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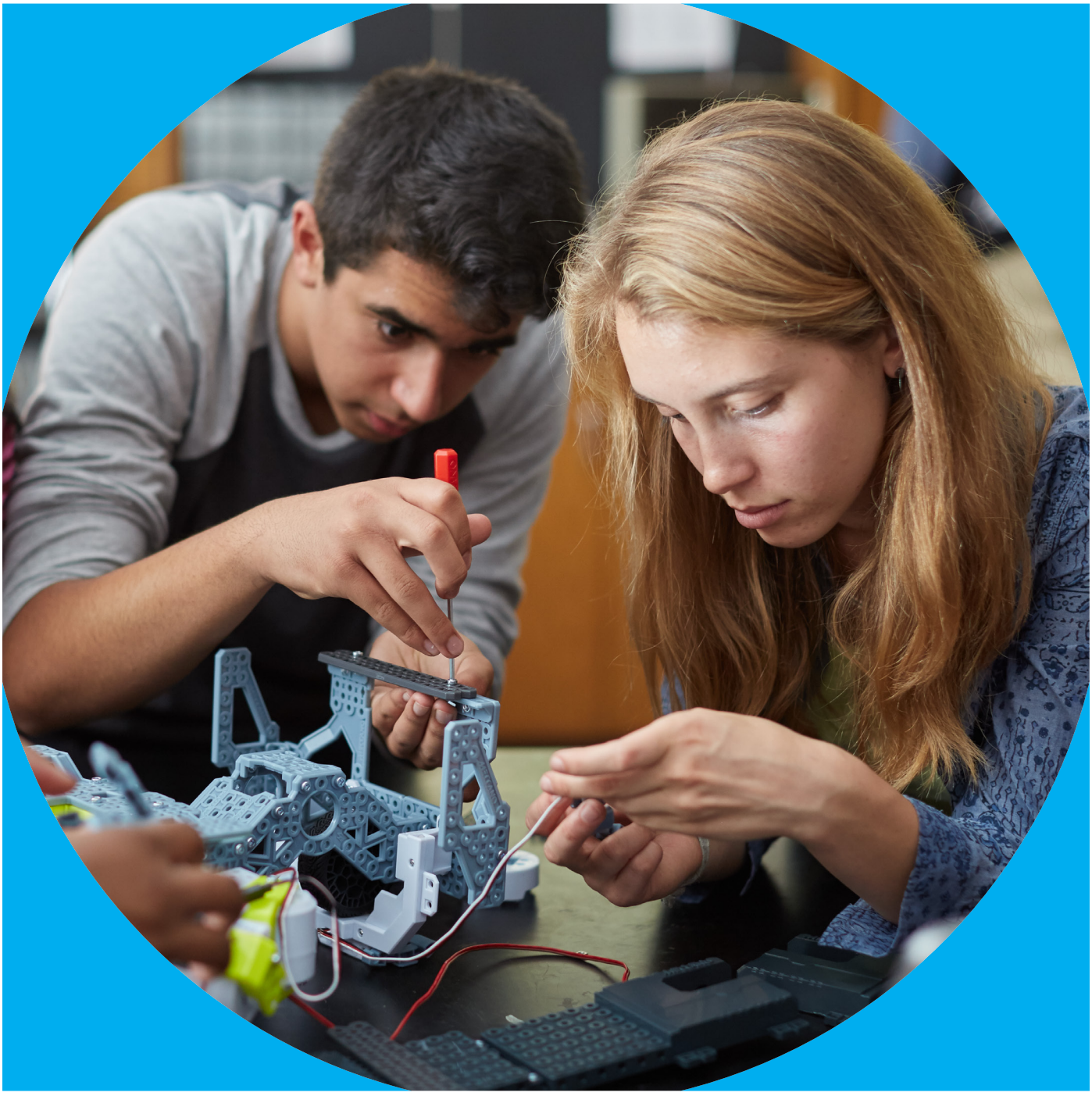
Trends in Higher Education Series

# Education Pays **2016**

## The Benefits of Higher Education for Individuals and Society

Jennifer Ma, Matea Pender, and Meredith Welch



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# Highlights

Similar to previous editions, *Education Pays 2016: 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 also presents data on variation in earnings by different characteristics such as gender, race/ethnicity, occupation, college major, and sector. *Education Pays 2016* also examines the persistent disparities across different socioeconomic groups in college participation and completion. The magnitude of the benefits of postsecondary education makes ensuring improved access for all who can benefit imperative.

Our focus is on outcomes that are correlated with levels of educational attainment, and it is important to be cautious about attributing all of the observed differences to causation. However, reliable statistical analyses support the significant role of postsecondary education in generating the benefits reported.

## PARTICIPATION AND SUCCESS IN HIGHER EDUCATION

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

– In 2015, 82% of high school graduates from the highest income quintile (above $100,010) enrolled immediately in college, compared with 62% of those from the middle income quintile ($37,000 to $60,300) and 58% of those from the lowest income quintile (below $20,582). (Figure 1.1)

– The gaps in college enrollment rates between black and Hispanic recent high school graduates and their white peers were 11 percentage points in 2005. By 2015, these gaps had fallen to 8 percentage points for black high school graduates and 5 percentage points for Hispanic high school graduates. (Figure 1.2A)

– Since 1989, the enrollment rate for recent female graduates has consistently exceeded that of recent male graduates. Annual enrollment rates fluctuate, but the average gender gap increased from 2 percentage points between 1985 and 1995 to 5 percentage points the following decade and 6 percentage points between 2005 and 2015. (Figure 1.2B)

– Among students with similar high school math test scores, college enrollment rates are higher for those from the highest socioeconomic status (SES) quartile than for those from the lowest and middle SES quartiles. (Figure 1.3A)

**Educational attainment rates are increasing, but college completion rates and attainment patterns differ considerably across demographic groups.**

– The percentage of adults in the U.S. between the ages of 25 and 34 with at least a bachelor's degree grew from 5% in 1950 to 24% in 1980 and 1990. In 2015, 36% of adults in this age group had earned at least a bachelor's degree. (Figure 1.5A)

– In 1995, the percentage of female adults age 25 to 29 who had completed at least a bachelor's degree was 14%, 10%, and 28% for blacks, Hispanics, and whites, respectively. By 2015, these percentages had increased to 24%, 18%, and 45%. (Figure 1.6)

– In 1995, the percentage of male adults age 25 to 29 who had completed at least a bachelor's degree was 14%, 7%, and 27% for blacks, Hispanics, and whites, respectively. By 2015, these percentages had increased to 19%, 13%, and 38%. (Figure 1.6)

**Participation in postsecondary education differs considerably across states.**

– The percentage of the high school class of 2011-12 enrolling in college within a year ranged from 31% in the District of Columbia and 32% in Nevada to 61% in Massachusetts and Connecticut and 62% in Minnesota. (Figure 1.7)

– In 2014, the percentage of adults age 25 and older with at least a bachelor's degree ranged from 19% in West Virginia and 21% in Arkansas and Mississippi to 41% in Massachusetts and 55% in the District of Columbia. (Figure 1.7)

## THE BENEFITS OF HIGHER EDUCATION AND VARIATION IN OUTCOMES

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

– In 2015, median earnings of bachelor's degree recipients with no advanced degree working full time were $24,600 (67%) higher than those of high school graduates. Bachelor's degree recipients paid an estimated $6,900 (91%) more in taxes and took home $17,700 (61%) more in after-tax income than high school graduates. (Figure 2.1)

– The median four-year college graduate who enrolls at age 18 and graduates in four years can expect to earn enough relative to the median high school graduate by age 34 to compensate for being out of the labor force for four years and for paying the full tuition and fees and books and supplies without any grant aid. (Figure 2.2A)

– In 2015, median earnings were 84% ($23,200) higher for females age 25 to 34 with at least a bachelor's degree working full time year-round than for high school graduates; the premium for males was 75% ($26,200). The earnings gaps between high school graduates and college graduates peaked in 2014 among both women (90%) and men (79%). (Figure 2.6)

– In 2015, among adults between the ages of 25 and 64, 68% of high school graduates, 72% of those with some college but no degree, 77% of those with an associate degree, and 83% of those with a bachelor's degree or higher were employed. (Figure 2.11)

– The unemployment rate for individuals age 25 and older with at least a bachelor's degree has consistently been about half of the unemployment rate for high school graduates. (Figure 2.12A)

– In 2015, when the unemployment rate for 25- to 34-year-olds with at least a bachelor's degree was 2.6%, 8.1% of high school graduates in this age range were unemployed. (Figure 2.12B)

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

– In 2015, the percentage of full-time year-round workers age 35 to 44 earning $100,000 or more ranged from 2% of those without a high school diploma and 5% of high school graduates to 25% of those whose highest attainment was a bachelor's degree and 38% of advanced degree holders. (Figure 2.3)

– Between 2013 and 2015, Asian men and women age 25 to 34 working full time year-round whose highest attainment was a bachelor's degree had median earnings twice as high as those who were high school graduates. The earnings premium for a bachelor's degree relative to a high school diploma was smaller for other racial/ethnic groups. (Figure 2.4)

– In 2015, median earnings of female four-year college graduates working full time year-round were $51,700. However, 25% of them earned less than $37,100 and 25% earned more than $75,800. (Figure 2.5)

– In 2015, median earnings of male four-year college graduates working full time year-round were $71,400. However, 25% of them earned less than $47,000 and 25% earned more than $102,000. (Figure 2.5)

– In 2015, 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 $30,000 for retail salespersons to $50,000 for wholesale and manufacturing sales representatives and first-line supervisors of nonretail workers or production and operating workers. The median earnings of those with at least a bachelor's degree ranged from $38,000 for general office clerks to $85,000 for first-line supervisors of nonretail workers. (Figure 2.8)

– Between 2013 and 2014, median earnings for early career bachelor's degree recipients ranged from $30,000 a year for early childhood education and psychology majors to $54,000 for computer science majors, a $24,000 range. By mid-career, the range in median earnings grew to $46,000 a year. (Figure 2.9)

– Institutional median earnings vary by sector. The typical four-year college's median earnings of 2001-02 and 2002-03 federal student aid recipients ranged from $33,600 at for-profit institutions to $39,800 at public institutions and $40,500 at private nonprofit institutions. (Figure 2.10A)

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

– Young adults with a college degree are much more likely to be at the upper end of the income distribution than those from similar backgrounds with only a high school diploma. (Figure 2.15)

– Among high school sophomores whose parents were in the lowest income group in 2001, 21% of those who earned at least a bachelor's degree, 17% of those with an associate degree, and 13% of those with only a high school diploma had reached the highest income quartile themselves 10 years later. (Figure 2.15)

– In 2015, 4% of bachelor's degree recipients age 25 and older lived in poverty, compared with 13% of high school graduates. (Figure 2.16A)

– In 2015, 8% of individuals age 25 and older with associate degrees and 11% of those with some college but no degree lived in households that benefited from the Supplemental Nutrition Assistance Program (SNAP), compared with 13% of those with only a high school diploma. (Figure 2.17)

**College education is associated with healthier lifestyles, reducing health care costs. Adults with higher levels of education are more active citizens than others and are more involved in their children's activities.**

– In 2014, 69% of 25- to 34-year-olds with at least a bachelor's degree and 45% of high school graduates reported exercising vigorously at least once a week. (Figure 2.19A)

– Children of parents with higher levels of educational attainment are more likely than others to engage in a variety of educational activities with their family members. (Figures 2.21A and 2.21B)

– Among adults age 25 and older, 16% of those with a high school diploma volunteered in 2015, compared with 39% of those with at least a bachelor's degree. (Figure 2.22A)

– In the 2014 midterm election, the voting rate of 25- to 44-year-olds with at least a bachelor's degree (45%) was more than twice as high as the voting rate of high school graduates (20%) in the same age group. (Figure 2.23A)

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# Introduction

Sandy Baum
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*Education Pays: The Benefits of Higher Education for Individuals and Society* documents both the high payoff to investments in higher education and the variation in outcomes among students. Since 2004, the College Board has been publishing updates to this report every three years. It focuses both on how students benefit from continuing their education after high school and on the advantages for society associated with a more educated population. Many of the benefits of higher education can be measured in dollars or are related to the workplace. Others relate to health, to decision-making processes, to an engaged citizenry, and to the general quality of life. The prevalence of financial indicators in this report does not reflect the weight of those indicators in the overall value of education, but the feasibility of quantifying and summarizing the outcomes.

In 2013, along with *Education Pays*, the College Board released a companion report, *How College Shapes Lives: Understanding the Issues*. The report focused on the variation in the outcomes of higher education across and within demographic groups, types of credentials, and institutional sectors. It discussed the importance of degree completion and variation in earnings paths over time. *Education Pays 2016* incorporates and updates some of the key indicators such as the distribution of earnings within each education level and earnings by occupation, by field of study, and by sector.

## COLLEGE ACCESS AND SUCCESS

Because of the value of higher education to the lives of individuals, the report puts this information into the context of differences in college enrollment patterns, completion rates, and educational attainment levels across demographic groups. The nation has made considerable progress in increasing the share of high school graduates who enroll in postsecondary institutions. The percentage of high school graduates who enroll in college immediately increased from 51% in 1975 to 63% in 2000 and to 69% in 2015. As Figure 1.5A shows, 65% of adults age 25 to 34 in the U.S. had at least some college experience in 2015 — an increase from 57% in 2000 and from 30% in 1970. The share of adults who had a bachelor's degree or higher rose from 16% to 29% to 36% over these years.

However, participation rates in higher education differ considerably among demographic groups. Although the gaps in college enrollment rates across racial/ethnic groups have narrowed over time, large gaps between the least privileged youth and their more affluent peers persist.

The national conversation has rightly shifted to focusing less on just increasing college enrollment and more on the more challenging problem of supporting completion. As Figure 1.4 shows, within each academic achievement level, students from lower socioeconomic status (SES) groups graduate at lower rates than those from higher SES groups. We know that increased financial support and greater ease in applying to college and accessing financial aid make a big difference in enrollment rates (Dynarski & Scott-Clayton, 2013). Increasing completion rates requires ample resources for both students and the institutions in which they enroll. But it also requires more personalized guidance about where and what to study, more structured paths into college and from college to the workforce for many students, and better strategies for helping students compensate for the inadequate academic preparation with which so many students come to college.

The gaps across socioeconomic groups documented in this report are signs of a society that has a long way to go to meet its promise of equal opportunity for all and its goal of developing vital human resources to the greatest extent possible.

## THE PAYOFF OF HIGHER EDUCATION FOR INDIVIDUALS

A college education opens the door to many opportunities that would not otherwise be available to most individuals. Adults with postsecondary credentials are more likely to be employed and to earn more than others. Many occupations are open only to those with specific degrees or certificates. Higher levels of education correspond to more access to health care and to retirement plans; more educated people are more likely to engage in healthy behaviors, to be active and engaged citizens, and to be in positions to provide better opportunities for their children.

Earnings are often overemphasized as the primary benefit of higher education and may overshadow other important outcomes. Nonetheless, the price of college makes an understanding of the financial benefits critical, and several indicators in this report focus on earnings differences corresponding to levels of educational attainment.

As the wealth of data in this report shows, the average payoff of higher education is very high. Earning a bachelor's degree or a graduate degree leads to the highest earnings, the lowest unemployment rates, the widest range of career opportunities, and the sharpest differences in civic participation and health-related behaviors such as smoking and exercise.

Earning an associate degree or even having some college without a degree also has a considerable payoff. The actual return to the investment in different levels of postsecondary education may not be as different as some of the charts suggest, since it takes less time and costs less to earn a shorter-term credential. Figures 2.2A and 2.2B indicate that, on average, the number of years from first enrollment to accumulating enough of an earnings premium to make up for paying tuition and taking time out of the labor force is similar for those who earn associate degrees and those who earn bachelor's degrees.

As a society, our goals should include both increasing the share of people who have the opportunity to participate in postsecondary education and reducing the number of people for whom it does not work out well. The solution is to reduce barriers to both access and success in postsecondary studies.

## SOCIAL AND PRIVATE BENEFITS

The economic benefits of increases in postsecondary attainment extend far beyond the individuals who earn credentials. A more productive economy generates a higher standard of living overall. The higher earnings of educated workers generate higher tax payments at the local, state, and federal levels. Four-year college graduates pay, on average, 91% more in taxes each year than high school graduates, and for those who continued on to earn a professional degree, average tax payments are more than three and a half times as high as those of high school graduates. Spending on social support programs such as unemployment compensation, the Supplemental Nutrition Assistance Program (SNAP), and Medicaid is much lower for individuals with higher levels of education.

The data in *Education Pays* provide a strong argument for increasing access to successful postsecondary pathways. Increased public commitment to this priority is almost certainly a necessary component of this effort. But it is important to focus on both the public and the private aspects of this investment. The social benefits do not mean that higher education is entirely a "public good." In fact, it is the private benefits of higher education that make broader opportunities so important. The benefits of college are not spread equally — people who earn degrees get much more of the benefit than those who do not. If this were not the case, it would not matter so much who went to college and who did not — only that we had a high enough share of the population with college degrees.

In other words, the decline in public subsidies for higher education institutions has generated significant losses for both students and society. It is equitable for students to pay a portion of the costs of their own education and borrowing for college is a reasonable option. For most students, paying for college over time still allows for a significant boost in lifetime earnings. But that does not mean that any level of borrowing is reasonable. Nor does it mean that all possible educational paths are worth borrowing for — or are worth the investment of time and money.

The decline over time in the share of the cost of education borne by state governments and the increase in the share borne by students and families have occurred by circumstance rather than design. This trend threatens the aspirations of our society and of many of its members. Focusing on the significant gains of reducing the barriers to educational attainment, in terms of both equity and efficiency, is critical for our nation's future.

## VARIATION IN OUTCOMES

Highlighting the positive outcomes of higher education should not obscure the obstacles facing students. Decreasing per-student state funding for public institutions across the nation combined with other forces has generated rapidly rising college prices. In an era of stagnant family incomes and diminished savings, the result is increased financial strain and growing reliance on borrowing to pay for college. Although college pays off for most students, too many students do not complete their programs. Some are hindered by lack of academic preparation and inadequate financial resources. Some enroll in institutions and programs that offer a limited chance of success. Leaving without a college credential can render even small amounts of debt burdensome.

As Figure 1.4 illustrates, completion rates are disappointing, particularly among students who come to college with low levels of academic preparation and those who enroll in two-year colleges. Other data reveal disturbing differences across sectors, racial/ethnic groups, and parents' level of education.

Moreover, not every degree has the same expected payoff. Figure 2.3 shows the broad distribution of earnings among individuals of similar ages with the same level of education. The following indicators include information about differences by race/ethnicity, gender, occupation, and college major.

The variation in outcomes, even among those who graduate, provides an important explanation for the widespread questions about whether or not college is really worth it. The visible examples of individual students for whom going to college did not work out well are not inconsistent with the high average returns. For most people, postsecondary education has a high payoff, but college is an uncertain investment. About 20% of college graduates earn less than the median earnings of high school graduates. Some live in low-wage areas. Some choose professions like early childhood education or the clergy that don't pay well. Some have personal or medical issues that prevent them from following the most remunerative paths.

The overall patterns are clear and dramatic — more education means increased opportunities. Although it requires a considerable investment of dollars, time, and effort, higher education measurably improves the lives of most who participate. It pays off very well for most students, both financially and in terms of personal and intellectual development. Higher education improves people's lives, makes our economy more efficient, and contributes to a more equitable society. As Figure 2.15 illustrates, postsecondary education is key to the ability of adults to rise above the socioeconomic status of their parents. Without a college education, those born into the lower economic rungs are likely to stay there.

Some expressions of skepticism about the value of higher education cite stagnation or decline in the earnings of college graduates. There is no doubt that the economic strains of the late 2000s took a toll on college graduates, leading to both increases in tuition prices and declines in earnings. The inflation-adjusted median earnings of both men and women with a bachelor's degree or higher were lower in 2010 than in 2005. By 2015, earnings for men had returned to their 2005 level and earnings for women were just 2% higher than they had been a decade earlier. However, the earnings premium — the ratio of these earnings to the median for high school graduates — grew from 1.63 in 2005 to 1.75 in 2015 for men and from 1.70 to 1.84 for women. Even if the earnings premium had not grown, college would still be a good investment. It is not increases in the payoff to college, but its consistently high level that makes the investment worth it.

Numerous economic analyses indicate that students who, because of their demographic characteristics and academic experiences, hesitate to go to college may benefit the most from a postsecondary degree (Zimmerman, 2014; Turner, 2015; Ost, Pan, & Webber, 2016). This finding does not imply that individuals on the margin of college attendance will end up earning more than those who knew from an early age that they would attend college. It means that the incremental gain in their earnings resulting from a college education may be larger. It is relatively rare for young people whose parents are affluent — or even middle-class — college graduates to skip college altogether. For them, going to college and earning a bachelor's degree is the "default option." Those who choose not to enroll usually have actively considered and rejected the idea. But for too many low-income and first-generation students, financial and logistical barriers loom so large that the possibility of going to college never seems realistic. Many of these students would likely benefit from appropriate postsecondary educational opportunities.

Unfortunately, the stories of the less typical individuals for whom the college experience turns out badly attract a disproportionate amount of attention. We should work to make these outcomes even more rare — and also to prevent these stories from discouraging people who are likely to benefit from college from pursuing higher education.

## THE DATA IN CONTEXT

Many of the graphs in this report compare the experiences of people with different education levels. In general, while simple descriptions of correlations provide useful clues, they do not reliably determine causation or measure the exact size of the effects. They are best interpreted as providing broadly gauged evidence of the powerful role that higher education plays in the lives of individuals and in society. That said, a growing body of evidence points to the direct impact of higher education not only on specific job-related skills, but also on the attitudes and behavior patterns of graduates (Oreopoulos & Salvanes, 2011; Lochner, 2011). Education enables people to adapt more easily to change. It also makes them more likely to take responsibility for their health and for the society in which they live, and to parent in ways that improve the prospects for their own children.

Many discussions of college education focus on four-year colleges and bachelor's degrees. But "college" encompasses many different types of institutions and many different types of education and training. Students come to college with very different levels of preparation, are of a wide range of ages, and have very different motivation and goals. The data in *Education Pays* can provide only an introduction to the variation in experiences.

Education means much more than job training, and it is important that we not allow the financial returns to college to obscure the other benefits of a college education. We would lose a tremendous amount as a society if each individual set as his or her life goal maximizing lifetime income. As the data in *Education Pays* indicate, many other aspects of life differ considerably by level of education. But the data in this report do not address some of the most important aspects of higher education. There are no data on how much students learn or how their thought processes change while they are in college. Education prepares people to create successful and meaningful lives, to be active and engaged citizens in a democratic society, and to make choices that will improve their lives and the lives of those around them. It is about the development of habits of mind, not just the transmission of knowledge. This report provides a starting point for evaluating the role of higher education for individuals and for society as a whole.

