 8.3% for high school graduates in the same age group. (Figure 2.13B)

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 2021 ranged from 4% of those without a high school diploma and 7% of high school graduates to 35% of those whose highest attainment was a bachelor's degree and 49% of advanced degree holders. Among advanced degree holders, 24% earned \$150,000 or more; this share was 14% among bachelor's degree holders. (Figure 2.3)
- Between 2019 and 2021, median earnings of bachelor's degree recipients age 25 to 34 working full time year-round ranged from \$50,100 among Black females and \$50,500 among Hispanic females to \$71,700 among White males and \$75,800 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 2021, median earnings of female four-year college graduates age 25 and older working full time year-round were \$62,200. However, 25% of them earned less than \$44,400, and another 25% earned more than \$94,200. (Figure 2.5)
- In 2021, median earnings of male four-year college graduates age 25 and older working full time year-round were \$85,300. However, 25% of them earned less than \$56,000, and 25% earned more than \$126,200. (Figure 2.5)
- Between 2016 and 2020, 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 \$33,900 (in 2020 dollars) for customer service representatives to \$64,100 for general and operations managers; the median earnings of those with at least a bachelor's degree ranged from \$42,600 (in 2020 dollars) for general office clerks to \$95,600 for wholesale and manufacturing sales representatives. (Figure 2.8)
- In 2018 and 2019, median earnings for early career bachelor's degree recipients ranged from \$34,000 a year for performing arts majors to \$70,000 for computer science majors. For mid-career employees, median earnings ranged from \$43,700 for early childhood education majors to \$100,000 for computer science majors. (Figure 2.9)
- Institutional median earnings vary by sector. From 2018 to 2019, the typical four-year college's median earnings of 2007-08 and 2008-09 federal student aid recipients ranged from \$42,700 at for-profit institutions to \$47,800 at public institutions and \$48,400 at private nonprofit institutions. (Figure 2.10A)
- From 2016 to 2020, median earnings of bachelor's degree recipients with no advanced degree working full time were \$67,400 in the United States and ranged from \$51,300 in Mississippi to \$81,200 in New Jersey. (Figure 2.11)

College education reduces the chance that adults will rely on public assistance.

- In 2021, 4% of bachelor's degree recipients age 25 and older lived in poverty, compared with 13% of high school graduates. (Figure 2.16A)
- In 2021, 14% of individuals age 25 and older with only a high school diploma and 27% of those without a high school diploma lived in households that benefited from SNAP. Participation rates were 12% for those with some college but no degree, 10% for those with an associate degree, and 3% for those with at least a bachelor's degree. (Figure 2.17)

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

- Voting rates are higher among individuals with higher levels of education. In the 2020 presidential election, 77% of 25- to 44-year-old U.S. citizens with at least a bachelor's degree voted, compared with 46% of high school graduates in the same age group. (Figure 2.18A)
- Among adults age 25 and older, 19% of those with a high school diploma volunteered in 2019, compared with 40% of those with a bachelor's degree and 51% of those with an advanced degree. (Figure 2.19A)
- In 2020, 54% of 25- to 34-year-olds with at least a bachelor's degree and 29% of high school graduates reported exercising vigorously at least once a week. (Figure 2.21)
- 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 2.22B and 2.23B)

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Introduction

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Published since 2004, *Education Pays: The Benefits of Higher Education for Individuals and Society* documents the substantial payoff from public and individual investments in higher education, the variation in outcomes experienced by different individuals, and the benefits we all enjoy from a more educated populace. *Education Pays* rounds out the *Trends in Higher Education* series that includes *Trends in College Pricing and Student Aid*. These reports provide a foundation for evaluating public policies aimed at increasing educational opportunities.

This report combines government statistics, College Board data, 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 connecting higher education with 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 gains in the share of high school graduates who invest in postsecondary education. The percentage of recent high school graduates who enroll in college within one year of high school graduation increased from 50% in 1980 to 66% in 2020 (page 10). The growth in college enrollment over time translates into increases in bachelor's degree attainment. In 2021, 39% of adults age 25 to 29 in the U.S. held a bachelor's degree, an increase from 29% in 2001 and from 22% in 1981 (page 15).

Although the share of all adults age 25 to 29 who held a bachelor's degree rose to 39% in 2021, this share ranged from under 20% for Native American and between 20% and 30% for Hispanic and Black young adults to 45% for White and 72% for Asian young adults (Figure 1.6A). Gaps in college enrollment and completion rates are partially explained by differences in academic preparation in K–12. Yet, even among students with similar academic achievement levels in high school, students from neighborhoods with lower educational opportunities enroll and persist in college at lower rates than those from neighborhoods with greater educational opportunities. Moreover, there are differences by students' neighborhood attributes in types of postsecondary institutions students with similar academic preparation choose, which likely contribute to uneven college persistence rates (Figures 1.3 and 1.4).

THE PAYOFF OF HIGHER EDUCATION FOR INDIVIDUALS

Most college students cite improved job prospects and financial security as a primary reason for college attendance.¹ Adults with postsecondary credentials are, in fact, more likely to be employed and to earn more than individuals who did not attend college. In 2021, 83% of adults with bachelor's degrees or higher were employed, compared with 67% of adults with a high school diploma (Figure 2.12). During the same year, median earnings of full-time workers with associate and bachelor's degrees were 18% and 65% higher, respectively, than those of individuals 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 prioritize healthy behaviors, pursue civic engagement, and to provide better opportunities for their children.

Because the price of college has risen over time, even substantial benefits from investing in education must be compared with costs to evaluate whether college is a worthwhile investment. Figures 2.2A and 2.2B indicate that a four-year college graduate who enrolls at age 18 can expect to earn enough by age 34 to compensate for the direct and opportunity costs of attending college. An associate degree is both faster and less expensive to acquire but yields smaller earnings, on average, than a bachelor's degree, and the break-even age of an associate degree is similar (age 33). 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 earnings 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 35% of employed adults with a bachelor's degree working full time earn more than \$100,000, 12% 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

¹ <https://news.gallup.com/reports/226457/why-higher-ed.aspx>

occupations (Figures 2.8 through 2.11). 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 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). Despite these differences, 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 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 (Ma, Pender, & Welch, 2019; Chetty, et. al., 2020).

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. Increases in wages generate higher tax payments at the local, state, and federal levels. In 2021, four-year college graduates paid, on average, 86% 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 (Figure 2.1). 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 about four times as high as that among those with a bachelor's degree or higher.

Education is associated with healthy behaviors and civic engagement. Over time, rates of smoking have dropped the most among college-educated adults (Figure 2.20A). Rates of reported exercise rise with educational attainment for individuals of all ages (Figure 2.21). Adults with greater educational attainment are more likely to volunteer and to vote. In the 2020 presidential election, 77% of adults age 25 to 44 with at least a bachelor's degree voted, compared with 46% of high school graduates in the same age group (Figure 2.18A).

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?

After decades of progress in college-going rates, the covid-19 pandemic was a major disruptor. Enrollment declines occurred at all types of postsecondary institutions with the sharpest declines at community colleges in fall 2020. Despite a partial rebound in four-year college enrollment in fall 2021, community college enrollment continued to decline.²

As we emerge from the pandemic, it is important to ensure the access and success of all students who can benefit from a college education. In a 2022 survey, high school graduates cite the cost of college as the primary reason for not enrolling in college.³ *Trends in College Pricing and Student Aid 2022* shows that the average sticker tuition prices have declined or remained stable in the most recent three years, after adjusting for inflation. Furthermore, the average net prices that students pay after subtracting grant aid have been declining steadily in recent years. The average debt levels of bachelor's degree recipients have been declining as well. Media headlines tend to highlight stories of college students saddled with debt who struggle to find gainful employment. Although these stories do exist, they are not the norm. As illustrated in this report, college is a worthwhile investment that pays off over time for the average student.

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 was 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.

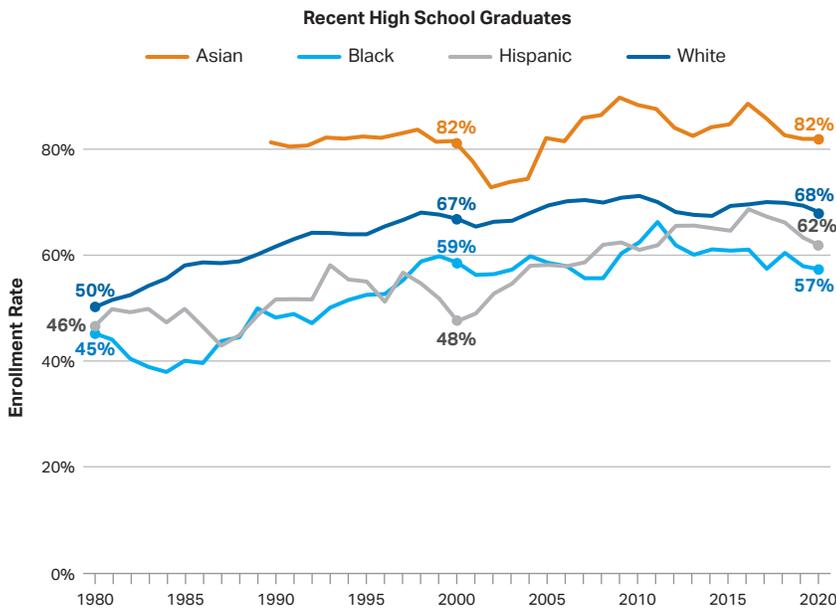
² See Howell et al. (2021, 2022) and Shapiro et. al. (2021, 2022).

³ <https://usprogram.gatesfoundation.org/news-and-insights/articles/gates-foundation-probes-college-enrollment-decline>

College Enrollment by Race/Ethnicity

In 2000, 59% of Black and 48% of Hispanic recent high school graduates enrolled in college within one year of high school graduation, compared with 67% of White and 82% of Asian students. In 2020, enrollment rates were 57%, 62%, 68%, and 82% for Black, Hispanic, White, and Asian students, respectively.

FIGURE 1.1A Postsecondary Enrollment Rates of Recent High School Graduates by Race/Ethnicity, 1980 to 2020

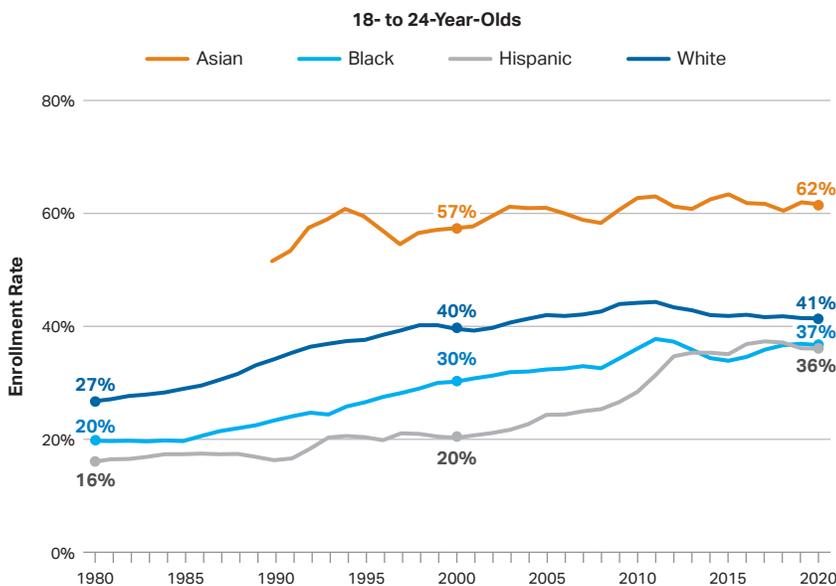


- Enrollment rates of young adults between the ages of 18 and 24 were lower than enrollment rates of recent high school graduates.
- In 2000, 20% of Hispanic and 30% of Black young adults between the ages of 18 and 24 were enrolled in college, compared with 40% of White and 57% of Asian young adults. In 2020, enrollment rates were 36% for Hispanic, 37% for Black, 41% for White, and 62% for Asian young adults.

ALSO IMPORTANT:

- Differences in high school graduation rates account for some of the college enrollment gaps graphed in Figure 1.1B. In 2018-19, 93% of Asian, 89% of White, 82% of Hispanic, and 80% of Black public high school students graduated from high school in four years. (NCES, *Digest of Education Statistics, 2020*, Table 219.47)

FIGURE 1.1B Postsecondary Enrollment Rates of 18- to 24-Year-Olds by Race/Ethnicity, 1980 to 2020



Postsecondary Enrollment Rates over Time

Year	All Recent High School Graduates	All 18- to 24-Year-Olds
1980	50%	25%
1990	60%	31%
2000	64%	36%
2010	69%	41%
2020	66%	41%

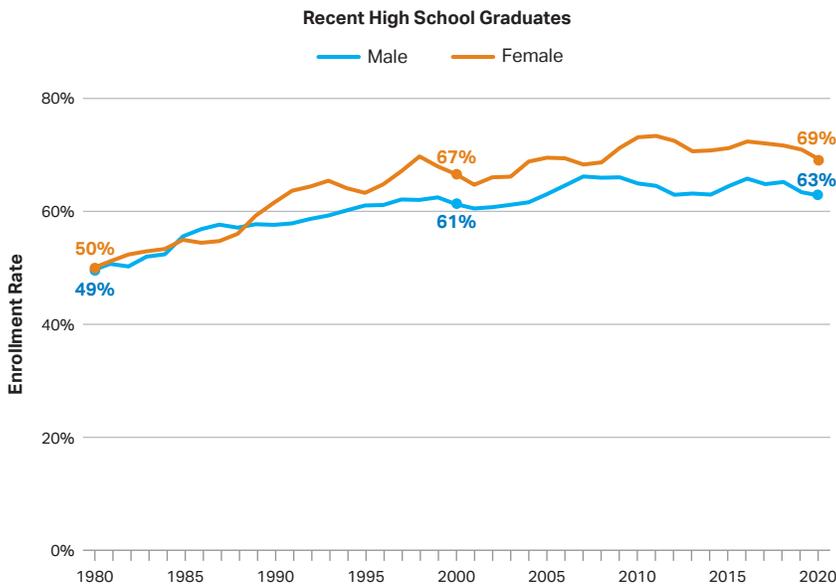
NOTE: Data for Asian students are not available prior to 1989 and include Pacific Islanders prior to 2003. Recent high school graduates include those who graduated from high school in the previous 12 months and 18- to 24-year-olds include both high school graduates and those who have not completed high 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 Asian, Black, and Hispanic students, annual fluctuations in enrollment rates may not be significant.

SOURCE: National Center for Education Statistics (NCES), *Digest of Education Statistics, 2021*, Tables 302.20 and 302.60; calculations by the authors.

College Enrollment by Gender

In 2000, 61% of male and 67% of female recent high school graduates enrolled in college within one year of high school graduation. In 2020, enrollment rates were 63% and 69% for male and female students, respectively.

FIGURE 1.2A Postsecondary Enrollment Rates of Recent High School Graduates by Gender, 1980 to 2020

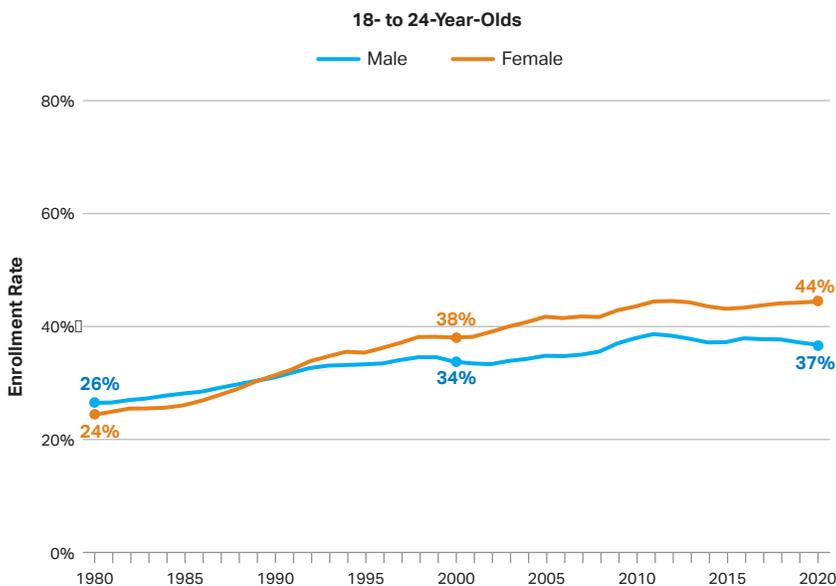


- Since 1989, the college enrollment rate of recent female high school graduates has consistently exceeded that of recent male high school graduates.
- In 2020, 37% of male and 44% of female young adults between the ages of 18 and 24 were enrolled in college. In 2000, 34% of all male and 38% of all female individuals in this age group were enrolled in college.

ALSO IMPORTANT:

- Between 1980 and 2020, the share of all college students who are female increased from 51% to 59%. (NCES, *Digest of Education Statistics, 2021*, Table 303.10)

FIGURE 1.2B Postsecondary Enrollment Rates of 18- to 24-Year-Olds by Gender, 1980 to 2020



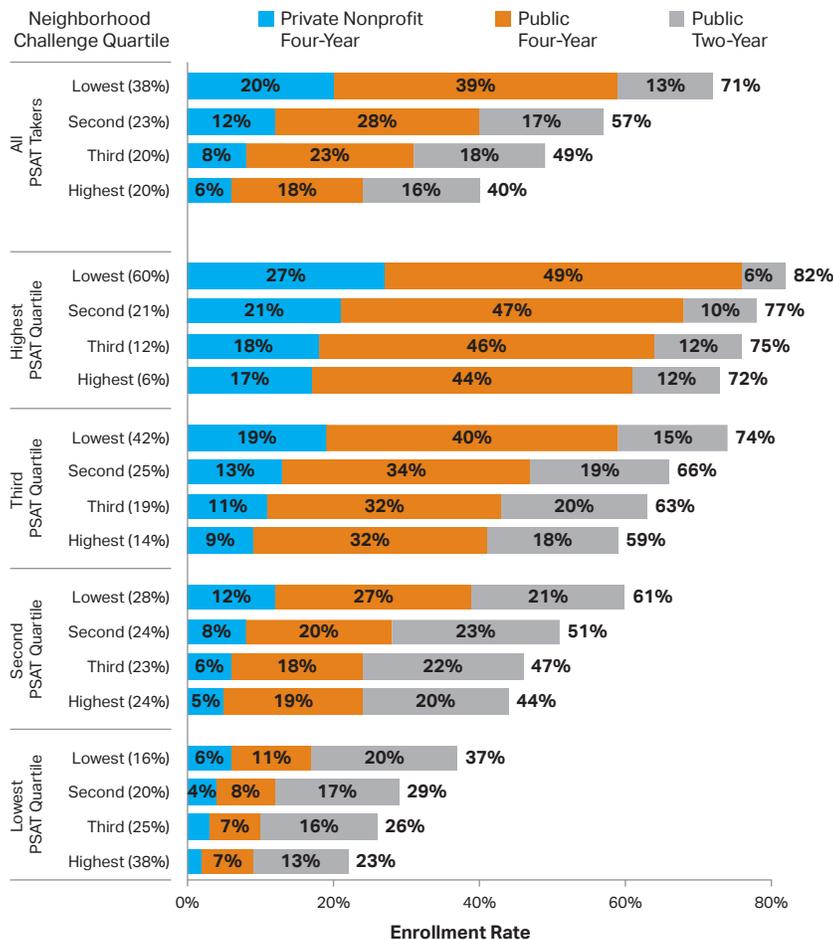
NOTE: Recent high school graduates include those who graduated from high school in the previous 12 months and 18- to 24-year-olds include both high school graduates and those who have not completed high school. Postsecondary enrollment rates are three-year moving averages and include both undergraduate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

SOURCE: NCES, *Digest of Education Statistics, 2021*, Tables 302.10 and 302.60; calculations by the authors.

College Enrollment Rates by PSAT Score and Neighborhood Challenge

Within each PSAT quartile, college enrollment rates are higher for those from lower-challenge (greater educational opportunity) neighborhoods than those from higher-challenge (lower educational opportunity) neighborhoods.

