The Future of Good Jobs

Projections through 2031

by Jeff Strohl, Artem Gulish, and Catherine Morris

GEORGETOWN UNIVERSITY
McCourt School of Public Policy
CENTER ON EDUCATION AND THE WORKFORCE

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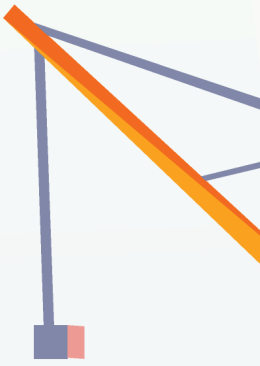

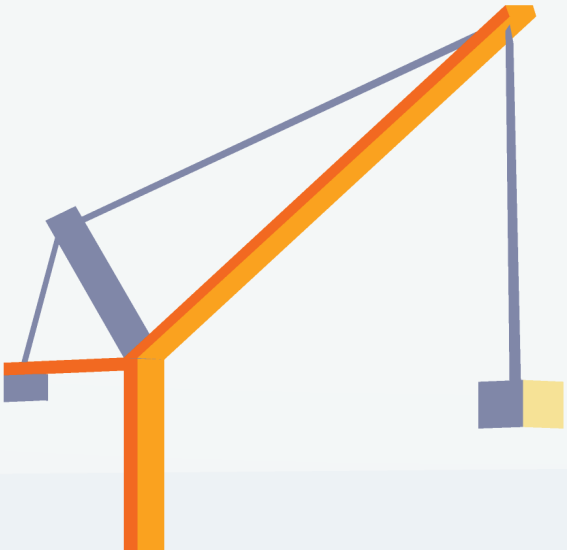

Foreword

Georgetown University's Center on Education and the Workforce (CEW) brings us good news about the future: The number of good jobs in the US will grow by more than 20 percent between 2021 and 2031. These jobs pay a median of $74,000 for workers ages 25–44, and $91,000 for those ages 45–64. These are living-wage or better jobs. This is spiriting news at a time when positivity about historically low unemployment is tempered by frustrations over job quality, income volatility, and housing affordability.

But the authors of the report also make clear that in order to realize this vision of a thriving future, the nation will need to continue to progress in helping young people meet a rising bar of expectations. Higher education, lifelong learning, and skills training in in-demand fields will be essential to success in the evolving job market.

At JPMorganChase, we are investing to ensure that more people can achieve economic security and thrive. This report provides extremely useful guidance for those efforts in the US, encouraging a twin focus on helping more low-income students complete bachelor's degrees and strengthening the middle-skills pathway to good jobs by helping community colleges, workforce-development programs, unions, and other stakeholders collaborate with industry to design high-quality training for in-demand jobs.

All of us involved in economic-mobility work should welcome this new report, which allows us to quiet the noise of the college vs. skills debate and hear this signal: the labor market continues to — indeed, *will* continue to — place a premium on education and training beyond high school, with bachelor's and advanced degrees providing the surest path to a good job, along with well-selected middle-skills pathways.

JPMorganChase believes firmly that a bachelor's degree should not be — and is not — the only path to an attractive career. Business leaders have an important role to play in this respect, to both ensure we are not inflating job requirements to include degrees or credentials when they are unnecessary, as well as to engage with educators and community partners on the knowledge, skills, and behaviors that are critical to worker success. We should also be clear-eyed about the data: CEW projects that 79 percent of jobs on the bachelor's degree pathway will be good jobs, far and away the highest good-jobs rate among the three pathways.

This report shows that those with a high school diploma or less will see a decline in good job opportunities and a narrowed path to economic security. We need to ensure that high school graduates find a positive next step off the commencement stage.

The nuance comes in the middle: 52 percent of jobs on the middle-skills pathway are expected to be good jobs in 2031. We are talking about credentials beyond a high school diploma, but not a bachelor's degree (e.g., associate's degrees, certificates, and certifications). Here, program choice matters enormously.

Careers in construction and extraction will provide the greatest number of new good jobs for those on the middle-skills pathway. Skilled trades were always a solid career option, but they are even more promising now due to massive public and corporate investment in infrastructure and the transition to a low-carbon economy.

The right associate's degree or certification can be a viable route to a good career in the trades, tech, management, or healthcare. Details matter enormously: the credential has to be a high-quality one that prepares somebody with the right skills for an in-demand job, and ideally with some work-based learning experience baked in. The onus is on community college leaders, in particular, to ensure we are offering the credentials that actually lead to good jobs. It is not an easy task and cannot be done by the colleges alone. More collaboration from local companies in building quality programs would be a huge help.

Characteristically for a CEW report, we get all the data detail we could want. The report delves into specific occupational groups, revealing which sectors will experience growth, those that may face challenges, and which occupations offer the most opportunity on each of the bachelor's degree, middle-skills, and high school pathways.

The report also touches on some of the factors that will determine how closely reality matches the forecast, foremost among them demographics (the aging population, retiring baby boomers), and artificial intelligence.

The impending retirements of baby boomers should create a surge in demand for skilled workers across various sectors. The impact of AI is trickier to predict. Historically, the adoption of new technologies has increased the demand for cognitive and analytical skills, which would point to an even stronger preference for bachelor's degree candidates in the near future. On the other hand, some initial studies of industry deployment of generative AI tools have shown that they add more value to tasks performed by workers with lower skill levels, and could close the skills gap between those with degrees and those without, shifting hiring demand to lower-cost middle-skills workers. In either case, we will need researchers like those at CEW to help us understand the emergent workforce implications of AI, and companies like JPMorganChase to continue to provide clear demand signals to the market.

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Cheers,
Matthew Muench
Head of Jobs & Skills, JPMorganChase Global Philanthropy

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Introduction

A flourishing society is one that allows individuals to live to their fullest potential. In our society, such a life most often rests on access to a good job — or, one that pays a family-sustaining wage. Our future strength as a nation relies on extending good job opportunities to more workers, and in so doing, supporting their ability to engage in meaningful personal and professional pursuits. Good job opportunities are constantly in flux: As the economy evolves, so does the good jobs landscape. In this report, we will outline the future of good jobs into 2031.

Although the COVID-19 pandemic has receded into the rearview mirror, the future of the economy is not yet settled. The baby boomer generation is retiring and exiting the workforce. New technological advancements, such as generative artificial intelligence (AI), present the potential to rapidly disrupt many sectors of the economy. While the recent period of high inflation has mostly subsided without significantly damaging the labor market, a future recession — or the resurgence of inflation — cannot be ruled out.

Three Pathways to Good Jobs in 2031

By 2031, the number of good jobs in the US economy will grow to 87.8 million, up 21 percent from 2021. Good jobs will account for 62 percent of all jobs.

In 2031, the distribution of good jobs across the three educational pathways will be:

- 58.2 million good jobs will be on the bachelor's degree pathway, which will account for 66 percent of all good jobs. Seventy-nine percent of jobs on the bachelor's degree pathway will be good.
- 16.4 million good jobs will be on the middle-skills pathway, which will account for 19 percent of all good jobs. Fifty-two percent of jobs on the middle-skills pathway will be good.
- 13.2 million good jobs will be on the high school pathway, which will account for 15 percent of all good jobs. Thirty-six percent of jobs on the high school pathway will be good.

We define a good job as one that pays at least $43,000 and a median of $74,000 for workers ages 25–44 in 2022 dollars. For workers ages 45–64, a good job pays at least $55,000 and a median of $91,000 in 2022 dollars. Many of the good jobs referred to in this report pay well above the minimum earnings threshold and provide room for earnings growth with time. The overall median earnings for workers ages 25–64 who hold a good job are $82,000. A majority of workers in these jobs earn between $62,000 and $116,000.* These numbers reflect the national median and are adjusted at the state level to account for variance in cost of living.

Our projections of good jobs through 2031 are based on the Center's projections of all jobs in Carnevale et al., *After Everything*, 2023, and forecasts of the share of jobs that are good within 66 occupational groups and educational pathway combinations, using 1992–2020 trends, based on inflation-adjusted annual earnings.

* Georgetown University Center on Education and the Workforce estimates based on data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), 2021; adjusted for cost of living by state using US Bureau of Economic Analysis, SARPP Regional Price Parities by State (All Items Index), 2020, and converted to 2022 dollars using R-CPI-U-RS index.

Despite these uncertainties, our projections show that there will be substantially more good jobs by 2031 than there are today. From 2021 to 2031, the number of good jobs will jump from 72.6 million to 87.8 million, a net increase of 15.2 million. As a share of all jobs, good jobs will increase from 59 percent to 62 percent. Several factors contribute to this growth in good jobs, including slower growth in labor supply,[1] new technological developments that allow for greater productivity,[2] stronger growth among higher paying occupations,[3] and greater political pressures to deliver on job quality,[4] not just high levels of employment.

Several major themes are constants throughout this report:[5]

1 Educational attainment matters today, and will matter even more in the years ahead:

- The largest growth in good jobs over this decade[6] will be on the bachelor's degree pathway, including jobs that demand graduate degrees;
- The likelihood of obtaining a good job[7] will increase on the bachelor's degree pathway, and will decline on the high school and middle-skills pathways; and
- Roughly 8 out of 10 jobs on the bachelor's degree pathway will meet the earnings threshold of a good job, compared to half of jobs on the middle-skills pathway and just over a third of jobs on the high school pathway.