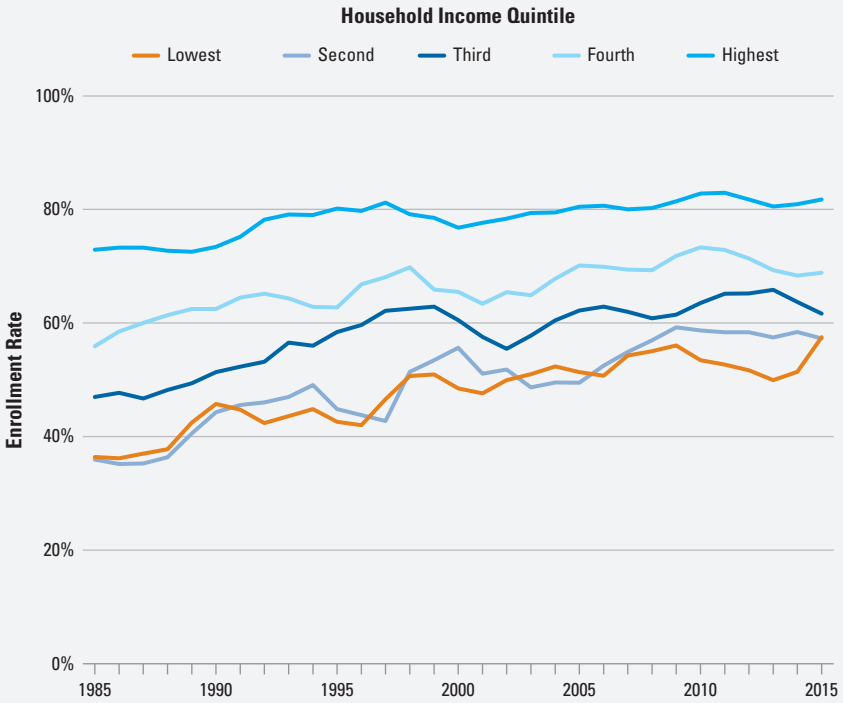
*Education Pays* is intended as a resource and a reference for anyone interested in understanding the value of investments in higher education and how different groups in society benefit from those investments. Readers will draw their own inferences about the public policies most consistent with the evidence provided.

*The tables supporting all of the graphs in this report, a PDF version of the report, and a PowerPoint file containing individual slides for all of the graphs are available on our website at trends.collegeboard.org. Please feel free to cite or reproduce the data in this report for noncommercial purposes with proper attribution.*

# College Enrollment by Income

In 2015, 82% of high school graduates from the highest family income quintile (above $100,010) enrolled immediately in college, compared with 62% of those from the middle income quintile ($37,000 to $60,300) and 58% of those from the lowest income quintile (below $20,582).

**FIGURE 1.1** Postsecondary Enrollment Rates of Recent High School Graduates by Household Income, 1985 to 2015




Postsecondary Enrollment Rates of Recent High School Graduates by Household Income

| Income Quintile | 1990 | 1995 | 2000 | 2005 | 2010 | 2015 | Percentage Point Change Between 1990 and 2015 |
|---|---|---|---|---|---|---|---|
| Lowest | 46% | 43% | 49% | 51% | 53% | 58% | +12 |
| Second | 44% | 45% | 56% | 50% | 59% | 57% | +13 |
| Third | 51% | 58% | 61% | 62% | 64% | 62% | +11 |
| Fourth | 62% | 63% | 65% | 70% | 73% | 69% | +7 |
| Highest | 73% | 80% | 77% | 80% | 83% | 82% | +9 |

NOTES: Based on enrollment in college within 12 months of high school graduation. Income quintiles are provided by NCES and are defined in terms of households. In 2015, the upper-income limits of the income quintiles were: lowest, $20,582; 2nd, $37,000; 3rd, $60,300; and 4th, $100,010. High school graduates are not evenly distributed among income quintiles because graduation rates are lower among students from low-income backgrounds. Enrollment rates reflect three-year moving averages.

SOURCES: National Center for Education Statistics, based on data from U.S. Census Bureau, Current Population Survey, October 1975 through 2015.

– High school graduates from the two lowest income quintiles went to college at about the same rate between 2001 and 2009. Beginning in 2010, rates declined for the lowest income quintile and the gap grew to 7 percentage points by 2014. In 2015, enrollment rates for these two groups were about the same at 58% and 57%, respectively.

– Between 1995 and 2005, the college enrollment rate grew most rapidly for students from the lowest income quintile, increasing by 8 percentage points from 43% to 51%, while remaining relatively stable for higher-income students.

– Between 2005 and 2015, the enrollment rates for the three highest income quintiles remained about the same, while enrollment rates for the lowest and second income quintiles each grew by 7 percentage points.

## ALSO IMPORTANT:

– The Census Bureau data on which Figure 1.1 is based are likely to underestimate the gaps in enrollment rates. When high school graduates move away but do not enroll in college, they form their own households and therefore are not included in the denominator of this calculation. This pattern is more common among low-income households.

– Immediate enrollment rates of high school graduates do not capture students who wait more than a year after receiving a high school diploma to continue their education, a pattern more common among lower-income students.

# College Enrollment by Race/Ethnicity and by Gender

The gaps in college enrollment rates between black and Hispanic recent high school graduates and their white peers were 11 percentage points in 2005. By 2015, these gaps had fallen to 8 percentage points for black high school graduates and 4 percentage points for Hispanic high school graduates.

**FIGURE 1.2A** Postsecondary Enrollment Rates of Recent High School Graduates and of All 18- to 24-Year-Olds by Race/Ethnicity, 1975 to 2015

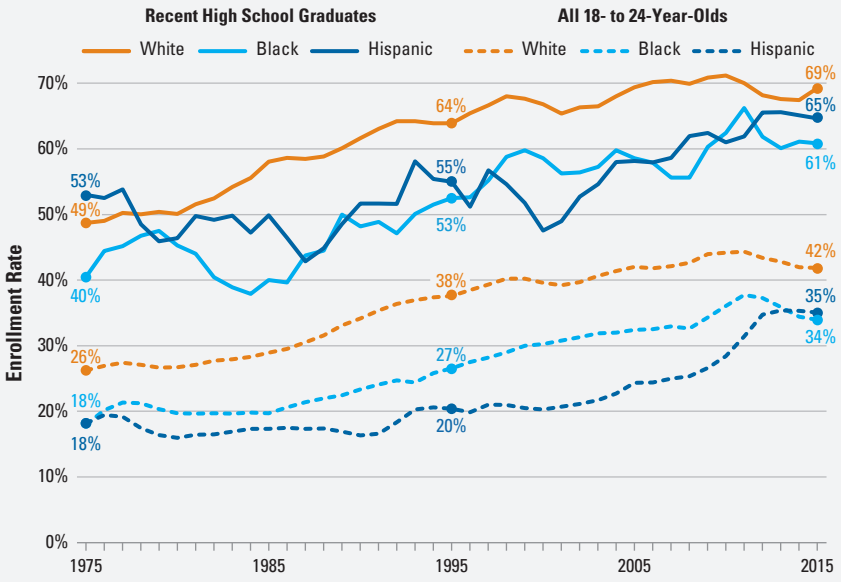
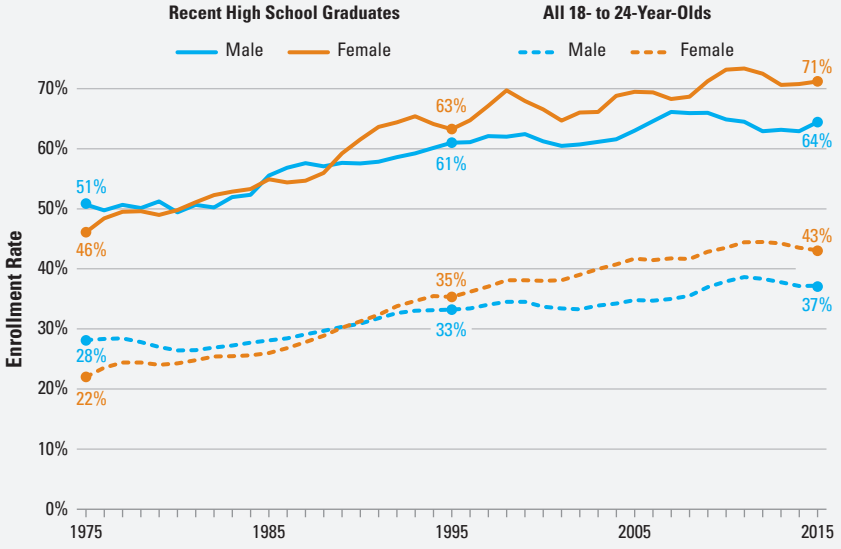



**FIGURE 1.2B** Postsecondary Enrollment Rates of Recent High School Graduates and of All 18- to 24-Year-Olds by Gender, 1975 to 2015




NOTES: "Recent high school graduates" include those who enrolled in college within 12 months of high school graduation. "All 18- to 24-year-olds" include those in the civilian noninstitutionalized population (i.e., not in the military or in prison) enrolled in college in the specified year. This population includes those who have not completed high school. "Postsecondary enrollment" includes both undergraduate and graduate students. Some 18- to 24-year-olds have completed college and are no longer enrolled. They are not included in enrollment rates. Enrollment rates are three-year moving averages. Because of small sample sizes for Hispanics and blacks, annual fluctuations in enrollment rates may not be significant.

SOURCES: National Center for Education Statistics, *Digest of Education Statistics 2016*, Tables 302.10, 302.20, and 302.60; calculations by the authors.

– College enrollment among Hispanic recent high school graduates has increased significantly since 2000 — from 48% to 58% in 2005 and 65% in 2015.

– Between 1995 and 2005, the gap in enrollment rates between Hispanic and white 18- to 24-year-olds remained relatively stable at about 17 to 20 percentage points, but narrowed to 7 percentage points over the most recent decade. The gap between enrollment rates of white and black 18- to 24-year-olds declined from 11 to 8 percentage points over these years.

– Since 1989, the enrollment rate for recent female graduates has consistently exceeded that of recent male graduates. Annual enrollment rates fluctuate, but the average gender gap increased from 2 percentage points between 1985 and 1995 to 5 percentage points the following decade and to 6 percentage points between 2005 and 2015.

– Males between the ages of 18 and 24 were about 6 percentage points more likely than females to be enrolled in college in 1975. The enrollment rate of females has been higher than that of males since 1991 and the gap has remained between 6 and 7 percentage points since 2002.

## ALSO IMPORTANT:

– Blacks and Hispanics compose about 15% and 21% of the population of 18- to 24-year-olds, respectively. (U.S. Census Bureau, Annual Estimates of the Resident Population by Sex, Age, Race, and Hispanic Origin for the United States; calculations by the authors)

– College enrollment rates are higher for Asians than for other racial/ethnic groups. In fall 2015, 85% of Asians enrolled in college within a year of graduating from high school. In that year, nearly two-thirds of Asians between the ages of 18 and 24 were enrolled in postsecondary education. (NCES, *Digest of Education Statistics 2016*, Tables 302.20 and 302.60; calculations by the authors)

# Stratification Within Higher Education

Among students with similar high school math test scores, college enrollment rates are higher for those from the highest socioeconomic status (SES) quartile than for those from lower and middle SES quartiles.

**FIGURE 1.3A** Postsecondary Enrollment Rates by Math Quartile and Socioeconomic Status, High School Class of 2004

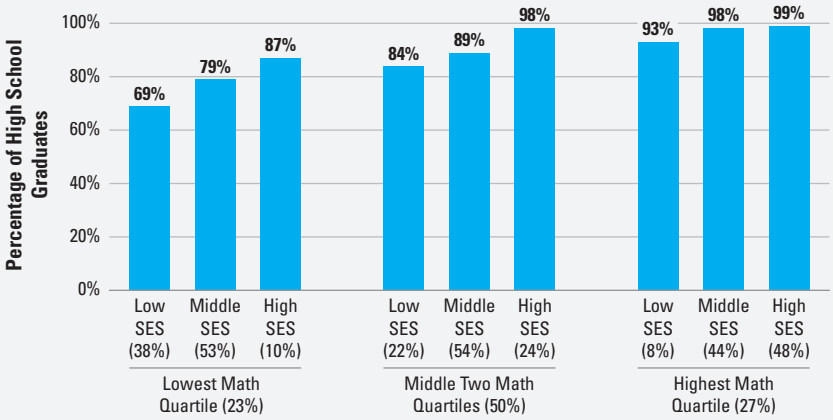
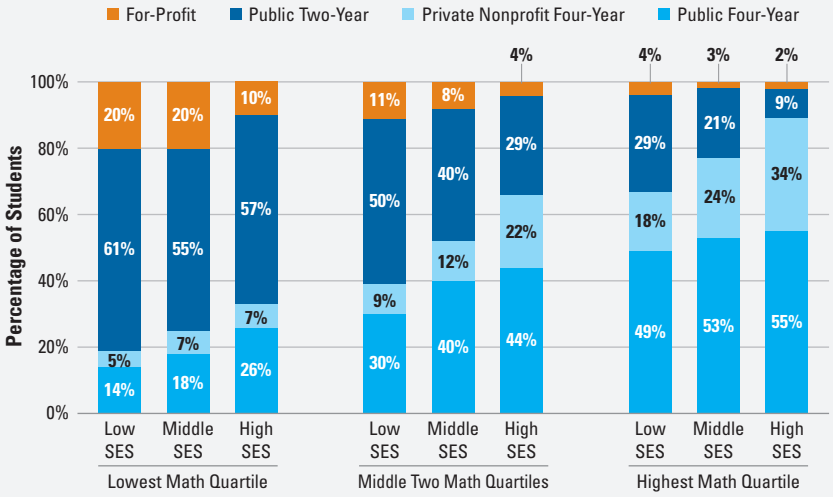



**FIGURE 1.3B** Students' First Postsecondary Sector by Math Quartile and Socioeconomic Status, High School Class of 2004




NOTES: Percentages in parentheses on the x-axis in Figure 1.3A are students in each group as a percentage of the total. Data are based on a nationally representative longitudinal study of students who were in 10th grade in 2002 and 12th grade in 2004. Enrollment rates in Figure 1.3A are percentages of 2004 high school graduates who enrolled at a postsecondary institution by the third follow-up in 2012. Sector in Figure 1.3B is that of the first postsecondary institution that students attended. Socioeconomic status (SES) is measured by a composite score based on parental education, occupation, and family income. Math quartiles are based on students' standardized math test scores in 2004. The middle math group includes the two middle quartiles. Low-SES group represents the lowest SES quartile, middle-SES group combines the two middle quartiles, and high-SES group is the highest SES quartile. Percentages may not sum to 100 because of rounding.

SOURCES: NCES, Education Longitudinal Study of 2002; PowerStats calculations by the authors.

- Among students who graduated from high school in 2004, over 90% of those with math scores in the highest quartile had enrolled in college by 2012, ranging from 93% for those from the lowest SES group to 99% for those from the highest SES group.
- The gaps in enrollment rates between students from different SES backgrounds are larger for students with the lowest math scores.
- Math quartiles are positively correlated with SES quartiles. For example, of students in the lowest math quartile, 38% were from the lowest SES quartile and 10% were from the highest SES quartile. Of students in the highest math quartile, only 8% were from the lowest SES quartile and almost half were from the highest SES quartile.
- Students from the lowest SES quartile are also less likely to begin at a public or private nonprofit four-year institution than those in the middle or highest SES quartiles.
- Low-SES students in the highest math quartile are half as likely to enroll in a public two-year college as low-SES students in the lowest math quartile (29% vs. 61%). In contrast, high-SES students in the highest math quartile are one-sixth as likely to enroll in a public two-year college as high-SES students in the lowest math quartile (9% vs. 57%).
- Regardless of SES, students with the highest math scores rarely begin college in the for-profit sector, and those with the lowest scores rarely begin in private nonprofit four-year institutions.

**ALSO IMPORTANT:**

- Some students begin in one sector but transfer to another type of institution. For example, about one quarter of students who first enrolled in a public two-year college in 2007 had transferred to a four-year institution by 2014. (Shapiro et al., July 2015)

# College Completion

Among 2004 high school graduates who enrolled in college immediately after high school, bachelor's degree completion rates within eight years ranged from 15% for those in the lowest math test quartile and the lowest socioeconomic status quartile to 81% for those in the highest quartile on both measures.

– Among 2004 high school graduates with math scores in the highest quartile who started at a four-year institution right after high school, about three quarters of those from the lowest three SES quartiles had obtained at least a bachelor's degree by 2012, compared with 83% of those from the highest SES quartile.

– Among 2004 high school graduates with math scores in the lowest quartile who started at a four-year institution right after high school, 24% of those from the lowest SES quartile had obtained at least a bachelor's degree by 2012, compared with 40% of those from the highest SES quartile.

– Among 2004 high school graduates with math scores in the highest quartile who started at a two-year institution right after high school, 38% of those from the lowest three SES quartiles had earned at least a bachelor's degree by 2012, compared with 45% of those from the highest SES quartile; a higher percentage of students from the lowest SES quartile completed an associate degree than students in the three higher SES quartiles.

– Among 2004 high school graduates with math scores in the lowest quartile who started at a two-year institution right after high school, 10% of those from the lowest SES quartile had obtained at least a bachelor's degree by 2012 and another 17% had obtained an associate degree; 30% of those from the highest SES quartile had obtained at least a bachelor's degree by 2012 and another 15% had obtained an associate degree.

## ALSO IMPORTANT:

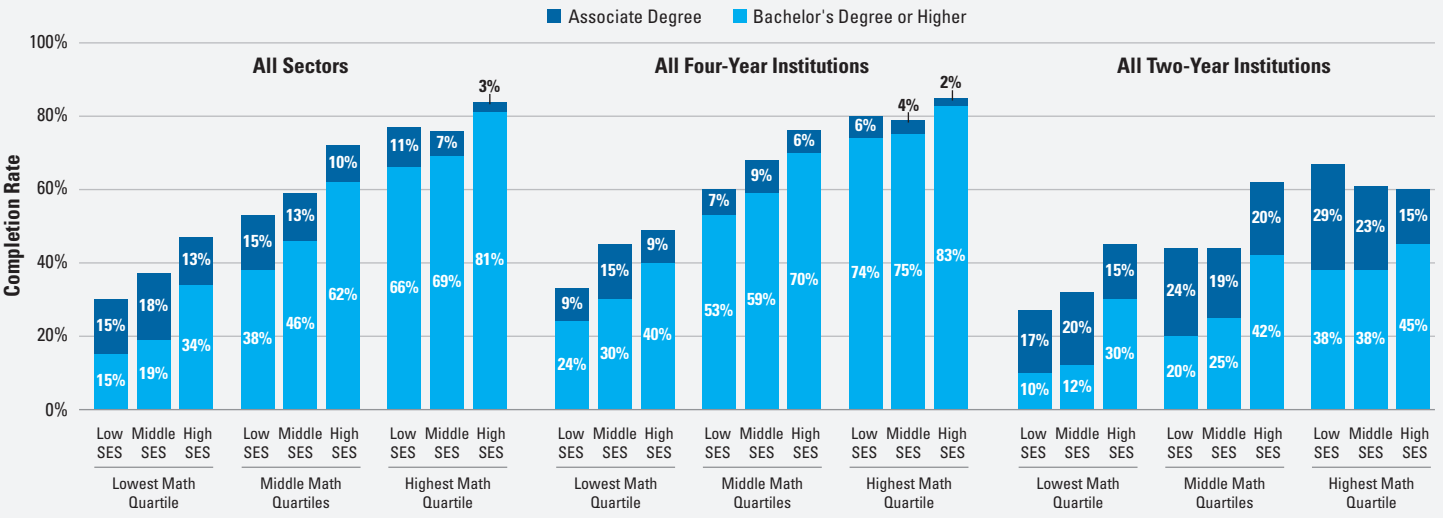
– Figure 1.4 is based on data from a nationally representative longitudinal study of a high school cohort. Therefore, the completion rates depicted in Figure 1.4 reflect those of traditional-age students who enrolled in college immediately after high school.

– Using the same survey as in Figure 1.4, the gaps were even larger when looking at outcomes among 2002 high school sophomores, including those who did not graduate from high school or enroll in postsecondary study right after high school. For example, among students in the highest math quartile, 41% of low-SES students attained at least a bachelor's degree by 2012, compared with 74% of high-SES students. (NCES, *Digest of Education Statistics 2014*, Table 104.91)

– Full-time students are more likely to complete credentials than part-time students. Among students who enrolled for the first time at a four-year institution in 2008 at age 24 or younger, 83% of those who enrolled exclusively full time had earned a degree or certificate six years later, compared with 10% of those who enrolled exclusively part time. (Shapiro et al., 2015)

– While a student's academic preparation is perhaps the most important predictor of his or her likelihood of completing a credential, careful studies have shown that initial college choice has an impact on completion. For example, among college students in the public sector, access to four-year institutions substantially increases bachelor's degree completion rates, particularly for low-income students. (Goodman, Smith, & Hurwitz, 2015)

**FIGURE 1.4** Highest Degree Earned by Students Who Started Postsecondary Study at a Two-Year or Four-Year Institution, by Math Quartile and Socioeconomic Status, High School Class of 2004



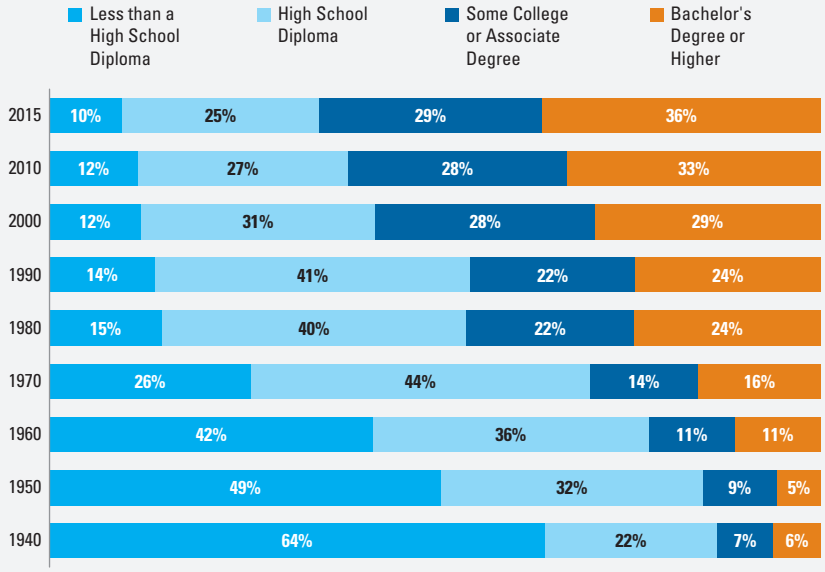

NOTES: Completion rates are percentages of 2004 high school graduates starting postsecondary study right after high school who had obtained an associate, a bachelor's, or a higher degree by the third follow-up in 2012. Socioeconomic status (SES) is measured by a composite score based on parental education, occupation, and family income. Math quartiles are based on students' standardized math test scores in 2004. The middle math group includes the two middle quartiles. Low-SES group represents the lowest SES quartile, middle-SES group combines the two middle quartiles, and high-SES group is the highest SES quartile.

SOURCES: NCES, Education Longitudinal Study of 2002; PowerStats calculations by the authors.

# Educational Attainment

The percentage of adults in the U.S. between the ages of 25 and 34 with at least a bachelor's degree grew from 5% in 1950 to 24% in 1980 and 1990. In 2015, 36% of adults in this age group had earned at least a bachelor's degree.

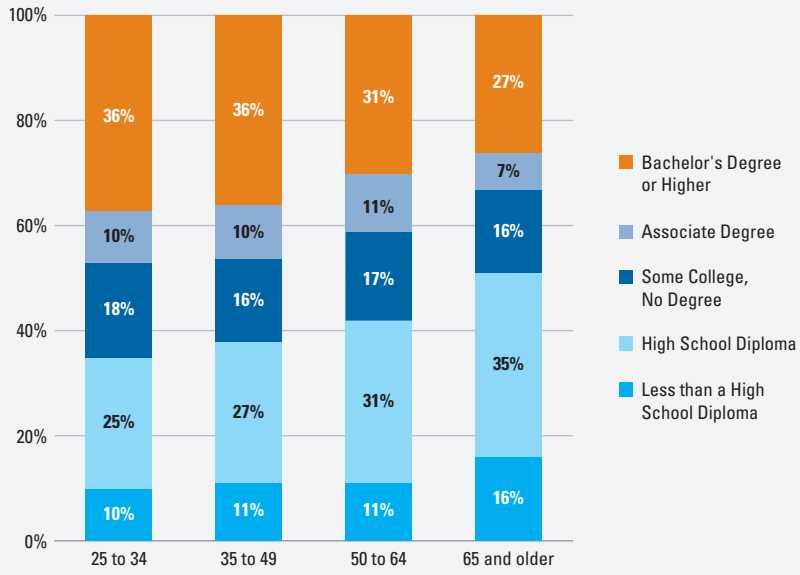
**FIGURE 1.5A** Education Level of Individuals Age 25 to 34, 1940 to 2015




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

SOURCE: U.S. Census Bureau, Educational Attainment in the United States, 2015, Table A-1.