FIGURE 1.3 Immediate Postsecondary Enrollment Rates by Students' PSAT and Neighborhood Challenge Quartiles, High School Graduating Cohort of 2021



NOTE: The percentages in parentheses on the vertical axis represent shares of students in each neighborhood challenge group within each PSAT quartile. College enrollment was as of fall 2021. Lowest PSAT quartile: 800 or lower; second: 810 to 940; third: 950 to 1090; and highest PSAT quartile: 1100 to 1520. The analysis includes 2.3 million U.S. students in the high school class of 2021 who took the PSAT. The neighborhood challenge measure has normed values of 1 to 100 and is comprised of six indicators at the census tract level, including college attendance, household structure, median family income, housing stability, education level, and crime. For more information about these measures, visit: <https://secure-media.collegeboard.org/landscape/comprehensive-data-methodology-overview.pdf>. Components may not sum to totals because of rounding.

SOURCE: College Board; calculations by the authors.

- Among students in the high school class of 2021, gaps in college enrollment rates between students with different neighborhood attributes were larger for those with lower PSAT scores.
- Among students in the lowest PSAT quartile, 23% of those from the highest-challenge neighborhoods were enrolled in college in the fall after high school graduation, while 37% of those from the lowest-challenge neighborhoods were enrolled.
- Among students in the highest PSAT quartile, 72% of those from the highest-challenge neighborhoods were enrolled in college in the fall after high school graduation, while 82% of those from the lowest-challenge neighborhoods were enrolled.
- Within each PSAT quartile, those from lower-challenge neighborhoods were more likely to enroll in a public or private nonprofit four-year institution than students from higher-challenge neighborhoods.

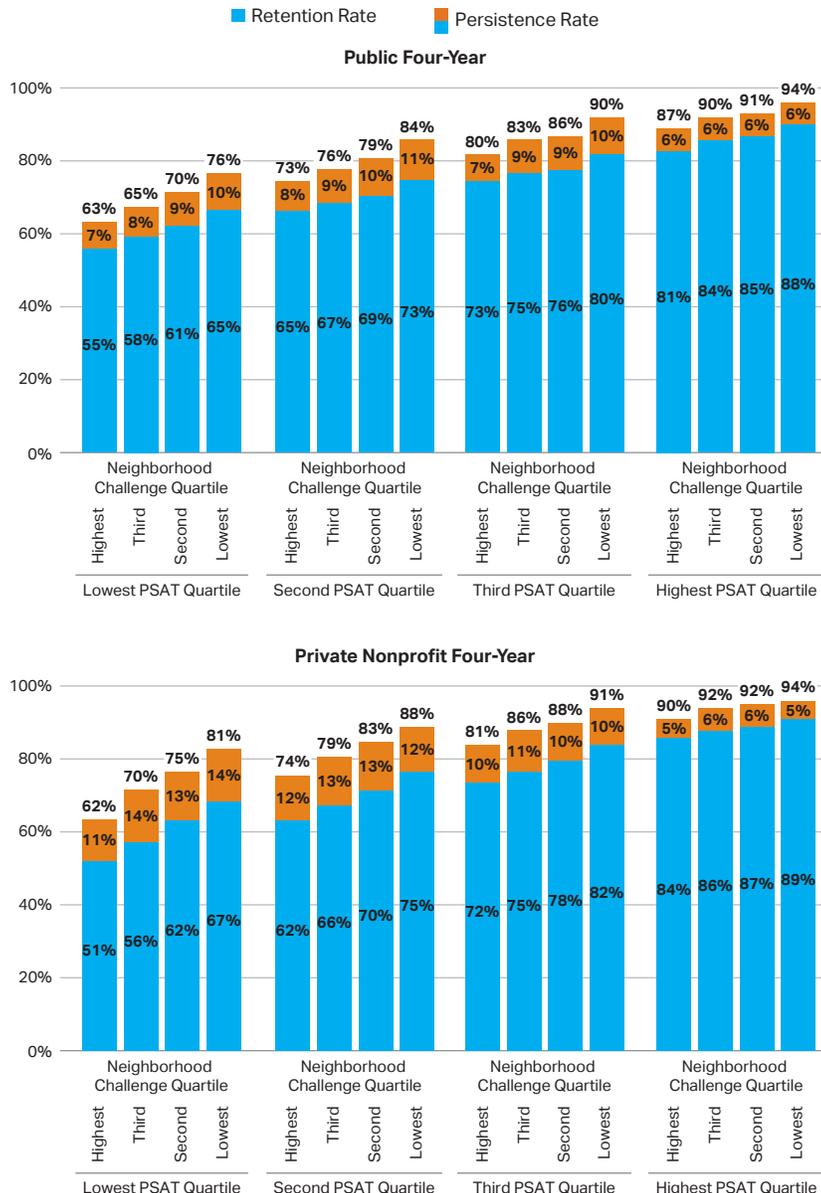
ALSO IMPORTANT:

- The covid-19 pandemic caused large declines in the immediate college enrollment rates of the 2020 high school graduating cohort. Compared with the 2020 cohort, the immediate four-year college enrollment rates of the 2021 cohort increased slightly while the immediate two-year college enrollment rates continued to decline. (Howell, et al., 2022)
- Figure 1.3 shows the sectors of the first postsecondary institutions that students attended. Some students begin in one sector before transferring to another type of institution. For example, 25% of lower-income students and 41% of higher-income students who first enrolled in a public two-year college in 2015 had transferred to a four-year institution by August 2021. (Shapiro, et al., 2022, Table 5a)

College Retention and Persistence Rates by PSAT Score and Neighborhood Challenge

Among four-year college students within the same PSAT quartile, those who came from lower-challenge (greater educational opportunity) neighborhoods had higher first-year retention and persistence rates compared to students from higher-challenge (lower educational opportunity) neighborhoods.

FIGURE 1.4 First-Year Retention and Persistence Rates at Four-Year Colleges by Students' PSAT and Neighborhood Challenge Quartiles, High School Graduating Cohort of 2020



- Among recent high school graduates who enrolled in a public four-year college in fall 2020 and were in the highest PSAT quartile, 81% of students who came from the highest-challenge neighborhoods returned to the same institutions in fall 2021, compared to 88% of students from the lowest-challenge neighborhoods. The retention rates were 84% and 89% among similar students at private nonprofit four-year colleges, respectively.
- Among recent high school graduates who enrolled in a public four-year college in fall 2020 and were in the lowest PSAT quartile, first-year retention rates were 55% for students from the highest-challenge neighborhoods and 65% for students from the lowest-challenge neighborhoods. The retention rates were 51% and 67% among similar students at private nonprofit four-year colleges, respectively.
- Students from lower-challenge neighborhoods starting at private nonprofit four-year institutions have somewhat higher persistence rates than these students starting at public four-year colleges.

ALSO IMPORTANT:

- Among recent high school graduates who enrolled in a public two-year college in fall 2020 and took the PSAT while in high school, first-year persistence rates ranged from 51% among students in the lowest PSAT quartile from the highest-challenge neighborhoods to 81% among student in the highest PSAT quartile from the lowest-challenge neighborhoods. (College Board; calculations by the authors)
- Compared to students in the 2019 cohort, the first-year retention rates of students in the 2020 cohort declined at nearly all types of colleges and for nearly all types of students. (Howell, et al., 2022)
- Full-time students are more likely to be retained and persist in college than part-time students. Among students who first enrolled in college in fall 2020, 81% of those who enrolled full time persisted until fall 2021 while only 52% of those who enrolled part time persisted. (Gardner, 2022)

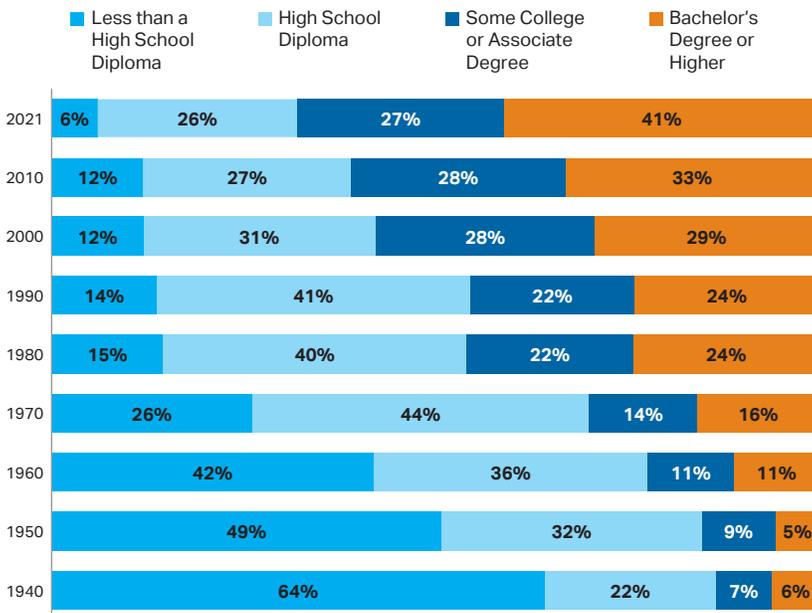
NOTE: Includes 1.2 million students in the 2020 high school graduating cohort who took the PSAT and enrolled in a four-year college in fall 2020. Persistence rate is the percentage of students who return to any college for their second year in fall 2021, while retention rate represents the percentage of students who return to the same institution. Lowest PSAT quartile: 800 or lower; second: 810 to 940; third: 950 to 1090; and highest PSAT quartile: 1100 to 1520. The neighborhood challenge measure has normed values of 1 to 100 and is comprised of six indicators at the census tract level, including college attendance, household structure, median family income, housing stability, education level, and crime. For more information about these measures, visit: <https://secure-media.collegeboard.org/landscape/comprehensive-data-methodology-overview.pdf>. Components may not sum to totals because of rounding.

SOURCE: College Board; 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 2021, 41% of adults in this age group had earned at least a bachelor’s degree.

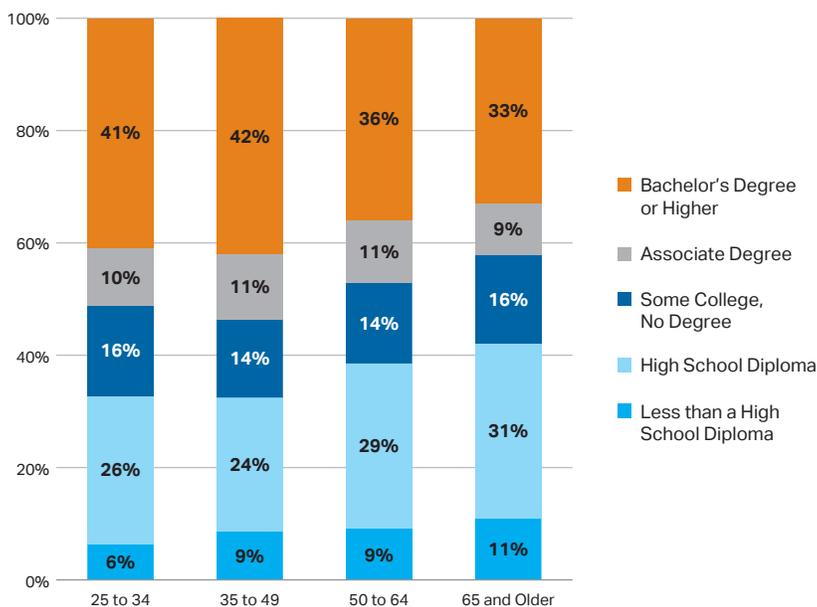
FIGURE 1.5A Educational Attainment of Individuals Age 25 to 34, 1940 to 2021, Selected Years



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

SOURCE: U.S. Census Bureau, Educational Attainment in the United States, 2021, Table A-1.

FIGURE 1.5B Educational Attainment of Individuals by Age Group, 2021



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

SOURCE: NCES, Digest of Education Statistics, 2021, Table 104.30.

- The percentage of adults age 25 to 34 with some college education or an associate degree grew rapidly in the 1970s and again the 1990s. Since 2000, this share has been consistently between 27% and 28%.
- The percentage of adults age 25 to 34 with no postsecondary education experience has been declining over time, from 86% in 1940 to 32% in 2021.
- In 2021, 11% of adults age 35 to 49 held an associate degree and 42% held at least a bachelor’s degree.

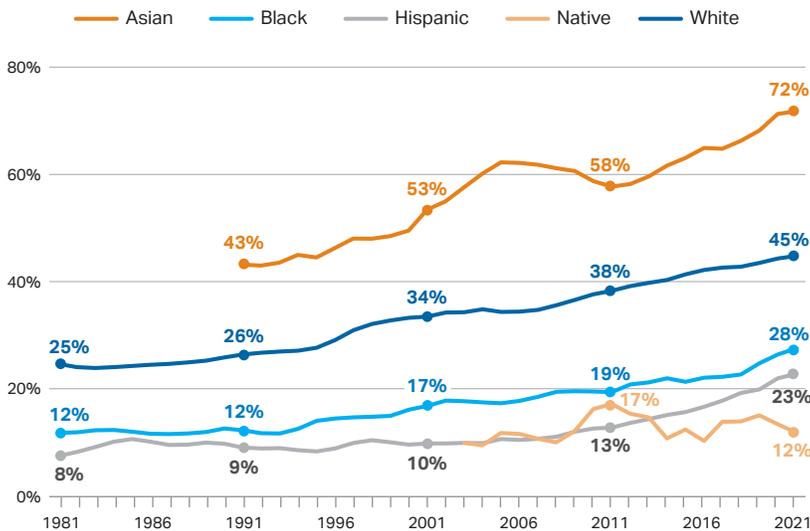
ALSO IMPORTANT:

- The earnings differential between high school graduates and college graduates has increased over time despite the increasing prevalence of college degrees. This indicates that the demand for college-educated workers in the labor market has increased more rapidly than the supply. (See Goldin and Katz [2008] and Autor [2010] for discussion of the failure of the supply of college graduates to keep up with the demand.)
- With 51% of adults age 25 to 34 holding at least an associate degree in 2021, the United States ranked 12th in educational attainment in this age group among the 38 member countries of the Organisation for Economic Co-operation and Development (OECD). The highest attainment rates were 65% in Japan, 66% in Canada, and 69% in Korea. (OECD, 2021, Chart A1.2)

Educational Attainment by Race/Ethnicity and Gender

The shares of young adults age 25 to 29 who have completed a bachelor’s degree increased among all racial/ethnic groups except for American Indian/Alaska Native individuals. In 2021, 12% of Native, 23% of Hispanic, 28% of Black, 45% of White, and 72% of Asian adults age 25 to 29 held a bachelor’s degree.

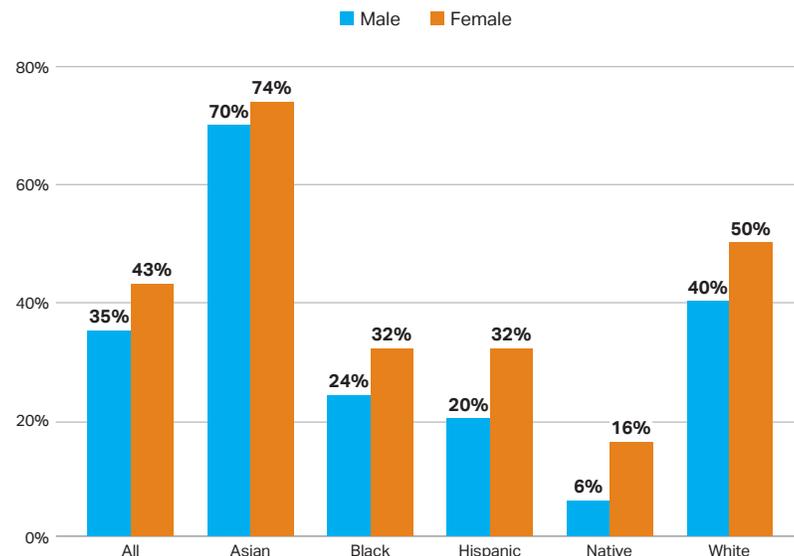
FIGURE 1.6A Percentage of 25- to 29-Year-Olds Who Have Completed a Bachelor’s Degree, by Race/Ethnicity, 1981 to 2021



NOTE: Attainment rates are three-year moving averages. Data for the Asian group are not available prior to 1989 and include Pacific Islanders prior to 2003. Data for the American Indian/Alaska Native group are not available prior to 2003 and should be interpreted with caution because of large standard errors.

SOURCE: NCES, *The Condition of Education, 2007*, Table 27-3; *Digest of Education Statistics, 2010*, Table 8; *Digest of Education Statistics, 2013, 2014, and 2021*, Table 104.20.

FIGURE 1.6B Percentage of 25- to 29-Year-Olds Who Have Completed a Bachelor’s Degree, by Race/Ethnicity and Gender, 2021



NOTE: Attainment rates are three-year moving averages. Data for the American Indian/Alaska Native group should be interpreted with caution because of large standard errors.

SOURCE: NCES, *Digest of Education Statistics, 2021*, Table 104.20.

- Between 1981 and 2021, the share of adults age 25 to 29 who held a bachelor’s degree more than doubled for Black individuals (from 12% to 28%) and almost tripled among Hispanic individuals (from 8% to 23%). The share with a bachelor’s degree increased from 25% to 45% for White individuals.
- Between 1981 and 2021, the gaps in the shares of adults age 25 to 29 with a bachelor’s degree increased from 13 to 17 percentage points between Black and White adults and increased from 17 to 22 percentage points between Hispanic and White adults.
- Between 1991 and 2021, the share of Asian adults age 25 to 29 with a bachelor’s degree increased from 43% to 72%.
- Between 2011 and 2021, the share of American Indian/Alaska Native adults age 25 to 29 with a bachelor’s degree was consistently less than 20%.
- Across all racial/ethnic groups, larger shares of 25- to 29-year-old females than males held a bachelor’s degree in 2021.

ALSO IMPORTANT:

- Before the 1990s, larger shares of 25- to 29-year-old males held bachelor’s degrees than females. Starting in the 1990s, females outpaced males in bachelor’s degree completion. (Authors’ calculations based on NCES, *The Condition of Education, 2007*, Table 27-3 and *Digest of Education Statistics, 2021*, Table 104.30)

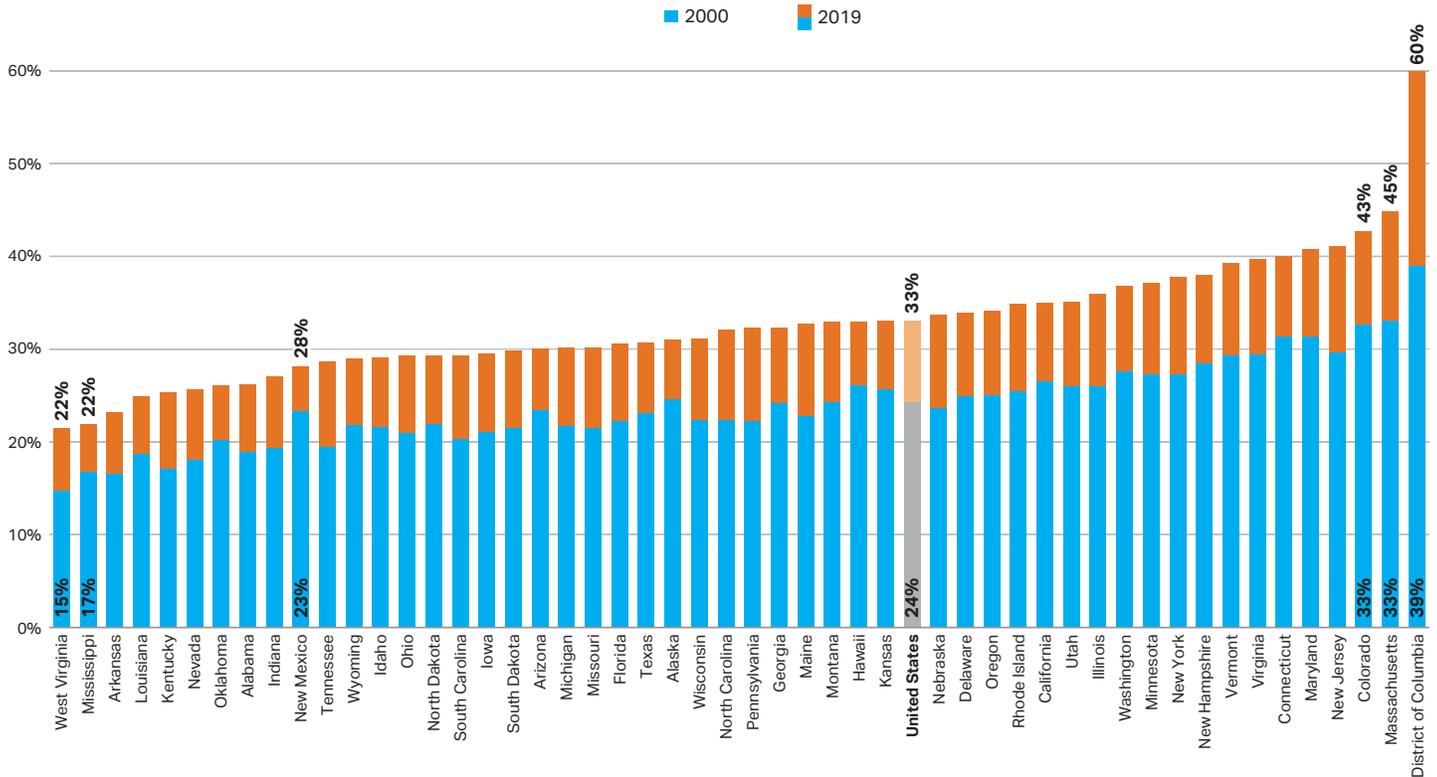
Percentage of 25- to 29-Year-Olds with a Bachelor’s Degree over Time

Year	25- to 29-Year-Olds
1981	22%
1991	23%
2001	29%
2011	31%
2021	39%

Educational Attainment by State

In 2019, the percentage of adults age 25 and older with at least a bachelor’s degree ranged from 22% in West Virginia and Mississippi to 43% in Colorado, 45% in Massachusetts, and 60% in the District of Columbia.