The Three Pathways to Good Jobs

- The **high school pathway** includes workers with a high school diploma or less. It also includes opportunities for workers with a high school diploma and some occupational training.
- The **middle-skills pathway** includes workers with more than a high school diploma but less than a bachelor's degree. These opportunities will be available primarily to people with associate's degrees or some college credit, but may also include workers with postsecondary certificates, licenses, and certifications.
- The **bachelor's degree pathway** includes workers with bachelor's degrees and advanced degrees: master's degrees, professional degrees, and doctoral degrees.

1 US Bureau of Labor Statistics, Economic Projections, Table 3.1, 2022.

2 Noy and Zhang, "Experimental Evidence on the Productivity Effects of Generative Artificial Intelligence," 2023; Holzer, "Understanding the Impact of Automation on Workers, Jobs, and Wages," 2022.

3 Carnevale et al., *After Everything*, 2023.

4 Aspen Institute, "Statement on Good Jobs," 2022.

5 The coverage of jobs in this report is based on workers ages 25–64. Except where indicated otherwise, the numbers in this report are based on Georgetown University Center on Education and the Workforce projections using Carnevale et al., *After Everything*, 2023, and US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), March Supplement, 1992–2020, adjusted for differences in cost of living by state using US Bureau of Economic Analysis, SARPP Regional Price Parities by State, 2020.

6 The time period referred to throughout this report is 2021–31.

7 We do not project changes in earnings but instead assume that the economy's structure and the nature of work will remain relatively stable and that trends driving the likelihood of having a good job that have been in place over the past few decades (1992–2020) will continue through 2031. For more details, see Appendix A.

2 While the bachelor's degree pathway offers the greatest opportunity, good jobs will still be available on the high school and middle-skills pathways:

- 16.4 million good jobs (19 percent of all good jobs) will be on the middle-skills pathway,
- 13.2 million good jobs (15 percent of all good jobs) will be on the high school pathway,

However, together, jobs available to workers on the high school and middle-skills pathways will account for just over a third of all good jobs.

3 Managerial and professional office occupations will be the largest source of good jobs in 2031:

- Collectively, the managerial and professional office occupations will add the largest number of good jobs (6.2 million) through 2031, and
- 84 percent of good managerial and professional office jobs will be on the bachelor's degree pathway.

4 Blue-collar occupations will remain an important source of good jobs for workers on the high school and middle-skills pathways:

- Blue-collar occupations will account for more than half of all good jobs on the high school pathway and nearly one-third of good jobs on the middle-skills pathway in 2031.
- However, only about half of blue-collar jobs will be good in 2031, and
- 6 out of 10 blue-collar jobs will be good on the middle-skills pathway compared to 4 out of 10 on the high school pathway.

5 Workers in STEM occupations will have the best chances of landing a good job in 2031, as 9 out of 10 STEM jobs will be good.

In addition to providing an overview of the good jobs landscape, this report also examines which occupations offer the best opportunity to workers on each educational pathway to secure a good job. We do this by introducing a concept of *promising occupations* — occupational groups that offer the most favorable odds of securing a good job to workers. In simple terms, promising occupations will offer better than a coin-flip chance that a job on a given educational pathway will be good and provide disproportionately more job opportunities to workers on that educational pathway.[8] There are promising occupations available to workers on every educational pathway. However, certain pathways offer greater chances of securing a good job than others. This analysis underscores that the bachelor's degree pathway will be the dominant route to a good job across occupations. More specifically, there will be 10 promising occupational groups on the bachelor's degree pathway, compared to five on the middle-skills pathway, and just one on the high school pathway.

8 See the box on the following page for more specific criteria that occupations have to meet to qualify as promising occupations and the list of promising occupations on each educational pathway.

Promising occupations

Academic credentials and occupational choice do not guarantee access to a good job. However, some occupations offer workers a better chance of attaining family-sustaining earnings, depending on the educational pathway. To help individuals and stakeholders identify these occupations we developed the concept of "promising occupations."

To be considered promising, an occupational group must meet two criteria:

- More than half of jobs in the occupational group are projected to be good for workers on a given educational pathway in 2031.
- The occupational group will employ a higher share of workers on a specific educational pathway than will the overall economy in 2031.

Promising occupational groups on the bachelor's degree pathway:

- Management
- Business and financial operations
- Healthcare professional and technical
- Education, training, and library
- Computer and mathematical science
- Architecture and engineering
- Life, physical, and social sciences
- Legal
- Community and social services
- Arts, design, entertainment, sports, and media

Promising occupational groups on the middle-skills pathway:

- Construction and extraction
- Healthcare professional and technical
- Protective services
- Installation, maintenance, and repair
- Production

Promising occupational groups on the high school pathway:

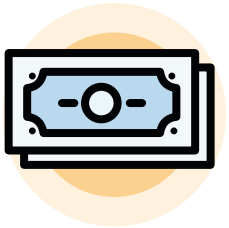
- Installation, maintenance, and repair

PART I

Trends Shaping the Good Jobs Landscape

While current indicators point to continued strength in the US labor market through 2031, several structural and cyclical factors could reinforce or undermine that picture. Fears of a recession are fading due to stabilized inflation, following the Federal Reserve's rapid interest rate increases. Additional long-term considerations with potential implications for the good jobs landscape include technological advancements and ongoing demographic shifts.

What makes a good job?



In this report, we define a good job as one that pays at least $43,000 for workers ages 25–44, in 2022 dollars. These jobs have median earnings of $74,000. For workers ages 45–64, a good job pays at least $55,000. These jobs have median earnings of $91,000. Many good jobs pay well above the minimum earnings threshold and provide room for growth toward higher earnings. The overall median earnings for people ages 25–64 who hold a good job are $82,000. A majority of workers in these jobs earn between $62,000 and $116,000.[9] Earnings are not forecast in this report for 2031. The specific future earnings thresholds for good jobs will depend on inflation and earnings growth.

Instead of projecting earnings, our forecasts are based on a projection of the share of good jobs, using inflation-adjusted trends. We used the growth rates in the number of jobs between 2021 and 2031 from our report *After Everything*[10] for 66 combinations of 22 occupational groups and three educational pathways to estimate the total number of jobs for workers ages 25–64 in 2031. Then, for each of the 66 combinations, using inflation-adjusted earnings, we estimated the 1992–2020 trends in the likelihood of having a good job (i.e., the share of all workers ages 25–64 that hold a good job). These trend data were then used to forecast the likelihood of having a good job for 2021–31 for each of the 66 combinations of occupational groups and educational pathways.[11]

9 These earnings reflect outcomes in the 25th to 75th percentile of our good jobs' threshold. Georgetown University Center on Education and the Workforce estimates based on data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), 2021, and US Bureau of Economic Analysis, SARPP Regional Price Parities by State (All Items Index), 2020; converted to 2022 dollars using R-CPI-U-RS index.

10 Carnevale et al., *After Everything*, 2023.

11 For more details on the methodology, including additional adjustments that were made in forecasting the likelihood of a good job for some combinations of occupational groups and educational pathways, see Appendix A.

Recognizing that the cost of living differs by state, our good job earnings threshold is adjusted for each state. The threshold varies from approximately $37,500 for workers ages 25–44 and $48,300 for workers ages 45–64 in Mississippi, to $47,900 for workers ages 25–44 and $61,600 for workers ages 45–64 in Hawaii (Table 1).

The absence of consistently available and comparable data capturing metrics on elements of job quality beyond pay led us to define good jobs based on earnings, but research underscores that other aspects of job quality often go hand in hand with higher earnings.[12] Data from the National Compensation Survey (NCS) show that workers in the highest wage quartile are substantially more likely than those in the lowest quartile to have access to multiple forms of corollary benefits. These include but are not limited to: employer-subsidized healthcare plans, retirement packages, dental care, short-term and long-term disability insurance, paid holidays, paid leave, childcare, flexible work schedules, employee assistance programs, and worker wellness programs.

TABLE 1. The minimum earnings threshold for good jobs varies depending on the cost of living in each state.

State	Good job threshold (Adjusted minimum earnings, in 2022$)	
	Workers ages 25–44	Workers ages 45–64
Highest good job thresholds		
Hawaii	$47,900	$61,600
District of Columbia	$47,700	$61,300
New Jersey	$47,600	$61,100
California	$47,200	$60,700
New York	$47,100	$60,600
Lowest good job thresholds		
Kentucky	$38,400	$49,400
Alabama	$38,200	$49,100
Arkansas	$38,200	$49,100
West Virginia	$37,600	$48,400
Mississippi	$37,500	$48,300

Source: Georgetown University Center on Education and the Workforce estimates based on data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), 2021, and US Bureau of Economic Analysis, SARPP Regional Price Parities by State (All Items Index), 2020. See Appendix B for the full list of all state good jobs thresholds.

As just one example of how the distribution of benefits skew towards higher earners, NCS data show that 89 percent of workers in the highest wage quartile have access to healthcare plans and retirement benefits, compared to only 30 percent of workers in the lowest quartile. Similarly, 23 percent of workers in the highest quartile have flexible work schedules, compared to just 8 percent of workers in the lowest quartile. And 63 percent of workers in the highest wage quartile have access to worker wellness programs, compared to only 25 percent of workers in the bottom quartile.[13] In short, although pay alone may seem a somewhat crude measure of job quality, it can be understood in part as a proxy for the many other benefits that some jobs offer and others do not.