**FIGURE 1.5B** Education Level of Individuals by Age Group, 2015




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

SOURCE: NCES, *Digest of Education Statistics 2015*, Table 104.30.

– The percentage of adults age 25 to 34 with some college or an associate degree grew rapidly in the 1970s and again in the 1990s but has stabilized at 28% to 29% since 2000.

– In 1940 in the U.S., 86% of adults age 25 to 34 had no postsecondary education experience. That percentage had decreased to 55% by 1980 and by another 20 percentage points to 35% in 2015.

– In 2015, 10% of individuals age 25 to 49 held an associate degree and 36% held at least a bachelor's degree. The percentages of older adults holding degrees were lower, with 42% of 50- to 64-year-olds and 34% of those 65 or older holding either degree.

## ALSO IMPORTANT:

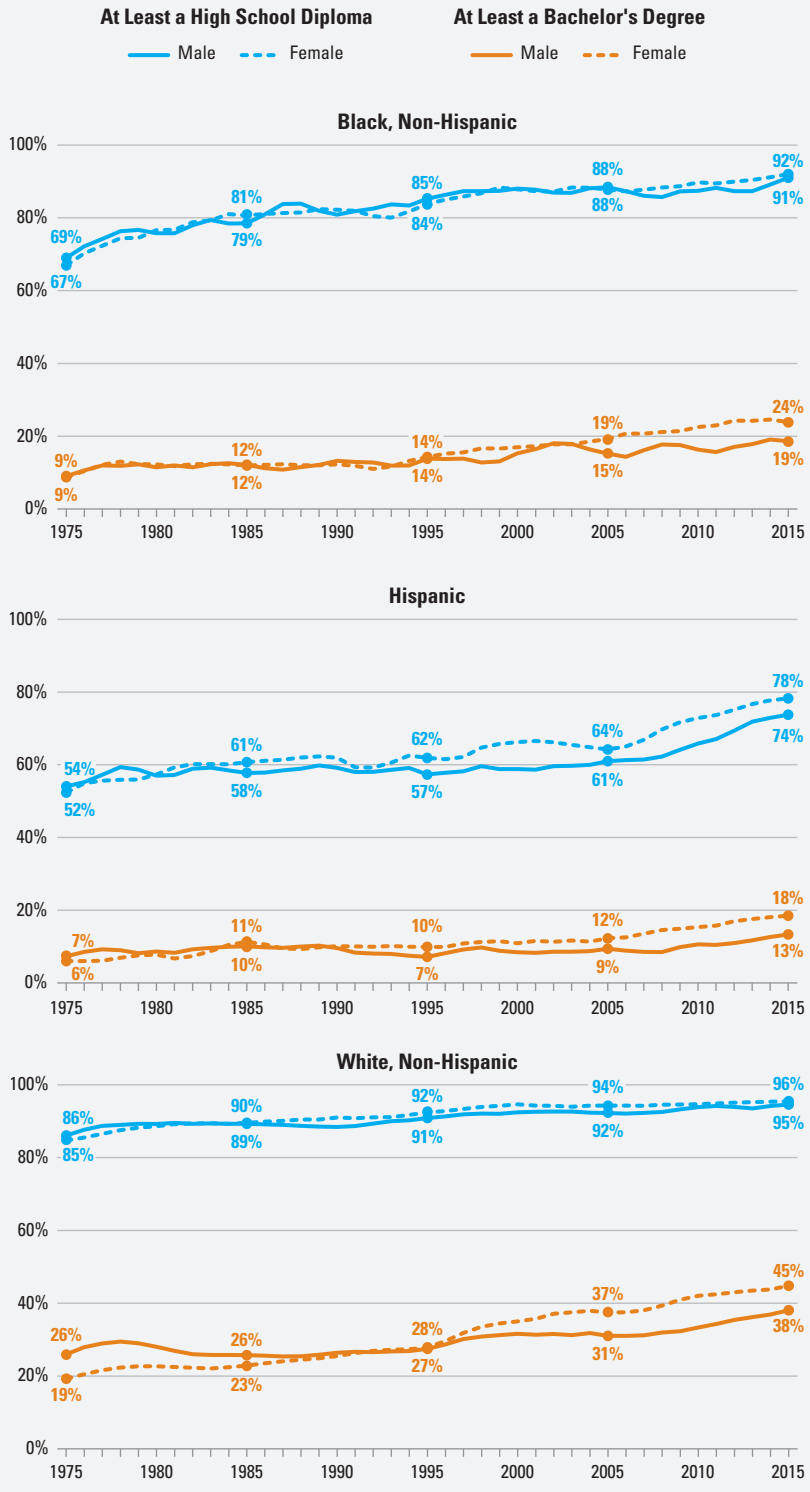
– The fact that the earnings differential between high school graduates and college graduates has increased over time despite the increasing prevalence of college degrees indicates that the demand for college-educated workers in the labor market has increased more rapidly than the supply. (See Goldin & Katz [2008] and Autor [2010] for discussion of the failure of the supply of college graduates to keep up with the demand.)

– According to the Organisation for Economic Co-operation and Development (OECD), 47% of 25- to 34-year-olds in the U.S. had completed tertiary education in 2015, compared with 41% of 55- to 64-year-olds. The highest attainment rates for 25- to 34-year-olds were 69% in Korea and 60% in Japan. (OECD, 2016, Table A1.2)

# Educational Attainment by Race/Ethnicity and Gender

Among blacks, whites, and Hispanics, larger percentages of females than of males between the ages of 25 and 29 have completed high school and have completed bachelor's degrees. This bachelor's degree gender gap began in the 1990s for every group.

**FIGURE 1.6** Percentage of 25- to 29-Year-Olds Who Have Completed High School or a Bachelor's Degree, by Race/Ethnicity and Gender, 1975 to 2015




– The percentage of black females age 25 to 29 who had completed a bachelor's degree nearly doubled (from 12% to 23%) between 1990 and 2010, while the percentage of black males with bachelor's degrees rose from just 13% to 16%. However, between 2010 and 2015, the male attainment rate grew faster than the female attainment rate and the gap narrowed from 6 to 5 percentage points.

– The percentage of Hispanic females age 25 to 29 who had completed a bachelor's degree grew from 11% to 18% between 2000 and 2015, while the percentage of Hispanic males with bachelor's degrees only rose from 8% to 13%, doubling the gender gap in attainment for Hispanics.

– The percentage of white females age 25 to 29 who had completed a bachelor's degree grew more than the percentage of males with that level of education every year from 1996 through 2010, widening the gender attainment gap among whites. However, between 2010 and 2015, the white gender gap narrowed from 9 to 7 percentage points, as male bachelor's degree attainment for this age group rose from 33% to 38% while the attainment rate for females rose from 42% to 45%.

– In 2015, the percentage of white males age 25 to 29 with a bachelor's degree was twice as high as the percentage of black males with a bachelor's degree (38% vs. 19%) and almost three times as high as the percentage of Hispanic males with a bachelor's degree (38% vs. 13%).

– In 2015, the percentage of white females age 25 to 29 with a bachelor's degree was 45%, compared with 24% of black females and 18% of Hispanic females.

## ALSO IMPORTANT:

– In 2015, the percentage of individuals age 25 to 29 who had at least an associate degree ranged from 26% for Hispanics to 31% for blacks and 54% for whites. Over the last two decades, these rates have increased by about 40% for blacks and whites, while they have nearly doubled for Hispanics. (NCES, *Digest of Education Statistics 2015*, Table 104.65)

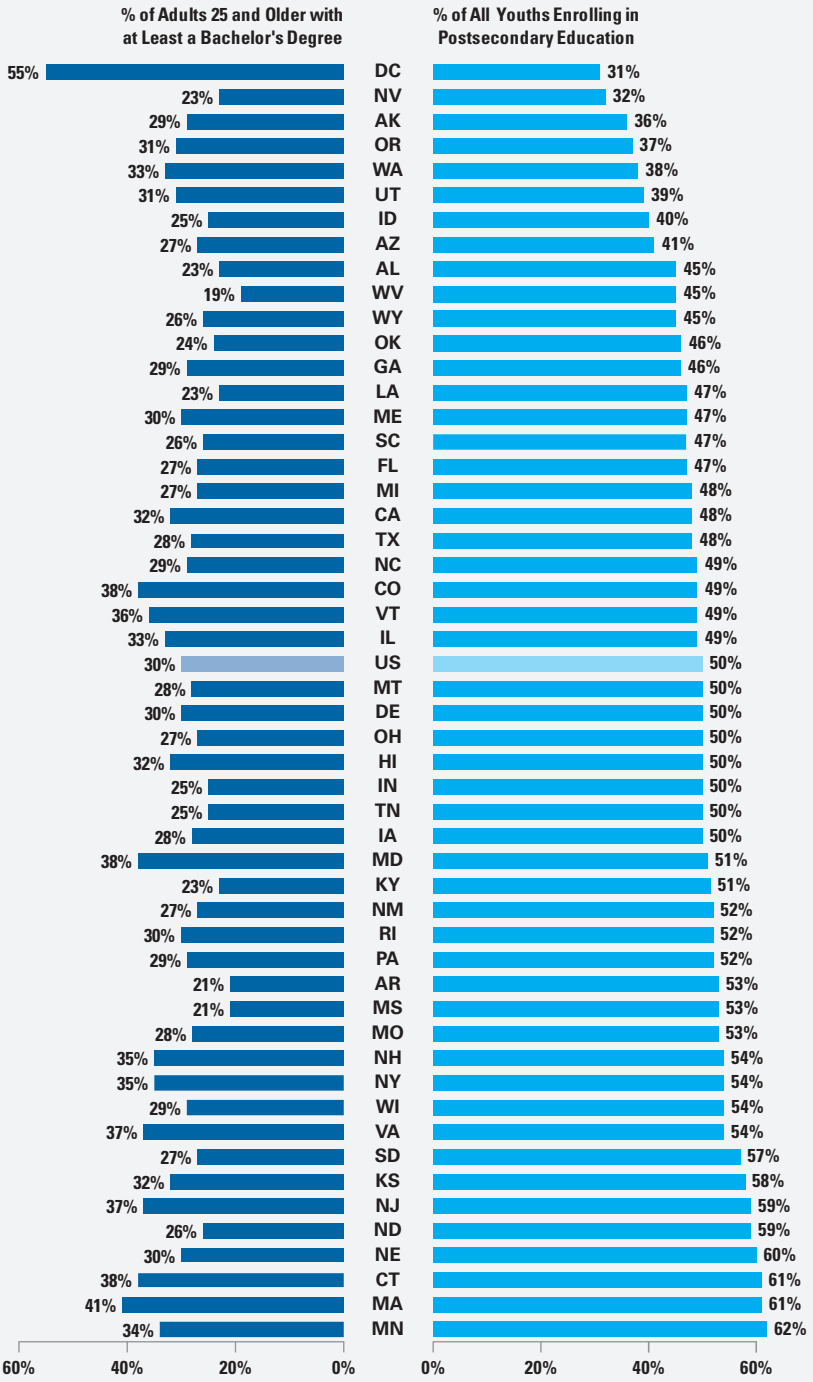
NOTE: Attainment rates are three-year moving averages.

SOURCES: NCES, *The Condition of Education 2007*, Table 27; NCES, *Digest of Education Statistics 2015*, Table 104.20.

# College Enrollment and Attainment by State

The percentage of the high school class of 2011-12 enrolling in college within a year ranged from 31% in the District of Columbia and 32% in Nevada to 61% in Massachusetts and Connecticut and 62% in Minnesota.

**FIGURE 1.7** Postsecondary Enrollment Rates of the High School Class of 2011-12 and Percentage of All Adults with at Least a Bachelor's Degree in 2014




SOURCES: NCES, *Digest of Education Statistics 2015*, Tables 104.88, 219.35, 302.50; calculations by the authors.

– In 2014, the percentage of adults age 25 and older with at least a bachelor's degree ranged from 19% in West Virginia and 21% in Arkansas and Mississippi to 41% in Massachusetts and 55% in the District of Columbia.

– Arkansas and Mississippi have college enrollment rates above the national average of 50%, but the 21% of adults in those states with bachelor's degrees is much lower than the national average of 30%.

– The District of Columbia has the highest attainment rate in the country, but the lowest college enrollment rate — 31% of all youths.

### ALSO IMPORTANT:

– Low high school graduation rates can lead to deceivingly high college enrollment rates among high school graduates. For example, in 2011-12, 67% of recent Georgia public high school graduates enrolled in college, compared with the national average of 62%. However, because 30% did not graduate from high school (compared with the national average of 19%), only 46% of young people in Georgia enrolled in college — less than the national average of 50%. (NCES, *Digest of Education Statistics 2015*, Tables 302.50 and 219.35)

# Education, Earnings, and Tax Payments

In 2015, median earnings of bachelor's degree recipients with no advanced degree working full time were $24,600 (67%) higher than those of high school graduates. Bachelor's degree recipients paid an estimated $6,900 (91%) more in taxes and took home $17,700 (61%) more in after-tax income than high school graduates.

– On average, taxes take a larger percentage of the incomes of people with higher earnings, so the after-tax earnings premium is somewhat smaller than the pretax earnings premium.

– On average, individuals age 25 and older with some college but no degree paid an estimated 17% more in taxes and took home 12% more than high school graduates working full time year-round in 2015. Those with associate degrees paid 33% more in taxes than high school graduates; earnings differences were 25% before taxes and 23% after taxes.

– Individuals with master's degrees working full time earned 22% more before taxes and took home 21% more, on average, than those whose highest degree was a bachelor's degree. Those with doctoral degrees earned 63% more and had after-tax earnings 59% higher than bachelor's degree holders.

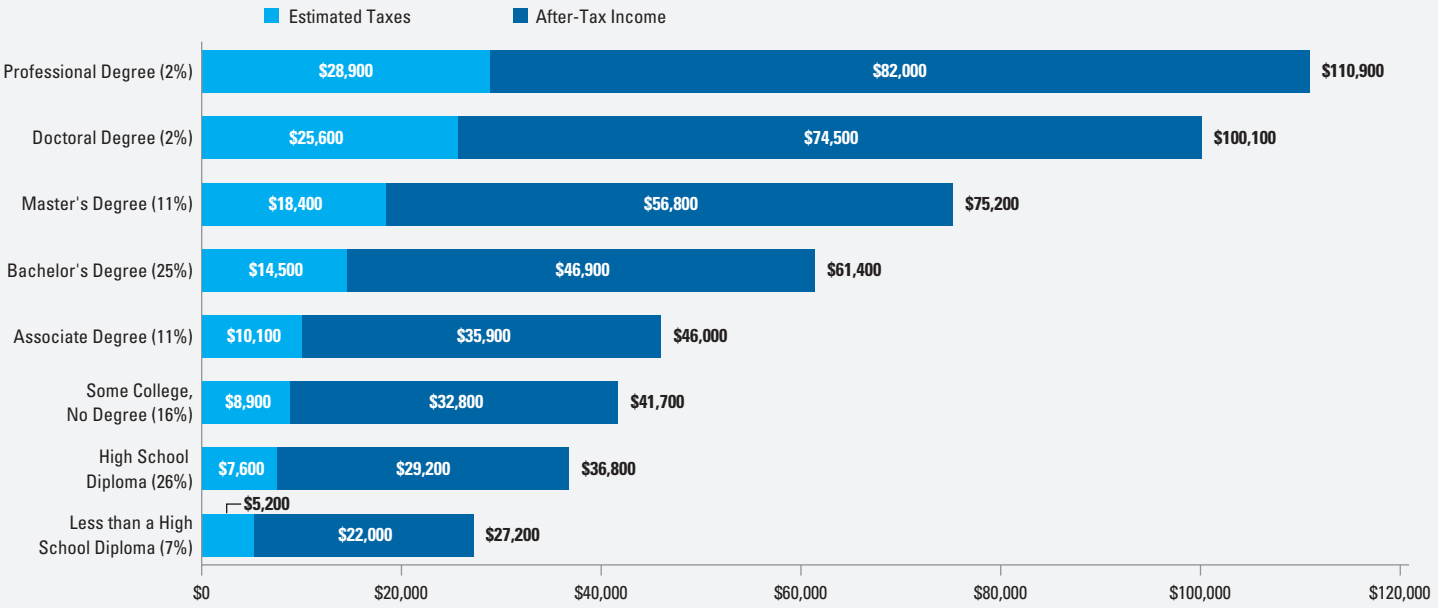
– In 2015, those with professional degrees paid an average of 99% more in taxes than those with bachelor's degrees; earnings differences were 81% before taxes and 75% after taxes.

### ALSO IMPORTANT:

– In 2015, 59% of four-year college graduates age 25 and older worked full time and another 18% worked part time; 42% of high school graduates worked full time and another 16% worked part time. (U.S. Census Bureau, 2016, Table PINC-03)

– All of the differences in earnings reported here may not be attributable to education level, and the average high school graduate may not increase his or her earnings to the level of the average college graduate simply by earning a bachelor's degree. However, careful research on the subject suggests that the figures cited here do not measurably overstate the financial return to higher education. (Oreopoulos & Petronijevic, 2013)

**FIGURE 2.1** Median Earnings and Tax Payments of Full-Time Year-Round Workers Age 25 and Older, by Education Level, 2015



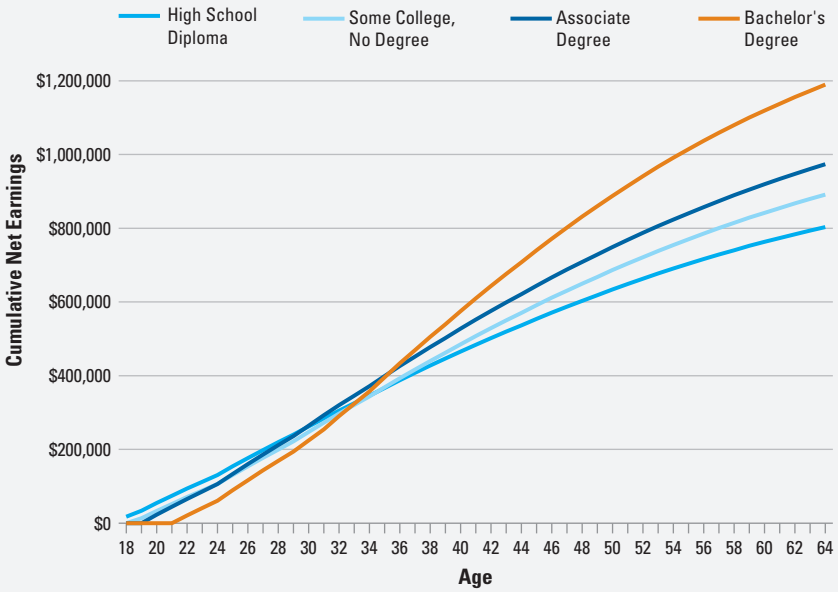

NOTES: The percentages in parentheses on the vertical axis indicate the percentages of all full-time year-round workers age 25 and older with each education level in 2015. The bars in this graph show median earnings at each education level. The light blue segments represent the estimated average federal income, Social Security, Medicare, state and local income, sales, and property taxes paid at these income levels. The dark blue segments show after-tax earnings. Percentages may not sum to 100 because of rounding.

SOURCES: U.S. Census Bureau, Income, Poverty, and Health Insurance in the United States, 2015, Table PINC-03; Internal Revenue Service, 2014; Davis et al., 2015; calculations by the authors.

# Earnings Premium Relative to Price of Education

The median four-year college graduate who enrolls at age 18 and graduates in four years can expect to earn enough relative to the median high school graduate by age 34 to compensate for being out of the labor force for four years and for paying the full tuition and fees and books and supplies without any grant aid.

**FIGURE 2.2A** Estimated Cumulative Full-Time Earnings (in 2014 Dollars) Net of Forgone Earnings and Payment for Tuition and Fees and Books and Supplies, by Education Level




Assumptions for Figure 2.2A

| Education Level | Age Starting Full-Time Work | Price of Tuition and Fees and Books and Supplies |
|---|---|---|
| High School | 18 | None |
| Some College, No Degree | 19 | Weighted average of public two-year and four-year price. 2014-15: $8,260. |
| Associate Degree | 20 | Average public two-year price. 2014-15: $4,660; 2015-16: $4,800. |
| Bachelor's Degree | 22 | Weighted average of public and private nonprofit four-year price. 2014-15: $17,190; 2015-16: $17,770; 2016-17: $18,230; 2017-18: $18,780. |

NOTES: Excludes bachelor's degree recipients who earn advanced degrees. Assume students borrow the cost of tuition and fees and books and supplies and pay it off over 10 years after graduation with a 4.29% annual interest rate during and after college. Tuition/loan payments and earnings are discounted at 3%, compounded every year beyond age 18.

SOURCES: U.S. Census Bureau, American Community Survey, 2010–2014 Five-Year Public Use Microdata Sample; College Board, *Trends in College Pricing 2016*; calculations by the authors.

– For the median 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 30.

– For the median student who attends a public college for a year and leaves without a degree, total earnings exceed those of high school graduates by age 35.

– The median cumulative net earnings of bachelor's degree recipients exceed those of associate degree recipients by age 36, meaning the investment in the extra two years of education will be recouped after 14 years of earnings.

– 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 based on some alternative assumptions are shown in Figure 2.2B.

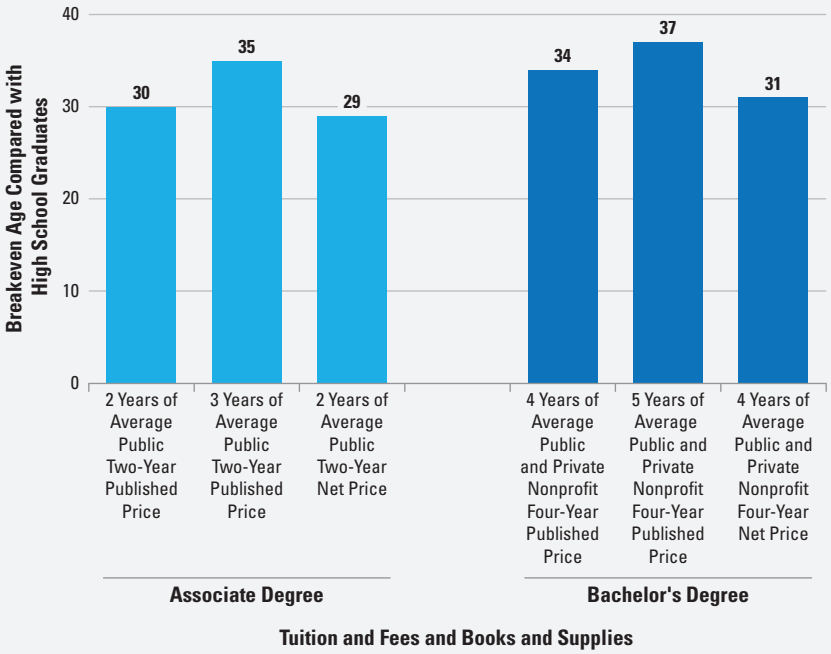
Median Earnings by Education Level and Age, 2010–2014

| Age | High School Diploma | Some College, No Degree | Associate Degree | Bachelor's Degree |
|---|---|---|---|---|
| 18 | $17,182 | $0 | $0 | $0 |
| 19 | $17,182 | $15,005 | $0 | $0 |
| 20 | $21,752 | $21,985 | $24,948 | $0 |
| 21 | $21,752 | $21,985 | $24,948 | $0 |
| 22 to 24 | $21,752 | $21,985 | $24,948 | $32,094 |
| 25 to 29 | $28,553 | $31,220 | $35,161 | $44,124 |
| 30 to 34 | $31,807 | $36,756 | $40,944 | $53,346 |
| 35 to 39 | $35,340 | $41,583 | $45,822 | $63,808 |
| 40 to 44 | $36,732 | $44,017 | $48,363 | $68,417 |
| 45 to 49 | $38,553 | $45,935 | $50,758 | $71,772 |
| 50 to 54 | $39,499 | $47,234 | $51,536 | $71,756 |
| 55 to 59 | $38,768 | $46,907 | $51,553 | $68,837 |
| 60 to 64 | $37,416 | $45,937 | $50,714 | $65,516 |

# Earnings Premium Relative to Price of Education — Alternative Scenarios

The amount of time it takes to make up for lost earnings and for paying for college lengthens as tuition prices increase and as the number of years spent in school increases. 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




Assumptions for Figure 2.2B

| Education Level | Age Starting Full-Time Work | Price of Tuition and Fees and Books and Supplies |
|---|---|---|
| High School | 18 | None |
| Associate Degree | | |
| Baseline (2 years of average public two-year published price) | 20 | 2014-15: $4,660; 2015-16: $4,800 |
| 3 years of average public two-year published price | 21 | 2014-15: $4,660; 2015-16: $4,800; 2016-17: $4,910 |
| 2 years of average public two-year net price | 20 | 2014-15: $710; 2015-16: $810 |
| Bachelor's Degree | | |
| Baseline (4 years of average public and private nonprofit four-year published price) | 22 | 2014-15: $17,190; 2015-16: $17,770; 2016-17: $18,230; 2017-18: $18,780 |
| 5 years of average public and private nonprofit four-year published price | 23 | 2014-15: $17,190; 2015-16: $17,770; 2016-17: $18,230; 2017-18: $18,780; 2018-19: $19,340 |
| 4 years of average public and private nonprofit four-year net price | 22 | 2014-15: $7,560; 2015-16: $7,830; 2016-17: $8,220; 2017-18: $8,470 |

– Compared with high school graduates with median earnings working full time, the break-even age for associate degree recipients with median earnings is 30 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 35 if they pay these expenses for three years; it is 29 if they receive the average amount of grant aid and pay net tuition and fees and buy books and supplies for two years.