FIGURE 1.7 Percentage of Adults Age 25 and Older with at Least a Bachelor’s Degree, by State, 2000 and 2019



SOURCE: NCES, *Digest of Education Statistics, 2021*, Table 104.88; *Digest of Education Statistics, 2002*, Table 12.

- In 2019, the percentage of adults age 25 and older in the United States with at least a bachelor’s degree was 33%, up from 24% in 2000.
- Between 2000 and 2019, the share of adults age 25 and older with at least a bachelor’s degree increased in all states. The increases ranged from 5 percentage points in Mississippi and New Mexico to between 10 and 21 percentage points in 12 states and the District of Columbia.

ALSO IMPORTANT:

- In 2021, median household income in the United States was \$70,784. Median household income ranged from under \$50,000 in Mississippi and West Virginia to over \$85,000 in the District of Columbia, Maryland, Massachusetts, New Hampshire, New Jersey, Utah, and Washington. (U.S. Census Bureau, Social and Economic Supplement, Table H-8)

Education, Earnings, and Tax Payments

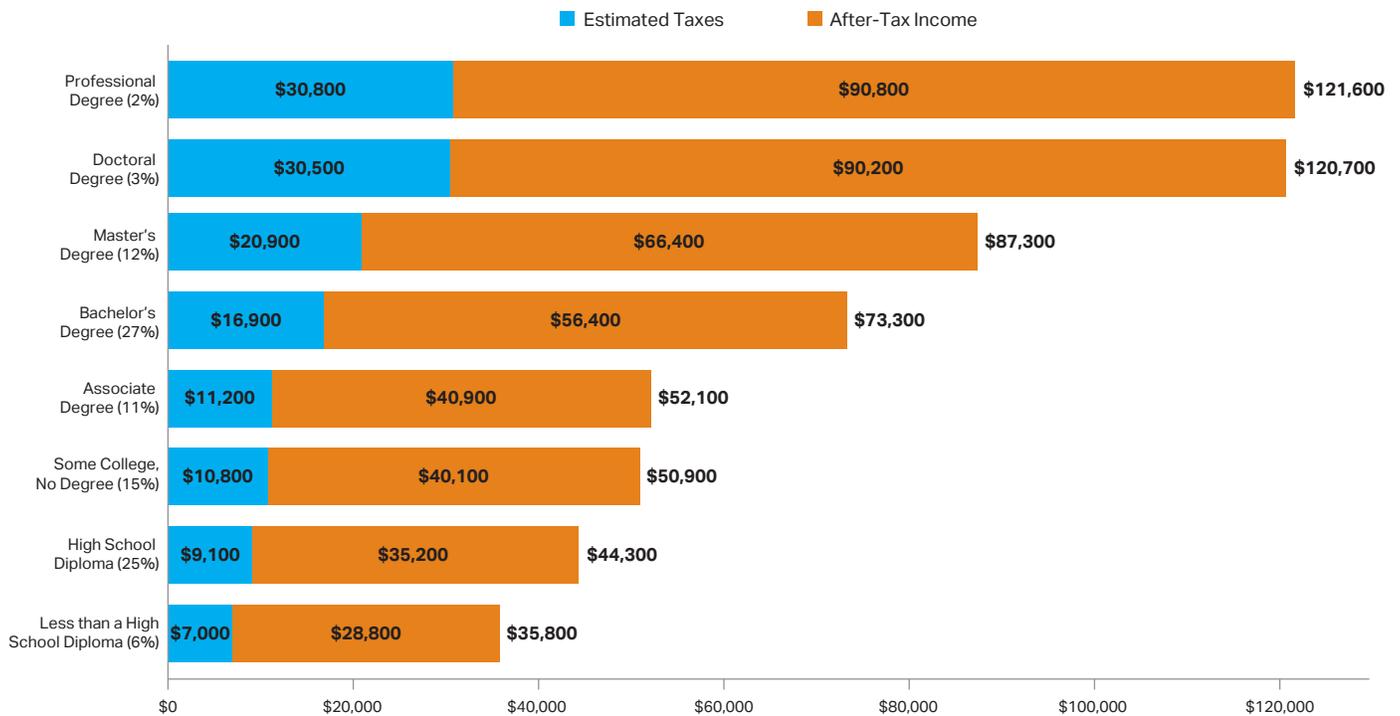
In 2021, median earnings of bachelor’s degree recipients with no advanced degree working full time were \$29,000 (65%) higher than those of high school graduates. Bachelor’s degree recipients paid an estimated \$7,800 (86%) more in taxes and took home \$21,200 (60%) more in after-tax income than high 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 18% higher than median earnings for those with only a high school diploma. After-tax earnings were 16% higher.
- The median total tax payments of full-time workers with a professional degree in 2021 were over 3.4 times as high as the median tax payments of high school graduates working full time. After-tax earnings were about 2.6 times as high.

ALSO IMPORTANT:

- In 2021, 75% of bachelor’s degree recipients age 25 and older had earnings and 58% worked full time; 57% of high school graduates age 25 and older had earnings and 42% worked full time. (U.S. Census Bureau, 2022, Table PINC-03)
- 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, for example, 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 earning 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; Harmon, Oosterbeek, & Walker, 2003; Hoekstra, 2009; Oreopoulos & Petronijevic, 2013; Rouse, 2005)

FIGURE 2.1 Median Earnings and Tax Payments of Full-Time Year-Round Workers Age 25 and Older, by Education Level, 2021



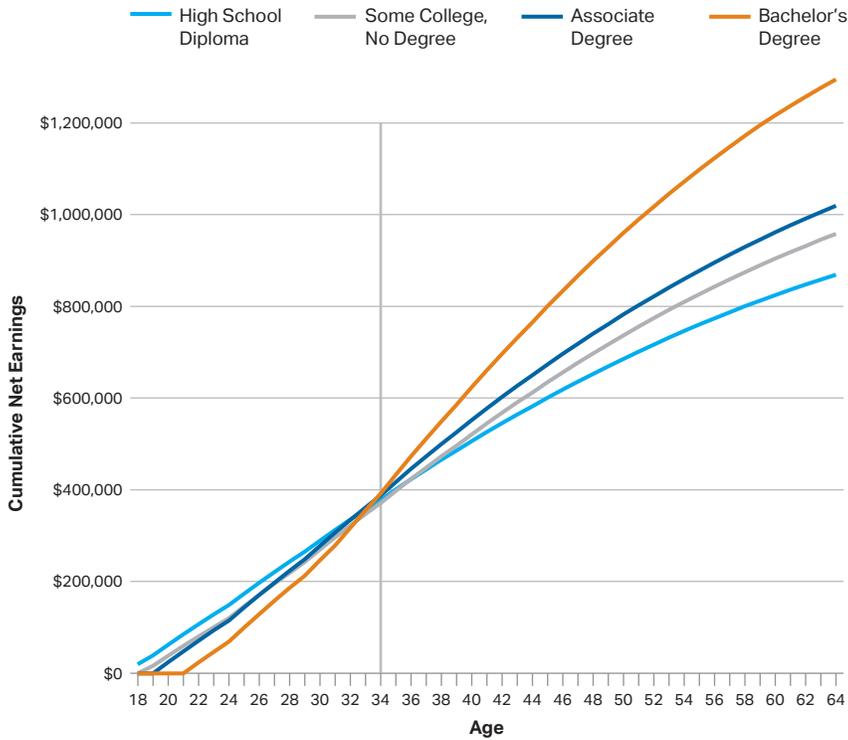
NOTE: The percentages in parentheses on the vertical axis indicate the shares of all full-time year-round workers age 25 and older with each education level in 2021. The bars show median earnings at each education level. The blue segments represent the estimated average federal income, Social Security, Medicare, state and local income, sales, and property taxes paid at these income levels. The orange segments show after-tax earnings. Percentages may not sum to 100 because of rounding.

SOURCE: U.S. Census Bureau, Income, Poverty, and Health Insurance in the United States, 2021, Table PINC-03; Internal Revenue Service, 2020; Wiehe et al., 2018; calculations by the authors.

Earnings Premium Relative to Price of Education

The typical four-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 34 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 2020 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 two years after high school graduation, total earnings exceed those of high school graduates by age 33.
- 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 four-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 Diploma	18	None
Some College, No Degree	19	Weighted average of public two-year and public four-year price: 2020-21: \$9,870
Associate Degree	20	Average public two-year price: 2020-21: \$5,210; 2021-22: \$5,260
Bachelor's Degree	22	Weighted average of public and private nonprofit four-year price: 2020-21: \$20,030; 2021-22: \$20,400; 2022-23: \$20,940; 2023-24: \$21,570.

NOTE: This analysis excludes bachelor's degree recipients who earn advanced degrees. We assume that students borrow the cost of tuition and fees and books and supplies and pay it off over 10 years after graduation with a 4.99% annual interest rate during and after college. Tuition/loan payments and earnings are discounted at 3%, compounded every year beyond age 18. The 2023-24 price is projected using the 2022-23 price and a 3% annual increase.

SOURCE: U.S. Census Bureau, American Community Survey, 2016–2020 Five-Year Public Use Microdata Sample; College Board, *Trends in College Pricing and Student Aid 2022*; calculations by the authors.

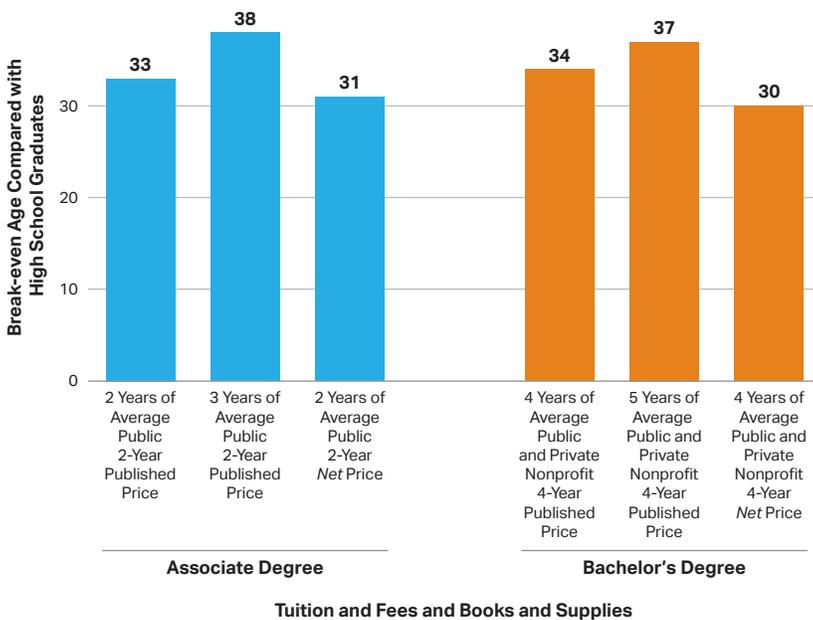
Median Earnings by Education Level and Age, 2016–2020

Age	High School Diploma	Some College, No Degree	Associate Degree	Bachelor's Degree
18	\$20,500	\$0	\$0	\$0
19	\$20,500	\$18,700	\$0	\$0
20	\$25,600	\$25,600	\$28,200	\$0
21	\$25,600	\$25,600	\$28,200	\$0
22 to 24	\$25,600	\$25,600	\$28,200	\$38,900
25 to 29	\$31,500	\$34,200	\$37,400	\$50,300
30 to 34	\$35,200	\$40,200	\$43,500	\$60,600
35 to 39	\$39,100	\$45,400	\$50,100	\$70,400
40 to 44	\$40,600	\$48,700	\$52,200	\$75,500
45 to 49	\$42,300	\$51,100	\$54,300	\$80,100
50 to 54	\$43,500	\$52,200	\$55,500	\$80,500
55 to 59	\$43,500	\$52,300	\$56,300	\$80,500
60 to 64	\$43,000	\$52,200	\$56,300	\$76,100

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 the 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



- Compared with high school graduates with median earnings working full time, the break-even age for associate degree recipients with median earnings is 33 if they pay the average public two-year published tuition and fees and books and supplies for two years. The break-even age increases to 38 if they pay these expenses for three years; the breakeven age is 31 if they receive the average amount of grant aid and pay *net* tuition and fees and buy books and supplies for two years.
- The break-even age depends on the length of study. As an example, for students paying the published price and taking five years to complete a bachelor's degree, the break-even age is 37. Full-pay students who complete a bachelor's degree in four years have a projected break-even age of 34. The break-even age is 30 if students receive the average amount of grant aid and pay *net* tuition and fees and buy books and supplies for four 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. Some 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 Diploma	18	None
Associate Degree		
Baseline (two years of average public two-year published price)	20	2020-21: \$5,210; 2021-22: \$5,260
Three years of average public two-year published price	21	2020-21: \$5,210; 2021-22: \$5,260; 2022-23: \$5,320
Two years of average public two-year <i>net</i> price	20	2020-21: \$810; 2021-22: \$710
Bachelor's Degree		
Baseline (four years of average public and private nonprofit four-year published price)	22	2020-21: \$20,030; 2021-22: \$20,400; 2022-23: \$20,940; 2023-24: \$21,570
Five years of average public and private nonprofit four-year published price	23	2020-21: \$20,030; 2021-22: \$20,400; 2022-23: \$20,940; 2023-24: \$21,570; 2024-25: \$22,220
Four years of average public and private nonprofit four-year <i>net</i> price	22	2020-21: \$7,440; 2021-22: \$7,300; 2022-23: \$7,300; 2023-24: \$7,520

NOTE: This analysis excludes bachelor's degree recipients who earn advanced degrees. We assume that students borrow the cost of tuition and fees and books and supplies and pay it off over 10 years after graduation with a 4.99% annual interest rate during and after college. Tuition/loan payments and earnings are discounted at 3%, compounded every year beyond age 18. The 2023-24 and 2024-25 prices are projected using the 2022-23 price and a 3% annual increase.

SOURCE: U.S. Census Bureau, American Community Survey, 2016–2020 Five-Year Public Use Microdata Sample; College Board, *Trends in College Pricing and Student Aid 2022*; calculations by the authors.

Variation in Earnings Within Levels of Education

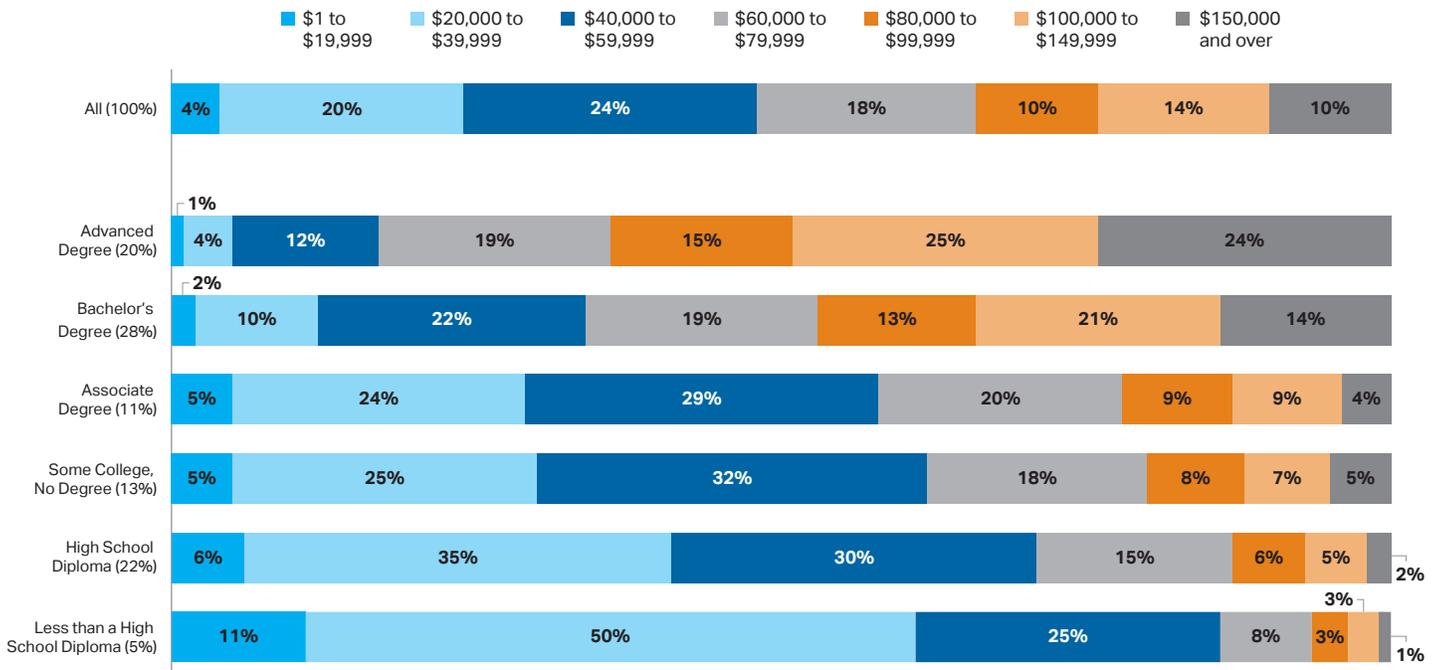
Median earnings are higher for those with higher levels of education, but there is variation in earnings at each level of educational attainment.