12 These include benefits, job security, autonomy, career advancement, and scheduling flexibility, among others; Rothwell and Crabtree, *Not Just a Job,* 2019.

13 Georgetown University Center on Education and the Workforce analysis of data from Walsh and Beach, *National Compensation Survey*, 2021.

The looming demographic cliff will slow the growth of the US labor force.

The population in the United States is both aging more rapidly and growing more slowly than in prior decades. Both trends put downward pressure on the labor supply. With few exceptions, most notably in the early 1990s, the annual population growth in the US has been slowly declining for most of the last 60 years, from 1.4 percent in 1964 to 0.4 percent in 2022. Aside from the volatile years of the pandemic, this decline has particularly accelerated since 2000, when the annual population growth was 1.1 percent.[14] Furthermore, for the last several years, the only population group that has increased in size is those age 60 and over, whereas the size of all population groups younger than 60 has declined during that time.[15] By 2030, all baby boomers—who have been the backbone of the US labor force for the last 50 years[16]—will be older than 65.[17]

The share of workers who are 55 and older is expected to increase from around 23 percent in 2021 to almost 25 percent by 2031.[18] At that point one in five Americans will be age 65 or older.[19] After age 65 we expect many baby boomers to begin transitioning to retirement, either by leaving the labor force altogether or reducing the number of hours they work. Younger age cohorts entering the workforce will not be large enough to replace retiring baby boomers, in part because Americans have been having fewer children.[20] Peak US fertility occurred in the 1950s at around 120 births per 1,000 women; it dropped to 65–70 births per 1,000 women between 1980 and 2010,[21] and declined to 56 births per 1,000 women by 2020.[22] Additionally, immigration levels are currently insufficient to counteract these trends.[23]

These demographic trends also have consequences for college enrollments, which have been in a slow decline over the past decade. Enrollments peaked at over 29.5 million in the 2010–11 academic year, but they subsequently fell to 24.9 million by 2021–22.[24] This trend is not expected to reverse anytime soon, as the college-aged population is forecast to drop by about 15 percent between 2025 and 2029.[25]

14 World Bank, "Population Growth," 2024.

15 At the same time the population is also becoming more diverse with declines in the share of the population that identify as white at every age group between 2010 and 2021 and an increase in the share of the population that identify as Hispanic/Latino. Frey, "White and Youth Population Losses Contributed Most to the Nation's Growth Slowdown," 2022.

16 Hetrick et al., *The Demographic Drought*, 2021.

17 Vespa et al., *Demographic Turning Points for the United States*, 2018.

18 US Bureau of Labor Statistics, Economic Projections, Table 3.1, 2022.

19 Vespa et al., *Demographic Turning Points for the United States*, 2018.

20 Hetrick et al., *The Demographic Drought*, 2021; Hetrick et al., *The Demographic Drought*, 2022; Smialek and Casselman, "Retirees Are One Reason the Fed Has Given Up on a Big Worker Rebound," 2023.

21 Livingston, "Is U.S. Fertility at an All-Time Low?," 2019.

22 Pew Charitable Trusts, "The Long-Term Decline in Fertility," 2022.

23 For more on the potential of immigration to address shortfalls in the US workforce and the limitations of the current US immigration policy, see DePillis, "Immigration Rebound Eases Shortages of Workers, up to a Point," 2023; Bahar and Wright, *A Roadmap for Immigration Reform*, 2023; and Rose, "The Immigration Population in the U.S. is Climbing Again," 2023.

24 US Department of Education, Integrated Postsecondary Education Data System (IPEDS), 12-Month Enrollment, 2000–22.

25 Barshay, "College Students Predicted to Fall by More Than 15% after the Year 2025," 2018; Grawe, *Demographics and the Demand for Higher Education*, 2018.

All these factors add up to slow growth in the US labor force over the coming decade and likely for the foreseeable future. In fact, the US labor force is expected to grow at a compound annual rate of just 0.5 percent between 2021 and 2031.[26] The impact of this slow growth is likely to be a constrained supply of workers, even as demand continues to grow. This will particularly impact services that are increasingly needed by older adults, such as healthcare and home care. The constrained supply of workers could lead employers to be more open to hiring candidates with middle-skills education and training, as well as implementing skills-based hiring for jobs that previously demanded at least a bachelor's degree. Under these conditions, employers may also be more likely to invest in talent pipeline development, including through apprenticeships and other work-based learning programs and engagement with educational institutions to promote more preparation and training of professionals in high demand fields.

In addition, learning losses attributed to the pandemic may portend a negative effect on the economy down the line, as they may impact the supply of college-educated workers. Amid the abrupt transition to remote learning in the first year of the pandemic and hybrid learning in the second year, the quality of online instruction varied considerably. Student learning suffered overall: National Assessment of Educational Progress (NAEP) test results show that average math and reading scores fell between 2019 and 2023, accelerating learning losses that began in 2012.[27] Given the tight link between educational attainment and earnings potential, the implications of this learning loss could have lasting repercussions on the lifetime earnings potential of the students affected and the growth potential of the broader economy.[28] At the postsecondary education level, undergraduate enrollment declined by 9.4 percent between the spring 2020 term and the spring 2022 term.[29] Undergraduate enrollment finally began recovering in fall 2023,[30] but as noted earlier, it faces likely future declines due to the changing demographics of the United States.

Inflation has stabilized, and a recession has not materialized.

The US economy recovered rapidly from the COVID-driven recession of 2020. Unemployment dropped from a peak of 14.7 percent in April 2020 to the pre-pandemic low of 3.5 percent by July of 2022, and it remained 4.1 percent or less through the first half of 2024.[31] However, as the nation shook off the pandemic, a new economic problem presented itself in the form of inflation. As prices rose across the board, the annual growth rate in the Consumer Price Index (CPI) increased from less than 2 percent through most of 2020 and early 2021 to just over 9 percent in June of 2022,[32] the highest rate in 40 years.[33] To combat soaring inflation, the Federal Reserve has implemented one of the most aggressive

26 Harris et al., *Labor 2030*, 2018.

27 US Department of Education, "NAEP Long-Term Trend (LTT) Results: Reading and Mathematics," 2023.

28 Hanushek, *The Economic Cost of the Pandemic, State by State*, 2023.

29 National Student Clearinghouse, "Current Term Enrollment Estimates: Spring 2022," 2022.

30 National Student Clearinghouse, "Current Term Enrollment Estimates: Fall 2023," 2024.

31 US Bureau of Labor Statistics, Labor Force Statistics from the Current Population Survey (CPS), 2020–24.

32 US Bureau of Labor Statistics, CPI for All Urban Consumers (CPI-U), 2020–22.

33 US Bureau of Labor Statistics, "Consumer Prices Up 9.1 Percent Over the Year Ended June 2022," 2022.

tightening cycles in recent history, raising interest rates by more than 5 percentage points between March 2022 and July 2023.[34] This helped bring the CPI down to an annual growth rate of closer to 3 percent by the end of 2023.[35]

The broader global economic outlook also complicates matters. Ongoing conflicts in the Middle East and the Russian invasion of Ukraine risk further disruptions to international commerce, which could impact commodity prices. In addition, the ongoing challenges in China, the world's second largest economy, with a troubled real estate market and slow overall economic growth, could have negative impact on the rest of the global economy.[36] All these factors add up to an unsettling short-term outlook for the US economy and labor market. Nonetheless, the US economy remains resilient, with a 2.5 percent annual increase in real gross domestic product (GDP) in 2023 relative to 2022,[37] and a labor market that has continued to hold up in the face of numerous pressures.[38]

Federal infrastructure investments provide a boost to blue-collar and middle-skills work.

Despite some economic uncertainties, there is also cause for optimism. The Infrastructure Investment and Jobs Act (IIJA) of 2021 is expected to generate many good blue-collar middle-skills jobs that require some amount of specialized training. These will include jobs in transportation and material moving; construction and extraction; installation, maintenance, and repair; and production occupations.[39] In addition, government investments under the CHIPS and Science Act of 2022 and Inflation Reduction Act of 2022 are also expected to generate a variety of new jobs. The CHIPS and Science Act is expected to provide a major boost to middle-skills jobs in science, technology, engineering, and mathematics (STEM), including jobs in semiconductor manufacturing, climate change mitigation, generation and distribution of alternative energy, and vehicle electrification, among others.[40] A 2023 analysis by the Political Economy Research Institute at the University of Massachusetts, Amherst, estimated that these three major pieces of legislation will generate 2.9 million jobs per year and about 19 million jobs in total.[41]

The Biden administration has prioritized ensuring that these investments will fund good jobs and opportunities for workers of diverse backgrounds.[42] However, whether these jobs will also provide sustainable career opportunities will largely depend on whether future policy makers decide to

34 Adams and Katzeff, "Federal Funds Rate History 1990 to 2023," 2024; Siegel, "As the Fed Fights Inflation, Worries Rise That It's Overcorrecting," 2022.

35 As of January 2024, the annual change in the CPI was 3.1 percent; US Bureau of Labor Statistics, CPI for All Urban Consumers (CPI-U), 2024.

36 International Monetary Fund, *World Economic Outlook Update*, 2024.

37 US Bureau of Economic Analysis, "Gross Domestic Product (Second Estimate), Corporate Profits (Preliminary Estimate), First Quarter 2024," 2024.