– Compared with high school graduates with median earnings working full time, the break-even age for college graduates with median earnings is 34 if they pay the average public four-year and private nonprofit four-year published tuition and fees and books and supplies for four years. The break-even age increases to 37 if they pay these expenses for five years; it is 31 if they receive the average amount of grant aid and pay four years of 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. Many students work part time while in school.

NOTES: Includes only students who complete degrees; excludes bachelor's degree recipients who earn advanced degrees. The comparison group is high school graduates with median earnings. Assume students borrow the cost of tuition and fees and books and supplies and pay it off over 10 years after graduation with a 4.29% annual interest rate during and after college. Tuition and loan payments and earnings are discounted at 3%, compounded every year beyond age 18.

SOURCES: U.S. Census Bureau, Current Population Survey, American Community Survey, 2010–2014 Five-Year Public Use Microdata Sample; College Board, *Trends in College Pricing 2016*, calculations by the authors.

# Variation in Earnings Within Levels of Education

Median earnings rise 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 2015 ranged from 2% of those without a high school diploma and 5% of high school graduates to 25% of those whose highest attainment was a bachelor's degree and 38% of advanced degree holders.

– In 2015, while 7% of all full-time year-round workers age 35 to 44 earned less than $20,000, 26% of those without a high school diploma and 12% of those with only a high school diploma were in this income category, compared with 2% of those whose highest attainment was a bachelor's degree and 1% of those with advanced degrees.

– In 2015, 25% of all full-time year-round workers age 35 to 44 held bachelor's degrees and another 17% held advanced degrees.

– In 2015, 23% of all full-time year-round workers age 35 to 44 held only a high school diploma and 8% did not graduate from high school.

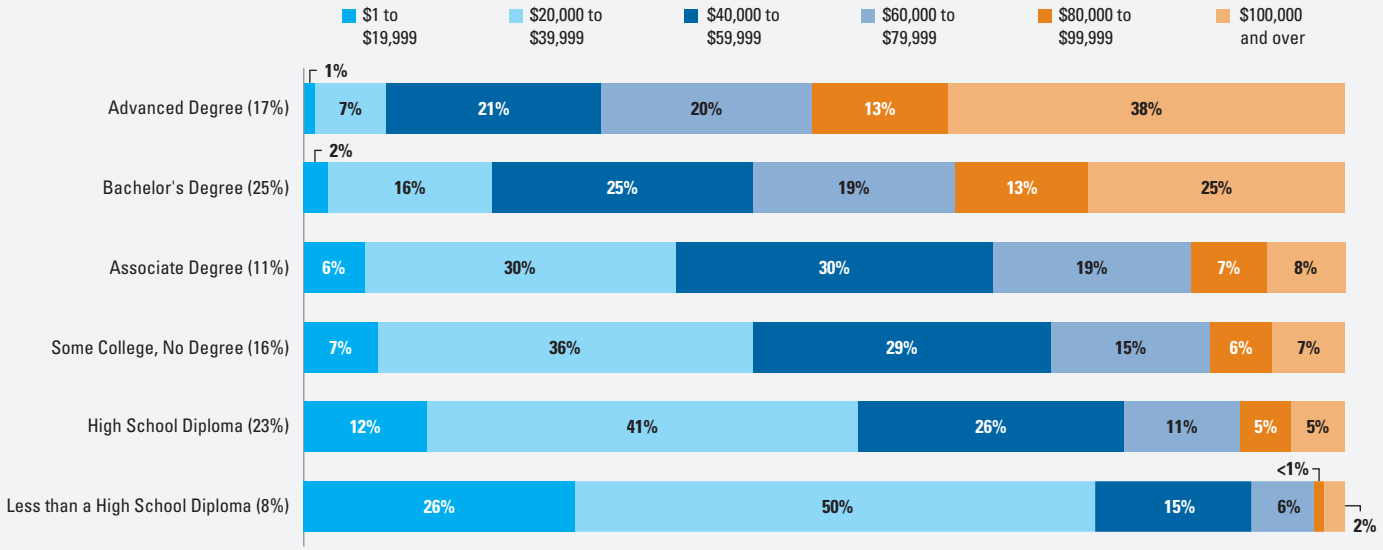
### ALSO IMPORTANT:

– 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 are working full time. (Bureau of Labor Statistics, Labor Force Statistics from the Current Population Survey)

– Figure 2.3 includes workers between the ages of 35 and 44, an age group in which the majority of full-time workers have finished school and started a career.

– Some of the variation in earnings is associated with field of study, occupation, and location. Earnings also differ by gender and race/ethnicity. (Baum, Kurose, & Ma, 2013)

**FIGURE 2.3** Earnings Distribution of Full-Time Year-Round Workers Age 35 to 44, by Education Level, 2015



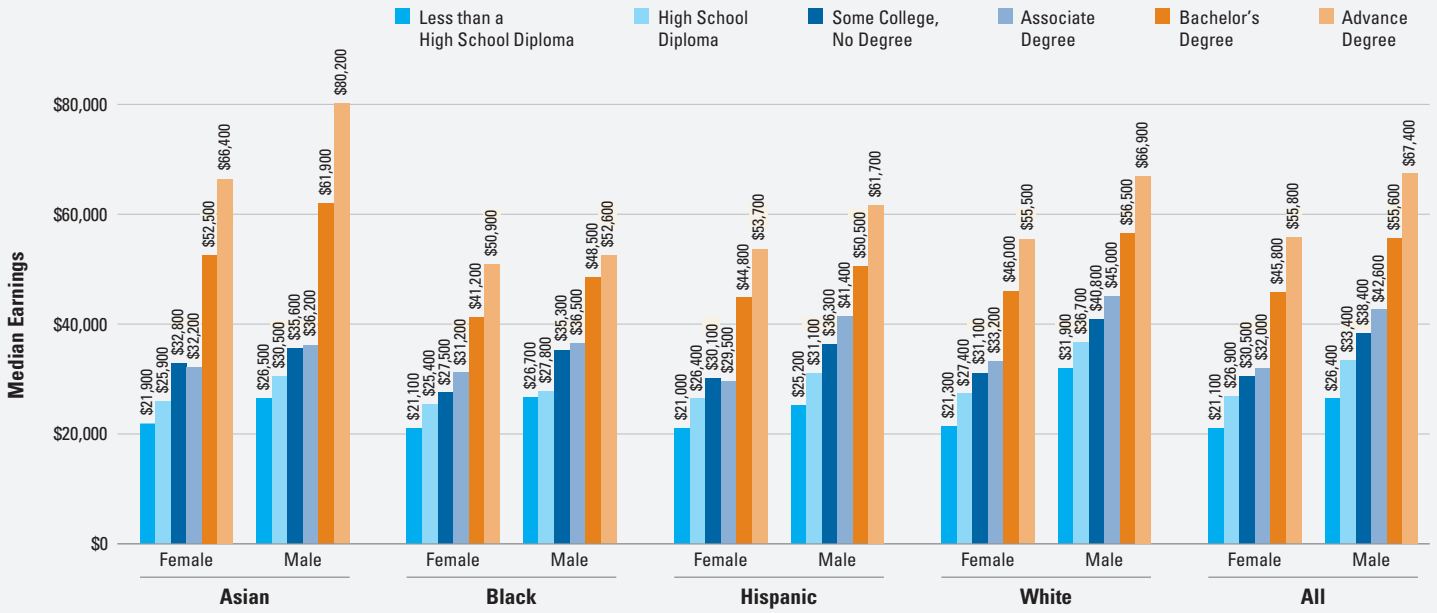

NOTES: The percentages shown in parentheses on the vertical axis represent the percentages of all full-time year-round workers age 35 to 44 with each education level. Percentages may not sum to 100 because of rounding.

SOURCES: U.S. Census Bureau, Income, Poverty, and Health Insurance in the United States, 2015, PINC-03; calculations by the authors.

# Earnings by Race/Ethnicity, Gender, and Education Level

Between 2013 and 2015, Asian men and women age 25 to 34 working full time year-round whose highest attainment was a bachelor's degree had median earnings twice as high as those who were high school graduates.

**FIGURE 2.4** Median Earnings (in 2015 Dollars) of Full-Time Year-Round Workers Age 25 to 34, by Race/Ethnicity, Gender, and Education Level, 2013–2015




NOTES: Based on combined data from the 2014, 2015, and 2016 Annual Social and Economic Supplement of the Current Population Survey. Earnings in 2013 and 2014 are adjusted to 2015 dollars using the Consumer Price Index for all urban consumers. Median earnings are the medians of combined data. The "Asian," "Black," and "White" categories include individuals who reported one race only and who reported non-Hispanic.

SOURCES: U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplement, 2014, 2015, and 2016; calculations by the authors.

– The earnings premium for a bachelor's degree relative to a high school diploma was smaller for other racial/ethnic groups: 68% and 70% for white and Hispanic women, respectively, and 54% and 62% for white and Hispanic men. Among blacks, the earnings premium was higher among men (74%) than among women (62%).

– Among full-time workers age 25 to 34, the earnings gap between those with some college but no degree and those who were high school graduates ranged from 8% ($2,100) for black women to 27% for Asian women ($6,900) and black men ($7,500).

– The earnings gap between associate degree recipients and high school graduates ranged from 12% ($3,100) for Hispanic women to 33% ($10,300) for Hispanic men.

– Median earnings for 25-to-34-year-old white male high school graduates working full time were 34% ($9,300) higher than median earnings for white female high school graduates. Among white bachelor's degree recipients, the gender gap was 23% ($10,500).

## ALSO IMPORTANT:

– Figure 2.4 shows the median earnings of individuals working full time year-round. The proportion of individuals working full time year-round increases with education level. For example, between 2013 and 2015, the proportion of the Asian female population working full time year-round ranged from 31% for those without a high school diploma to 42% for those with an advanced degree. The proportion of white men working full time year-round ranged from 48% for those without a high school diploma to 81% for those with an advanced degree.

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, 2013–2015

| | | BA/HS Earnings Ratio | |
|---|---|---|---|
| | | Age 25 to 34 | Age 25 and Older |
| Asian | Female | 2.03 | 1.89 |
| | Male | 2.03 | 2.06 |
| Black | Female | 1.62 | 1.66 |
| | Male | 1.74 | 1.57 |
| Hispanic | Female | 1.70 | 1.73 |
| | Male | 1.62 | 1.61 |
| White | Female | 1.68 | 1.62 |
| | Male | 1.54 | 1.59 |
| All | Female | 1.70 | 1.66 |
| | Male | 1.67 | 1.71 |

# Earnings by Gender and Education Level

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

– Median earnings of female four-year college graduates exceeded median earnings of female high school graduates by 66% ($20,500) in 2015. However, 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.

– Median earnings of male bachelor's degree recipients exceeded median earnings of male high school graduates by 72% ($29,800) in 2015. However, 16% of male high school graduates earned more than the median for male college graduates and 20% of male college graduates earned less than the median for male high school graduates.

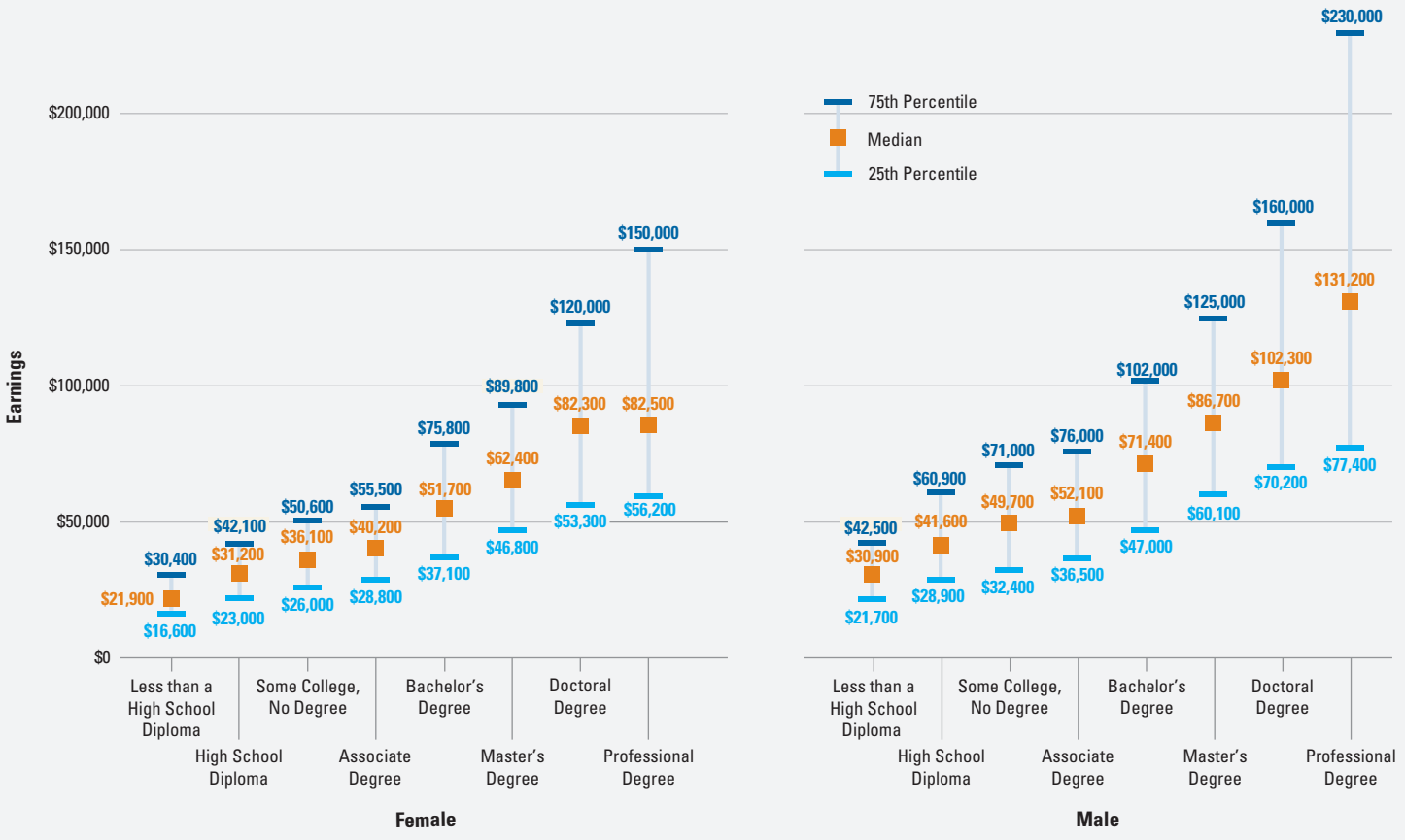
– In 2015, 61% of males with some college education but no degree and 66% of males holding associate degrees earned more than the median earnings of male high school graduates.

– In 2015, 61% of females with some college education but no degree and 68% of females holding associate degrees earned more than the median earnings of female high school graduates.

**ALSO IMPORTANT:**

– Figure 2.5 includes only full-time year-round workers age 25 and older. Among both men and women, the percentage of individuals who are employed rises with level of education, as does the percentage of those employed who are working full time. (Bureau of Labor Statistics, Labor Force Statistics from the Current Population Survey)

**FIGURE 2.5** Median, 25th Percentile, and 75th Percentile Earnings of Full-Time Year-Round Workers Age 25 and Older, by Gender and Education Level, 2015




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

SOURCES: U.S. Census Bureau, Income, Poverty, and Health Insurance in the United States, 2015, PINC-03; calculations by the authors.

# Earnings Over Time by Gender and Education Level

In 2015, median earnings were 84% ($23,200) higher for females age 25 to 34 with a bachelor's degree or higher working full time year-round than for those with only a high school diploma; the premium for males was 75% ($26,200).

– The earnings gaps between high school graduates and individuals with a bachelor's degree or higher peaked in 2014 among both women (90%) and men (79%).

– Between 2010 and 2015, inflation-adjusted median earnings declined by 4% for male high school graduates and increased by 5% for men with a bachelor's degree or higher. Real median earnings also declined by 1% for female high school graduates and increased by 4% for women with a bachelor's degree or higher.

– Between 2010 and 2015, real median earnings declined by 5% for men and by 7% for women with some college or associate degrees.

– Within the "Bachelor's Degree or Higher" category, 28% of men and 34% of women had advanced degrees in 2015, compared with 25% of men and 27% of women a decade earlier.

– In 2015, the gap between median earnings for 25- to 34-year-olds with advanced degrees and those with only bachelor's degrees was 25% for males and 27% for females.

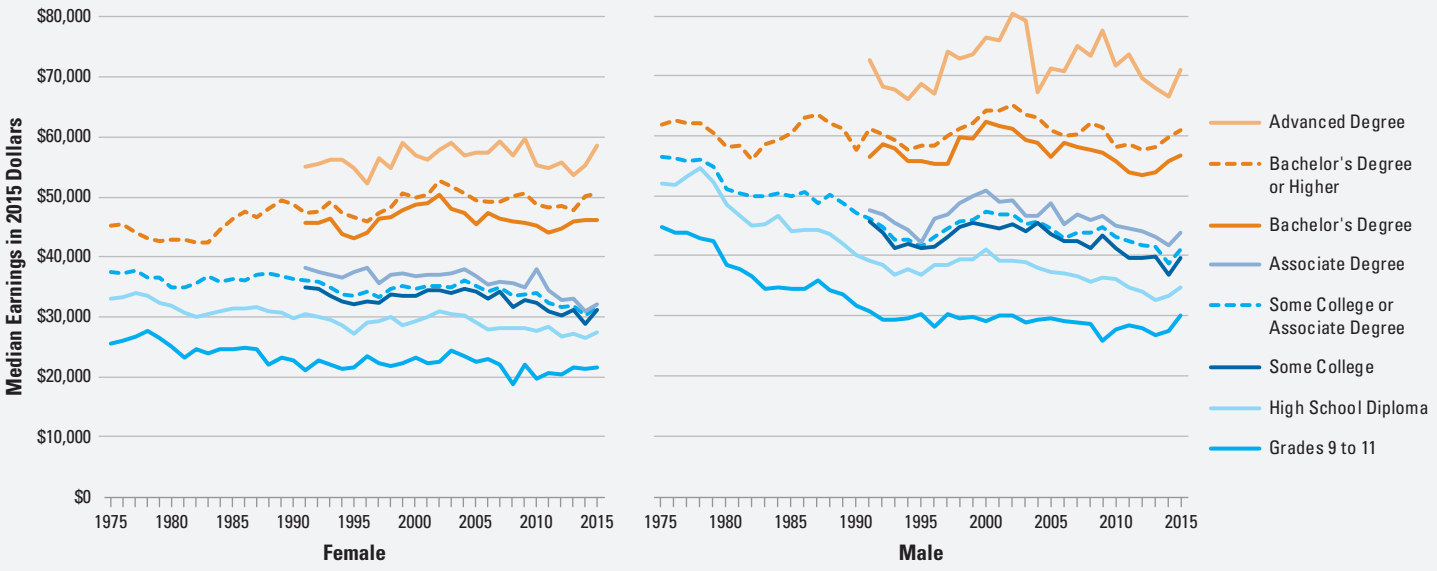
**ALSO IMPORTANT:**

– The overall distribution of income in the United States became more unequal between 1975 and 2015. The share of total income received by households in the lowest 20% of the income distribution declined from 4.3% in 1975 to 3.7% in 1995, and to 3.1% in 2015.

– The share of total income received by households in the highest 20% of the income distribution rose from 43.6% in 1975 to 48.7% in 1995, and to 51.1% in 2015.

– The share of total income received by households in the top 5% of the income distribution rose from 16.5% in 1975 to 21.0% in 1995, and to 22.1% in 2015. (U.S. Census Bureau, 2016, Historical Income Table H-2)

**FIGURE 2.6** Median Earnings (in 2015 Dollars) of Full-Time Year-Round Workers Age 25 to 34, by Gender and Education Level, 1975 to 2015




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

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Female | 21% | 21% | 22% | 24% | 23% | 22% | 24% | 26% | 27% | 27% | 27% | 28% | 31% | 30% | 28% | 32% | 31% | 32% | 31% | 32% | 34% |
| Male | 25% | 22% | 22% | 22% | 22% | 21% | 23% | 24% | 25% | 25% | 25% | 25% | 24% | 28% | 27% | 24% | 25% | 25% | 28% | 28% | 28% |

SOURCES: Data for 1993 and prior: National Center for Education Statistics (NCES), *The Condition of Education 2004*; Data for 1994 and after: U.S. Census Bureau, Income, Poverty, and Health Insurance in the United States, 1995 to 2015, PINC tables; CPI-U: Bureau of Labor Statistics; calculations by the authors.

# Earnings Paths

Between 2010 and 2014, median earnings for individuals age 50 to 54 working full time year-round whose highest degree was a bachelor's degree were 63% higher than the median 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.

– Because of the difference in earnings paths, the gap between median earnings of college graduates without advanced degrees and high school graduates ranged from $15,500 (54%) for 25- to 29-year-olds to $33,200 (86%) for 45- to 49-year-olds between 2010 and 2014.