- The percentage of full-time year-round workers age 35 to 44 earning \$100,000 or more in 2021 ranged from 4% of those without a high school diploma and 7% of high school graduates to 35% of those whose highest attainment was a bachelor's degree and 49% of advanced degree holders. Among advanced degree holders, 24% earned \$150,000 or more; this share was 14% among bachelor's degree holders.
- In 2021, while 24% of full-time year-round workers age 35 to 44 earned less than \$40,000, 61% of those without a high school diploma and 41% of those with only a high school diploma were in this income category. In contrast, 12% of those whose highest attainment was a bachelor's degree and 5% of those with advanced degrees fell into this category.
- In 2021, 20% of full-time year-round workers age 35 to 44 held advanced degrees, 28% held bachelor's degrees, while 22% held only a high school diploma and 5% 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. (U.S. Census Bureau, Income, Poverty, and Health Insurance in the United States, 2021, Table PINC-03; calculations by the authors)
- 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. (Figures 2.4 through 2.11)

FIGURE 2.3 Earnings Distribution of Full-Time Year-Round Workers Age 35 to 44, by Education Level, 2021



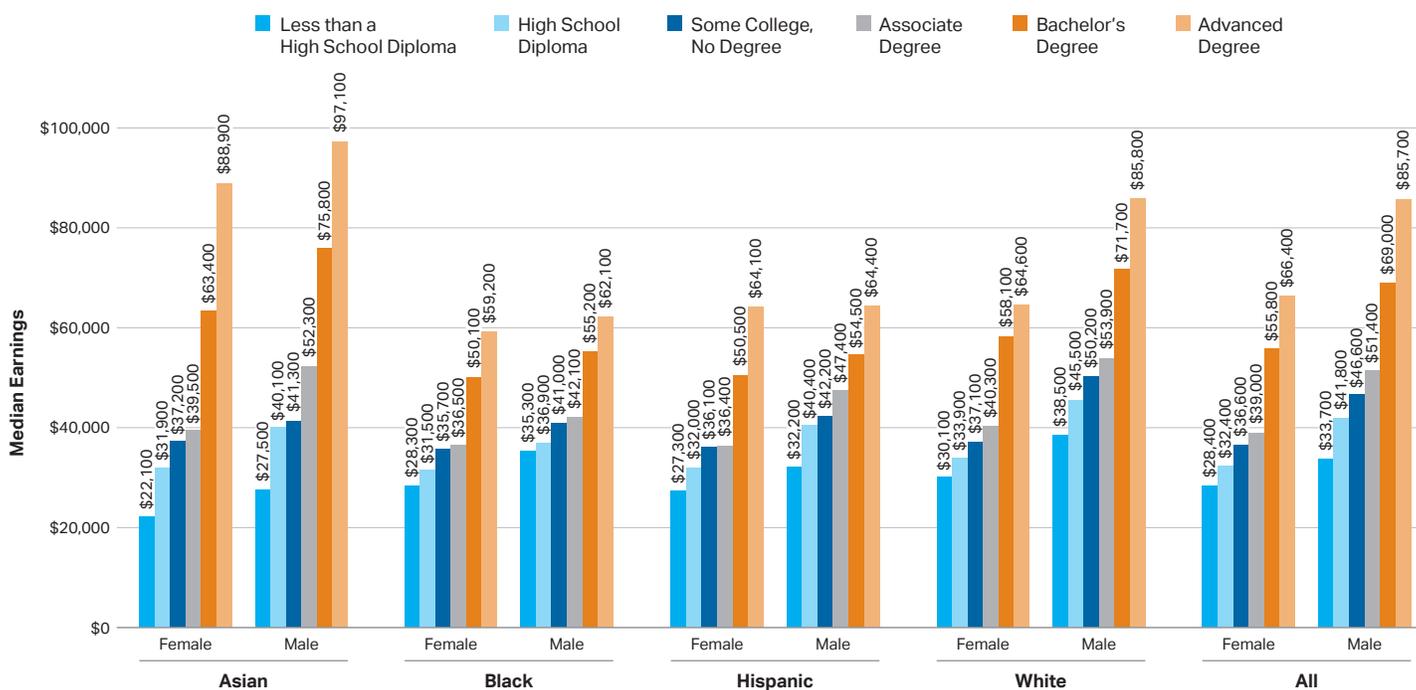
NOTE: The percentages shown in parentheses on the vertical axis represent shares of full-time year-round workers age 35 to 44 with each education level. Percentages may not sum to 100 because of rounding.

SOURCE: U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplement, 2022; calculations by the authors.

Earnings by Race/Ethnicity, Gender, and Education Level

Between 2019 and 2021, median earnings of individuals age 25 to 34 working full time year-round with a bachelor's degree ranged from \$50,100 among Black females and \$50,500 among Hispanic females to \$71,700 among White males and \$75,800 among Asian males.

FIGURE 2.4 Median Earnings (in 2021 Dollars) of Full-Time Year-Round Workers Age 25 to 34, by Race/Ethnicity, Gender, and Education Level, 2019–2021



NOTE: Earnings in 2019 and 2020 are adjusted to 2021 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 non-Hispanic.

SOURCE: U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplement, 2020, 2021, and 2022; 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 Hispanic females and 14% among Black males (\$5,200) to 30% (\$12,200) among Asian 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: 20% among Asian, 10% among Black, and 8% among Hispanic 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, 2019–2021

		BA/HS Earnings Ratio	
		Ages 25–34	Ages 25 and Older
Asian	Female	1.99	1.94
	Male	1.89	2.00
Black	Female	1.59	1.57
	Male	1.50	1.52
Hispanic	Female	1.58	1.58
	Male	1.35	1.50
White	Female	1.71	1.60
	Male	1.58	1.66
All	Female	1.72	1.70
	Male	1.65	1.68

ALSO IMPORTANT:

- Between 2019 and 2021, the proportion of individuals age 25 to 34 working full time year-round ranged from 37% for those without a high school diploma to 72% for those with an advanced degree.

Earnings by Gender and Education Level

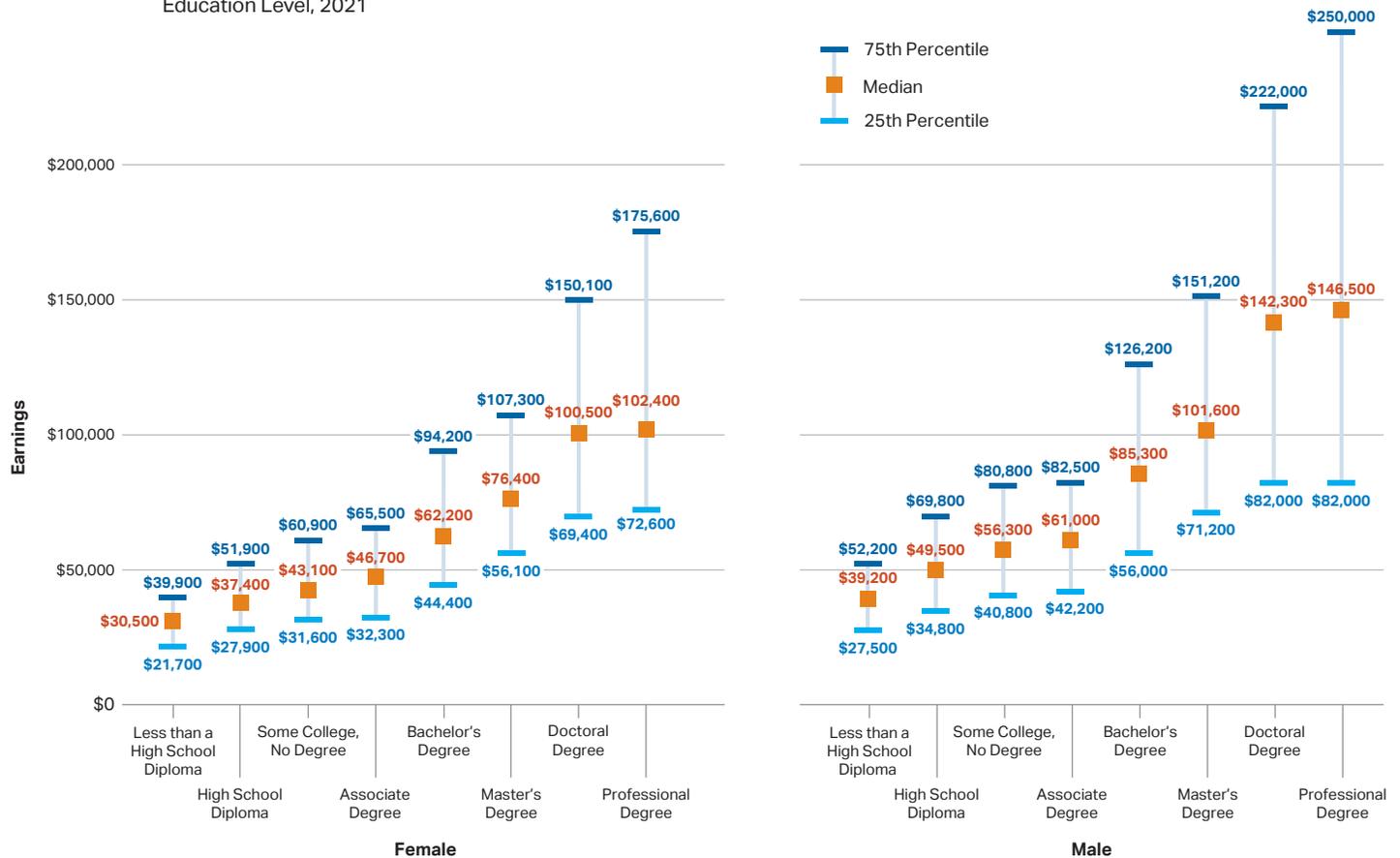
Earnings of full-time year-round workers are strongly correlated with level of education, but there is variation in earnings among both men and women at each level of educational attainment.

- In 2021, median earnings of female four-year college graduates were \$62,200, \$24,800 (66%) more than median earnings of female high school graduates. Median earnings of male bachelor's degree recipients were \$85,300, \$35,800 (72%) higher than median earnings of male high school graduates.
- In 2021, 25% of females with a college degree earned less than \$44,400 and 25% earned more than \$94,200. Among male college graduates, 25% earned less than \$56,000 and 25% earned above \$126,200.
- In 2021, 62% of males with some college education but no degree and 65% of males holding associate degrees earned more than the median earnings of male high school graduates (\$49,500).
- In 2021, 62% of females with some college education but no degree and 66% of females holding associate degrees earned more than the median earnings of female high school graduates (\$37,400).

ALSO IMPORTANT:

- In 2021, 14% of female high school graduates earned more than the median for female college graduates, and 16% of female college graduates earned less than the median for female high school graduates.
- In 2021, 13% of male high school graduates earned more than the median for male college graduates, and 17% 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. (U.S. Census Bureau, Income, Poverty, and Health Insurance in the United States, 2021, Table PINC-03; calculations by the authors)

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, 2021



NOTE: 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.

SOURCE: U.S. Census Bureau, Income, Poverty, and Health Insurance in the United States, 2021, PINC-03; calculations by the authors.

Earnings over Time by Gender and Education Level

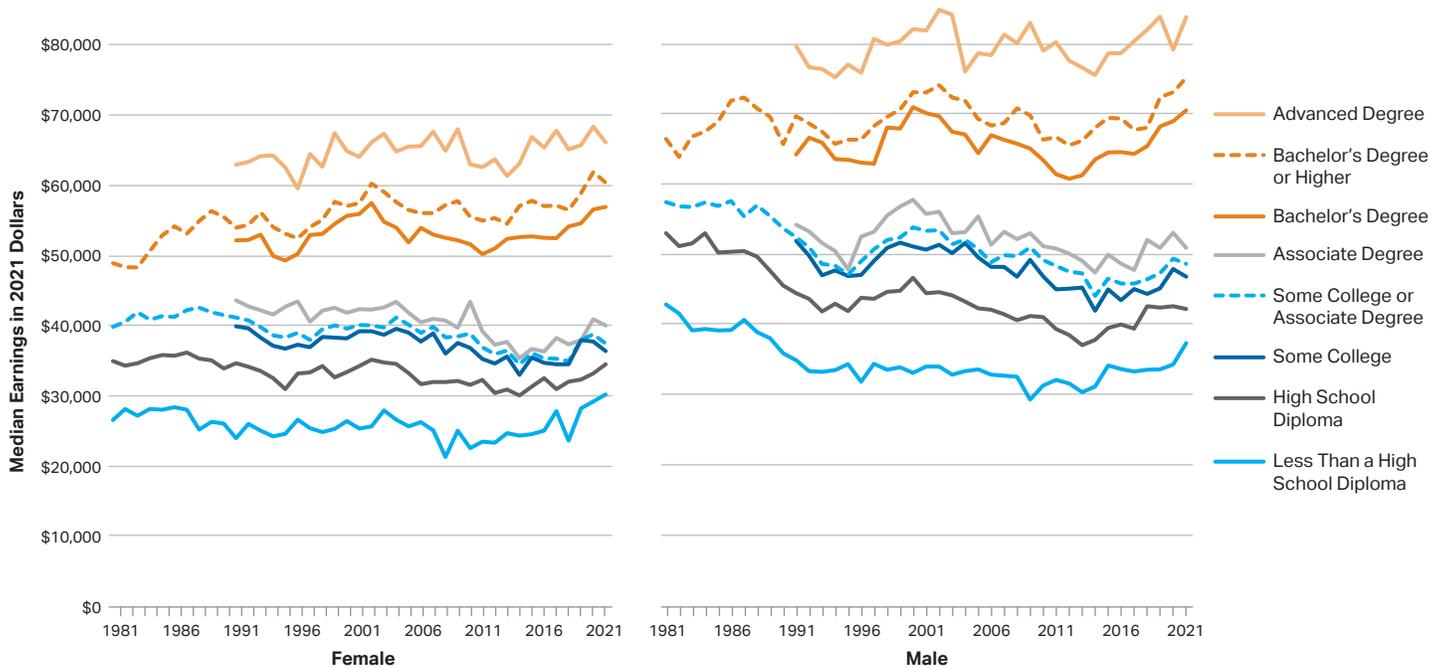
In 2021, among full-time year-round workers between the ages of 25 and 34, median earnings for women with at least a bachelor's degree were \$60,540, compared with \$34,590 for those with a high school diploma.

- In 2021, 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 \$75,430, compared with \$42,460 for those with a high school diploma.
- Between 2011 and 2021, inflation-adjusted median earnings of full-time year-round workers age 25 to 34 increased by 7% for male high school graduates and 13% for men with at least a bachelor's degree. For women, the 10-year percentage change was 7% for high school graduates and 10% for those with at least a bachelor's degree.
- Among those with a bachelor's degree or higher, 27% of men and 34% of women had advanced degrees in 2021, compared with 23% of men and 24% of women two decades earlier.

ALSO IMPORTANT:

- In 2021, 53% of 25- to 34-year-old women worked full time year-round, ranging from 22% of those without a high school diploma to 66% of those with at least a bachelor's degree. (U.S. Census Bureau, Income, Poverty, and Health Insurance in the United States, 2021, Table PINC-03; calculations by the authors)
- In 2021, 69% of 25- to 34-year-old men worked full time year-round, ranging from 48% of those without a high school diploma to 77% of those with at least a bachelor's degree. (U.S. Census Bureau, Income, Poverty, and Health Insurance in the United States, 2021, Table PINC-03; calculations by the authors)

FIGURE 2.6 Median Earnings (in 2021 Dollars) of Full-Time Year-Round Workers Age 25 to 34, by Gender and Education Level, 1981 to 2021



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

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Female	24%	26%	27%	27%	27%	28%	31%	30%	28%	32%	31%	32%	31%	32%	34%	32%	32%	33%	32%	34%	34%
Male	23%	24%	25%	25%	25%	25%	24%	28%	27%	24%	25%	25%	28%	28%	28%	30%	27%	26%	27%	28%	27%

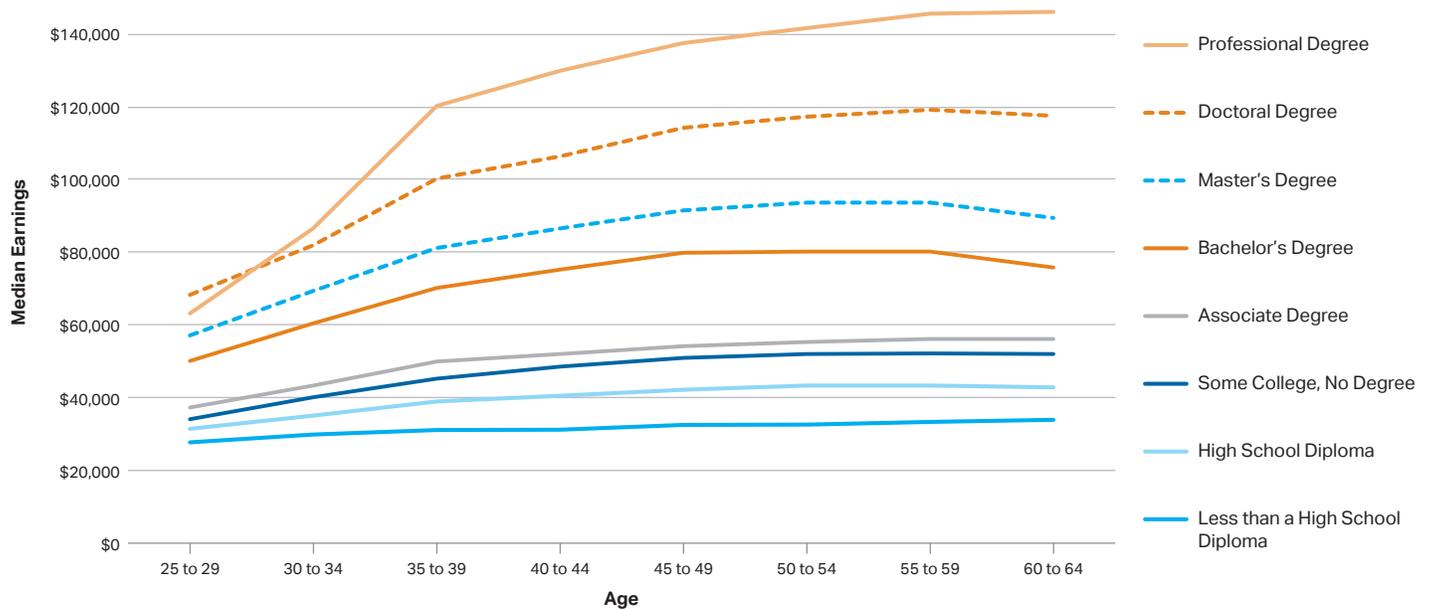
SOURCE: Data for 1993 and prior: NCES, *The Condition of Education, 2014*; Data for 1994 through 2020: U.S. Census Bureau, Income, Poverty, and Health Insurance in the United States, 1995 to 2020, PINC tables; Data for 2021: U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplement, 2021; 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 2016 and 2020, median earnings for individuals age 55 to 59 working full time year-round whose highest degree was a bachelor's degree were 60% 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 38% higher than earnings of the younger group.
- The gap between median earnings of college graduates without advanced degrees and high school graduates ranged from \$18,800 (60%) for 25- to 29-year-olds to \$37,800 (89%) for 45- to 49-year-olds between 2016 and 2020.
- Between 2016 and 2020, the gap between median earnings of associate degree holders and high school graduates was \$5,900 (19%) for 25- to 29-year-olds and \$11,600 (29%) for 40- to 44-year-olds.
- The earnings path is the steepest for individuals with advanced degrees. Between 2016 and 2020, the gap in median earnings between those with professional degrees and those with bachelor's degrees was \$13,100 (26%) for 25- to 29-year-olds and \$70,600 (93%) for 60- to 64-year-olds.

FIGURE 2.7 Median Earnings (in 2020 Dollars) of Full-Time Year-Round Workers, by Age and Education Level, 2016–2020



	Median Earnings of Full-Time Year-Round Workers, 2016–2020							
	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	\$27,800	\$31,500	\$34,200	\$37,400	\$50,300	\$57,300	\$68,500	\$63,400
30 to 34	\$29,900	\$35,200	\$40,200	\$43,500	\$60,600	\$69,600	\$82,200	\$86,900
35 to 39	\$31,200	\$39,100	\$45,400	\$50,100	\$70,400	\$81,500	\$100,600	\$120,700
40 to 44	\$31,300	\$40,600	\$48,700	\$52,200	\$75,500	\$86,900	\$106,800	\$130,400
45 to 49	\$32,600	\$42,300	\$51,100	\$54,300	\$80,100	\$91,800	\$114,700	\$138,100
50 to 54	\$32,700	\$43,500	\$52,200	\$55,500	\$80,500	\$94,000	\$117,700	\$142,200
55 to 59	\$33,400	\$43,500	\$52,300	\$56,300	\$80,500	\$94,000	\$119,600	\$146,200
60 to 64	\$34,000	\$43,000	\$52,200	\$56,300	\$76,100	\$89,800	\$118,000	\$146,700
Ratio of 55-59 Median to 25-29 Median	120%	138%	153%	151%	160%	164%	175%	231%

NOTE: Based on the 2016 to 2020 American Community Survey five-year combined data file. Earnings are adjusted to 2020 dollars using the Consumer Price Index for all urban consumers from the Bureau of Labor Statistics. Median earnings are the median of combined data.

SOURCE: U.S. Census Bureau, American Community Survey, 2016–2020 Five-Year Public Use Microdata Sample; calculations by the authors.