38 US Bureau of Labor Statistics, "Employment Situation Summary," 2024.

39 National League of Cities, *Hard-to-Fill Infrastructure Jobs*, 2021.

40 Michelson, "New Job, Career Paths from Inflation Reduction Act, CHIPS Act and Infrastructure Bill," 2022.

41 Pollin et al., *Employment Impacts,* 2024.

42 US Department of Labor, "The Good Jobs Initiative," 2022.

extend these types of investments. The IIJA's current funding period is expected to run out well before the end of the decade.[43] A Pell Grant program to support short-term certificate programs is yet another possible legislative avenue to support work along the middle-skills pathway. Short-term Pell — if passed — would make federal grant funding available for job-skills training programs of less than 15 weeks.[44]

Automation and technological change will likely lead to short-term labor market disruptions but will create new job roles over the long-term.

Automation — and technological change more broadly — is one of the greatest unknowns clouding our good jobs forecast through 2031. Recently, there has been a growing anxiety about the displacement of large numbers of workers due to automation and technological advances. Specifically, with advances in generative artificial intelligence (AI), some foresee major disruptions to labor markets.[45] Though the AI revolution is still in its infancy, current advances indicate that AI's role will move beyond mere automation of specific routine tasks and will instead undertake a much broader and more general range of responsibilities.[46] If current expectations are realized, AI could impact all sectors of the economy[47] and have a greater impact on the kinds of work most commonly taken up by white-collar and college-educated professionals than previous waves of automation did.[48] Generative AI is expected to impact skills that were previously thought to be immune from automation, such as knowledge work and decision making.[49] AI's potential disruption stems from the fact that it does not need explicit instructions to perform specific tasks. Instead, it can learn inductively based on examples from large amounts of data, utilizing techniques such as machine learning and neural nets.[50]

In fact, some newer generative AI technology is already being utilized in information synthesis and creative tasks that underpin key sectors of the economy. These include finance, marketing, investing, programming and software development, writing, media and content creation, legal support, data

43 The IIJA funding was authorized to be distributed over five years, 2021–26. The White House, "Fact Sheet: The Bipartisan Infrastructure Deal," 2021.

44 US Congress, *Bipartisan Workforce Pell Act*, 2023; Knott, "Momentum Building for Pell Expansion," 2023; Griffin and Sudow, "Workforce Pell," 2023.

45 Acemoglu et al., "Can We Have Pro-Worker AI?," 2023; Chui et al., *The Economic Potential of Generative AI,* 2023; Eloundou et al., "GPTs Are GPTs," 2023.

46 For example, Eloundou et al. (2023) estimate that 80 percent of the US workforce could have at least 10 percent of their tasks impacted by large language models, such as those behind ChatGPT and its competitors. Elondou et al., "GPTs Are GPTs," 2023.

47 Gmyrek et al. "Generative AI and Jobs," 2023; Eloundou et al., "GPTs Are GPTs," 2023; World Economic Forum, *Future of Jobs Report 2023*, 2023.

48 Holzer, "Understanding the Impact of Automation on Workers, Jobs, and Wages," 2022; Autor, "The Labor Market Impacts of Technological Change," 2022; Lane and Saint-Martin, "The Impact of Artificial Intelligence on the Labour Market," 2021; SHRM and Burning Glass Institute, *Generative Artificial Intelligence and the Workforce*, 2024; Chui et al., *The Economic Potential of Generative AI,* 2023.

49 Chui et al., *The Economic Potential of Generative AI,* 2023.

50 Lane and Saint-Martin, "The Impact of Artificial Intelligence on the Labour Market," 2021.

analytics, and design.[51] Yet, it is uncertain how far and how quickly AI will advance. If history is a relevant guide, technological advancements will unfold at a relatively gradual pace, with the dissemination of existing technologies proving to be as much, if not more, of a challenge than new innovations.[52] Many experts in the field express uncertainty about how rapidly AI capabilities will advance, and therefore, the future of AI and its full impact on the US workforce remain unpredictable.

Historically, technology has automated tasks associated with lower- and middle-skills physical work, often replacing workers with machines. But automation is not all negative for workers: it has also augmented work of higher-skill workers, helping improve efficiency and productivity.[53] It has enabled new types of work that did not previously exist, as well.[54] A World Economic Forum 2023 survey of companies around the world found that while many firms expect disruptions to jobs due to AI and other emerging technologies over the next five years, they expect the net effect on jobs to be positive, with more jobs generated than lost.[55] Even before generative AI captured the public imagination, the uncertainty regarding the impact of AI and related technologies has been reflected in the wide range of estimates of jobs considered at significant risk of automation: from 9 percent[56] to 47 percent[57] of all jobs.[58]

Given the many uncertainties surrounding future technological change, the Georgetown University Center on Education and the Workforce's approach to assessing the risks associated with automation is focused on how tasks, rather than jobs, might change. This is because jobs generally are not static: Over time, the tasks associated with them can change to better suit evolving organizational needs. So, while certain tasks might be eliminated or simplified by technological advances, that does not mean that the job itself will be eliminated.[59] While technological advances will make some tasks obsolete — and may cause some jobs to be lost — they also have the power to make other tasks easier. Indeed, technological advances can generate new areas of work and expand the career opportunities available to individuals.[60] We estimate that, overall, 28 percent of all tasks associated with current jobs will be at risk of automation by 2031, with a higher risk among physical and lower-level cognitive

51 Autor, "The Labor Market Impacts of Technological Change," 2022; Zarifhonarvar, *Economics of ChatGPT*, 2023; Elondou et al., "GPTs Are GPTs," 2023.

52 For example, Gmyrek et al. (2023) point to the failure to distinguish between the potential of automation and actual deployment of automation technologies in the popular media narratives around occupational automation. Gmyrek et al. "Generative AI and Jobs," 2023.

53 Holzer, "Understanding the Impact of Automation on Workers, Jobs, and Wages," 2022.

54 Autor, "The Labor Market Impacts of Technological Change," 2022; Lane and Saint-Martin, "The Impact of Artificial Intelligence on the Labour Market," 2021; Autor et al., *The Work of the Future*, 2020.

55 World Economic Forum, *Future of Jobs Report 2023*, 2023.

56 Arntz et al., "The Risk of Automation for Jobs in OECD Countries," 2016.

57 Frey and Osborne, "The Future of Employment," 2017.

58 Carnevale et al., *After Everything*, 2023.

59 This line of reasoning is also expressed by Gmyrek et al. (2023), who point out that automation of certain tasks does not mean that a worker's entire job will be replaced by AI, as many workers have other tasks that will not be automated by AI. Gmyrek et al. "Generative AI and Jobs," 2023.

60 Autor et al., *The Work of the Future*, 2020; Autor, "The Labor Market Impacts of Technological Change," 2022.

tasks in sectors such as manufacturing, construction and extraction, financial services, and wholesale and retail trade.[61]

Overall, AI and automation are not expected to lead to a major decline in the number of jobs in the long run. However, they may lead to more inequality between workers who have the skills that will help them excel in good jobs in an economy based on these new innovations and those who do not. Moreover, this technology may lead to short-term labor market disruptions while workers learn new skills associated with the use of these technologies. The workers with the right skills will have the opportunity to learn and grow along with technological change, while those without such skills may find themselves increasingly relegated to low-wage, low-quality jobs that do not provide opportunities for meaningful skill development or advancement.[62]

Job quality is receiving increasing attention from policymakers.

Dimensions of job quality beyond earnings alone have received an increasing amount of attention and are an important consideration when understanding the future jobs landscape. This is evidenced in a number of initiatives and policy statements put forward in recent years, such as the Biden administration's Good Jobs Initiative, which was designed to complement new infrastructure investments under the IIJA. This initiative includes a set of good jobs principles, recognizing that pay, benefits, job security and working conditions, skills and career advancement, diversity, equity, inclusion and accessibility, organizational culture, and recruitment and hiring are all important elements of job quality.[63]

These principles recognize a variety of elements that contribute to aspirational conceptualization of good jobs, including family-sustaining earnings, access to benefits, opportunities for training and advancement, proper working conditions, reasonable scheduling, and a respectful, equitable, and inclusive organizational culture. This initiative parallels and has helped guide other efforts to improve job quality.[64]

These efforts signal shifting political sentiments, with the focus moving from just ensuring that people have jobs to also encompassing the quality of jobs people can obtain. Policymakers at the national, state, and local levels are increasingly interested in the availability of good jobs and the extent to which education and training programs help people land good jobs, not just become employed. In the coming years, we expect this will have an impact on the sectors and programs where public investments are directed.

61 Carnevale et al., *After Everything*, 2023.

62 Autor, "The Labor Market Impacts of Technological Change," 2022.

63 US Department of Labor and US Department of Commerce, "Good Jobs Principles," 2022.

64 For example, in 2022, the Good Jobs Champions Group released a statement defining pillars of a good job. Aspen Institute, "Statement on Good Jobs," 2022. More recently, in the spring of 2024, New America launched the Good Jobs Collaborative around principles of worker-centered workforce development policy. New America, "Good Jobs Collaborative," 2024.

Skills-based hiring will present new opportunities for middle-skills workers.