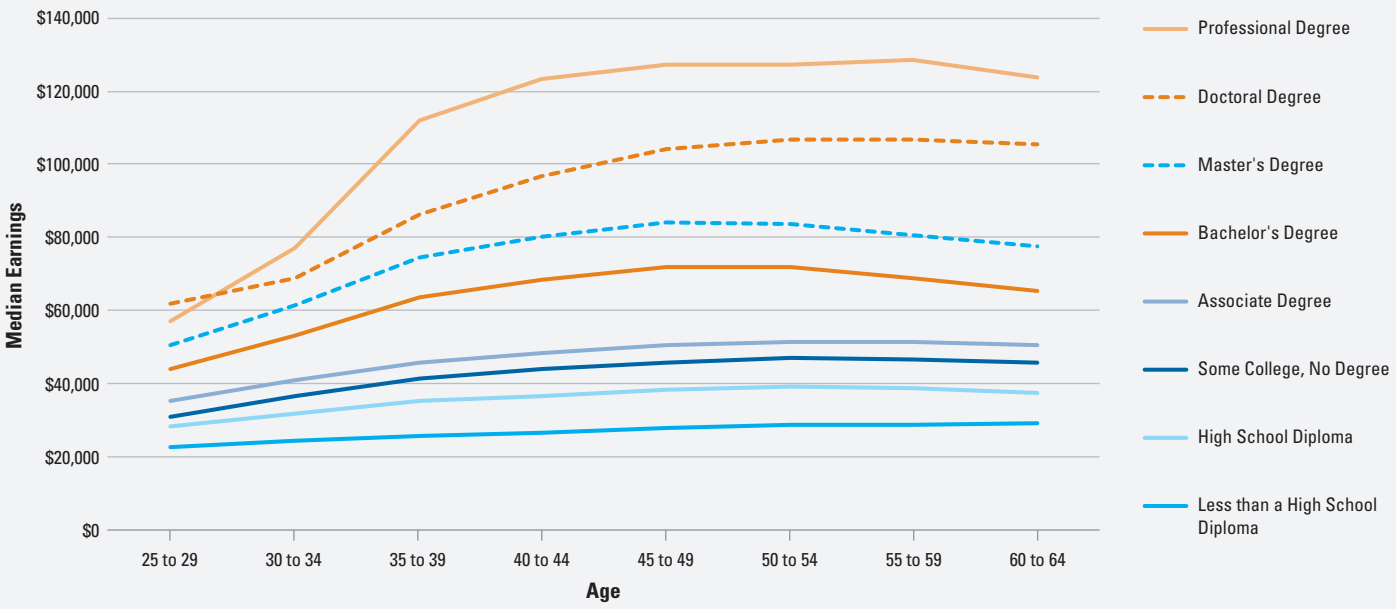
– Between 2010 and 2014, the gap between median earnings of associate degree holders and high school graduates was $6,600 (23%) for 25- to 29-year-olds and $12,200 (32%) for 45- to 49-year-olds.

– The earnings path is the steepest for individuals with advanced degrees. The gap in median earnings between those with professional degrees and those with bachelor's degrees was 30% for 25- to 29-year-olds and 89% for 60- to 64-year-olds between 2010 and 2014.

**ALSO IMPORTANT:**

– Figure 2.7 includes only full-time year-round workers age 25 and older. The percentage of individuals who are employed rises with level of education, as does the percentage of those employed who are working full time. (Bureau of Labor Statistics, Labor Force Statistics from the Current Population Survey)

**FIGURE 2.7** Median Earnings (in 2014 Dollars) of Full-Time Year-Round Workers by Age and Education Level, 2010–2014




| | Median Earnings of Full-Time Year-Round Workers, 2010–2014 | | | | | | | | Percentage of All Workers Working Full Time Year-Round, 2010–2014 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Age | Less than a High School Diploma | High School Diploma | Some College, No Degree | Associate Degree | Bachelor's Degree | Master's Degree | Doctoral Degree | Profes-sional Degree | Less than a High School Diploma | High School Diploma | Some College, No Degree | Associate Degree | Bachelor's Degree | Master's Degree | Doctoral Degree | Profes-sional Degree |
| 25 to 29 | $22,600 | $28,600 | $31,200 | $35,200 | $44,100 | $50,600 | $61,900 | $57,200 | 51% | 60% | 60% | 64% | 71% | 69% | 70% | 64% |
| 50 to 54 | $29,000 | $39,500 | $47,200 | $51,500 | $71,800 | $83,500 | $106,900 | $127,400 | 62% | 72% | 73% | 74% | 77% | 78% | 83% | 80% |
| 60 to 64 | $29,100 | $37,400 | $45,900 | $50,700 | $65,500 | $77,600 | $105,400 | $123,600 | 57% | 63% | 63% | 64% | 65% | 61% | 72% | 71% |

NOTES: Based on the 2010 to 2014 American Community Survey five-year combined data file. Earnings are adjusted to 2014 dollars using the Consumer Price Index for all urban consumers from the Bureau of Labor Statistics. Median earnings are the median of combined data.

SOURCES: U.S. Census Bureau, American Community Survey, 2010–2014 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 of these occupations, bachelor's degree recipients earn more than high school graduates.

– Within each education level, earnings vary considerably by occupation.

– In 2015, 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 $30,000 for retail salespersons to $50,000 for wholesale and manufacturing sales representatives and first-line supervisors of nonretail workers or production and operating workers.

– In 2015, among occupations that employed large numbers of both high school graduates and college graduates, the median earnings of those with at least a bachelor's degree ranged from $38,000 for general office clerks to $85,000 for first-line supervisors of nonretail workers.

– Occupations with the highest earnings are not necessarily those with the highest earnings premiums for education.

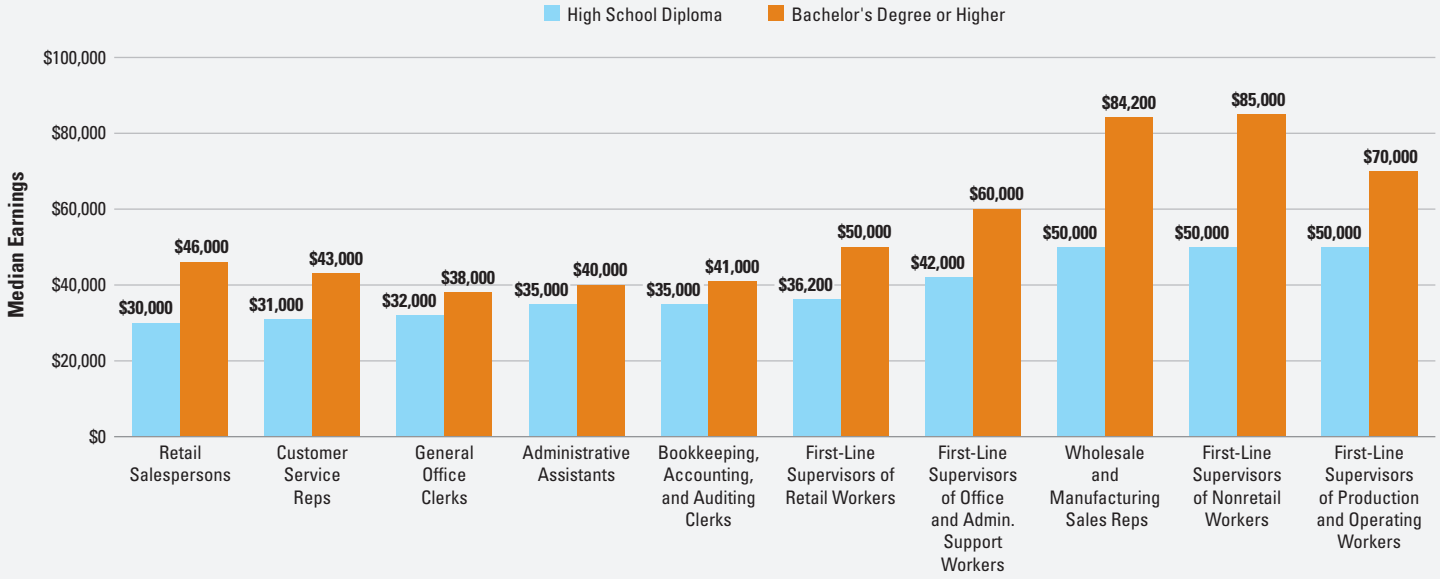
– In 2015, the earnings gap between high school graduates and those with at least a college degree in the same occupation varied significantly, ranging from 14% for administrative assistants to 70% for first-line supervisors of nonretail workers.

### 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 so remunerative. (Baum, Kurose, & Ma, 2013, Section 8)

**FIGURE 2.8** Median Earnings of Full-Time Workers with a High School Diploma and Those with at Least a Bachelor's Degree, by Occupation, 2015




| | Retail Salespersons | Customer Service Reps | General Office Clerks | Administrative Assistants | Bookkeeping, Accounting, and Auditing Clerks | First-Line Supervisors of Retail Workers | First-Line Supervisors of Office and Admin. Support Workers | Wholesale and Manufacturing Sales Reps | First-Line Supervisors of Nonretail Workers | First-Line Supervisors of Production and Operating Workers |
|---|---|---|---|---|---|---|---|---|---|---|
| % of FT Workers with: | | | | | | | | | | |
| High School Diploma | 30% | 26% | 31% | 28% | 29% | 30% | 22% | 17% | 22% | 38% |
| Bachelor's Degree or Higher | 25% | 28% | 21% | 22% | 18% | 26% | 35% | 50% | 43% | 17% |
| BA/HS Earnings Ratio | 1.53 | 1.39 | 1.19 | 1.14 | 1.17 | 1.38 | 1.43 | 1.68 | 1.70 | 1.40 |

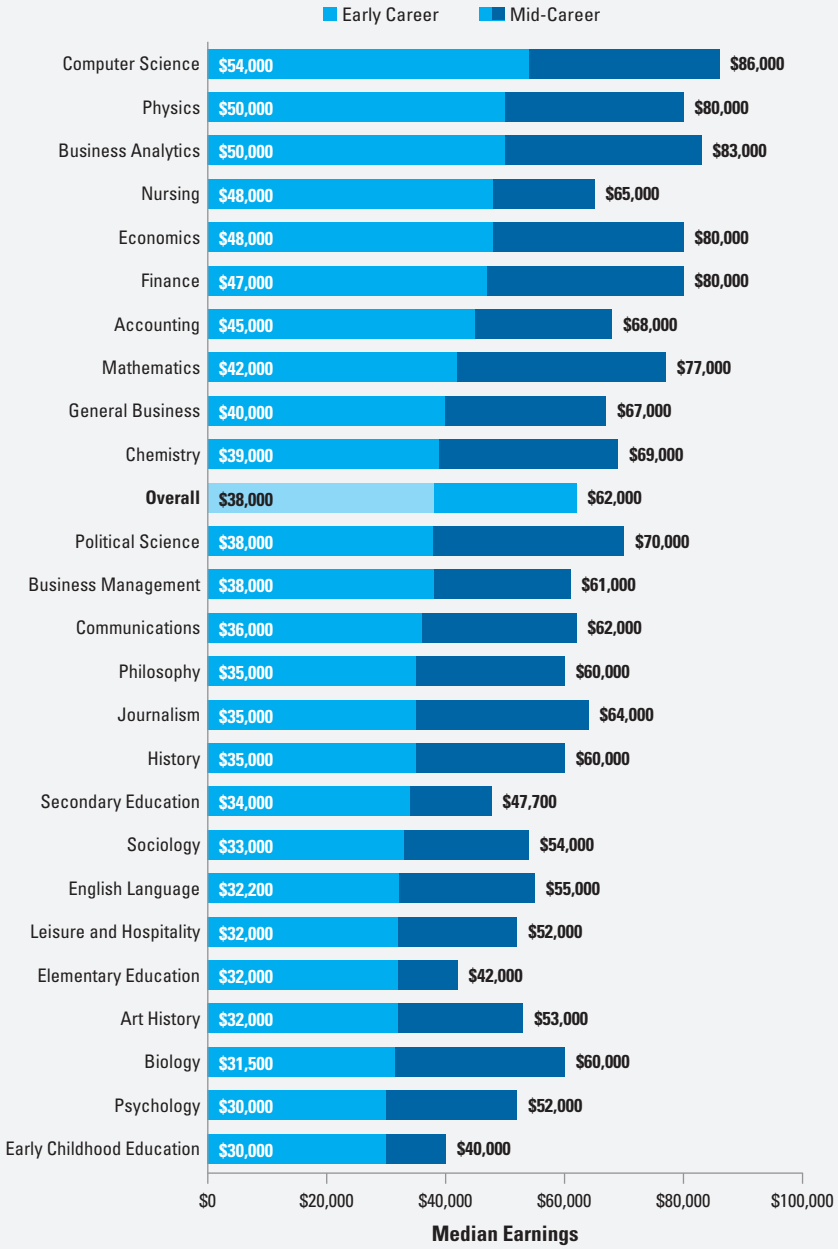
NOTE: Includes 10 largest occupations with at least 15% of full-time workers with only a high school diploma and another 15% with at least a bachelor's degree.

SOURCES: U.S. Census Bureau, American Community Survey, 2015; calculations by the authors.

# Earnings by College Major

From 2013 to 2014, the median earnings for bachelor's degree recipients without an advanced degree was $38,000 per year for those in their early career (age 22 to 27) and $62,000 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, 2013–2014




NOTES: Figures represent a 2013 and 2014 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.

– From 2013 to 2014, median earnings for early career bachelor's degree recipients ranged from $30,000 a year for early childhood education and psychology majors to $54,000 for computer science majors. For those in their mid-career, median earnings ranged from $40,000 to $86,000.

– From 2013 to 2014, median earnings for the highest-earning major were 80% ($24,000) more than the lowest-earning major in early career and more than two times as high in mid-career.

– The growth in earnings by college major between early career and mid-career varies greatly. For example, early childhood and elementary education majors have some of the lowest increases in earnings (33% and 31%, respectively), but median earnings for biology majors increase by 90% between early career and mid-career.

## ALSO IMPORTANT:

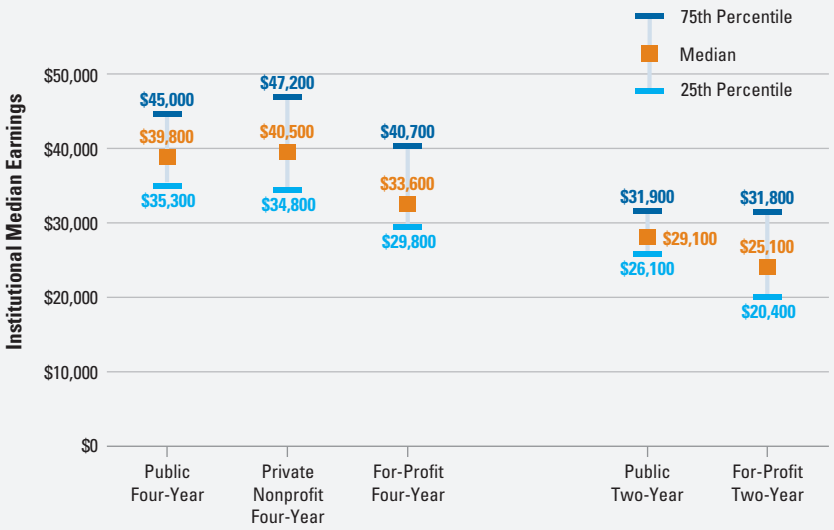
– From 2013 to 2014, 45% of early career college graduates were underemployed. Many underemployed recent college graduates worked in fairly well-paid noncollege jobs requiring some degree of knowledge and skill, and they are more likely than similar-age workers without a college degree to be working in high-paying occupation categories. For example, 11% of underemployed recent college graduates worked in the highest-paying category — information processing and business support — compared with just 2% of young workers without a college degree. In contrast, 19% of underemployed recent graduates started their careers working in a low-skilled service job, compared with 28% of young workers without a college degree. (Abel & Deitz, 2015, Table 2)

– Underemployment tends to be temporary. In 2013 and 2014, 52% of college graduates ages 22 and 23 were working in noncollege jobs, compared with 40% of those ages 26 and 27. (Abel & Deitz, 2015, Table 8)

# Variation in Earnings by Institutional Sector

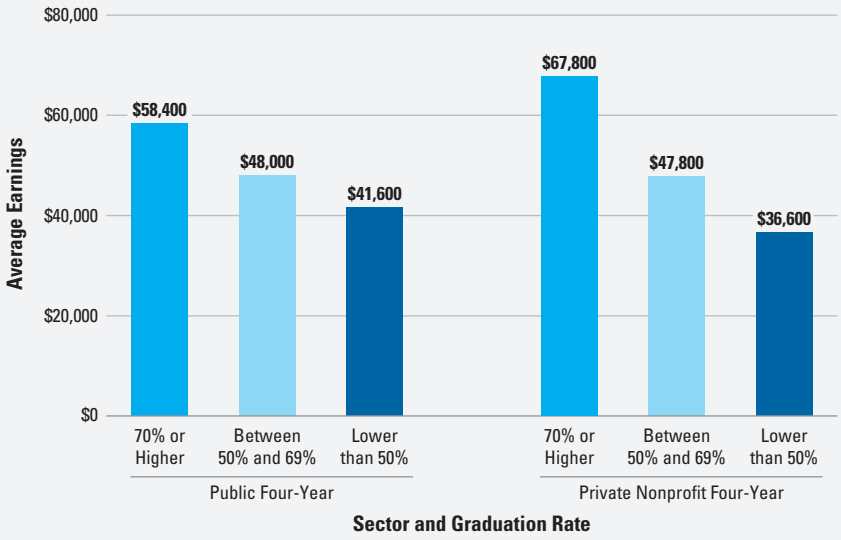
Institutional median earnings vary by sector. From 2012 to 2013, the typical four-year college's median earnings of 2001-02 and 2002-03 federal student aid recipients ranged from $33,600 at for-profit institutions to $39,800 at public institutions and $40,500 at private nonprofit institutions.

**FIGURE 2.10A** Distribution of 2012 and 2013 Institutional Median Earnings of Federal Student Aid Recipients in 2001-02 and 2002-03, by Sector




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

**FIGURE 2.10B** Average 2012 and 2013 Earnings of Dependent Federal Student Aid Recipients in 2001-02 and 2002-03, by Sector and Graduation Rate




NOTES: Earnings are defined as mean earnings of dependent students working and not enrolled 10 years after college entry. Data are for 2001-02 and 2002-03 pooled cohorts and earnings are measured in 2012 and 2013 calendar years. College graduation rate categories are based on six-year bachelor's degree graduation rates for the 2008 entering cohort (150% of normal time).

SOURCES: U.S. Department of Education, College Scorecard Data; NCES, IPEDS fall 2014 data; calculations by the authors.

– 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.

– Average earnings were about the same ($48,000) for dependent students who attended public or private nonprofit four-year colleges with six-year bachelor's degree graduation rates between 50% and 69%.

– Variation in earnings by colleges' bachelor's degree graduation rate was larger within the private nonprofit sector than in the public sector.

– Earnings varied by Carnegie Classification as well. For example, within the private nonprofit four-year sector, average earnings ranged from $40,100 for students who attended bachelor's institutions to $62,600 for those who attended doctoral institutions.

## ALSO IMPORTANT:

– The College Scorecard data include median and mean earnings aggregated at the college level for students who have received federal student aid, disaggregated by dependency status. Earnings are calculated among students who are employed, but not enrolled in college and thus exclude students who are enrolled in graduate school at the time of measurement. However, students who have completed advanced degrees within 10 years of college entry are included. Finally, reported average earnings include both college degree completers and noncompleters. (The College Scorecard, Data Documentation)

– The amount of time students spend in school, the degrees they earn, field of study, completion rates, and incoming student characteristics all vary across institutional sectors, which influence 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)

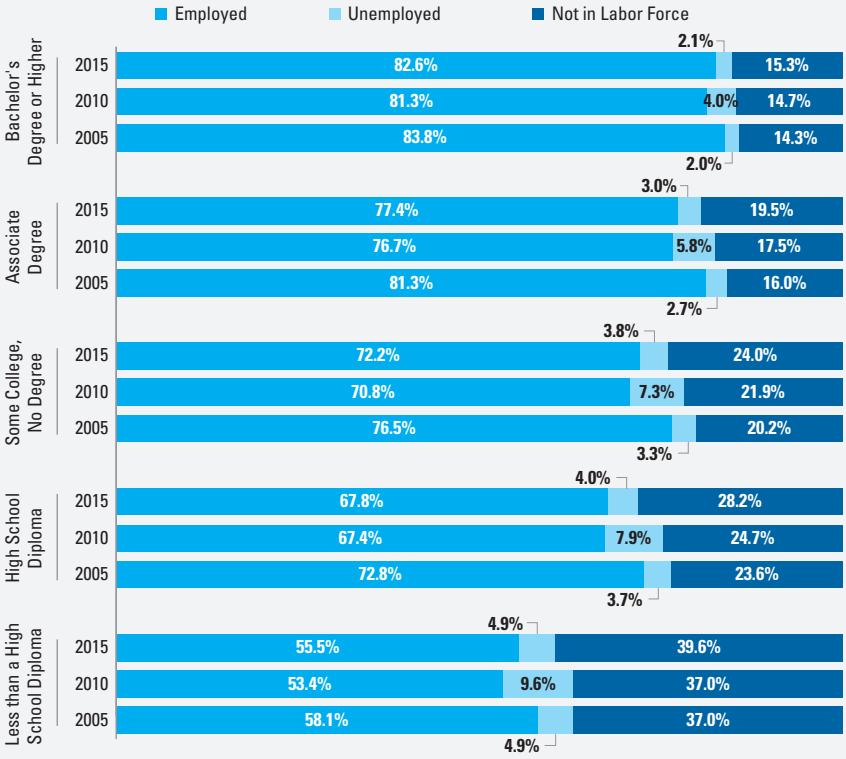
Average 2012 and 2013 Earnings of Dependent Federal Student Aid Recipients in 2001-02 and 2002-03, by Carnegie Classification

| | Doctoral | Master's | Bachelor's |
|---|---|---|---|
| Public | $51,500 | $43,700 | $38,700 |
| Private Nonprofit | $62,600 | $47,200 | $40,100 |

# Employment

Among adults between the ages of 25 and 64, 68% of high school graduates, 72% of those with some college but no degree, 77% of those with an associate degree, and 83% of those with a bachelor's degree or higher were employed in 2015.

**FIGURE 2.11** Civilian Population Age 25 to 64: Percentage Employed, Unemployed, and Not in Labor Force, 2005, 2010, and 2015




Labor Force Participation Rates by Age and Education Level, 2015

| Age | Less than a High School Diploma | High School Diploma | Some College, No Degree | Associate Degree | Bachelor's Degree or Higher | Total |
|---|---|---|---|---|---|---|
| 23 to 26 | 63% | 77% | 76% | 84% | 84% | 79% |
| 35 to 44 | 69% | 78% | 82% | 86% | 88% | 82% |
| 25 to 64 | 60% | 72% | 76% | 80% | 85% | 77% |

Civilian Population Age 25 to 64, Number in Millions, 2005, 2010, 2015

| | Less than a High School Diploma | High School Diploma | Some College, No Degree | Associate Degree | Bachelor's Degree or Higher |
|---|---|---|---|---|---|
| 2005 | 18.9 | 47.7 | 26.9 | 14.7 | 46.2 |
| 2010 | 17.8 | 48.0 | 28.0 | 16.3 | 51.1 |
| 2015 | 17.1 | 46.0 | 27.9 | 17.4 | 57.3 |

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

SOURCES: U.S. Census Bureau, Basic Monthly Current Population Survey, January through December, 2005, 2010, and 2015; calculations by the authors.

– For each education level, the percentage of individuals who were employed remained the same or was somewhat higher in 2015 than in 2010, but was still lower than in 2005. For example, among adults between the ages of 25 and 64, 73% of those with a high school diploma were employed in 2005, while 67% and 68% were employed in 2010 and 2015, respectively.

– For each education level, the percentage of individuals who were unemployed was about half as high in 2015 as in 2010. In 2015, 2% of individuals with at least a bachelor's degree, 3% of those with associate degrees, and 4% of those with some college but no degree or with a high school diploma were unemployed.

– For each education level, the percentage of individuals who were either unemployed or not in the labor force increased between 2005 and 2010 as the economy went into recession.

– Between 2010 and 2015, the percentage of individuals who were unemployed declined as the economy recovered, but the percentage of individuals who were not in the labor force continued to increase. The increase ranged from 0.6 percentage point for those with at least a bachelor's degree to 3.5 percentage points for those with a high school diploma.

– In 2015, 79% of individuals age 23 to 26 were in the labor force, ranging from 63% of those without a high school diploma to 84% of those with at least a bachelor's degree. Among individuals age 35 to 44, labor force participation rates ranged from 69% for those without a high school diploma to 88% for those with at least a bachelor's degree.