Earnings by Occupation and Education Level

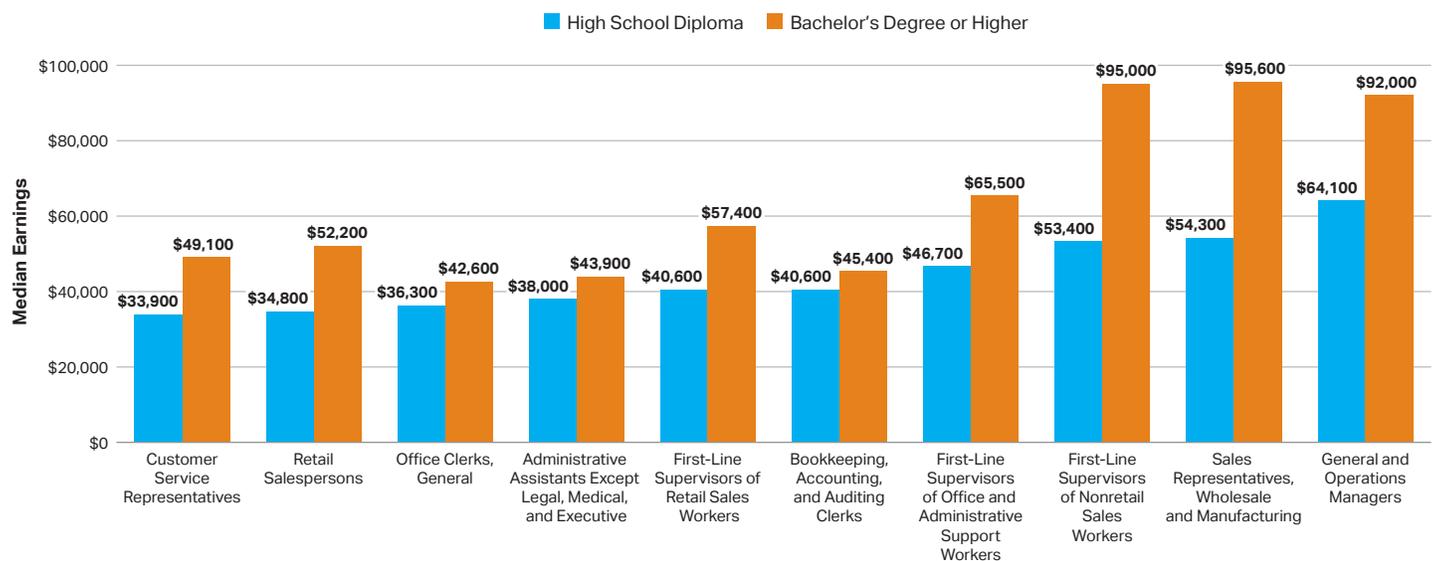
Many four-year college graduates work in occupations that also employ a significant number of individuals with no college credentials. In all these occupations, bachelor's degree recipients earn more than high school graduates on average.

- Within each education level, earnings vary considerably by occupation.
- Between 2016 and 2020, among occupations that employed large numbers of both high school graduates and college graduates, the median earnings of those with only a high school diploma ranged from \$33,900 (in 2020 dollars) for customer service representatives to \$64,100 for general and operations managers; the median earnings of those with at least a bachelor's degree ranged from \$42,600 (in 2020 dollars) for general office clerks to \$95,600 for wholesale and manufacturing sales representatives.
- Between 2016 and 2020, 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 12% for bookkeeping, accounting, and auditing clerks to 78% 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)

FIGURE 2.8 Median Earnings (in 2020 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, 2016–2020



	Customer Service Representatives	Retail Salespersons	Office Clerks, General	Administrative Assistants Except Legal, Medical, and Executive	First-Line Supervisors of Retail Sales Workers	Bookkeeping, Accounting, and Auditing Clerks	First-Line Supervisors of Office and Administrative Support Workers	First-Line Supervisors of Nonretail Sales Workers	Sales Representatives, Wholesale and Manufacturing	General and Operations Managers
% of FT Workers with										
High School Diploma	26%	30%	30%	27%	29%	28%	21%	21%	17%	17%
Bachelor's Degree or Higher	28%	26%	22%	24%	26%	18%	36%	44%	50%	46%
BA/HS Earnings Ratio	1.45	1.50	1.17	1.15	1.42	1.12	1.40	1.78	1.76	1.44

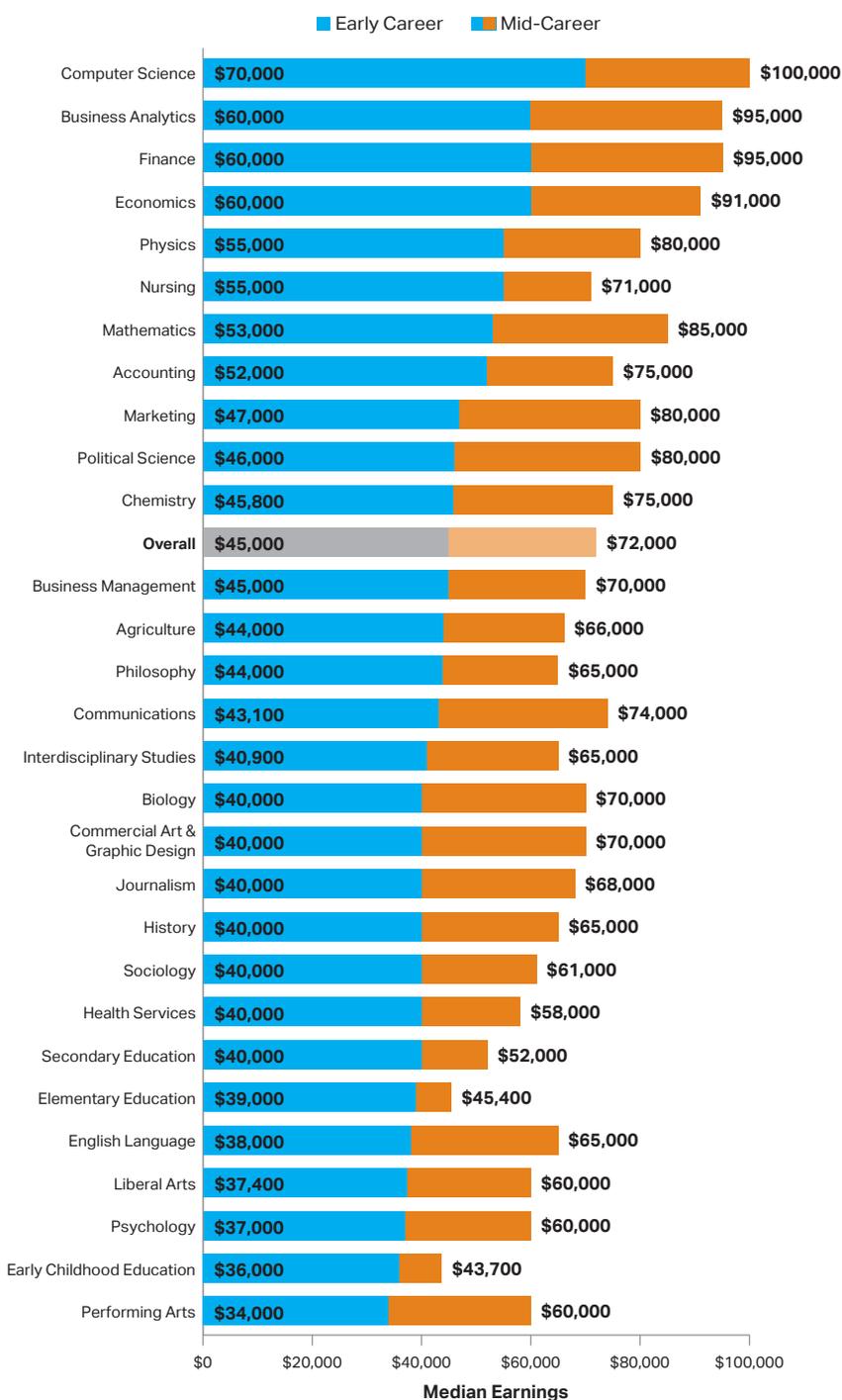
NOTE: Includes 10 largest occupations with at least 15% of full-time workers with only a high school diploma and another 15% with at least a bachelor's degree.

SOURCE: U.S. Census Bureau, American Community Survey, 2016–2020 Five-Year Public Use Microdata Sample; calculations by the authors.

Earnings by College Major

In 2018 and 2019, median earnings for bachelor's degree recipients without an advanced degree were \$45,000 per year for those in early career (age 22 to 27) and \$72,000 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, 2018–2019



- In 2018 and 2019, median earnings for early career bachelor's degree recipients ranged from \$34,000 a year for performing arts majors to \$70,000 for computer science majors. For those in mid-career, median earnings ranged from \$43,700 for early childhood education majors to \$100,000 for computer science majors.
- The differences in earnings between early career and mid-career varies by major. For example, the gaps between early career and mid-career earnings were smaller for nursing and accounting majors, who had relatively high early career earnings. By contrast, mid-career earnings were 75% 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, 38% of college graduates age 25 to 65 had a graduate degree in 2018 and 2019. This rate ranges from 12% for commercial art and graphic design majors and 18% for marketing majors to over 60% for biology, chemistry, and physics majors. (Federal Reserve Bank of New York, 2022)
- While recent college graduates have relatively low levels of unemployment across majors, 41% were underemployed in 2018 and 2019. These rates vary from 12% and 15% for nursing and elementary education majors to 56%, 57%, and 70% for business management, agriculture, and performing arts majors, respectively. (Federal Reserve Bank of New York, 2022)
- 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)

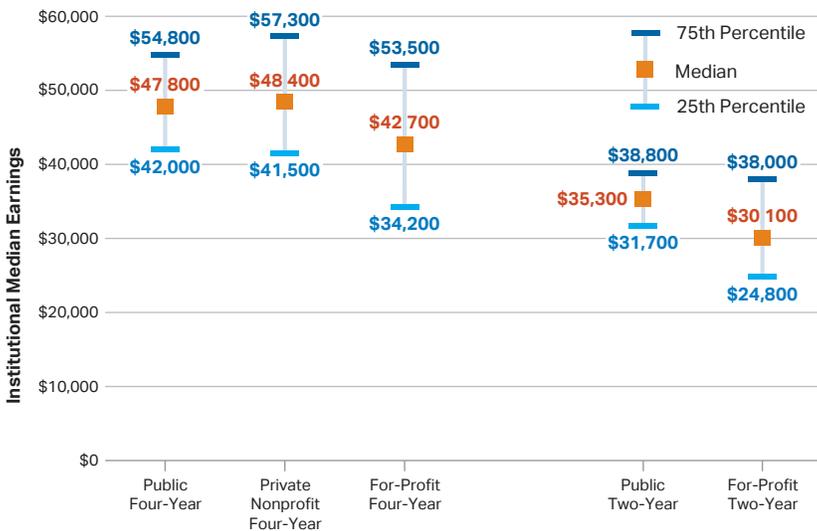
NOTE: Figures represent a 2018 and 2019 average. Median earnings are for full-time workers whose highest education level is a bachelor's degree only. Early career graduates are those age 22 to 27 and mid-career graduates are those age 35 to 45. All figures exclude those currently enrolled in school.

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

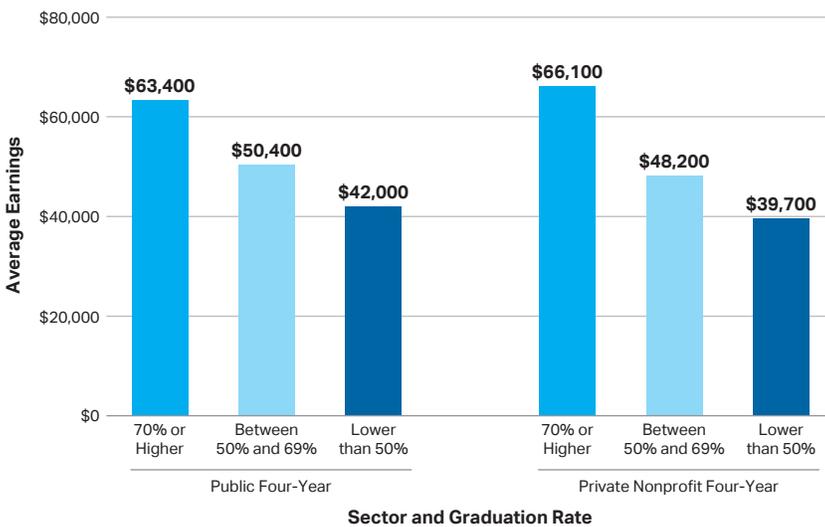
Institutional median earnings vary by sector. From 2018 to 2019, the typical four-year college's median earnings of 2007-08 and 2008-09 federal student aid recipients ranged from \$42,700 at for-profit institutions to \$47,800 at public institutions and \$48,400 at private nonprofit institutions.

FIGURE 2.10A Distribution of 2018 and 2019 Institutional Median Earnings of Federal Student Aid Recipients in 2007-08 and 2008-09, by Sector



NOTE: Median earnings by sector are based on median earnings of federal student aid recipients in each institution, inflation adjusted to 2020 dollars. 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 Median 2018 and 2019 Earnings of Dependent Federal Student Aid Recipients in 2007-08 and 2008-09, by Sector and Graduation Rate



NOTE: Earnings are defined as median earnings (inflation adjusted to 2020 dollars) of dependent students working and not enrolled 10 years after college entry. Data for 2007-08 and 2008-09 pooled cohorts and earnings are measured in 2018 and 2019 calendar years. College graduation rate categories are based on six-year bachelor's degree graduation rates for the 2014 entering cohort (150% of normal time).

- The 75th percentile of institutional median earnings at public two-year colleges was lower than the 25th percentiles of public and private nonprofit four-year institutions.
- The typical public two-year college's median earnings were higher than those of for-profit two-year institutions at \$35,300 and \$30,100, respectively.
- At colleges with six-year bachelor's degree graduation rates below 70%, average median earnings were higher for dependent students who attended public four-year colleges than those who attended private nonprofit four-year colleges.
- Variation in earnings by graduation rates was larger within the private nonprofit sector than in the public sector.

ALSO IMPORTANT:

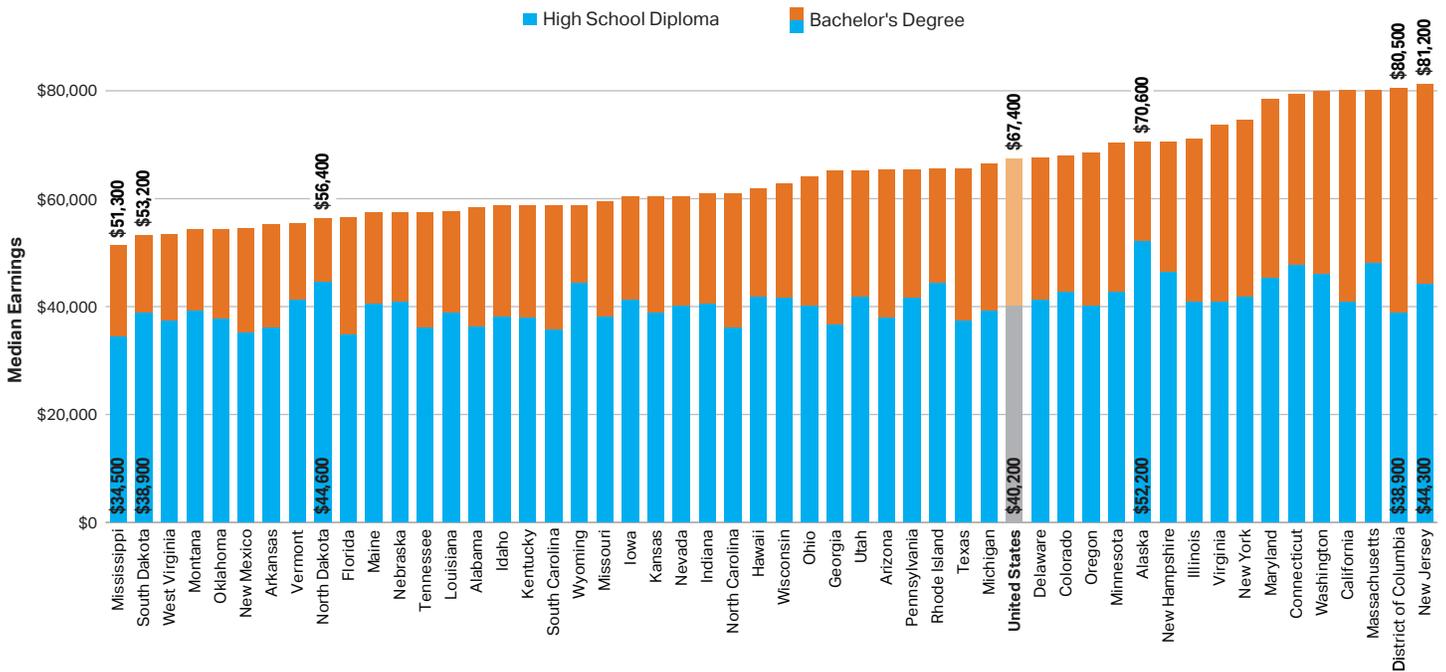
- The College Scorecard data include median earnings aggregated at the college level for students who received federal student aid, and are disaggregated by dependency status. Earnings are calculated among students who are employed and not enrolled in college. Therefore, students who are enrolled in 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 median 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)

SOURCE: U.S. Department of Education, College Scorecard Data; NCES, IPEDS fall 2020 data; calculations by the authors.

Earnings by Education Level and State

From 2016 to 2020, median earnings of bachelor's degree recipients with no advanced degree working full time were \$67,400 in the United States and ranged from \$51,300 in Mississippi to \$81,200 in New Jersey.

FIGURE 2.11 Median Earnings (in 2020 Dollars) of Full-Time Year-Round Workers Age 25 and Older, by Education Level and State, 2016–2020



NOTE: Based on the 2016 to 2020 American Community Survey five-year combined data file. Earnings are adjusted to 2020 dollars using the Consumer Price Index for all urban consumers from the Bureau of Labor Statistics. Median earnings are the median of combined data.

SOURCE: U.S. Census Bureau, American Community Survey, 2016–2020 Five-Year Public Use Microdata Sample; calculations by the authors.

- From 2016 to 2020, median earnings of high school graduates working full time were \$40,200 in the United States and ranged from \$34,500 in Mississippi to \$52,200 in Alaska.
- From 2016 to 2020, the differences in median earnings of bachelor's degree recipients with no advanced degree and high school graduates ranged from \$11,800 in North Dakota to \$41,600 in the District of Columbia.

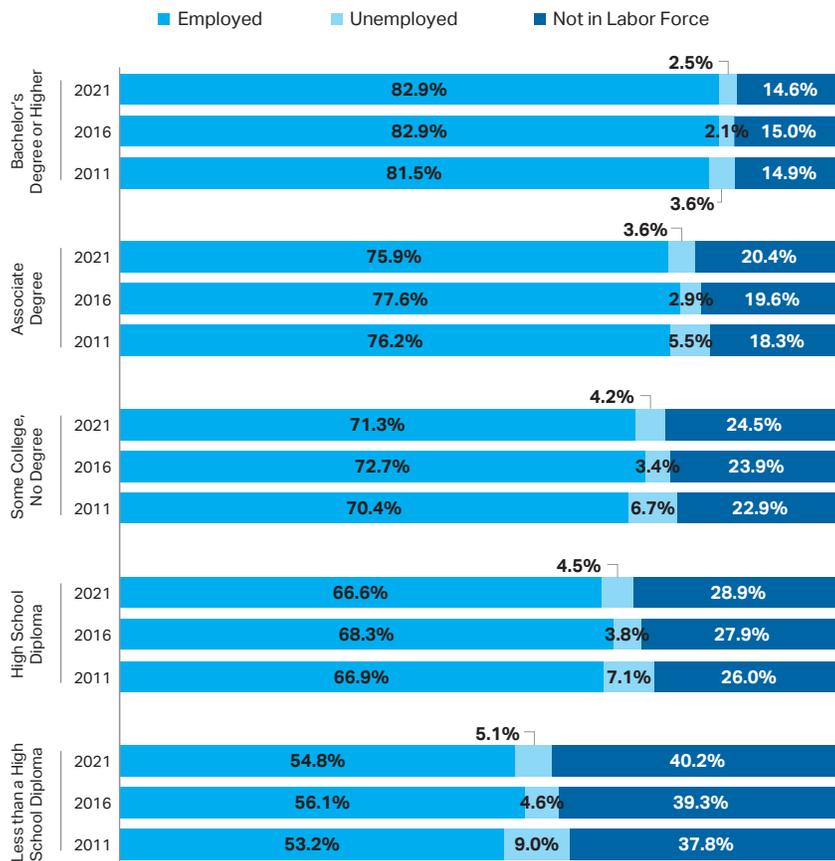
ALSO IMPORTANT:

- Educational attainment varies widely across states. In 2019, the share of adults with at least a bachelor's degree ranged from 22% in West Virginia and Mississippi to 60% in the District of Columbia. (Figure 1.7)
- Some of the differences in earnings gaps across states are related to occupations. Within an occupation, geographic factors such as local demand and cost of living affect wages as well. (Bureau of Labor Statistics, 2015)

Employment

In 2021, among adults between the ages of 25 and 64, 67% of high school graduates, 71% of those with some college but no degree, 76% of those with an associate degree, and 83% of those with at least a bachelor's degree were employed.