In recent years, alternatives to college degrees have received substantial attention in the media and the field. A campaign to drop college degree requirements for many jobs across the labor market has been gaining traction, particularly in tight labor markets.[65] This general trend is known as "skills-based hiring," in which individuals are evaluated for job readiness on the basis of the skills they possess, regardless of how they developed those skills. The momentum around skills-based hiring has been reflected in more than a dozen states dropping degree requirements for at least some of their public sector jobs.[66] And it is not just within the public sector where these changes appear to be happening: a 2022 study from the Burning Glass Institute has shown a discernible shift away from college degree requirements in job postings across wide swaths of occupations in recent years.[67] Changes in job postings, however, do not seem to have translated to major changes in hiring.[68] At the same time, non-degree credentials, including certificates and certifications, have grown and become more popular as a way to recognize learning and skill development that happen outside of traditional degree programs.[69] Policymakers in Congress have advanced bipartisan proposals to expand Pell Grant funding to short-term certificate programs.[70]

Politicians on both sides of the aisle, fighting for votes of blue-collar workers, refer to these developments when saying that a college degree is no longer necessary to get a good job.[71] However, as our projections in this report show, a bachelor's degree still represents the dominant pathway to good jobs. The dominance of the bachelor's degree pathway is expected to grow to 66 percent of all good jobs by 2031 from 59 percent in 2021. And the advantages of having a bachelor's degree or higher increase over the course of workers' careers, as they experience greater returns to professional experience in the many professional, non-routine occupations they gain access to on the bachelor's degree pathway.[72]

Ultimately, the middle-skills and bachelor's degree pathways are by no means equivalent in terms of the good jobs and economic opportunities they provide access to, nor do there appear to be indications that opportunities for middle-skills workers are growing at the expense of those for workers with bachelor's degrees. At the same time, a number of trends point to a more favorable labor market for middle-skills workers relative to what it has been for the past couple decades. First, slower

65 Cohen, "Stop Requiring College Degrees for Jobs that Don't Need Them," 2023; Opportunity@Work, "Skills-Based Hiring," 2023.

66 Debroy and de Castillo, "States Are Leading the Way in Tearing the 'Paper Ceiling' and Making Good Jobs Available to Workers without Degrees," 2023; Murphy and Cox, "Reevaluating Degree Requirements for Government Jobs," 2023.

67 Fuller et al., *The Emerging Degree Reset*, 2020.

68 Zurbano and Lewis, "Fewer Job Posts Now Require Degrees," 2023; Sigelman et al., *Skills-Based Hiring,* 2024.

69 Albert and Crawford, *New Directions for Non-Degree Credentialing Research*, 2021.

70 US Congress, *Bipartisan Workforce Pell Act*, 2023; Knott, "Momentum Building for Pell Expansion," 2023.

71 Carnevale, "Beware of the Advice to Skip College," 2023.

72 Deming, "Why Do Wages Grow Faster for Educated Workers?," 2023.

labor force growth may motivate some employers to hire middle-skills workers in order to address potential talent shortages. Second, recent federal investments in infrastructure, clean energy, and semiconductor manufacturing are helping boost blue-collar jobs, which tend to be a major source of good jobs for middle-skills workers. Third, there are some indications that technological advances, such as generative AI, may make it viable for employers to hire middle-skills workers to perform tasks that previously were reserved only for workers with higher levels of educational attainment by augmenting their productivity with new technology.[73]

The middle-skills pathway is a complement, not a substitute, to the dominant — and expanding — bachelor's degree pathway. Policymakers, educators, and industry leaders should both promote bachelor's and graduate degree programs and support completion of some form of postsecondary education and training among as many students as possible. And those efforts should include offering high quality non-degree credentials and work-based training alternatives to those who do not pursue college degrees, along with flexibility to leverage their previous learning towards continued education.

73 For example, Noy and Zhang find that ChatGPT, benefits the productivity of low-ability workers more than high-ability workers. Noy and Zhang, "Experimental Evidence on the Productivity Effects of Generative Artificial Intelligence," 2023.

PART II

The 2031 Labor Market—Growth in Good Jobs and Demand for More Education

The economy of 2031 will demand a workforce equipped with more education and training than it does now. This finding should not be particularly surprising, given the consistent trend in required upskilling of the last few decades. In the early 1980s, two out of every three jobs required no more education than a high school diploma. As of 2021,[74] the situation had reversed: more than two out of every three jobs demanded at least some postsecondary education. By 2031, it is expected that 72 percent of jobs will require at least some postsecondary education.[75] Getting a good job is even more dependent on higher levels of education. Currently, 81 percent of good jobs go to workers with either a bachelor's degree or middle-skills education and training. That share is expected to increase to 85 percent by 2031.

In this section, we compare the projected composition of good jobs in 2031 with the state of good jobs in 2021, offering an overview of expected changes across the three primary educational pathways: high school, middle skills, and the bachelor's degree.

From 2021 to 2031, good jobs will grow both in number and as a share of all jobs. Our projections show that the number of good jobs will grow by 21 percent, from 72.6 million in 2021 to 87.8 million 2031.[76] A majority (62 percent) of the 142 million jobs expected to be available in 2031 will be good, up from 59 percent in 2021.

74 For the purposes of this report, we refer to 2021 as the present period.

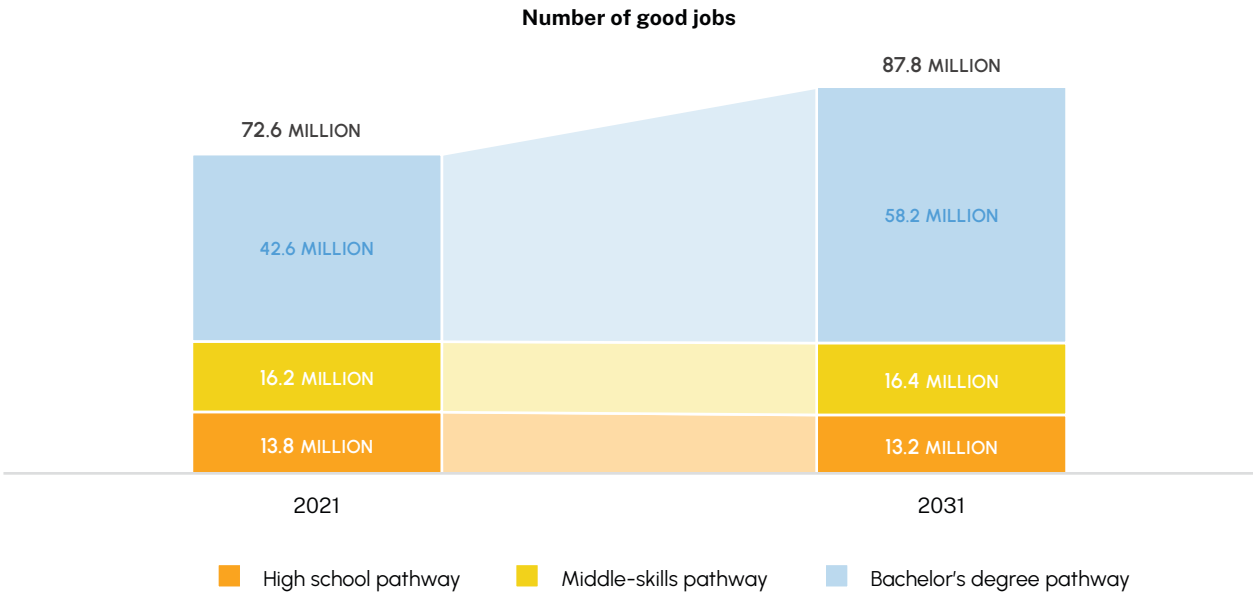
75 Carnevale et al., *After Everything*, 2023.

76 Except where indicated otherwise, the data in this report are based on Georgetown University Center on Education and the Workforce projections using Carnevale et al., *After Everything*, 2023, and US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), March Supplement, 1992–2020, adjusted for differences in cost of living by state using US Bureau of Economic Analysis, SARPP Regional Price Parities by State, 2020. The projections of good jobs in this report are based on workers ages 25–64. For additional details, see Appendix A.

Good jobs will favor workers with at least some postsecondary education. By contrast, the number of good job opportunities will decline on the high school pathway (Figure 1).

- Good jobs on the bachelor's degree pathway will grow by 15.6 million net new jobs — from 42.6 million in 2021 to 58.2 million in 2031 (44 percent of which will demand a graduate degree in 2031).
- Good jobs on the middle-skills pathway will grow by 159,000 new jobs, from 16.2 million in 2021 to 16.4 million in 2031.
- Good jobs for workers on the high school pathway, meanwhile, will decline by 578,000 jobs, from 13.8 million in 2021 to 13.2 million in 2031.

FIGURE 1. The number of good jobs for workers on the bachelor's degree pathway will grow by more than 15 million net new jobs, while the number of good jobs on the high school pathway will decline by nearly 600,000.