**ALSO IMPORTANT:**

– The percentage of all individuals who are unemployed (Figure 2.11) differs from the unemployment rate (Figure 2.12A), which is the ratio of unemployed individuals to the sum of employed and unemployed individuals, excluding those who are not working or actively seeking employment.

# 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.

– In 2015, the 2.6% unemployment rate for individuals age 25 and older with at least a bachelor's degree represented a decline from the 4.7% peak for this group in 2010. For associate degree holders, the decline was from 7.0% to 3.8%, and for those with some college but no degree, the unemployment rate fell from 9.2% in 2010 to 5.0% in 2015.

– In 2015, the 5.4% unemployment rate for individuals age 25 and older with a high school diploma represented a decline from the 10.3% peak for this group in 2010. For those without a high school diploma, the decline was from 14.9% to 8.0%.

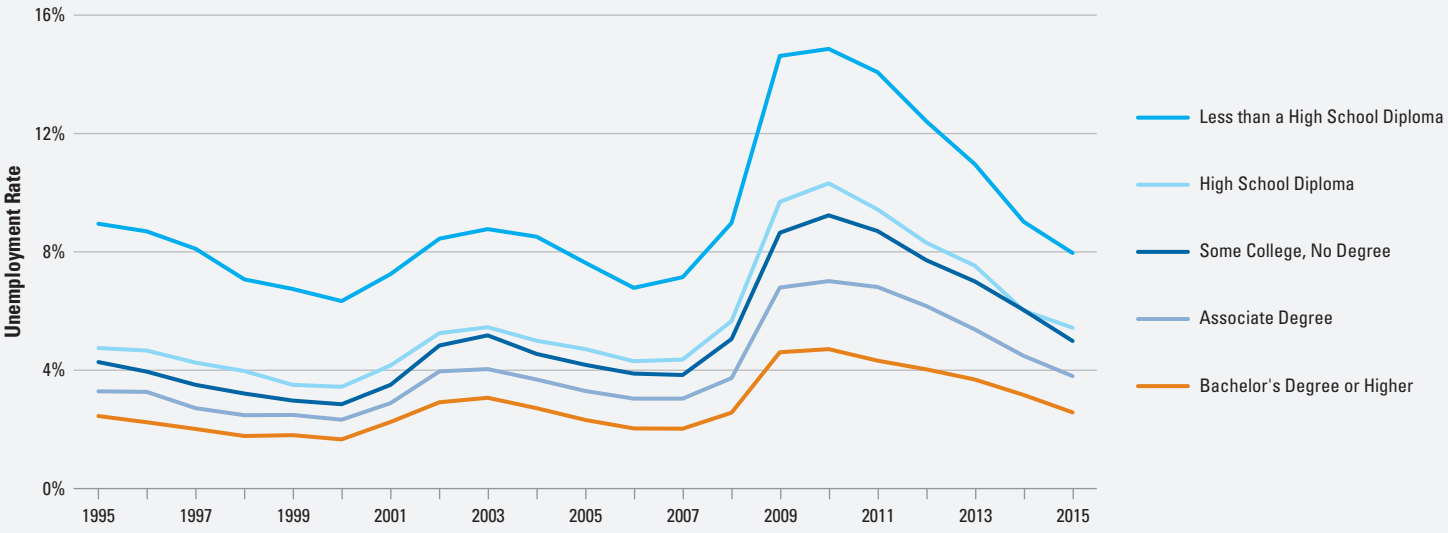
– Over the 20 years from 1995 to 2015, the largest gaps between the unemployment rates for bachelor's degree recipients and high school graduates were 5.6 percentage points in 2010 and 5.1 percentage points in 2009 and 2011. The smallest gaps were 1.7 to 1.9 percentage points from 1999 through 2001.

– The difference between the annual unemployment rates for individuals with some college but no degree and high school graduates was 0.5 percentage point in 1995, 1.1 percentage points in 2010, and 0.4 percentage point in 2015.

**ALSO IMPORTANT:**

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

**FIGURE 2.12A** Unemployment Rates of Individuals Age 25 and Older, by Education Level, 1995 to 2015




Unemployment Rates of Individuals Age 25 and Older, by Education Level, 1995 to 2015, Selected Years

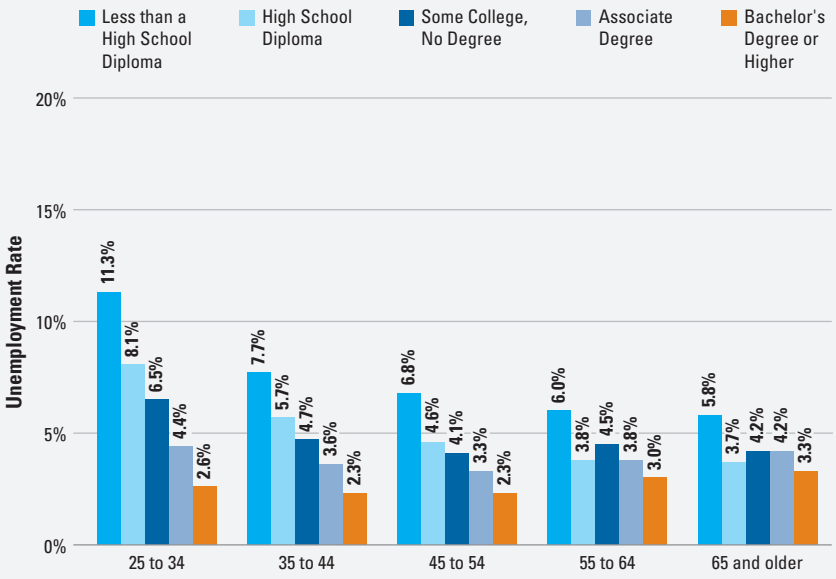
| Year | Unemployment Rate | | | | | BA/HS Unemployment Rate Ratio |
|---|---|---|---|---|---|---|
| | Less than a HS Diploma | High School Diploma | Some College, No Degree | Associate Degree | Bachelor's Degree or Higher | |
| 1995 | 9.0% | 4.8% | 4.3% | 3.3% | 2.4% | 0.52 |
| 2000 | 6.3% | 3.4% | 2.9% | 2.3% | 1.7% | 0.48 |
| 2005 | 7.6% | 4.7% | 4.2% | 3.3% | 2.3% | 0.49 |
| 2010 | 14.9% | 10.3% | 9.2% | 7.0% | 4.7% | 0.46 |
| 2015 | 8.0% | 5.4% | 5.0% | 3.8% | 2.6% | 0.47 |

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

# Unemployment

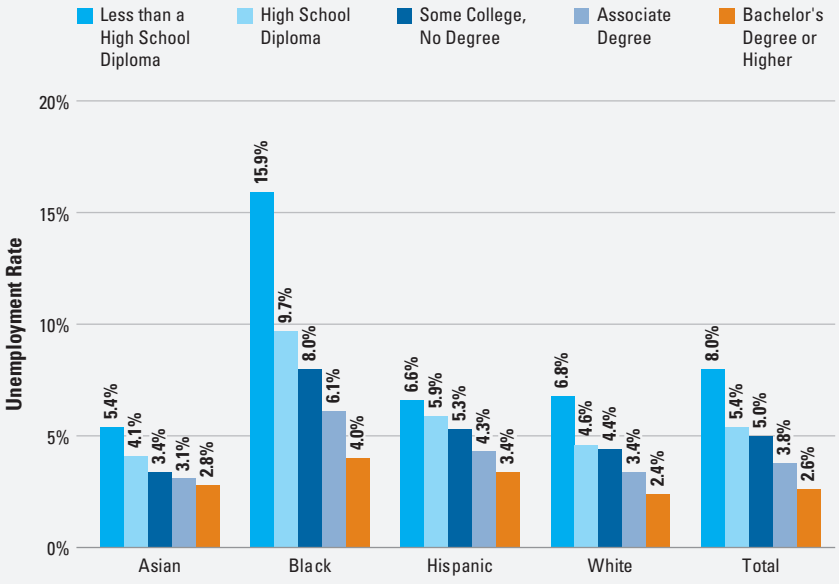
In 2015, when the unemployment rate for 25- to 34-year-olds with at least a bachelor's degree was 2.6%, 8.1% of high school graduates in this age range were unemployed.

**FIGURE 2.12B** Unemployment Rates of Individuals Age 25 and Older, by Age and Education Level, 2015




SOURCES: U.S. Census Bureau, Current Population Survey, January through December 2015; calculations by the authors.

**FIGURE 2.12C** Unemployment Rates of Individuals Age 25 and Older, by Race/Ethnicity and Education Level, 2015




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

– The 2015 unemployment rates of 25- to 34-year-olds were 6.5% for those with some college but no degree and 4.4% for those with associate degrees.

– The 2015 unemployment rate of 25- to 34-year-olds with at least a bachelor's degree was only slightly higher than the 2.3% rate for those age 45 to 54. However, the 8.1% unemployment rate for high school graduates age 25 to 34 was 3.5 percentage points above the 4.6% rate for those age 45 to 54.

– The gaps in unemployment rates by education level are larger for blacks than for other racial/ethnic groups. The gap between the unemployment rates for blacks with at least a bachelor's degree and black high school graduates in 2015 was 5.7 percentage points, compared with 1.3 percentage points for Asians, 2.2 percentage points for whites, and 2.5 percentage points for Hispanics.

– Among blacks age 25 and older, the 2015 unemployment rate for high school graduates was 3.6 percentage points higher than the rate for those with associate degrees. The gap was 1.0 percentage point for Asians, 1.2 percentage points for whites, and 1.6 percentage points for Hispanics.

– In each educational attainment group, Hispanics had higher labor force participation rates than other racial/ethnic groups in 2015. The gaps in labor force participation rates associated with level of education were smallest for Hispanics and largest for blacks. For example, 80% of Hispanic bachelor's degree recipients and 70% of high school graduates were working or looking for work. Among blacks, these percentages were 78% and 59%, respectively.

Labor Force Participation Rates of Individuals Age 25 and Older, by Race/Ethnicity and Education Level, 2015

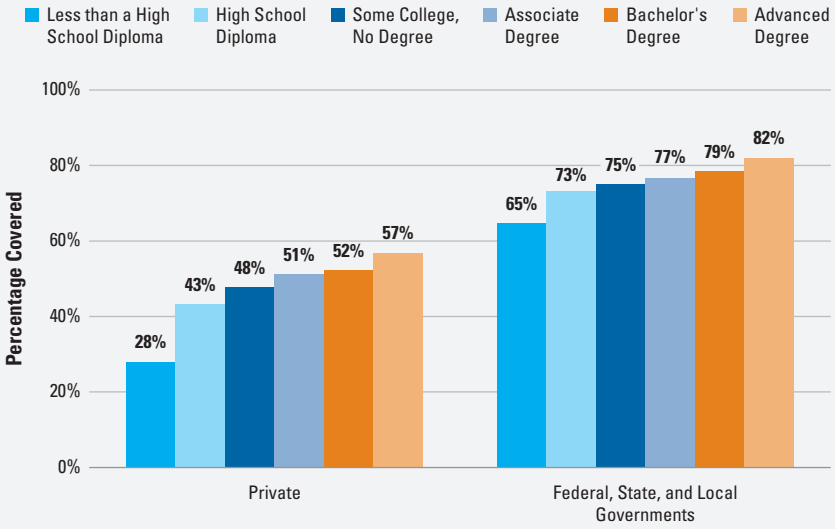
| | Less than a High School Diploma | High School Diploma | Some College, No Degree | Associate Degree | Bachelor's Degree or Higher |
|---|---|---|---|---|---|
| Asian | 41% | 59% | 66% | 72% | 74% |
| Black | 38% | 59% | 69% | 73% | 78% |
| Hispanic | 59% | 70% | 75% | 77% | 80% |
| White | 47% | 57% | 63% | 70% | 74% |

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

# Retirement Plans

College-educated workers are more likely than others to be offered retirement plans by their employers. Among those to whom these plans are available, participation rates are higher for individuals with higher education levels.

**FIGURE 2.13** Employer-Provided Retirement Plan Coverage Among Full-Time Year-Round Workers Age 25 and Older, by Sector and Education Level, 2015




Employer-Provided Retirement Plan Coverage Among Full-Time Year-Round Workers Age 25 and Older in the Private Sector, by Employer Size and Education Level, 2015

| Number of Employees | Less than a High School Diploma | High School Diploma | Some College, No Degree | Associate Degree | Bachelor's Degree | Advanced Degree |
|---|---|---|---|---|---|---|
| Less than 100 | 15% | 25% | 28% | 33% | 35% | 42% |
| 100–999 | 38% | 51% | 50% | 54% | 53% | 57% |
| 1000 or More | 50% | 60% | 64% | 66% | 63% | 65% |

Participation Rates in Employer-Provided Retirement Plans Among Eligible Full-Time Year-Round Workers Age 25 and Older, by Sector and Education Level, 2015

| Sector | Less than a High School Diploma | High School Diploma | Some College, No Degree | Associate Degree | Bachelor's Degree | Advanced Degree |
|---|---|---|---|---|---|---|
| Private | 73% | 81% | 81% | 83% | 87% | 89% |
| Federal, State, and Local Governments | 88% | 92% | 91% | 94% | 94% | 94% |

SOURCES: U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplement, 2016; calculations by the authors.

– Employer-provided retirement plan coverage is higher for government employees with less than a high school diploma than for any private sector employees, including those with advanced degrees.

– In 2015, 43% of high school graduates working full time year-round in the private sector were offered a retirement plan, compared with 52% of those whose highest degree was a bachelor's degree. These percentages were 73% and 79%, respectively, in the public sector.

– Employer-provided coverage varies within the private sector, with larger employers offering retirement plans at a higher rate than smaller employers.

– In 2015, participation rates in employer-provided retirement plans also varied within sectors. In the private sector, participation rates ranged from 73% among full-time workers with less than a high school diploma to 89% among those with advanced degrees.

## ALSO IMPORTANT:

– In 2015, the percentage of part-time workers (those who worked at least 20 hours a week for at least 26 weeks but less than full time year-round) who were offered retirement plans ranged from 15% for those without a high school diploma and 31% for high school graduates to 44% for bachelor's degree recipients and 53% for those with an advanced degree. (U.S. Census Bureau, 2016 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. In 2015, 73% of private sector employees with retirement plans had access to defined contribution plans only, compared with 69% in 2010. (Bureau of Labor Statistics, National Compensation Survey: Employee Benefits in the United States, March 2010 and March 2015)

– Low earnings levels, which are more common among individuals with lower education levels, may explain some decisions not to participate in employer-provided retirement plans that require workers to contribute a portion of their wages.

# Health Insurance

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

**FIGURE 2.14A** Employer-Provided Health Insurance Coverage Among Full-Time Year-Round Workers Age 25 and Older, by Education Level, 1995, 2005, and 2015

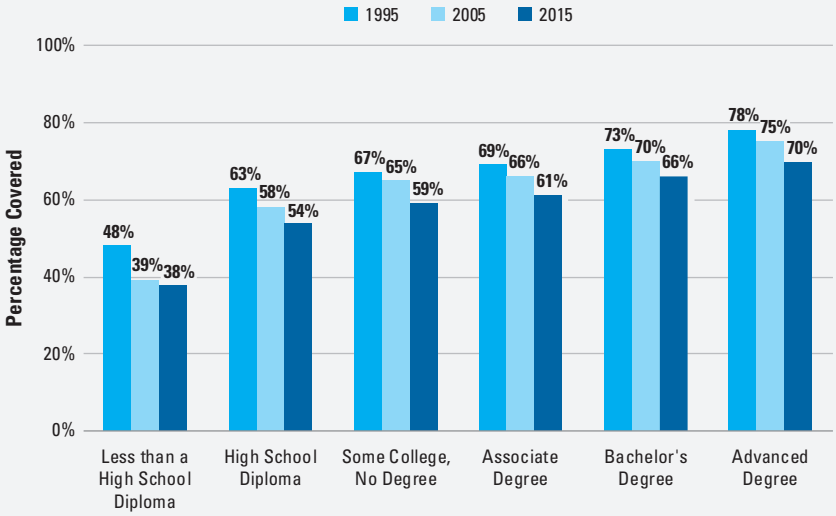
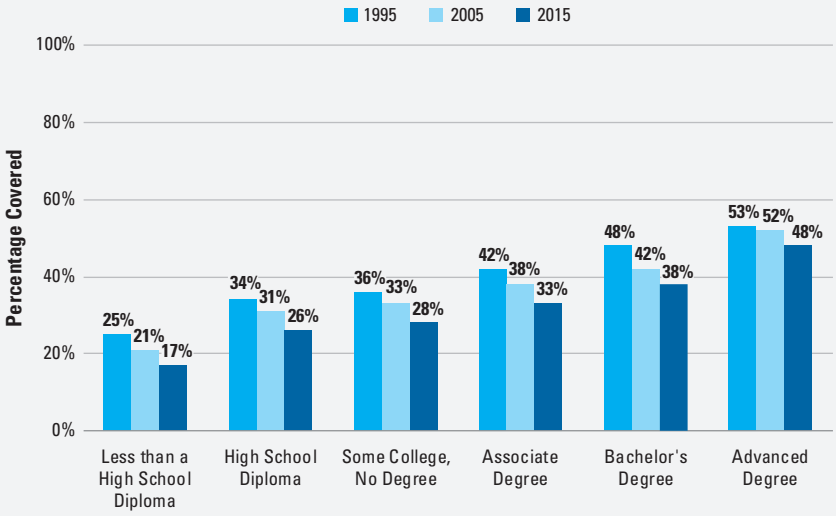



**FIGURE 2.14B** Employer-Provided Health Insurance Coverage Among Part-Time Workers Age 25 and Older, by Education Level, 1995, 2005, and 2015




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

SOURCES: U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplement, 1996, 2006, and 2016; calculations by the authors.

– Employer-provided health insurance coverage has declined over the past 20 years for both full-time and part-time workers. Between 1995 and 2015, health insurance coverage declined by 7 to 8 percentage points for individuals with at least some college education working full time year-round. The decline was 9 to 10 percentage points for individuals with a high school diploma or less.

– In 1995, 53% of advanced degree holders, 48% of bachelor's degree holders, and 34% of high school graduates working part time were covered by employer-provided health insurance. By 2015, those percentages had declined to 48%, 38%, and 26%, respectively.

## ALSO IMPORTANT:

– In 2014, hospitals in the U.S. provided about $42.8 billion in care for which they were not compensated, which represents 5.3% of total expenses. This cost fell indirectly on federal and state governments and insured patients. (American Hospital Association, Uncompensated Hospital Care Cost Fact Sheet, 2016)

– In 2015, when 10% of adults age 18 and older were not covered by health insurance at any time during the year, only 5% of those with a bachelor's degree or higher were not covered. This was the case for 9% of those with associate degrees, 10% of those with some college but no degree, and 13% of high school graduates. (U.S. Census Bureau, Health Insurance Coverage Status and Type of Coverage by Selected Characteristics, 2015, Table HI01)

– In 2015, when 35% of adults age 18 and older were covered by government health care plans, 25% of adults with a bachelor's degree or higher, 32% of those with an associate degree, 35% of those with some college but no degree, and 42% of high school graduates had government coverage. (U.S. Census Bureau, Health Insurance Coverage Status and Type of Coverage by Selected Characteristics, 2015, Table HI01)

– Between 2013 and 2015, the percentage of all individuals in the United States with health insurance coverage increased from 87% to 91%. (U.S. Census Bureau, *Health Insurance Coverage in the United States, 2015*, Table 1)

– The Affordable Care Act, which was signed into law in 2010, included many provisions aimed to overhaul the U.S. healthcare system and expand healthcare coverage. Many of these provisions went into effect in or before 2014.

# Social Mobility

Young adults with a college degree are much more likely to be at the upper end of the income distribution than those from similar backgrounds with only a high school diploma. However, even within each education level, those who grew up in more affluent families are more likely to have high earnings.

– Among high school sophomores whose parents were in the lowest income group in 2001, 21% of those who earned at least a bachelor's degree, 17% of those with an associate degree, and 13% of those with only a high school diploma had reached the highest income quartile themselves 10 years later.

– Among high school sophomores who came from the lowest income group and whose highest degree was a high school diploma, 45% were in the lowest income quartile themselves 10 years later, compared with 32% of those who earned an associate degree and 29% of those with at least a bachelor's degree.

– Among high school sophomores whose parents were in the highest income quartile, 27% of those with only a high school diploma were in the lowest income quartile and 21% were in the highest income quartile as young adults — about the same percentages as among those from low-income backgrounds who earned at least a bachelor's degree (29% and 21%, respectively).

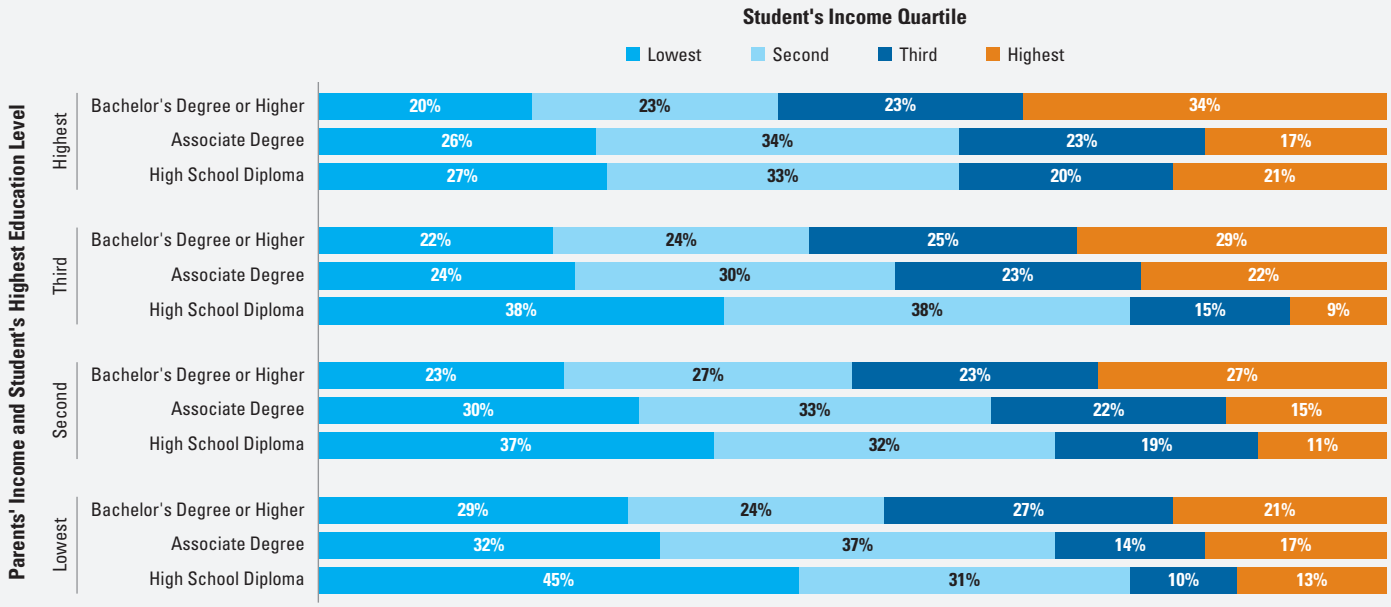
## ALSO IMPORTANT:

– The earnings shown here represent early career earnings and may not provide a full picture of the relationship between parents' income and children's economic outcomes. Studies that examine the relationship between parents' income and children's income as adults show similar results. For example, Pew Charitable Trusts found that 47% of adults without a bachelor's degree who grew up in the bottom family income quintile remained in the bottom quintile, compared with just 10% of those with at least a bachelor's degree. (Pew Charitable Trusts, 2012, *Pursuing the American Dream: Economic Mobility Across Generations*, Figures 3 and 18)

– There is geographic variation in upward mobility within the United States, with less mobility in metropolitan areas in the Southeast and the industrial Midwest and the highest mobility in metropolitan areas in the Northeast, the Great Plains, and the West. (Chetty, Hendren, Kline, & Saez, 2013)

– The high level of economic inequality in the United States is widely viewed as an important explanation for the relatively low level of social mobility. Other explanations include inequality in childhood educational opportunities and disparities in the resources that parents at different levels of the income distribution devote to enrichment activities for their children. (Krueger, 2012; Corak, 2013; Greenstone et al., 2013)

**FIGURE 2.15** Employment Income Quartile in 2011 by Parents' Income and Student's Education Level, High School Sophomores of 2002



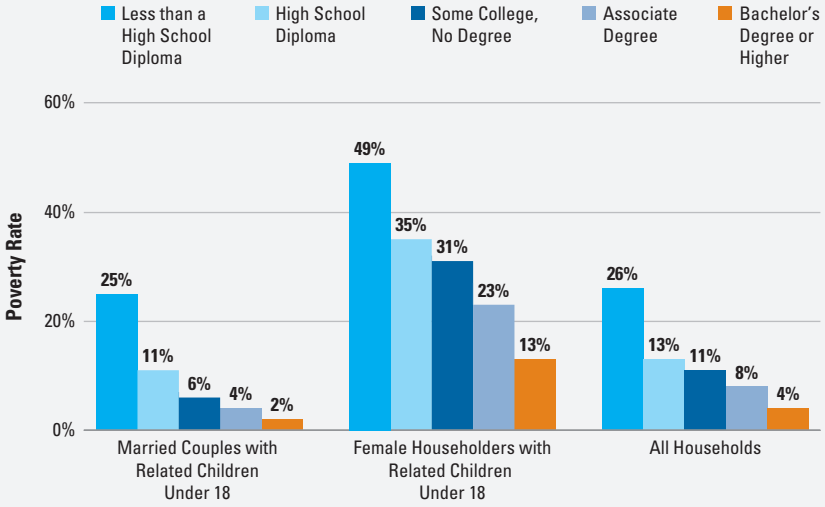

NOTES: Data are based on a nationally representative longitudinal study of students who were in 10th grade in 2002. Respondents who reported being currently enrolled in postsecondary education in 2011 were excluded from these calculations. The upper-income limits of the parents' income groups were: lowest (21% of students), $25,000; 2nd (32% of students), $50,000; 3rd (21% of students), $75,000. The upper-income limits of the students' earnings quartiles in 2011 were: lowest, $18,000; 2nd, $30,000; 3rd, $44,000. Those with no employment earnings were excluded from the calculations.