FIGURE 2.12 Civilian Population Age 25 to 64: Percentage Employed, Unemployed, and Not in Labor Force, 2011, 2016, 2021



Civilian Population Age 25 to 64, Number in Millions, 2011, 2016, and 2021

	Less than a High School Diploma	High School Diploma	Some College, No Degree	Associate Degree	Bachelor's Degree or Higher
2011	17.5	47.6	28.0	16.7	52.0
2016	16.4	46.3	27.8	17.9	58.6
2021	13.9	45.5	24.8	17.9	65.9

NOTE: 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.

SOURCE: U.S. Census Bureau, Basic Monthly Current Population Survey, January through December, 2011, 2016, and 2021; calculations by the authors.

- Within all education levels, the percentage of individuals who were unemployed declined between 2011 and 2016 and increased between 2016 and 2021.
- In 2021, among adults between the ages of 25 and 64, 15% of those with a bachelor's degree were not in the labor force, compared with 29% of high school graduates and 40% of those without a high school diploma.
- Between 2011 and 2021, the percentage of individuals not in the labor force was stable for those with a bachelor's degree (about 15%) and increased for those without a bachelor's degree. The increase ranged from 1.6 percentage points (from 22.9% to 24.5%) for those with some college education to 2.9 percentage points (from 26.0% to 28.9%) for those with a high school diploma.

ALSO IMPORTANT:

- The percentage of individuals who are unemployed (Figure 2.12) differs from the unemployment rate (Figure 2.13A), which is the ratio of unemployed individuals to the sum of employed and unemployed individuals, excluding those who are not working or actively seeking employment.
- The length of unemployment has fluctuated over time. In 2021, 2.8% 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 of 2008. (Bureau of Labor Statistics, Table A-15, Alternative Measures of Labor Underutilization)
- Research has shown that the widening earnings gap between highly and less skilled workers is closely linked to the declining labor supply of men without a college degree. (Wu, 2022)

Unemployment

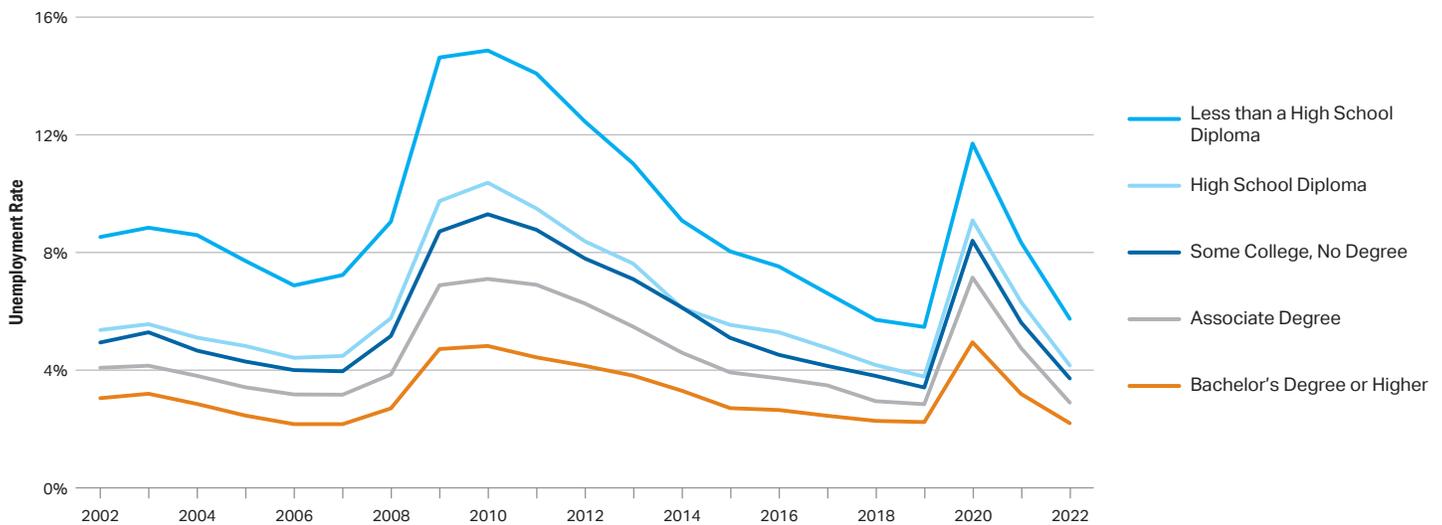
The unemployment rate for individuals age 25 and older with at least a bachelor's degree has consistently been about half of the unemployment rate for high school graduates.

- Between 2002 and 2022, unemployment rates peaked in 2010 for those without a college degree. The unemployment rates for those with an associate degree or higher were highest in 2020.
- Between 2010 and 2019, unemployment rates declined every year across all education groups. In 2019, the unemployment rates were 2.1% for those with at least a bachelor's degree, 2.7% for associate degree holders, and 3.7% for those with a high school diploma.
- Unemployment rates spiked in 2020 at the beginning of the covid-19 pandemic. Unemployment rates had declined to pre-pandemic levels by 2022.
- Over the 20-year period from 2002 to 2022, 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 in 2018, 2019, and 2022 (2 percentage points or less).

ALSO IMPORTANT:

- Among individuals with the same level of educational attainment, the unemployment rates differ by age and by race/ethnicity. (Figures 2.13B and 2.13C)

FIGURE 2.13A Unemployment Rates of Individuals Age 25 and Older, by Education Level, 2002 to 2022



Unemployment Rates of Individuals Age 25 and Older, by Education Level, 2002 to 2022, Selected Years

	Less than a HS Diploma	High School Diploma	Some College, No Degree	Associate Degree	Bachelor's Degree or Higher	BA/HS Unemployment Rate Ratio
2002	8.4%	5.3%	4.8%	4.0%	2.9%	0.55
2006	6.8%	4.3%	3.9%	3.0%	2.0%	0.47
2010	14.9%	10.3%	9.2%	7.0%	4.7%	0.46
2019	5.4%	3.7%	3.3%	2.7%	2.1%	0.57
2020	11.7%	9.0%	8.3%	7.1%	4.8%	0.54
2022	5.6%	4.0%	3.6%	2.8%	2.1%	0.51

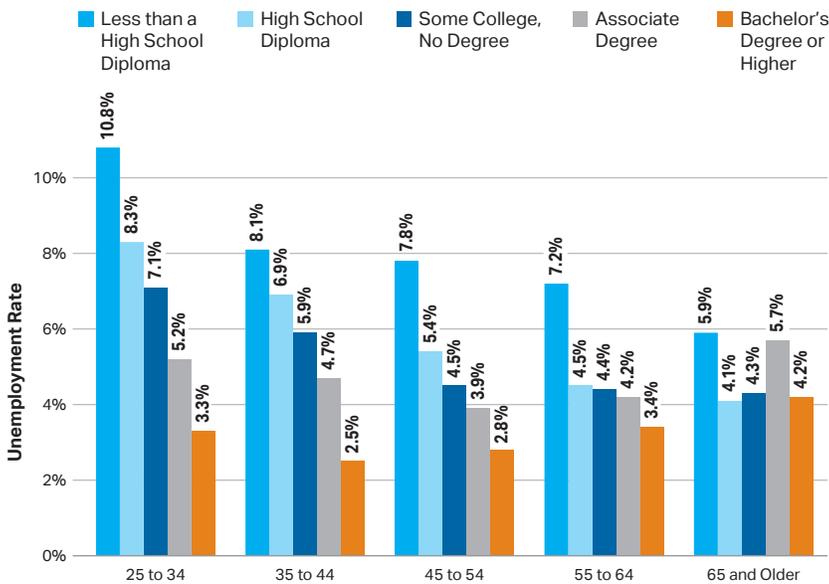
NOTE: The unemployment rates for 2022 are based on data from January through September.

SOURCE: Bureau of Labor Statistics, Labor Force Statistics from the Current Population Survey, 2002 through 2022; calculations by the authors.

Unemployment

In 2021, the unemployment rate for 25- to 34-year-olds with at least a bachelor's degree was 3.3%, compared with 8.3% for high school graduates in the same age group.

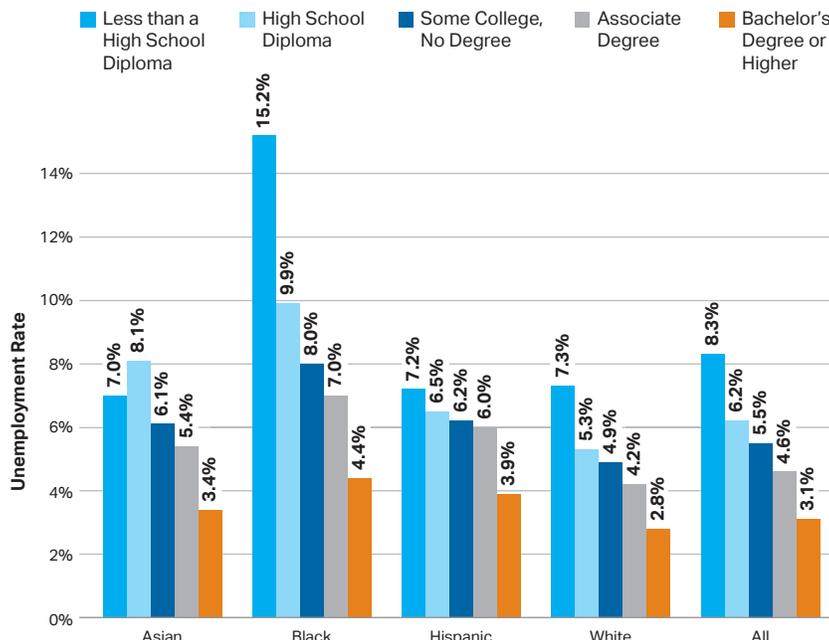
FIGURE 2.13B Unemployment Rates of Individuals Age 25 and Older, by Age and Education Level, 2021



SOURCE: U.S. Census Bureau, Current Population Survey, January through December 2021; calculations by the authors.

- In 2021, unemployment rates of 25- to 34-year-olds were 7.1% for those with some college but no degree and 5.2% for those with an associate degree.
- In 2021, unemployment rates were lower for older age groups among those without a college degree. Among those with at least a bachelor's degree, the unemployment rate was lowest for those between the ages of 35 and 44.
- The gaps in unemployment rates among education levels were largest for Black adults. In 2021, the gap between the unemployment rates for Black adults with at least a bachelor's degree and Black high school graduates was 5.5 percentage points, compared with 2.5 percentage points for Whites, 2.6 percentage points for Hispanics, and 4.7 percentage points for Asians.
- In 2021, the gaps in labor force participation rates between those with at least a bachelor's degree and those with a high school diploma were 12, 16, 20, and 21 percentage points for Hispanic, White, Black, and Asian individuals, respectively.

FIGURE 2.13C Unemployment Rates of Individuals Age 25 and Older, by Race/Ethnicity and Education Level, 2021



SOURCE: Bureau of Labor Statistics, Labor Force Statistics from the Current Population Survey, 2021, Table 7.

Labor Force Participation Rates of Individuals Age 25 and Older, by Race/Ethnicity and Education Level, 2021

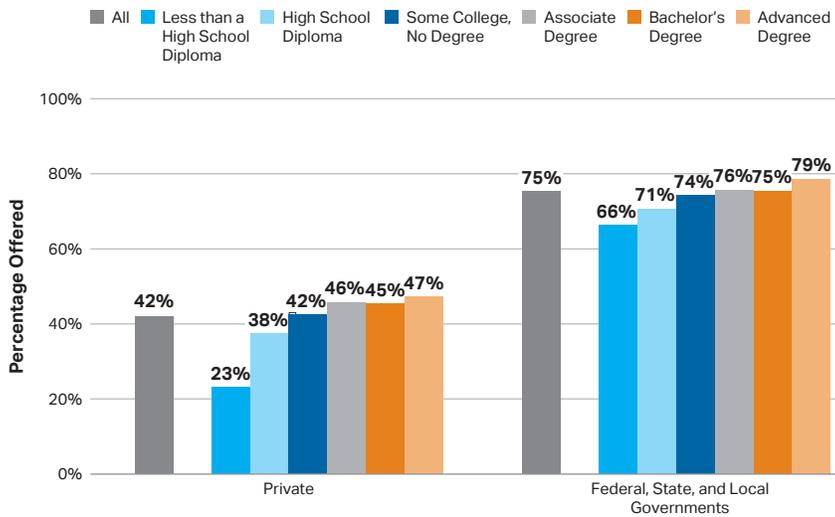
	Less than a High School Diploma	High School Diploma	Some College, No Degree	Associate Degree	Bachelor's Degree or Higher
Asian	40%	54%	65%	66%	75%
Black	34%	57%	65%	69%	77%
Hispanic	57%	67%	71%	74%	79%
White	47%	55%	60%	66%	71%

SOURCE: Bureau of Labor Statistics, Labor Force Statistics from the Current Population Survey, 2021, 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 2.14 Percentage of Full-Time Year-Round Workers Age 25 and Older Offered Employer Retirement Plan, by Sector and Education Level, 2021



Participation Rates in Employment-Provided Retirement Plans Among Eligible Full-Time Year-Round Workers Age 25 and Older, by Sector and Education Level, 2021

Sector	All	Less than a High School Diploma	High School Diploma	Some College, No Degree	Associate Degree	Bachelor's Degree	Advanced Degree
Private	86%	79%	81%	83%	84%	89%	90%
Government	94%	89%	90%	92%	93%	95%	96%

Percentage of Full-Time Year-Round Private Sector Workers Age 25 and Older Offered Employer Retirement Plan, by Employer Size and Education Level, 2021

Number of Employees	All	Less than a High School Diploma	High School Diploma	Some College, No Degree	Associate Degree	Bachelor's Degree	Advanced Degree
Less than 100	26%	12%	22%	27%	30%	30%	35%
100 - 999	45%	34%	42%	45%	50%	45%	48%
1000 or More	53%	41%	52%	54%	56%	54%	52%

SOURCE: U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplement, 2022; calculations by the authors.

- In 2021, 38% of high school graduates age 25 and older working full time year-round in the private sector were offered a retirement plan, compared with 45% of those whose highest degree was a bachelor's degree. In the public sector, these percentages were 71% and 75%, 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 79% among full-time year-round workers with less than a high school diploma to 90% 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.

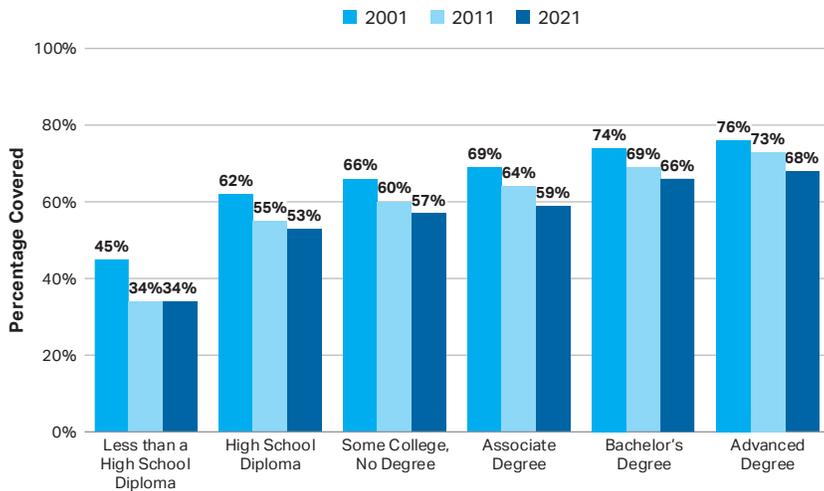
ALSO IMPORTANT:

- In 2021, 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 16% for those without a high school diploma and 26% for high school graduates to 35% for bachelor's degree recipients and 47% for those with an advanced degree. (U.S. Census Bureau, 2022 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

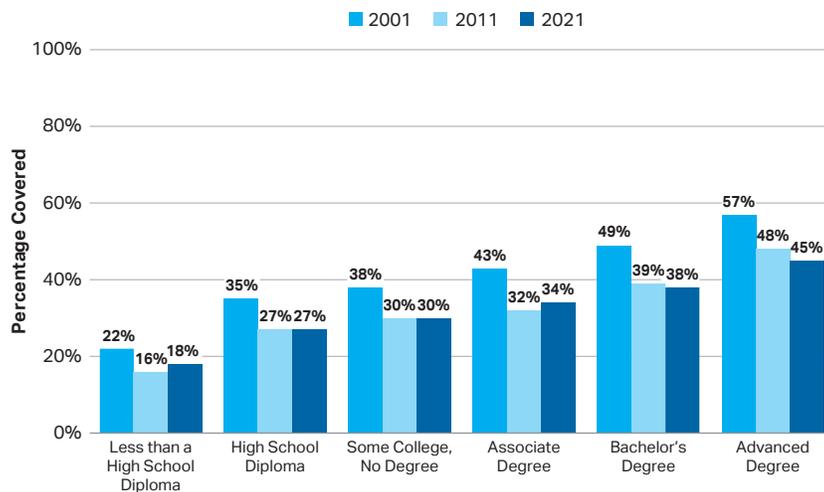
Among both full-time and part-time workers, those with higher levels of educational attainment are more likely than others to be covered by employer-provided health insurance.

FIGURE 2.15A Employer-Provided Health Insurance Coverage Among Full-Time Year-Round Workers Age 25 and Older, by Education Level, 2001, 2011, and 2021



- In 2021, 53% of high school graduates age 25 and older working full time year-round were covered by employer-provided health insurance, compared with 66% of those with a bachelor's degree and 68% 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 2001 and 2021, health insurance coverage declined by 8 percentage points for individuals with at least a bachelor's degree working full time year-round. The decline was 9 to 11 percentage points for individuals with an associate degree or lower.
- In 2001, 57% of advanced degree holders, 49% of bachelor's degree holders, and 35% of high school graduates working part time were covered by employer-provided health insurance. By 2021, those percentages had declined to 45%, 27%, and 18%, respectively.
- Between 2011 and 2021, employer-provided health insurance coverage increased slightly or remained unchanged among individuals with an associate degree or lower working part time.