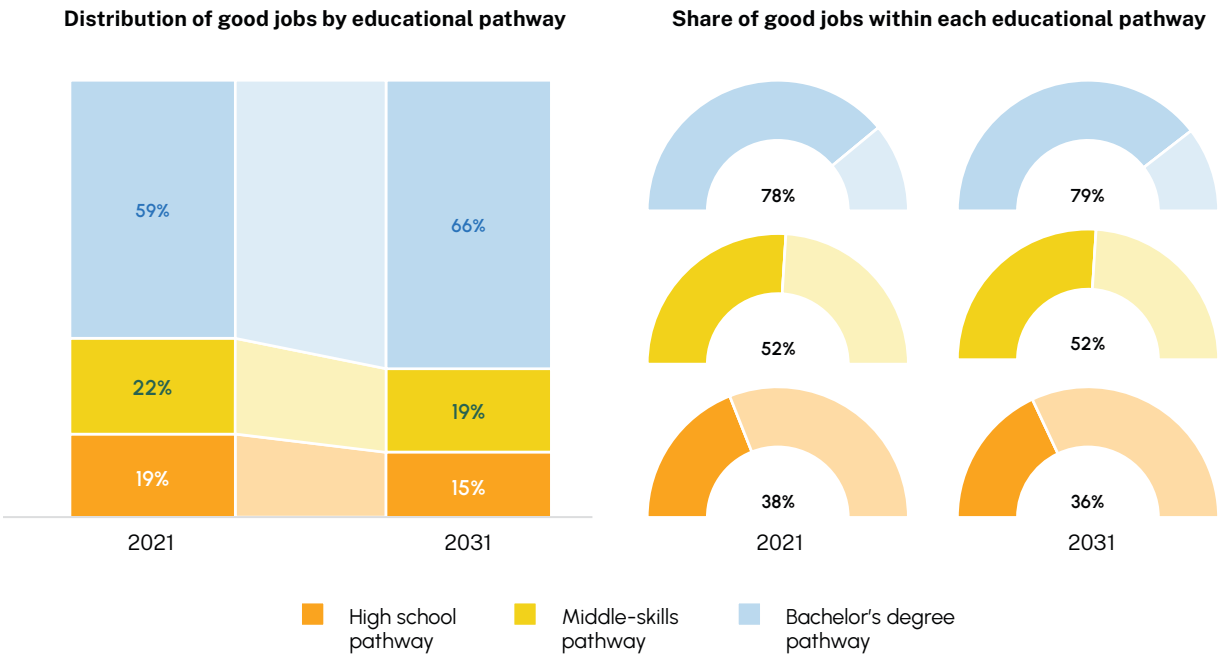
Source: Georgetown University Center on Education and the Workforce projections using Carnevale et al., *After Everything*, 2023; US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), March Supplement, 1992–2020; and US Bureau of Economic Analysis, SARPP Regional Price Parities by State, 2020.

Note: The minimum earnings threshold for good jobs is adjusted for the difference in cost of living by state and for inflation to 2020 dollars using R-CPI-U-RS.

These overarching trends further reinforce the bachelor's degree pathway as the dominant source of good jobs. From 2021 to 2031, the share of good jobs available to workers with a bachelor's degree or higher will increase from 59 percent to 66 percent. Meanwhile, the share of good jobs along the middle-skills pathway will fall from 22 percent in 2021 to 19 percent in 2031, and the share of good jobs on the high school pathway will drop from 19 percent to 15 percent (Figure 2).

Certain occupational clusters will offer more opportunity than others.[77] The managerial and professional office cluster — which encompasses the management, business and financial operations, and legal occupational groups — will account for nearly one-third of all good jobs in 2031 (Figure 3). This cluster will also offer workers the second highest likelihood of securing a good job, with 86 percent of jobs within this cluster expected to be good in 2031.

FIGURE 2. The bachelor's degree pathway will account for an increasing share of good jobs, reaching 66 percent by 2031, compared to 59 percent in 2021.

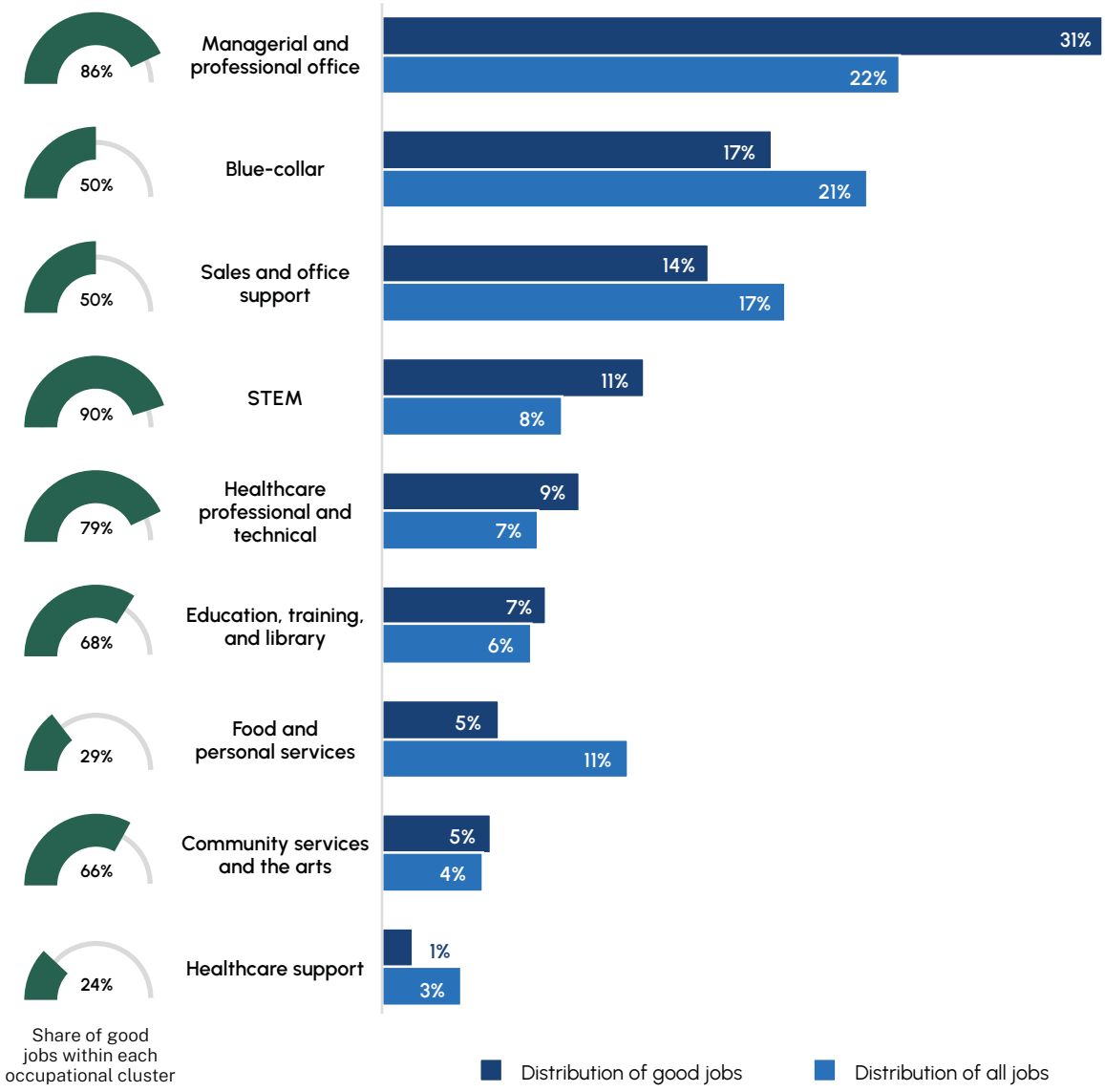


Source: Georgetown University Center on Education and the Workforce projections using Carnevale et al., *After Everything*, 2023; US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), March Supplement, 1992–2020; and US Bureau of Economic Analysis, SARPP Regional Price Parities by State, 2020.

Note: Values may not sum to 100 percent due to rounding. The minimum earnings threshold for good jobs is adjusted for the difference in cost of living by state and for inflation to 2020 dollars using R-CPI-U-RS.

77 Occupational clusters are aggregations of occupational groups.

FIGURE 3. Managerial and professional office occupations will be the largest source of good jobs in 2031.



Source: Georgetown University Center on Education and the Workforce projections using Carnevale et al., *After Everything*, 2023; US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), March Supplement, 1992–2020; and US Bureau of Economic Analysis, SARPP Regional Price Parities by State, 2020.

Note: Values may not sum to 100 percent due to rounding. The minimum earnings threshold for good jobs is adjusted for the difference in cost of living by state and for inflation to 2020 dollars using R-CPI-U-RS.

STEM (science, technology, engineering, and mathematics) is the only occupational cluster expected to offer workers a higher likelihood of securing a good job, with nearly nine out of ten STEM jobs expected to be good in 2031. Demand for highly-skilled STEM professionals will be bolstered by continued technological advancements. This cluster will also benefit from the CHIPS and Science Act of 2022, which made significant investments in semiconductor production and scientific research.[78] However, this cluster offers fewer good jobs compared to managerial and professional office occupations in numeric terms. Good jobs in STEM will make up just 11 percent of the total number of good jobs.