SOURCES: NCES, Education Longitudinal Study of 2002; PowerStats calculations by the authors.

# Poverty

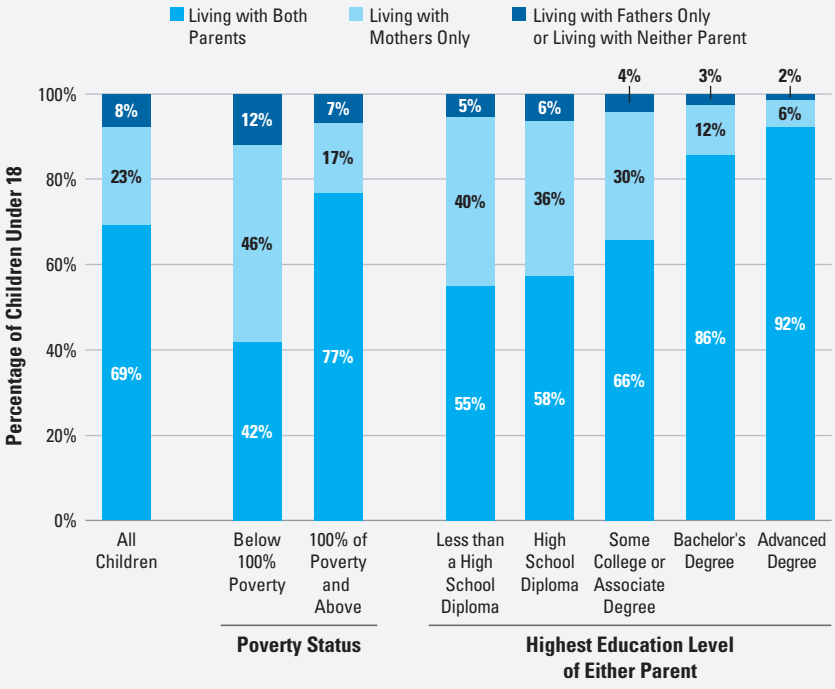
For all household types, the poverty rate falls as the level of education increases. For example, the 2015 poverty rates for adults living in households headed by unmarried females with children were 13% for bachelor's degree recipients and 35% for high school graduates.

**FIGURE 2.16A** Percentage of Individuals Age 25 and Older Living in Households in Poverty, by Household Type and Education Level, 2015




SOURCES: U.S. Census Bureau, Current Population Survey, 2016 Annual Social and Economic Supplement; calculations by the authors.

**FIGURE 2.16B** Living Arrangements of Children Under 18 Years of Age, by Poverty Status and Highest Education of Either Parent, 2015




NOTES: In 2015, 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, 2015, Table C-3.

– Within each education level, individuals living in households headed by unmarried females with children under 18 have much higher poverty rates than those living in other household types. For example, the 2015 poverty rate for associate degree recipients was 23% for those living in households headed by unmarried females with children, compared with 8% overall for this education group.

– The 2015 poverty rate for individuals with some college but no degree was 11%, compared with 13% for high school graduates with no college experience.

– In 2015, 69% of all children under age 18 lived with both parents. Of children under 18, 42% of those below 100% poverty thresholds lived with both parents, compared with 77% of those above 100% poverty thresholds.

– The percentage of children under age 18 who lived with both parents ranged from 55% for those whose parents did not graduate from high school and 58% of those whose parents had a high school diploma to 92% of those whose parents had an advanced degree.

## ALSO IMPORTANT:

– In 2015, 6% of all adults and 16% of adults below the poverty threshold lived in households headed by unmarried females with children. (U.S. Census Bureau, Current Population Survey, 2016 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 2015, the poverty threshold was $12,331 for a single person under age 65, $19,096 for a family of three with two children, and $24,036 for a family of four with two children. (U.S. Census Bureau, Poverty Thresholds, 2015)

– 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 2016, the poverty guidelines for families of four issued by the Department of Health and Human Services was $24,300. (U.S. Department of Health and Human Services, 2016)

# Public Assistance Programs

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

– Medicaid provides health insurance to many low-income families and other eligible individuals. The National School Lunch Program provides free or reduced-price lunches to eligible school children. The Supplemental Nutrition Assistance Program (SNAP) subsidizes food purchases for eligible low-income households. Housing assistance includes public housing or rent subsidies for eligible low-income households.

– In 2015, 8% of individuals age 25 and older with associate degrees lived in households that benefited from SNAP, compared with 13% of those with only a high school diploma.

– In 2015, 29% of adult high school graduates and 47% 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 12% for those with at least a four-year college degree.

– In 2015, 4% of adult high school graduates and 8% of those without a high school diploma lived in households that received housing assistance. Participation rates were 3% for those with some college but no degree, 2% for those with an associate degree, and 1% for those with at least a four-year college degree.

## ALSO IMPORTANT:

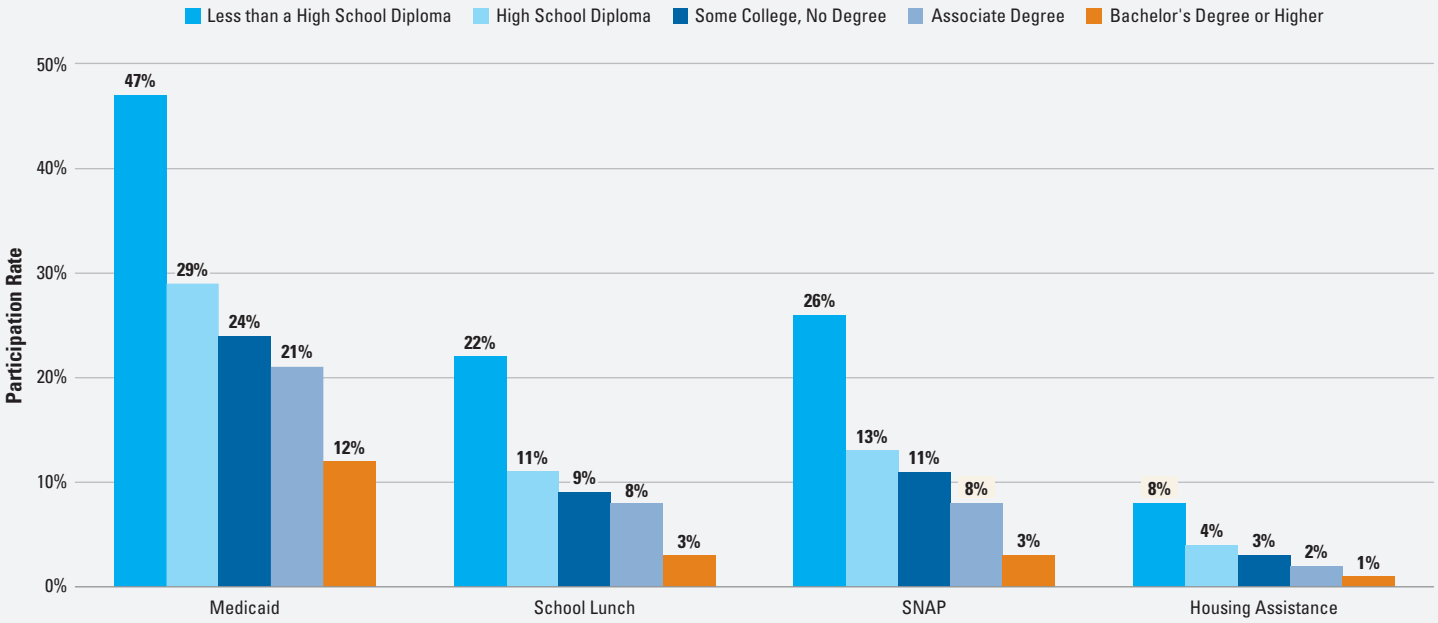
– The participation rates for Medicaid, SNAP, and the school lunch program were higher in 2015 than in 2011, 2008, and 2005. For example, SNAP participation rose from 6% in 2005 to 13% in 2015 for high school graduates, from 4% to 8% for individuals with an associate degree, and from 1% to 3% for those with a bachelor's degree or higher. (Baum & Ma, 2007; Baum, Ma, & Payea, 2010 and 2013)

– In fiscal year 2016, 44.3 million individuals in 21.9 million households received an average of $126 ($255 per household) per month in SNAP benefits. (U.S. Department of Agriculture Food and Nutrition Service, http://www.fns.usda.gov/pd/supplemental-nutrition-assistance-program-snap)

– In 2013-14, 25.6 million children — 52% of all those enrolled in U.S. public schools — were eligible for free or reduced-price lunches. (NCES, *Digest of Education Statistics 2015*, Table 204.10)

– A 2009 study from the RAND Corporation estimated that the discounted lifetime savings to taxpayers from reduced spending on social programs that were the result of the increase from a high school diploma to some college ranged from $9,000 per white man to $22,000 per black woman (in 2002 dollars). Estimated reductions that were the result of the increase from some college to a bachelor's degree ranged from $9,000 per white man to $32,000 per black woman. (Carroll & Erkut, 2009, Tables 7.3 and 7.4)

**FIGURE 2.17** Percentage of Individuals Age 25 and Older Living in Households that Participated in Various Public Assistance Programs, by Education Level, 2015

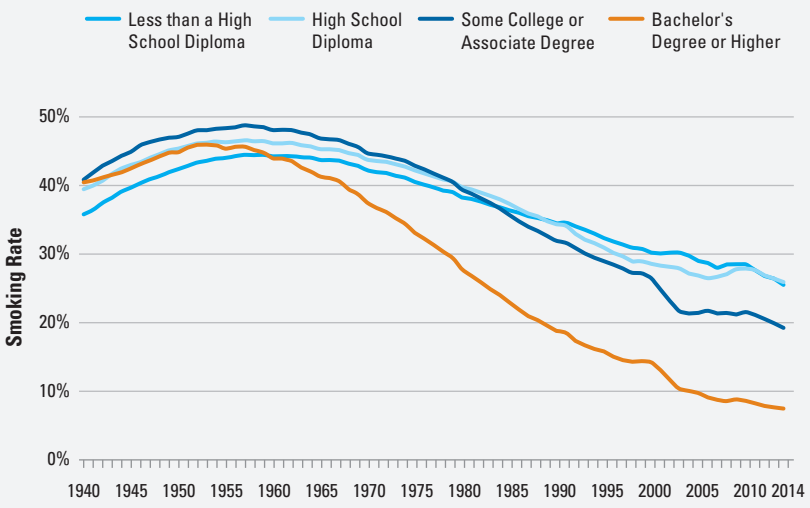



SOURCES: U.S. Census Bureau, Current Population Survey, 2016 Annual Social and Economic Supplement; calculations by the authors.

# Smoking

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

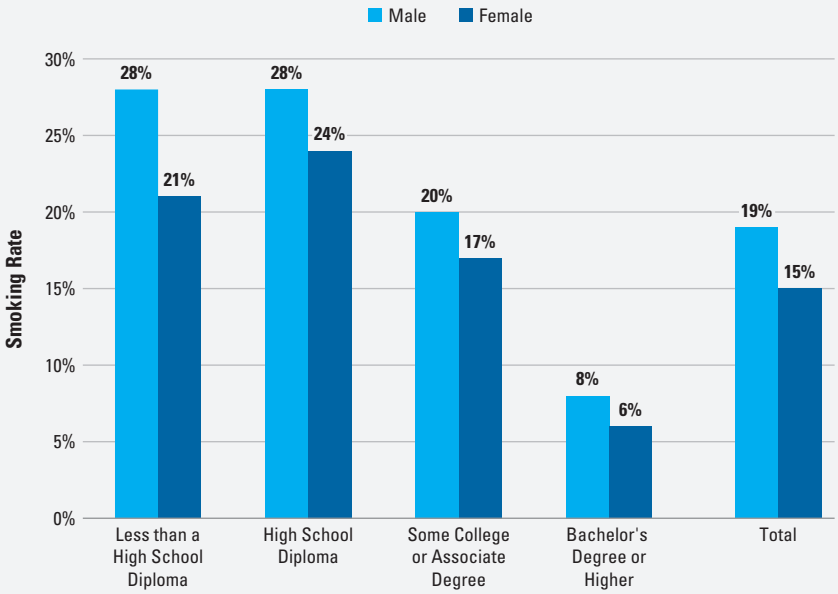
**FIGURE 2.18A** Smoking Rates Among Individuals Age 25 and Older, by Education Level, 1940 to 2014




NOTE: Data for 1999 through 2014 are three-year moving averages.

SOURCES: de Walque, 2004; National Center for Health Statistics (NCHS), *Health, United States 2015,* Table 48; calculations by the authors.

**FIGURE 2.18B** Smoking Rates Among Individuals Age 25 and Older, by Gender and Education Level, 2014




SOURCE: NCHS, *Health, United States, 2015*, Table 48.

– Across all education levels, smoking rates in the United States increased in the 1940s, peaked in the 1950s, and began a steady decline in the 1960s, but college-educated adults gave up smoking much more rapidly than others.

– College graduates were at least 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. This gap doubled to 14 percentage points by 1984, and grew to 18 percentage points by 2014 when smoking rates were 8% and 26% for four-year college graduates and high school graduates, respectively.

– Within each education level, males are more likely to smoke than females. For example, 28% of males with a high school diploma smoked in 2014, compared to 24% of females. Among those with at least a bachelor's degree, 8% of males and 6% of females smoked.

## ALSO IMPORTANT:

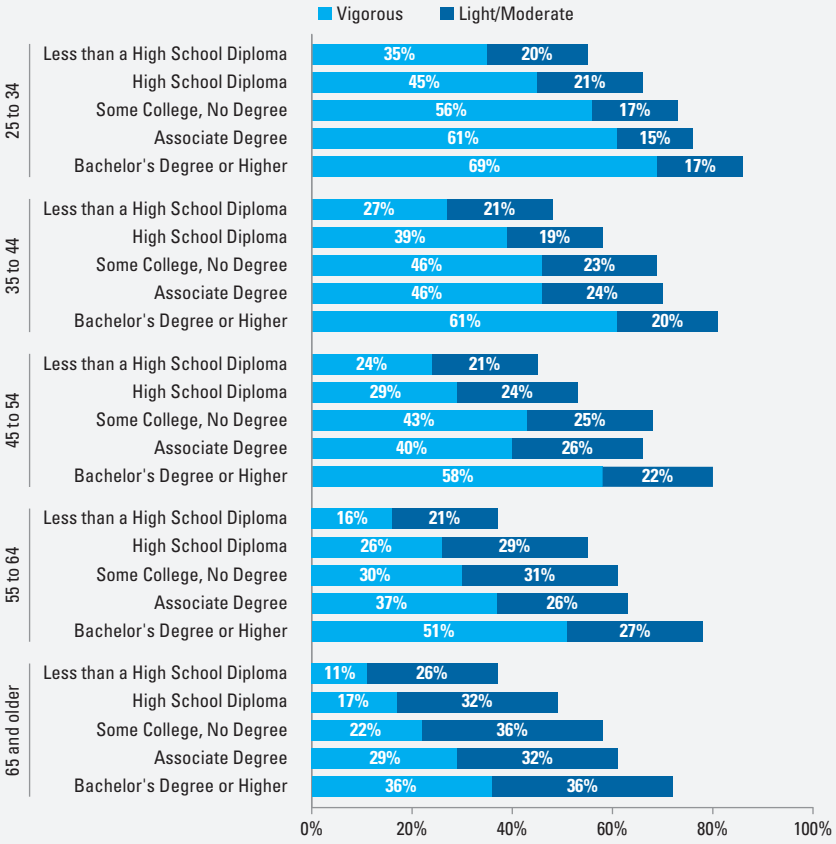
– Research suggests that higher levels of education are not just correlated with lower smoking rates, but also cause declines in smoking. (de Walque, 2004; Grimard & Parent, 2007; Rosenbaum, 2012)

– In their analysis of the positive relationship between education and health outcomes, much of which is explained by differences in behaviors, Cutler & Lleras-Muney (2010) find that income, health insurance, and family background account for about 30% of the differences. Knowledge and measures of cognitive ability explain an additional 30% of the differences in behaviors, with social networks explaining another 10%. The authors find that much of the difference seems to be driven by the fact that education raises cognition, which in turn improves behavior.

# Exercise

Among adults age 25 to 34, 69% of those with at least a bachelor's degree and 45% of high school graduates reported exercising vigorously at least once a week in 2014.

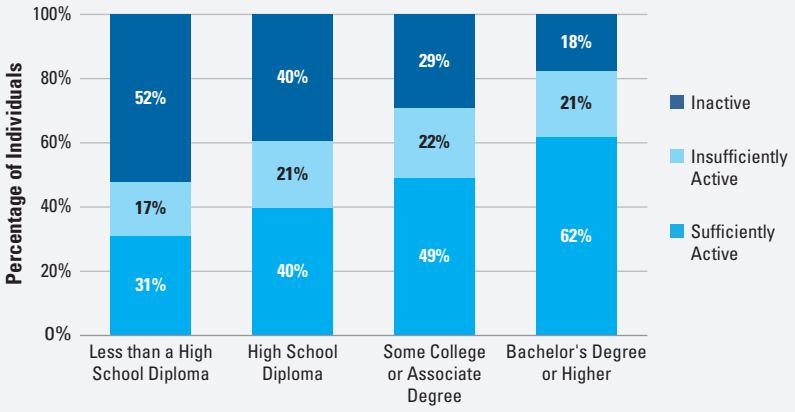
**FIGURE 2.19A** Exercise Rates Among Individuals Age 25 and Older, by Age and Education Level, 2014




NOTE: Not shown in the graph are individuals who reported that they never exercised, were unable to exercise, refused to answer the question, or did not know.

SOURCES: NCHS, National Health Interview Survey, 2014; calculations by the authors.

**FIGURE 2.19B** Percentage Distribution of Leisure-Time Aerobic Activity Levels Among Individuals Age 25 and Older, by Education Level, 2014




– Among 45- to 54-year-olds, 80% of individuals with at least a bachelor's degree and 53% of high school graduates reported some exercise. The proportion of individuals with at least a bachelor's degree who reported exercising vigorously was twice the rate for individuals with a high school diploma (58% vs. 29%).

– Exercise rates decline with age at all levels of education, but the proportion of individuals age 65 and older with at least a bachelor's degree who reported exercising vigorously is about the same as that of 25- to 34-year-olds without a high school diploma.

– In 2014, 62% of individuals with at least a bachelor's degree and 40% of high school graduates reported meeting the federal guidelines for physical activity of at least 2½ hours a week of moderate or 1¼ hours of intensive aerobic activity.

## ALSO IMPORTANT:

– Numerous studies investigating the relationship between education and health support the idea that the skills, attitudes, and thought patterns fostered by education lead to more responsible health-related behaviors. (Mirowsky & Ross, 2003)

– Improvements in health are associated with each additional year of schooling, but in contrast to the relationship between education and wages, there does not appear to be a "sheepskin" effect with the completion of a degree having a bigger impact than just the completion of an additional year of education. (Cutler & Lleras-Muney, 2006)

– Estimates suggest that additional health care costs in the United States in 2000 attributable to physical inactivity were about $200 billion. (Sari, 2009)

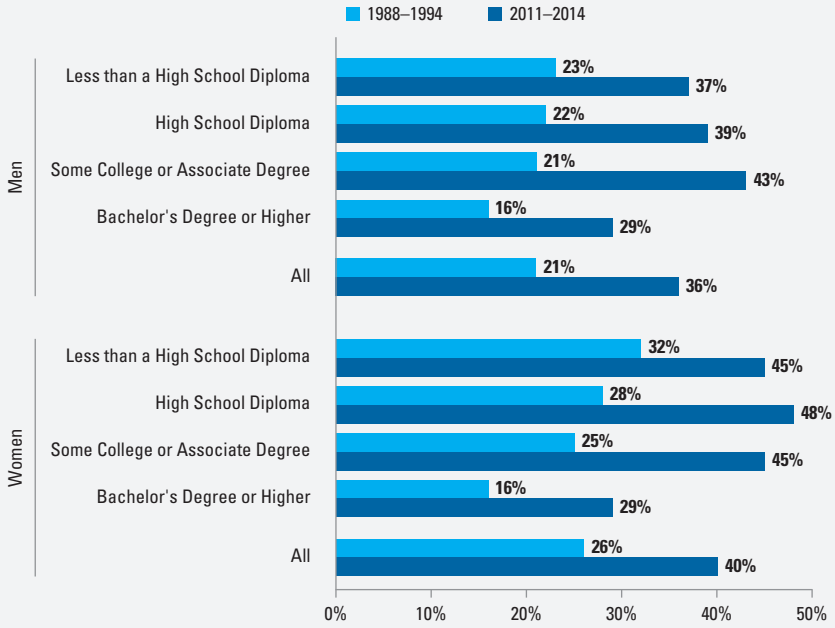
NOTES: "Inactive" is participating in no leisure-time aerobic activity that lasted at least 10 minutes. "Insufficiently Active" is participating in aerobic activities for at least 10 minutes but less than 150 minutes per week. "Sufficiently Active," which meets 2008 federal physical activity guidelines,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

SOURCE: NCHS, Tables of Summary Health Statistics for U.S. Adults: 2014, Table A-14a.

# Obesity

Over the 2011–2014 time period, when 36% of all men and 40% of all women age 25 and over were defined as obese, 29% of men and women with at least a bachelor's degree were obese.