FIGURE 2.15B Employer-Provided Health Insurance Coverage Among Part-Time Year-Round Workers Age 25 and Older, by Education Level, 2001, 2011, and 2021



ALSO IMPORTANT:

- In 2021, when 11% of adults age 26 to 64 were not covered by health insurance at any time during the year, 5% of those with a bachelor's degree and 3% of those with advanced degrees were not covered. This was the case for 8% of those with associate degrees, 11% of those with some college but no degree, and 16% of high school graduates. (U.S. Census Bureau, Health Insurance Coverage Status and Type by Age and Selected Characteristics: 2020 and 2021, Table C-2)

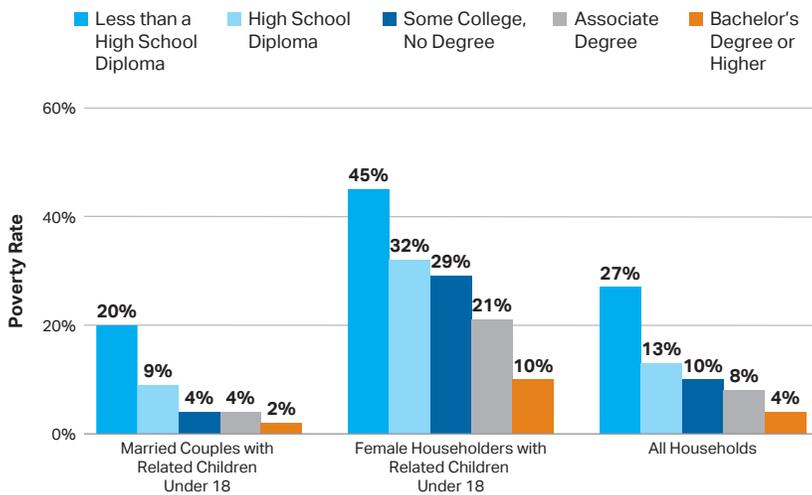
NOTE: Part-time workers are those who worked at least 20 hours a week for at least 26 weeks during the year, but did not work full time year-round.

SOURCE: U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplement, 2002, 2012, and 2022; calculations by the authors.

Poverty

The poverty rate falls as the level of education increases. Among all household types, the 2021 poverty rate for individuals with an associate degree was 8%, compared with 13% for high school graduates with no college experience and 27% for those without a high school diploma.

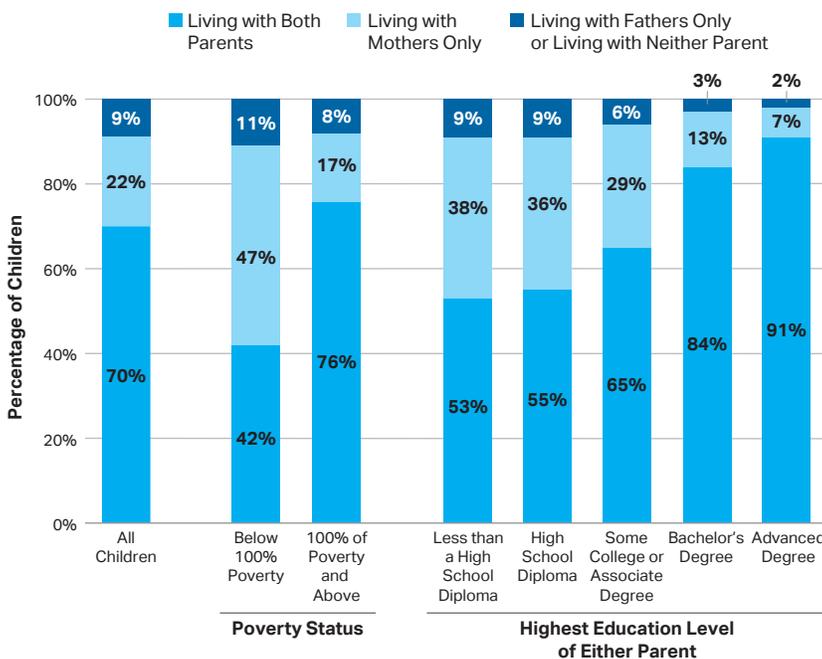
FIGURE 2.16A Percentage of Individuals Age 25 and Older Living in Households in Poverty, by Household Type and Education Level, 2021



SOURCE: U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplement, 2022; calculations by the authors.

- Within each education level, individuals living in households headed by unmarried females with children under 18 had much higher poverty rates than those living in other household types. For example, the 2021 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 10% overall for this education group.
- In 2021, 70% of all children under age 18 lived with both parents. Among children under 18 who were below 100% poverty thresholds, 42% lived with both parents, compared with 76% of children above 100% poverty thresholds.
- The percentage of children under age 18 who lived with both parents ranged from 53% of those whose parents did not graduate from high school and 55% 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, 2021



NOTE: In 2021, 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, 2021, Table C-3.

ALSO IMPORTANT:

- In 2021, 5% of all adults and 14% of adults below the poverty threshold lived in households headed by unmarried females with children. (U.S. Census Bureau, Current Population Survey, 2021 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 2021, the poverty threshold was \$14,097 for a single person under age 65, \$21,831 for a family of 3 with 2 children, and \$27,479 for a family of 4 with 2 children. (U.S. Census Bureau, Poverty Thresholds, 2021)
- 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 2021, the poverty guideline for families of 4 issued by the Department of Health and Human Services was \$26,500. (U.S. Department of Health and Human Services, Federal Register Notices, Vol. 86, No. 19, February 21, 2021.)

Public Assistance Programs

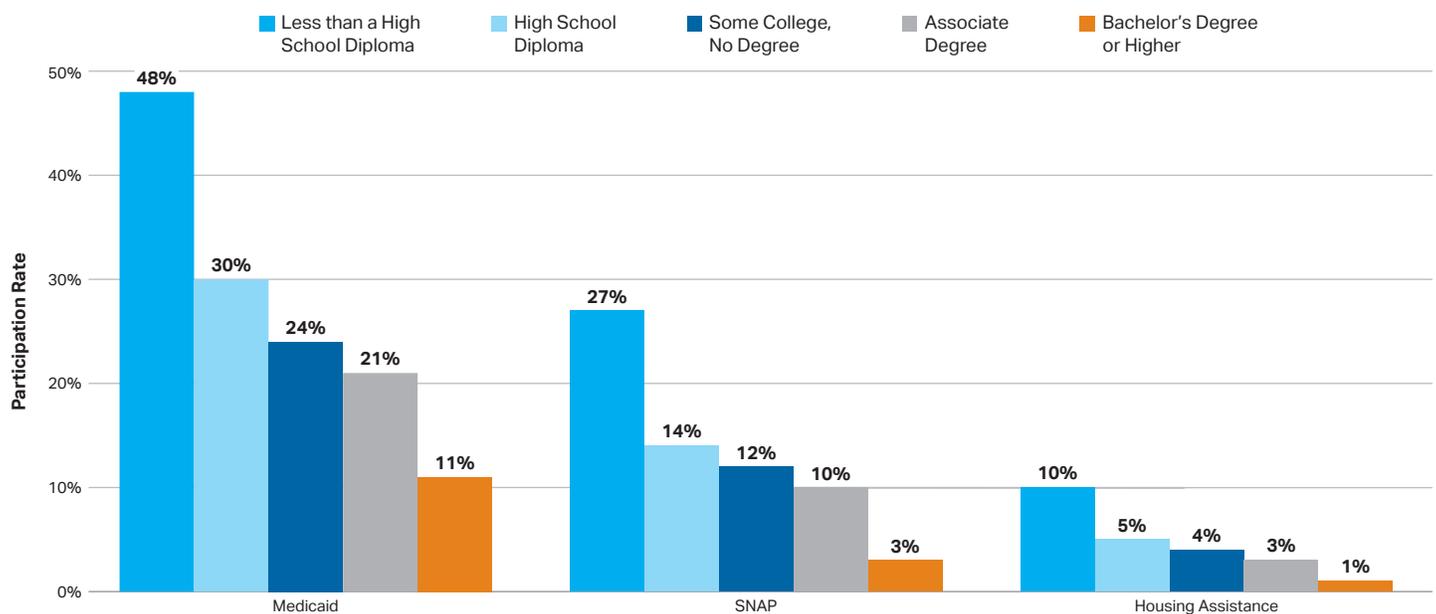
Individuals with higher education levels are less likely to live in households that receive public assistance.

- Medicaid provides health insurance to many low-income families and other eligible individuals. 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 2021, 14% of individuals age 25 and older with only a high school diploma and 27% of those without a high school diploma lived in households that benefited from SNAP. Participation rates were 12% for those with some college but no degree, 10% for those with an associate degree, and 3% for those with at least a bachelor's degree.
- In 2021, 30% of adult high school graduates and 48% of those without a high school diploma lived in households that received Medicaid coverage. Participation rates were 24% for those with some college but no degree, 21% for those with an associate degree, and 11% for those with at least a bachelor's degree.
- In 2021, 5% of adult high school graduates and 10% of those without a high school diploma lived in households that received housing assistance. Participation rates were 4% 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:

- In fiscal year 2021, 41.6 million individuals in 21.6 million households received an average of \$218 (\$418 per household) per month in SNAP benefits. (U.S. Department of Agriculture Food and Nutrition Service)
- The covid relief package enacted in December 2020 included a 15% increase in SNAP's maximum benefit for January through June 2021, which was later extended through September 2021. This resulted in an increase of about \$28 more in SNAP benefits per person per month, or just over \$100 per month in food assistance for a family of four. (Center on Budget and Policy Priorities, 2022)
- 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, 2021

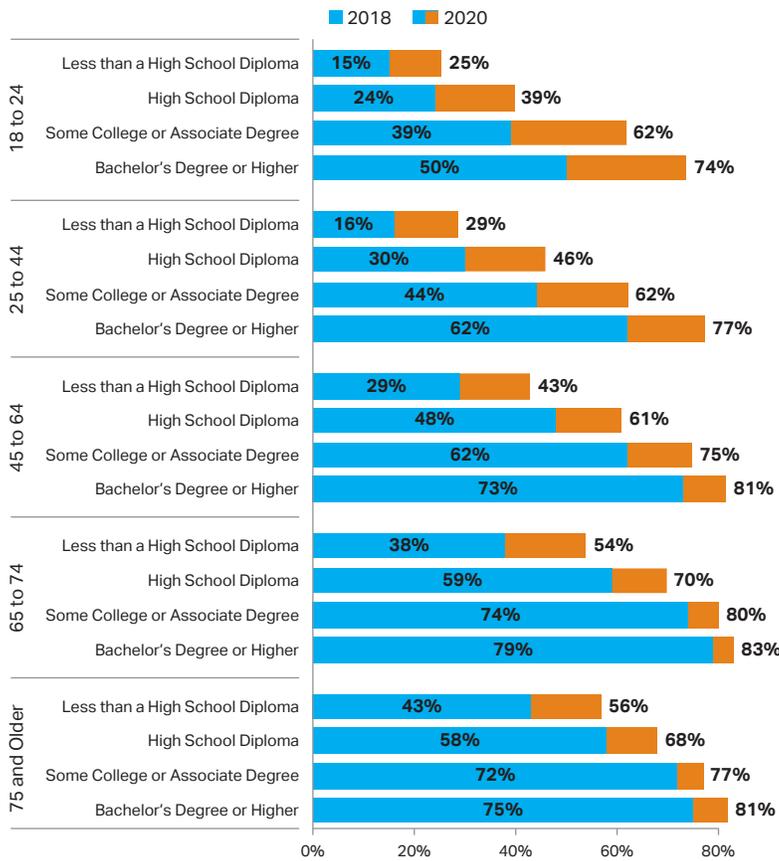


SOURCE: U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplement, 2022; calculations by the authors.

Voting

Voting rates are higher for individuals with higher levels of education. In the 2020 presidential election, 77% of 25- to 44-year-old U.S. citizens with at least a bachelor's degree voted, compared with 46% of high school graduates in the same age group.

FIGURE 2.18A Voting Rates Among U.S. Citizens, by Age and Education Level, 2018 and 2020



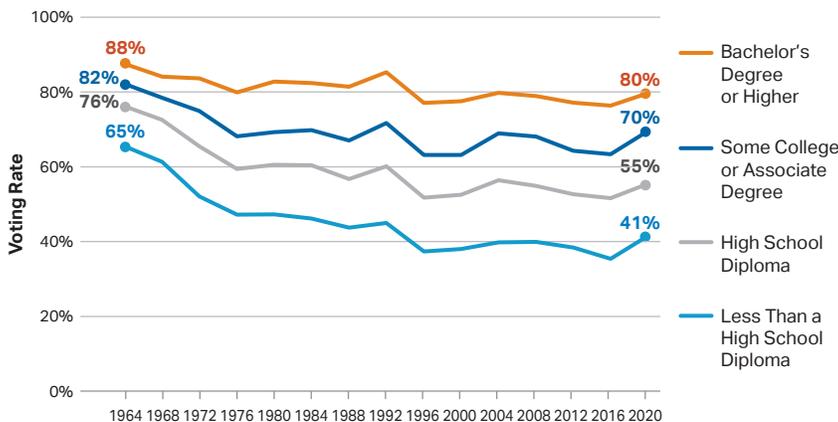
SOURCE: U.S. Census Bureau, Voting and Registration Tables, 2018 and 2020, Table 5; calculations by the authors.

- Within each age group and education level, voting rates were higher in the 2020 presidential election than in the 2018 midterm election.
- At all levels of education, voting rates increase with age.
- Between 2016 and 2020, voting rates during presidential elections increased across all education groups. In the 2020 election, voting rates ranged from 41% among those without a high school diploma to 80% among those with at least a bachelor's degree.

ALSO IMPORTANT:

- Only U.S. citizens are eligible to vote in presidential elections. Voting rates in Figures 2.18A and 2.18B represent percentages of U.S. citizens who voted. In 2020, 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 2020, Table 5; calculations by the authors).

FIGURE 2.18B Voting Rates Among U.S. Citizens During Presidential Elections, by Education Level, 1964 to 2020



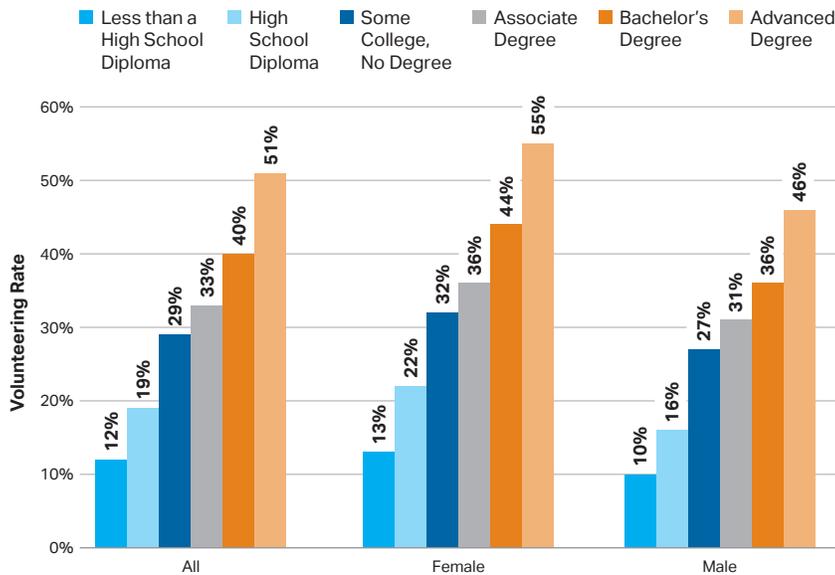
NOTE: Citizenship status for 1976 and earlier is not available and voting rates represent percentages of all U.S. age-eligible population who voted.

SOURCE: U.S. Census Bureau, Voting and Registration Tables, 1964 to 2020; calculations by the authors.

Civic Involvement

The share of adults who perform unpaid volunteer activities increases with education. Among those age 25 and older, the volunteering rate in 2019 ranged from 12% for those without a high school diploma to 51% for those with advanced degrees.

FIGURE 2.19A Percentage of Individuals Age 25 and Older Who Volunteered, by Gender and Education Level, 2019

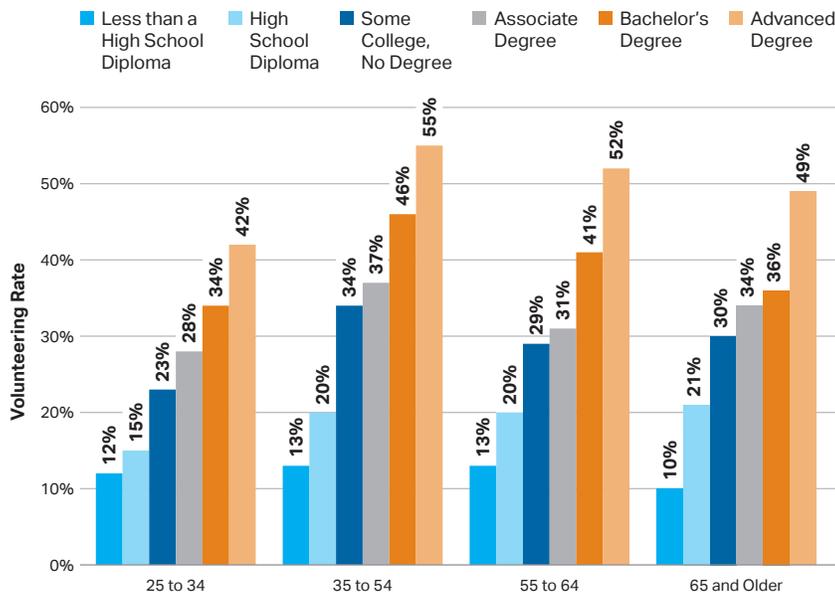


- At each education level, higher percentages of women than of men volunteered. In 2019, among adults whose highest education was a bachelor's degree, 44% of women volunteered while 36% of men did. The gender gap in volunteering rates was 6 percentage points among individuals with a high school diploma (22% for women versus 16% for men).
- Among individuals with at least some college education, volunteering rates were highest for those between the ages of 35 and 54.

ALSO IMPORTANT:

- In 2019, an estimated 30% of individuals of any age reported volunteering for an organization or association in the previous year. This volunteering rate is comparable to 2017 and has remained largely stable over the past two decades. (AmeriCorps, 2021)
- Volunteers were more likely to donate to charity and to invest in community-building than those who did not volunteer. (Fidelity Charitable, 2021)
- 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 2.19B Percentage of Individuals Age 25 and Older Who Volunteered, by Age and Education Level, 2019



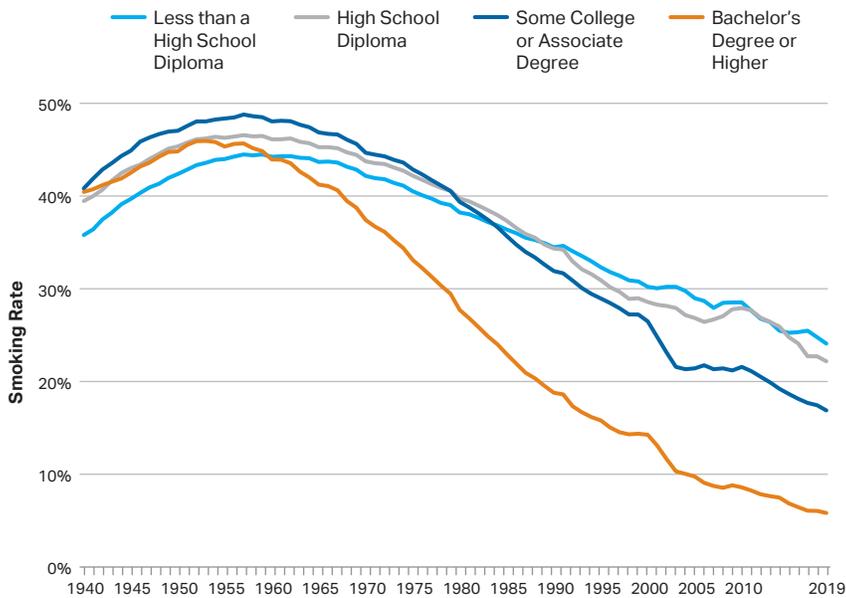
NOTE: Volunteers are defined as individuals who performed unpaid volunteer activities for organizations at any point from September 2018 through September 2019.

SOURCE: U.S. Census Bureau, September 2019 Supplement to the Current Population Survey; 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.