The blue-collar occupational cluster will be the second largest source of good jobs, behind managerial and professional office. This cluster includes jobs in construction and extraction; production; transportation and material moving; installation, maintenance, and repair; and farming, fishing, and forestry. Jobs in these occupations will account for 17 percent of all good jobs in 2031. Blue-collar occupations will be a particularly significant source of good jobs for workers without college degrees, as this cluster will account for more than half (54 percent) of good jobs for workers with a high school education or less and nearly a third (32 percent) of good jobs for workers with middle skills. The growth in blue-collar good jobs will be bolstered by the Infrastructure Investment and Jobs Act of 2021 and the Inflation Reduction Act of 2022.[79] About half of all blue-collar jobs are expected to be good in 2031. However, there will be a significant difference in the likelihood of securing a good blue-collar job by level of educational attainment. Roughly 6 out of 10 (59 percent) blue-collar jobs on the middle-skills pathway are expected to be good, compared to roughly 4 out of 10 (41 percent) blue-collar jobs on the high school pathway.

78 Michelson, "New Job, Career Paths from Inflation Reduction Act, CHIPS Act and Infrastructure Bill," 2022.

79 These laws primarily create temporary programs so unless funding is extended, any employment boost from them may be short-lived. Michelson, "New Job, Career Paths from Inflation Reduction Act, CHIPS Act and Infrastructure Bill," 2022.

PART III

The Occupations with the Largest Number of Good Jobs on Each Educational Pathway in 2031

Certain occupations will offer a larger share of good jobs in 2031, but the extent of the opportunity available will vary by educational pathway. Moving beyond the general good jobs landscape and occupational cluster analysis, this section will examine the specific occupational groups that will serve as top sources of good jobs overall and for workers on each educational pathway.

The majority of occupations will have a growing number of good job opportunities for workers with bachelor's and graduate degrees.[80] Management; business and financial operations; education, training, and library; and healthcare professional and technical occupations will add the greatest number of net new good jobs for workers with a bachelor's degree or higher through 2031. Prospects for workers with middle-skills education and training are more mixed. Some occupational groups, such as construction and extraction and computer and mathematical science, will offer a greater number of good jobs for workers on the middle-skills pathway in 2031. Other occupations, such as management, sales, and business and financial operations, will offer fewer good jobs for workers on the middle-skills pathway than they did in 2021.

Overall, the growing labor market premium on education and training means that there will be fewer opportunities for workers with no more than a high school diploma to obtain a good job. Management and construction and extraction occupations will lose the greatest number of good jobs available to workers on the high school pathway by 2031. This is because good job opportunities in management will increasingly be confined to workers on the bachelor's degree pathway. Meanwhile, construction and extraction occupations will continue to be one of the more significant remaining sources of good jobs available to workers with a high school diploma or less, despite the net loss of good high school jobs through 2031. Construction and extraction will see many good job opportunities shift towards more specialized professionals with middle-skills education and training.[81]

80 The two occupational groups that will be the exception to this are production and transportation and material moving. Both will see the largest growth in good jobs for workers on the high school pathway.

81 Production and transportation and material moving occupations, which provide large numbers of good jobs for workers on the high school pathway, are expected to substantially benefit from recent federal investments made through the Infrastructure Investment and Jobs Act (IIJA) of 2021. Due to the finite nature of this funding, however, future good job opportunities in these occupations are not guaranteed. National League of Cities, *Hard-to-Fill Infrastructure Jobs*, 2021.

Management stands out as a significant source of good jobs across all educational pathways, though it is an unusual occupational group because there is no typical path to it. A Master's in Business Administration (MBA) degree is one pathway, but just a minority of workers pursue this route. Most managers get promoted into the role. While many managers may still perform many functions related to their previous occupations, the US Bureau of Labor Statistics classifies all managerial roles beyond first-line supervisors as part of a separate occupational group. By 2031, management occupations will account for 21 percent of all good jobs (Table 2). They will make up 26 percent of all good job opportunities on the bachelor's degree pathway, 13 percent on the middle-skills pathway, and 8 percent on the high school pathway. Management occupations' dominant standing within the good jobs landscape is tied to managers' role as leaders within organizational structures—a critical need across sectors— and the higher earnings that managers typically command.

TABLE 2. Management occupations will provide the largest share of good jobs in 2031.

2031 Distribution of good jobs by occupational group and education pathway					
Occupational cluster	**Occupational group**	**High school pathway**	**Middle-skills pathway**	**Bachelor's degree pathway**	**Overall**
Managerial and professional office	Management	8%	13%	26%	21%
	Business and financial operations	3%	4%	11%	9%
	Legal	<1%	<1%	2%	2%
Blue-collar	Construction and extraction	12%	12%	2%	5%
	Transportation and material moving	17%	7%	1%	4%
	Production	15%	7%	<1%	4%
	Installation, maintenance, and repair	8%	6%	1%	3%
	Farming, fishing, and forestry	1%	<1%	<1%	<1%
Sales and office support	Sales and related	12%	7%	6%	7%
	Office and administrative support	7%	12%	5%	7%
STEM	Computer and mathematical science	1%	6%	8%	6%
	Architecture and engineering	<1%	2%	4%	3%
	Life, physical, and social sciences	<1%	<1%	3%	2%
Healthcare professional and technical	Healthcare professional and technical	2%	9%	10%	9%

2031 Distribution of good jobs by occupational group and education pathway					
Occupational cluster	**Occupational group**	**High school pathway**	**Middle-skills pathway**	**Bachelor's degree pathway**	**Overall**
Education, training and library	Education, training, and library	<1%	1%	10%	7%
Food and personal services	Protective services	3%	4%	2%	2%
	Building and grounds cleaning and maintenance	3%	1%	1%	1%
	Food preparation and serving	2%	2%	<1%	1%
	Personal care and services	1%	1%	1%	1%
Community services and the arts	Community and social services	<1%	<1%	4%	2%
	Arts, design, entertainment, sports, and media	1%	2%	3%	2%
Healthcare support	Healthcare support	2%	2%	1%	1%
	Total	**100%**	**100%**	**100%**	**100%**

Source: Georgetown University Center on Education and the Workforce projections using Carnevale et al., *After Everything*, 2023; US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), March Supplement, 1992–2020; and US Bureau of Economic Analysis, SARPP Regional Price Parities by State, 2020.

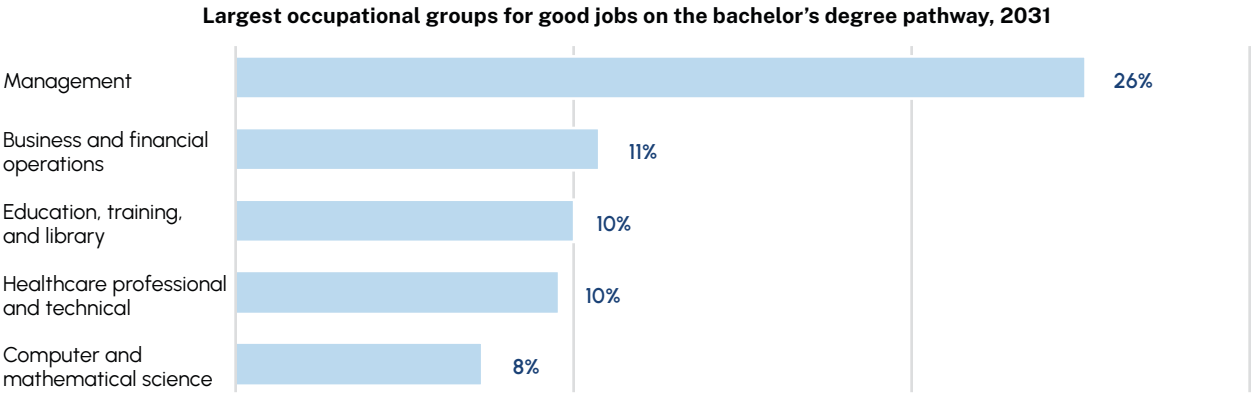
Note: Values may not sum to 100 percent due to rounding. The minimum earnings threshold for good jobs is adjusted for the difference in cost of living by state and for inflation to 2020 dollars using R-CPI-U-RS.

Business and financial operations and healthcare professional and technical occupations follow management occupations as the next largest sources of good jobs. Each of these occupational groups will provide approximately 9 percent of all good jobs by 2031. Other occupational groups that will offer large numbers of good jobs will be sales and related; education, training, and library; and office and administrative support occupations. Each of these occupational groups will account for about 7 percent of the good jobs total in 2031.

Where will the greatest opportunities be for good jobs on each educational pathway?