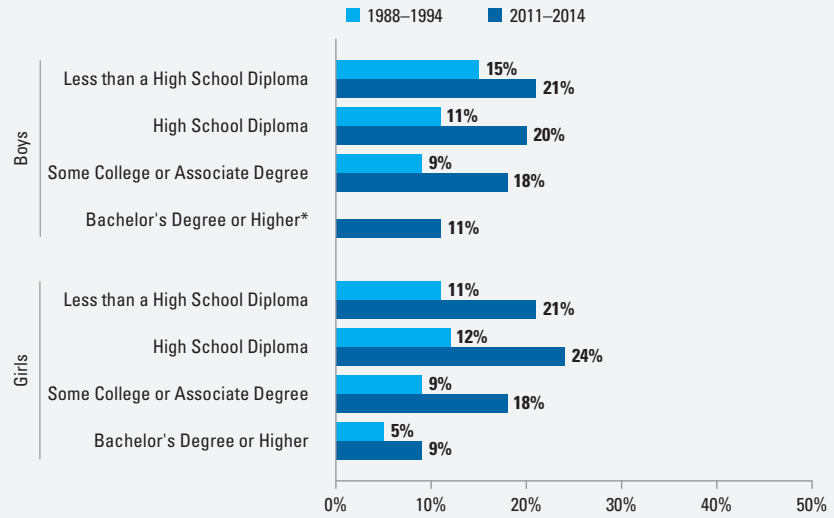
**FIGURE 2.20A** Obesity Rates Among Adults Age 25 and Older, by Gender and Education Level, 1988–1994 and 2011–2014




NOTES: Data from 1988 to 1994 were combined to generate estimates for 1988–1994; data from 2011 to 2014 were combined to generate estimates for 2011–2014. Adult obesity is defined as body mass index (BMI) of 30 or higher, equivalent to being at least about 30 pounds overweight at average heights.

SOURCES: NCHS, *Health, United States, 2011,* Figure 37; NCHS, National Health and Nutrition Examination Survey, 2011–2012 and 2013–2014; calculations by the authors.

**FIGURE 2.20B** Obesity Rates Among Children and Adolescents Age 2 to 19, by Gender and Parents' Education Level, 1988–1994 and 2011–2014




*For boys from households with at least a bachelor's degree, the variation within the group in 1988–1994 is too large to generate a reliable estimate.

– Among those with less than a bachelor's degree, higher levels of education are not associated with lower levels of obesity.

– Obesity rates increased dramatically from 1988–1994 to 2011–2014 for both men and women at all education levels. The largest increases were for high school graduates and those with some college or an associate degree — 17 to 22 percentage points for men and 20 percentage points for women. In comparison, the increases were 13 percentage points for men and women with at least a bachelor's degree.

– From 2011 to 2014, 11% of boys and 9% of girls age 2 to 19 whose parents had at least a bachelor's degree were obese. Obesity rates were much higher for children whose parents had lower levels of education.

– The gap between the obesity rates of girls whose parents had a high school diploma and those whose parents had at least a bachelor's degree increased from 7 percentage points (12% vs. 5%) between 1988 and 1994 to 15 percentage points (24% vs. 9%) between 2011 and 2014.

## ALSO IMPORTANT:

– At least a portion of the correlation between obesity and education levels is likely due to income and the prices of different types of food. Differences in exercise patterns and in dietary knowledge and choices are also relevant.

– Cawley & Meyerhoefer (2012) find that adults who are obese incur considerably higher medical costs than those who are not.

– Research indicates that disparities in obesity by socioeconomic status increase with age. One estimate suggests that an additional year of maternal education reduces obesity by an average of 1.2 percentage points and that this effect increases by 0.07 points per year of age. (Baum & Ruhm, 2009)

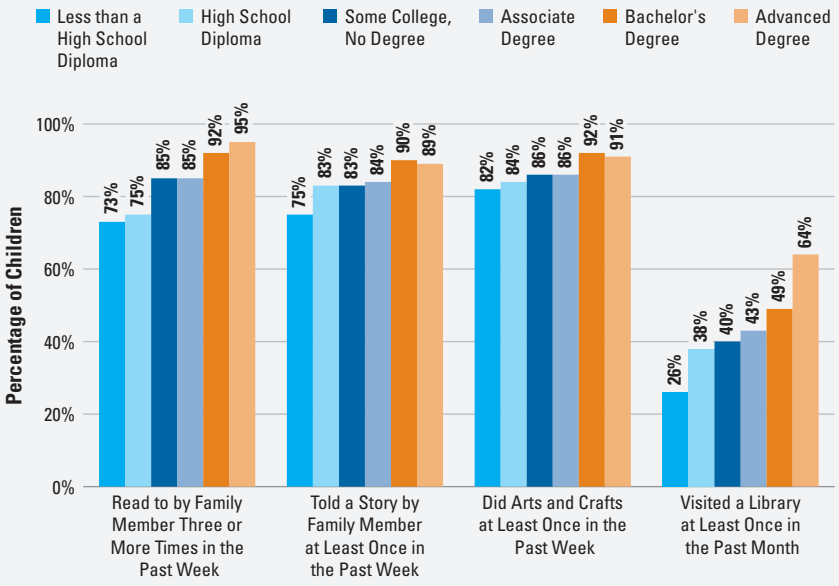
NOTE: Childhood obesity is defined as a BMI at or above the 95th percentile for children of the same gender and age in months, based on the 2000 CDC growth charts of the United States.

SOURCES: NCHS, *Health, United States, 2011*, Figure 25; NCHS, National Health and Nutrition Examination Survey, 2011–2012 and 2013–2014; calculations by the authors.

# Parents and Children

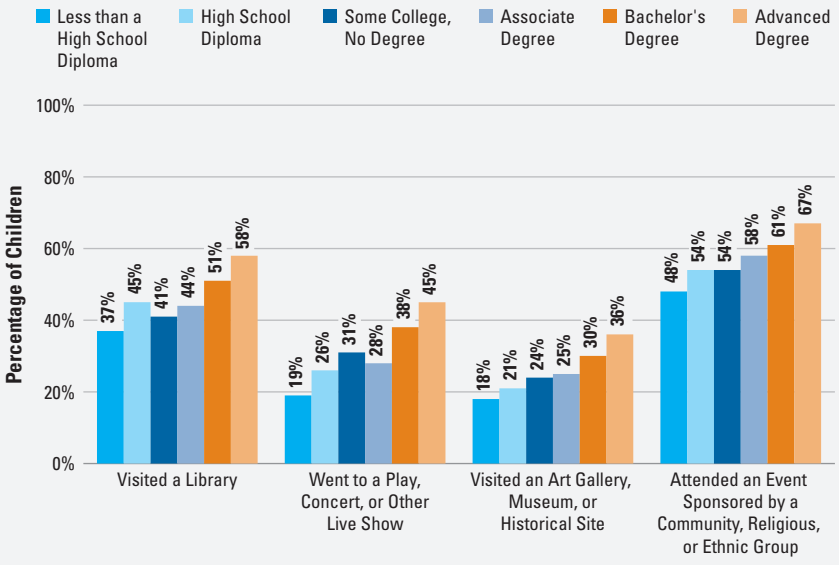
Children of parents with higher levels of educational attainment are more likely than other children to engage in a wide variety of educational activities with their family members.

**FIGURE 2.21A** Percentage of 3- to 5-Year-Olds Participating in Activities with a Family Member, by Parents' Education Level, 2012




SOURCE: NCES, *Digest of Education Statistics 2014*, Table 207.10.

**FIGURE 2.21B** Percentage of Kindergartners Through Fifth-Graders Participating in Activities with a Family Member in the Past Month, by Parents' Education Level, 2012




SOURCE: NCES, *Digest of Education Statistics 2014*, Table 207.20.

– In 2012, children age 3 to 5 whose parents had an advanced degree were 20 percentage points more likely to have been read to three or more times in the last week than children whose parents had only a high school diploma (95% vs. 75%).

– In 2012, children age 3 to 5 whose parents had a bachelor's degree were 11 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 (49% vs. 38%).

– Among kindergarteners to fifth-graders whose parents' highest education was a bachelor's degree, 51% had visited a library in the past month. This compares with 45% of children whose parents had only a high school diploma and 58% of those whose parents held an advanced degree.

– About one-fifth 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, but 54% of children in this group had attended an event sponsored by a community, religious, or ethnic group. This compares with 30% and 61%, respectively, of children whose parents' highest level of education was a bachelor's degree.

## 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."

# Civic Involvement

The percentage of individuals who perform unpaid volunteer activities increases with level of education. Among adults age 25 and older, 16% of those with a high school diploma volunteered in 2015, compared with 39% of individuals with at least a bachelor's degree.

**FIGURE 2.22A** Percentage of Individuals Age 25 and Older Who Volunteered, by Gender and Education Level, 2015

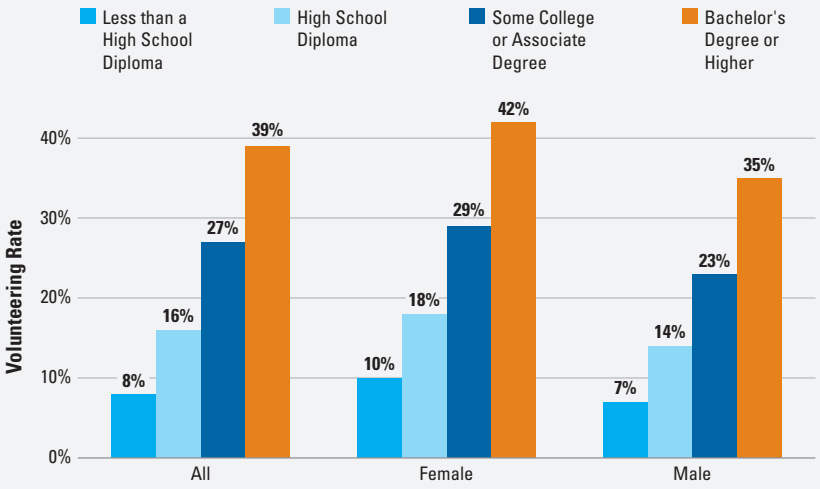
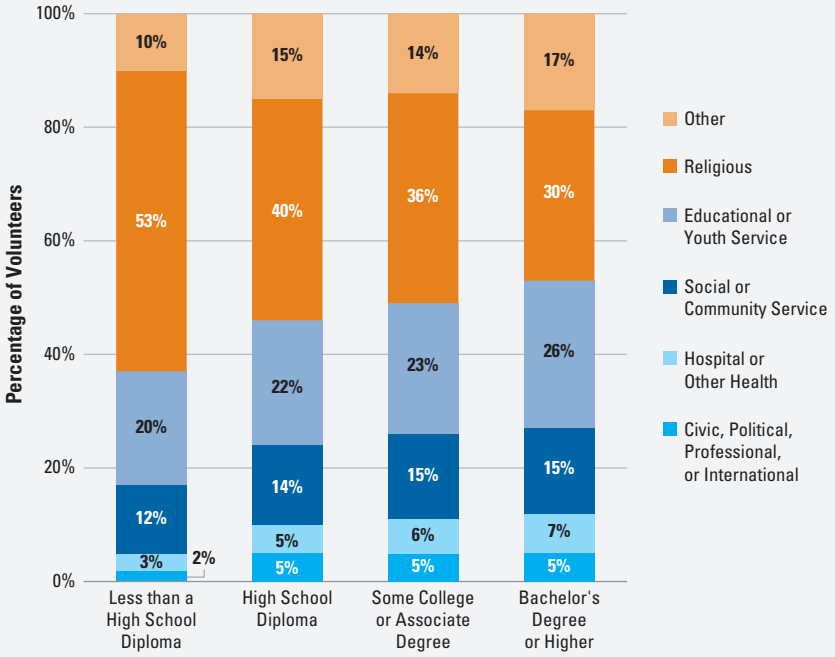



**FIGURE 2.22B** Percentage Distribution of Volunteers Age 25 and Older, by Type of Organization and Education Level, 2015




NOTES: Volunteers are defined as individuals who performed unpaid volunteer activities for organizations at any point from September 2014 through September 2015. Type of organization is defined as the organization for which the volunteer worked the most hours during the year. Percentages may not sum to 100 because of rounding.

SOURCE: Bureau of Labor Statistics, *Volunteering in the United States 2015*, Tables 1 and 4.

– At each education level, higher percentages of women than of men volunteered in 2015. Among adults with at least a bachelor's degree, 42% of women and 35% of men volunteered. The gender gap is smaller among individuals with a high school diploma (18% vs. 14%).

– At all levels of education, religious organizations receive the largest share of volunteers, but this share declines as education level increases.

## ALSO IMPORTANT:

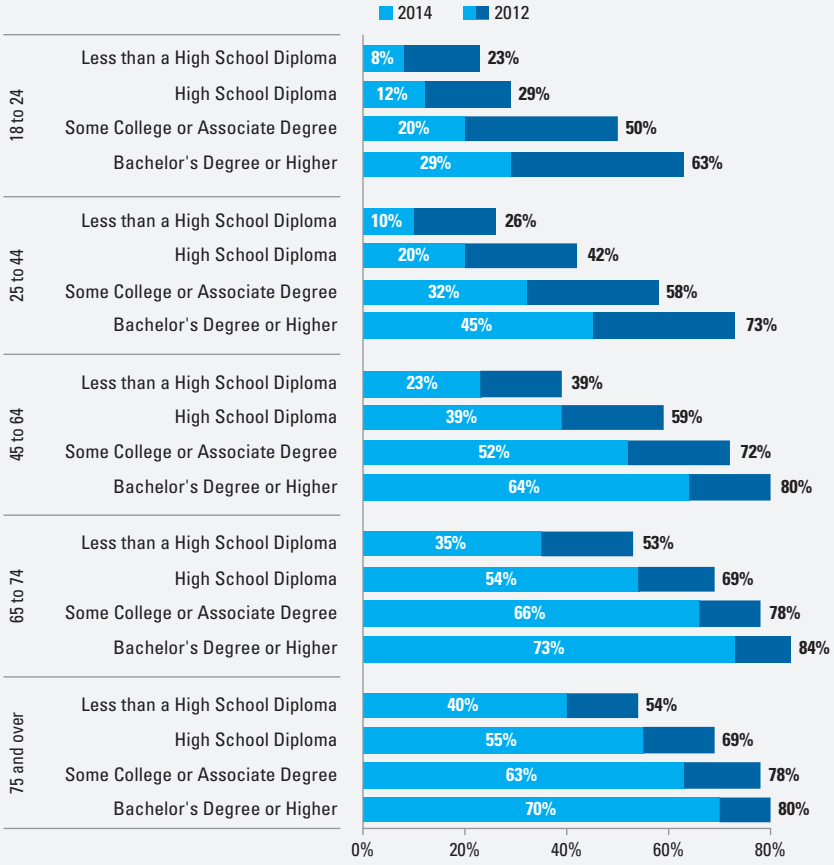
– As is the case with most of the indicators included in this report, the correlation seen here should not necessarily be interpreted as causation. Personal characteristics may make people more likely to pursue higher education and to volunteer. However, statistical analysis suggests that the actual 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)

– In 2015, volunteering was the most common among those age 35 to 44 (29%) and was the least common among those age 20 to 24 (18%). (Bureau of Labor Statistics, *Volunteering in the United States 2015*, Table 1)

# Voting

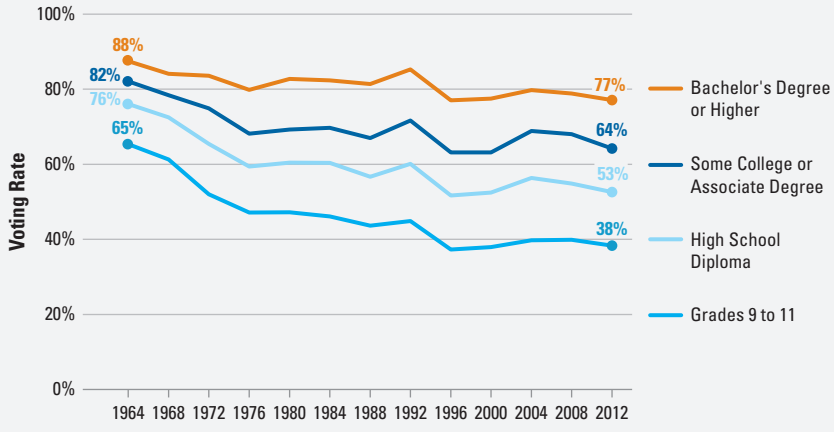
In the 2014 midterm election, the voting rate of 25- to 44-year-olds with at least a bachelor's degree (45%) was more than twice as high as the voting rate of high school graduates (20%) in the same age group.

**FIGURE 2.23A** Voting Rates Among U.S. Citizens, by Age and Education Level, 2012 and 2014




SOURCES: U.S. Census Bureau, Voting and Registration Tables, 2012 and 2014, Table 5; calculations by the authors.

**FIGURE 2.23B** Voting Rates Among U.S. Citizens During Presidential Elections, by Education Level, 1964 to 2012




– At all levels of education, voting rates increase with age, but the increase is generally greater for those with lower levels of education. In 2014, the voting rate of 45-to-64-year-old high school graduates was almost two times the rate for 25-to-44-year-old high school graduates. For those with at least a bachelor's degree, the voting rate was 1.4 times as high for the older group as for the younger group.

– Within each age group and education level, voting rates were much higher in the 2012 presidential election than in the 2014 midterm election.

– Between 1964 and 2012, voting rates during presidential elections declined across all education groups. Declines in voting rates were largest for those without a high school diploma (from 65% in 1964 to 38% in 2012) and smallest for those with at least a bachelor's degree (from 88% in 1964 to 77% in 2012).

– The gap between the voting rates of individuals with some college or an associate degree and high school graduates increased from 6 percentage points in 1964 to 13 percentage points in 2008 and was 11 percentage points in 2012. The gap between the voting rates of those with at least a bachelor's degree and those with a high school diploma rose from 12 percentage points in 1964 to between 23 and 25 percentage points since 1988.

## ALSO IMPORTANT:

– Within each age group, registration rates increase with education level. In 2014, the percentage of citizens not registered to vote (or not responding to the registration question) ranged from 16% of those age 65 to 74 with at least a bachelor's degree to 78% of those age 18 to 24 without a high school diploma. (U.S. Census Bureau, Voting and Registration in the Election of November 2014, Table 5; calculations by the authors)

– Only U.S. citizens are eligible to vote in presidential elections. In 2012, 8.6% of the U.S. population age 18 and older were noncitizens. (U.S. Census Bureau, Voting and Registration in the Election of November 2012, Table 5; calculations by the authors)

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

SOURCES: U.S. Census Bureau, Voting and Registration Tables, 1964 to 2012; calculations by the authors.

# References


Abel, J. R., & Deitz, R. (September 2016). *Underemployment in the Early Careers of College Graduates Following the Great Recession*. New York: Federal Reserve Bank of New York.

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, C. L., & Ruhm, C. J. (2009). Age, Socioeconomic Status, and Obesity Growth. *Journal of Health Economics*, 28(3), 635–648.

Baum, S., & Ma, J. (2007). *Education Pays 2007: The Benefits of Higher Education for Individuals and Society*. New York: The College Board.

Baum, S., Ma, J., & Payea, K. (2010). *Education Pays 2010: The Benefits of Higher Education for Individuals and Society*. New York: The College Board.

Baum, S., Ma, J., & Payea, K. (2013). *Education Pays 2013: The Benefits of Higher Education for Individuals and Society*. New York: The College Board.

Baum, S., Kurose, C., & Ma, J. (2013). *How College Shapes Lives: Understanding the Issues*. New York: The College Board.

Brand, J. E., & Xie, Y. (2010). Evidence for Negative Selection in Heterogeneous Economic Returns to Higher Education. *American Sociological Review*, 75(2), 273–302.

Card, D. (2001). Estimating the Return to School: Progress on Some Persistent Econometric Problem. *Econometrica*, 69(5), 1127–1160.

Carroll, S., & Erkut, E. (2009). *The Benefits to Taxpayers from Students' Educational Attainment*. Santa Monica, CA: RAND Corporation.

Cawley, J., & Meyerhoefer, C. D. (2012). The Medical Care Costs of Obesity: An Instrumental Variables Approach. *Journal of Health Economics*, 31(1), 219–230.

Chetty, R., Hendren, N., Kline, P., & Saez, E. (2013). *The Economic Impacts of Tax Expenditures: Evidence from Spatial Variation Across the U.S.* The Equality of Opportunity Project.

Corak, M. (2013). Income Inequality, Equality of Opportunity, and Intergenerational Mobility. *Journal of Economic Perspectives*, 27(2), 79–102.

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.

Davis, C., et al. (2015). *Who Pays? A Distributional Analysis of the Tax Systems in All 50 States* (4th ed.). Washington, DC: Institute on Taxation and Economic Policy.

Dee, T. S. (2004). Are There Civic Returns to Education? *Journal of Public Economics*, 88(9–10), 1697–1720.

Dynarski S., & Scott-Clayton, J. (2013). Financial Aid Policy: Lessons from Research. *The Future of Children*, 23(1), 67–91.

de Walque, D. (2004). Education, Information, and Smoking Decisions: Evidence from Smoking Histories, 1940–2000 (World Bank Policy Research Working Paper No. 3362).

Goldin, C., & Katz, L. F. (2008). *The Race Between Education and Technology*. Cambridge, MA: Harvard University Press.

Greenstone, M., Looney, A., Patashnik, J., & Yu, M. (June 2013). *Thirteen Economic Facts About Social Mobility and the Role of Education*. Washington, DC: Hamilton Project, the Brookings Institution.

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.

Goodman, J., Smith, J., & Hurwitz, M. (2015). Access to Four-Year Public Colleges and Degree Completion (National Bureau of Economic Research Working Paper No. 20996).

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.

Hout, M. (2012). Social and Economics Returns to College Education in the United States. *Annual Review of Sociology*, 38(1), 379–400.

Internal Revenue Service. (2014). Statistics of Income Tax Stats, 2014 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.

Krueger, A. B. (Jan. 12, 2012). The Rise and Consequences of Inequality in the United States. Washington, DC: Council of Economic Advisers.

Lochner, L. (2011). Nonproduction Benefits of Education: Crime, Health, and Good Citizenship (National Bureau of Economic Research Working Paper No. 16722).

Mirowsky, J., & Ross, C. E. (2003). *Education, Social Status, and Health*. Somerset, NY: Aldine de Gruyter.

Oreopoulos, P., & Petronijevic, U. (2013). Making College Worth It: A Review of Research on the Returns to Higher Education (National Bureau of Economic Research Working Paper No. 19053).

Oreopoulos, P., & Salvanes, K. (2011). Priceless: The Nonpecuniary Benefits of Schooling. *Journal of Economic Perspectives*, 25(1), 159–184.

Organisation for Economic Co-operation and Development (OECD). (2016). *Education at a Glance 2016*. Paris, France: OECD.

Ost B., Pan, W., & Webber, D. (2016). The Returns to College Persistence for Marginal Students: Regression Discontinuity Evidence from University Dismissal Policies (Cornell Higher Education Research Institute Working Paper No. 171).

Pew Charitable Trusts. (2012). *Pursuing the American Dream: Economic Mobility Across Generations*. Washington, DC: The Pew Charitable Trusts.

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.

Sari, N. (2009). Physical Inactivity and Its Impact on Health Care Utilization. *Health Economics*, 18(8), 885–901.

Shapiro, D., Dundar, A., Wakhungu, P.K., Yuan, X., & Harrell, A. (July 2015). *Transfer and Mobility: A National View of Student Movement in Postsecondary Institutions, Fall 2008 Cohort* (Signature Report No. 9). Herndon, VA: National Student Clearinghouse Research Center.

Turner, L. J. (2016). The Returns to Higher Education for Marginal Students: Evidence from Colorado Welfare Recipients. *Economics of Education Review*, 51: 169–184.

U.S. Census Bureau. (2016). Annual Social and Economic Supplement of the Current Population Survey. Suitland, MD: U.S. Census Bureau.

U.S. Department of Health and Human Services. (2016). The 2016 HHS Poverty Guidelines. Washington, DC: U.S. Department of Health and Human Services.

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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