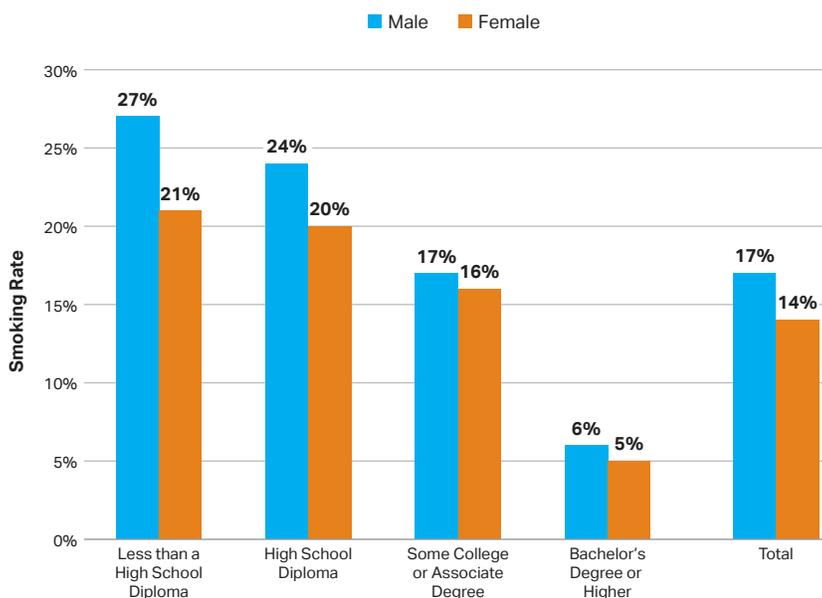
FIGURE 2.20A Smoking Rates Among Individuals Age 25 and Older, by Education Level, 1940 to 2019



NOTE: Data for 1999 through 2019 are three-year moving averages. Data in 2019 include electronic cigarette usage.

SOURCE: de Walque, 2004; National Center for Health Statistics (NCHS), *Health, United States, 2020*, Table 18; calculations by the authors.

FIGURE 2.20B Smoking Rates Among Individuals Age 25 and Older, by Gender and Education Level, 2019



SOURCE: NCHS, *Health, United States, 2020*, 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 2019, smoking rates were 6% for college graduates and 22% 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 2019, compared with 20% of females. Among those with at least a bachelor's degree, 6% of males and 5% of females smoked.

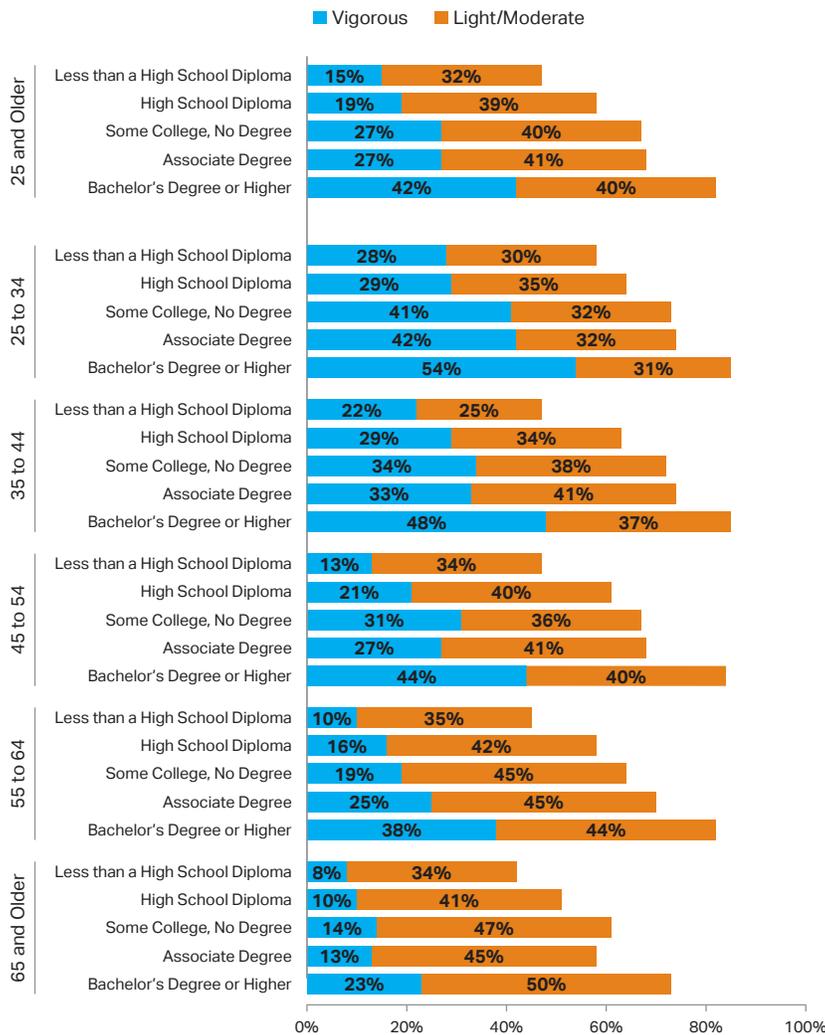
ALSO IMPORTANT:

- 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 and older, 42% of individuals with at least a bachelor’s degree and 19% of high school graduates reported exercising vigorously at least once a week in 2020.

FIGURE 2.21 Exercise Rates Among Individuals Age 25 and Older, by Age and Education Level, 2020



- Among adults age 25 to 34, 54% of individuals with at least a bachelor’s degree and 29% of high school graduates reported exercising vigorously at least once a week in 2020.
- Among 45- to 54-year-olds, 44% of individuals with at least a bachelor’s degree and 21% of high school graduates reported exercising vigorously at least once a week in 2020.
- Individuals age 65 and older with at least a bachelor’s degree report similar rates of vigorous exercise as 35- to 44-year-olds without a high school diploma (about 22% to 23% for both groups).

ALSO IMPORTANT:

- 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)

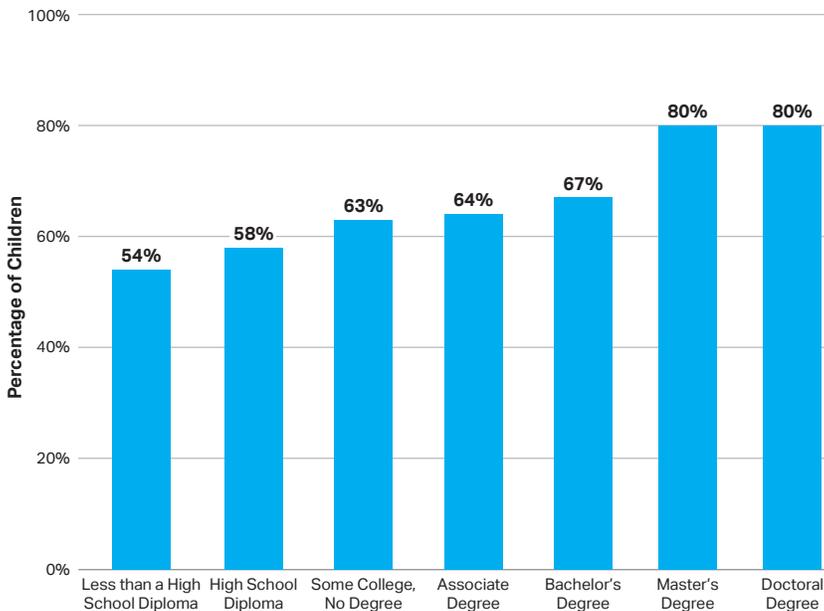
NOTE: “Moderate-intensity activities” are defined as activities that cause moderate increases in breathing or heart rate while “vigorous-intensity activities” cause large increases in breathing or heart rate.

SOURCE: National Center for Health Statistics, National Health Interview Survey (NHIS), 2020; calculations by the authors.

Parents and Children: Preschool-Age Children

Preschool-age children of parents with higher levels of educational attainment are more likely than other children to be enrolled in school.

FIGURE 2.22A Percentage of 3- to 5-Year-Olds Enrolled in School, by Parents' Education Level, 2019



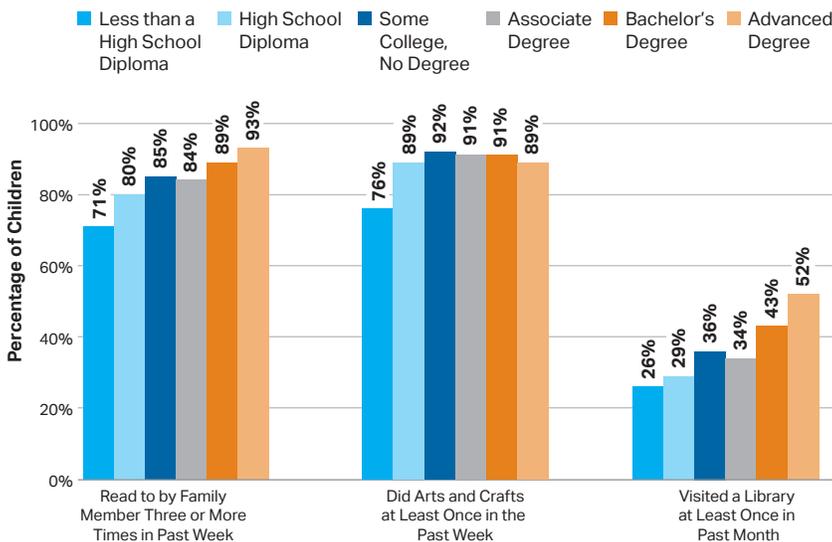
- In 2019, 80% of children age 3 to 5 whose parents had an advanced degree enrolled in school, compared with 58% of children whose parents had a high school diploma and 54% of children whose parents did not obtain a high school diploma.
- In 2019, parents with advanced degrees were 13 percentage points more likely to have read to their 3- to 5-year-olds at least three times in the last week than parents who held a high school diploma (93% versus 80%).
- In 2019, children age 3 to 5 whose parents had a bachelor's degree were 14 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 (43% versus 29%).

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)

SOURCE: NCES, *Digest of Education Statistics, 2021*, Table 202.20.

FIGURE 2.22B Percentage of 3- to 5-Year-Olds Participating in Activities with a Family Member, by Parents' Education Level, 2019

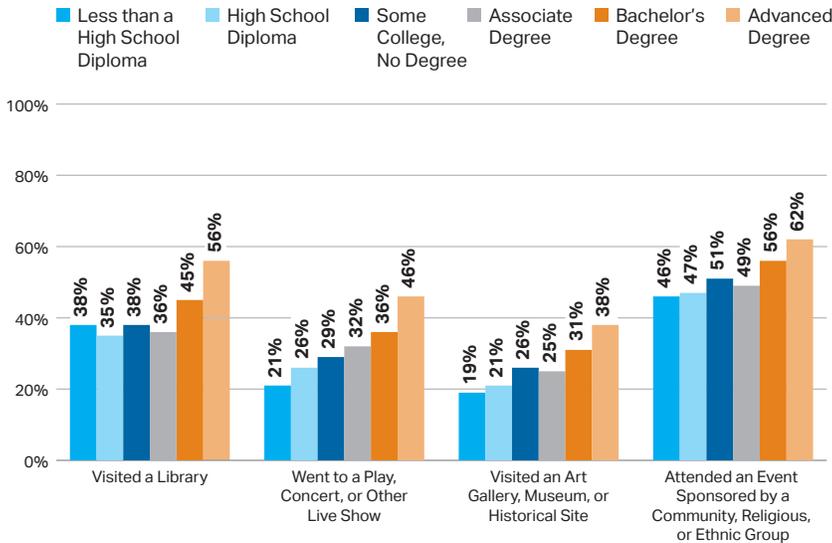


SOURCE: NCES, *Digest of Education Statistics, 2020*, Table 207.10.

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 2.23A Percentage of Kindergartners Through Fifth Graders Participating in Activities with a Family Member in the Past Month, by Parents' Education Level, 2019



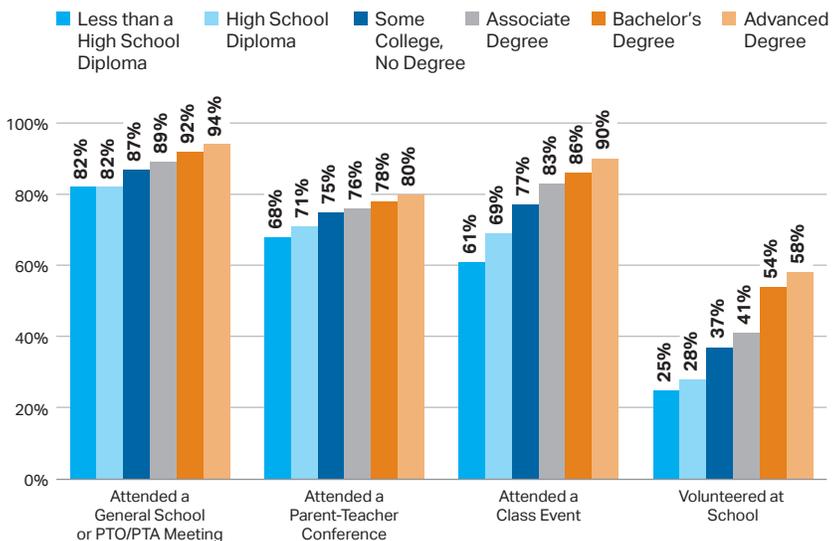
SOURCE: NCES, *Digest of Education Statistics, 2020*, Table 207.20.

- 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 35% of children whose parents had only a high school diploma and 56% of those whose parents held an advanced degree.
- About 20% 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, compared with 31% 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 2.23B Percentage of Elementary and Secondary School Children Whose Parents Were Involved in School Activities, by Parents' Education Level, 2019



SOURCE: NCES, *Digest of Education Statistics, 2020*, Table 207.40.

References

- AmeriCorps, Office of Research and Evaluation. (2021). Key Findings from the 2019 Current Population Survey: Civic Engagement and Volunteering Supplement. (by Laura Hanson Schlachter, Ph.D.). Washington, DC: Author.
- Avery, C., Howell, J., Pender, M., & Sacerdote B. (2019). *Policies and Payoffs to Addressing America's College Graduation Deficit*. Washington, DC: Brookings Papers on Economic Activity, the Brookings Institution.
- Autor, D. (2010). *The Polarization of Job Opportunities in the U.S. Labor Market: Implications for Employment and Earnings*. Washington, DC: Center for American Progress and the Hamilton Project.
- Baum, S., Kurose, C., & Ma, J. (2013). *How College Shapes Lives: Understanding the Issues*. New York: College Board.
- Brookings Institution. (2017). *The Current State of Scientific Knowledge on Pre-Kindergarten Effects*. Washington, DC: the Brookings Institution.
- Bureau of Labor Statistics. (2015). Same Occupation, Different Pay: How Wages Vary. Career Outlook.
- Card, D. (2001). Estimating the Return to Schooling: Progress on Some Persistent Econometric Problems. *Econometrica*, 69(5), 1127–1160.
- Carneiro, P., Heckman, J., & Vytlacil, E. (2011). Estimating Marginal Returns to Education. *American Economic Review*, 101(6), 2754–2781.
- Center on Budget and Policy Priorities. 2022. Policy Basics: The Supplemental Nutrition Assistance Program (SNAP).
- Chetty, R., Hendren, N., Jones, M., & Porter, S. (2020). Race and Economic Opportunity in the United States: an Intergenerational Perspective. *Quarterly Journal of Economics*, 135(2), 711–783.
- Cutler, D. M., & Lleras-Muney, A. (2006). Education and Health: Evaluating Theories and Evidence (National Bureau of Economic Research Working Paper No. 12352).
- Cutler, D. M., & Lleras-Muney, A. (2010). Understanding Differences in Health Behaviors by Education. *Journal of Health Economics*, 29(1), 1–28.
- Dale, S. B., & Krueger, A. B. (2014). Estimating the Effects of College Characteristics over the Career Using Administrative Earnings Data. *Journal of Human Resources*, 49(2), 323–358.
- Dee, T. S. (2004). Are There Civic Returns to Education? *Journal of Public Economics*, 88(9–10), 1697–1720.
- Deming, D.J., & Walters, C.R. (2017). The Impacts of Price and Spending Subsidies on U.S. Postsecondary Attainment. Working Paper.
- de Walque, D. (2004). Education, Information, and Smoking Decisions: Evidence from Smoking Histories, 1940–2000 (World Bank Policy Research Working Paper No. 3362).
- Federal Reserve Bank of New York. (2022). The Labor Market for Recent College Graduates.
- Fidelity Charitable. (2021). The Role of Volunteering in Philanthropy.
- Gardner, A. (2022). Persistence and Retention: Fall 2020 Beginning Postsecondary Student Cohort. Herndon, VA: National Student Clearinghouse Research Center.
- Goldin, C., & Katz, L. F. (2008). *The Race Between Education and Technology*. Cambridge, MA: Harvard University Press.
- Grimard, F., & Parent, D. (2007). Education and Smoking: Were Vietnam War Draft Avoiders Also More Likely to Avoid Smoking? *Journal of Health Economics*, 26(5), 896–926.
- Harmon, C., Oosterbeek, H., & Walker, I. (2003). The Returns to Education: Microeconomics. *Journal of Economic Surveys*, 17(2), 115–156.
- Hoekstra, M. (2009). The Effects of Attending the Flagship State University on Earnings: A Discontinuity-Based Approach. *The Review of Economics and Statistics*, 91(4), 717–724.
- Howell, J., Hurwitz, M., Ma, J., Pender, M., Perfetto, G., and Wyatt, J. (2022). College Enrollment and Retention in the Era of Covid: Fall 2021 Update on Continued Pandemic Impacts. New York: College Board.
- Howell, J., Hurwitz, M., Ma, J., Pender, M., Perfetto, G., and Wyatt, J. (2021). College Enrollment and Retention in the Era of Covid. New York: College Board.
- Hoynes, H., Schanzenbach, D. W., & Almond, D. (2016). Long-Run Impacts of Childhood Access to the Safety Net. *American Economic Review of Economics and Statistics*, 106(4), 903–934.
- Internal Revenue Service. (2020). Statistics of Income Tax Stats, 2020 Tax Year.
- Kalil, A., Ryan, R., & Corey, M. (2012). Diverging Destinies: Maternal Education and the Developmental Gradient in Time with Children. *Demography*, 49(4), 1371–1383.
- Kirkeboen, L. J., Leuven, E., & Mogstad, M. (2016). Field of Study, Earnings, and Self-Selection. *Quarterly Journal of Economic*, 131(3), 1057–1111.
- Ma, J., Pender, M., & Welch, M. (2019). *Education Pays 2019: The Benefits of Higher Education for Individuals and Society*. New York: College Board.
- Mirowsky, J., & Ross, C. E. (2003). *Education, Social Status, and Health*. Somerset, NY: Aldine de Gruyter.
- National Student Clearinghouse Research Center. (2022). COVID-19: Stay Informed with the Latest Enrollment Information, Fall 2022. Herndon, VA.
- National Student Clearinghouse Research Center. (2021). Current Term Enrollment Estimates, Fall 2021. Herndon, VA.
- Oreopoulos, P., & Salvanes, K. (2011). Priceless: The Nonpecuniary Benefits of Schooling. *Journal of Economic Perspectives*, 25(1), 159–184.
- Oreopoulos, P., & Petronijevic, U. (2013). Making College Worth It: A Review of the Returns to Higher Education. *The Future of Children*, 23(1), 41–65.
- Organisation for Economic Co-operation and Development (OECD). (2021). *Education at a Glance 2021*. Paris, France: OECD.
- Rosenbaum, J. (2012). Degrees of Health Disparities: Health Status Disparities Between Young Adults with High School Diplomas, Sub-Baccalaureate Degrees, and Baccalaureate Degrees. *Health Services and Outcomes Research Methodology*, 12(2–3): 156–168.
- Rouse, C. E. (2005). The labor market consequences of an inadequate education (Princeton University Working Paper).
- Shapiro, D., Dundar, A., Huie, F., Wakhungu, P. K., Bhimdiwala, A., & Wilson, S. E. (2018, December). Completing College: A National View of Student Completion Rates – Fall 2012 Cohort (Signature Report No. 16). Herndon, VA: National Student Clearinghouse Research Center.
- Shapiro, D., Dundar, A., Huie, F., Wakhungu, P. K., Yuan, X., Nathan, A. & Hwang, Y. (2022, September). Tracking Transfer: Measures of Effectiveness in Helping Community College Students to Complete Bachelor's Degrees (Signature Report No. 13). Herndon, VA: National Student Clearinghouse Research Center.
- Wiehe, M. et. al. (2018). *Who Pays? A Distributional Analysis of the Tax Systems in All 50 States* (6th ed.). Washington, DC: Institute on Taxation and Economic Policy.
- Wu, P. (2022). Wage Inequality and the Rise in Labor Force Exit: The Case of US Prime-Age Men. Federal Reserve Bank of Boston.
- Zimmerman, S. D. (2014). The Returns to College Admission for Academically Marginal Students. *Journal of Labor Economics*, 32(4), 711–754.



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