Management occupations will account for just over a quarter (26 percent) of all good jobs available to workers with a bachelor's degree or higher in 2031. Business and financial operations will account for the second largest share of good jobs, (11 percent) on the bachelor's degree pathway. Education, training, and library occupations and healthcare professional and technical occupations also will be

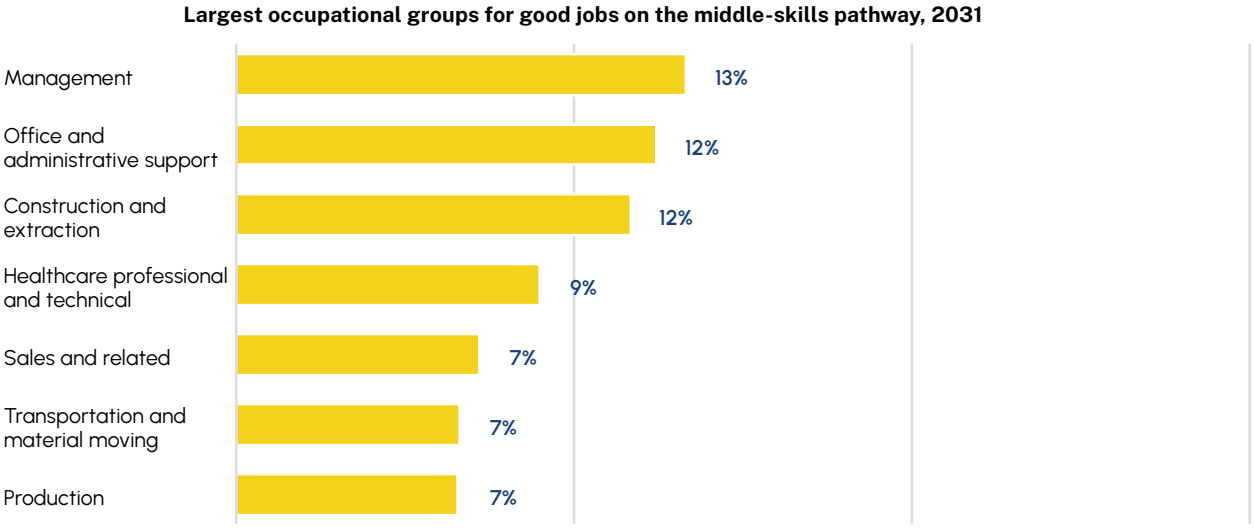
FIGURE 4. Management and business and financial operations occupations will account for more than one-third of good jobs on the bachelor's degree pathway in 2031.



Source: Georgetown University Center on Education and the Workforce projections using Carnevale et al., *After Everything*, 2023; US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), March Supplement, 1992–2020; and US Bureau of Economic Analysis, SARPP Regional Price Parities by State, 2020.

Note: This figure only shows a selected subset of occupational groups. For the full distribution of good jobs across the 22 occupational groups on the bachelor's degree pathway, see Table 2. The minimum earnings threshold for good jobs is adjusted for the difference in cost of living by state and for inflation to 2020 dollars using R-CPI-U-RS. Labels have been rounded to the nearest percent.

FIGURE 5. Management, office and administrative support, and healthcare professional and technical occupations will account for over one-third of good jobs for workers on the middle-skills pathway in 2031.



Source: Georgetown University Center on Education and the Workforce projections using Carnevale et al., *After Everything*, 2023; US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), March Supplement, 1992–2020; and US Bureau of Economic Analysis, SARPP Regional Price Parities by State, 2020.

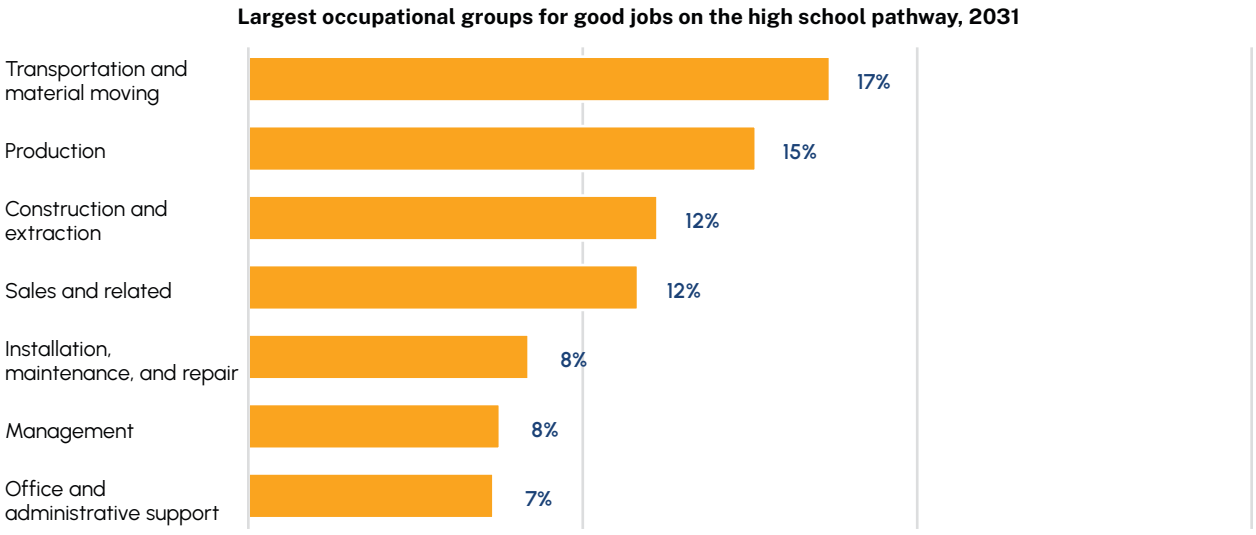
Note: This figure only shows a selected subset of occupational groups. For the full distribution of good jobs across the 22 occupational groups on the middle-skills pathway, see Table 2. The minimum earnings threshold for good jobs is adjusted for the difference in cost of living by state and for inflation to 2020 dollars using R-CPI-U-RS. Labels have been rounded to the nearest percent.

major sources of good jobs on the bachelor's degree pathway. Both occupational groups are projected to account for 10 percent of good jobs available to workers with bachelor's degrees or higher in 2031 (Figure 4).

Turning to the middle-skills pathway, our projections show that opportunities for good jobs will be split across white- and blue-collar occupations. Management (13 percent), office and administrative support (12 percent), and healthcare professional and technical occupations (9 percent) will collectively account for more than one in three good jobs available to workers on the middle-skills pathway (Figure 5). Three blue-collar occupational groups will make up roughly a quarter of good jobs available on this pathway. These occupational groups are construction and extraction (12 percent), transportation and material moving (7 percent), and production (7 percent).

Among workers with a high school diploma or less, blue-collar occupations will continue to be a significant source of good jobs. Transportation and material moving occupations will account for 17 percent of good jobs on the high school pathway, followed by production occupations (15 percent), construction and extraction (12 percent), and installation, maintenance, and repair (8 percent). Together, these occupations will account for more than half of good jobs on the high school pathway by 2031. Other occupational groups that will offer substantial shares of good jobs for workers with a high school diploma or less include: sales and related occupations (12 percent), management (8 percent), and office and administrative support (7 percent) (Figure 6).

FIGURE 6. Four blue-collar occupational groups will together account for more than half of good jobs on the high school pathway in 2031.



Source: Georgetown University Center on Education and the Workforce projections using Carnevale et al., *After Everything*, 2023; US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), March Supplement, 1992–2020; and US Bureau of Economic Analysis, SARPP Regional Price Parities by State, 2020.

Note: This figure only shows a selected subset of occupational groups. For the full distribution of good jobs across the 22 occupational groups on the high school pathway, see Table 2. The minimum earnings threshold for good jobs is adjusted for the difference in cost of living by state and for inflation to 2020 dollars using R-CPI-U-RS. Labels have been rounded to the nearest percent.

PART IV

The Interplay between Occupations and Education Will Drive Demand for Good Jobs

Occupations are not static over time, both in terms of the number of workers that are employed in them and the earnings that workers in those occupations can command. Part III broke down which occupational groups will have the greatest share of good jobs for workers at each level of educational attainment. This part breaks down the 22 occupational groups by growth in net new good jobs overall and on each educational pathway through 2031. Overall, by 2031, healthcare professional and technical; management; business and financial operations; and construction and extraction—all occupational groups that currently provide ample good job opportunity—will have millions more net new good jobs. Smaller occupational groups, such as legal and farming, fishing and forestry, will experience more limited growth.

Layering educational pathways over this occupational analysis provides us with a more nuanced view of the workforce of the future. This is because good jobs will increasingly favor workers with more postsecondary education and training at a broad, aggregate level and across most occupational groups. Our 2031 good jobs forecast reflects a basic reality: as demand for more education and skills increases, employers are willing to pay more for those skills.

There are two primary driving forces behind upskilling across the economy:

- Increasing demand for higher-skilled workers within occupations, and
- Faster growth of occupations that demand workers with higher levels of education.

Reflecting these upskilling dynamics, our projections show that the attrition in the number of good jobs along the high school pathway will continue to shift opportunity to the bachelor's degree and middle-skills pathways. Ten out of the 22 occupational groups will see declines in good jobs on the high school pathway, even as these same occupations frequently see growth in good jobs on the bachelor's degree and middle-skills pathways (Table 3).

TABLE 3. Ten out of 22 occupational groups will see a net decline in good jobs on the high school pathway through 2031.

Change in good jobs, 2021–31					
Occupational cluster	**Occupational group**	**High school pathway**	**Middle-skills pathway**	**Bachelor's degree pathway**	**Total**
Managerial and professional office	Management	-916,000	-467,000	6,263,000	4,880,000
	Business and financial operations	-46,000	-213,000	1,471,000	1,212,000
	Legal	6,000	-92,000	171,000	85,000
Blue-collar	Construction and extraction	-421,000	893,000	722,000	1,194,000
	Farming, fishing, and forestry	-8,000	12,000	19,000	23,000
	Installation, maintenance, and repair	13,000	-122,000	256,000	147,000
	Transportation and material moving	311,000	10,000	-144,000	177,000
	Production	486,000	62,000	-235,000	313,000
STEM	Computer and mathematical science	-70,000	291,000	618,000	838,000
	Architecture and engineering	-77,000	11,000	256,000	190,000
	Life, physical, and social sciences	11,000	-18,000	633,000	626,000
Sales and office support	Sales and related	286,000	-246,000	638,000	678,000
	Office and administrative support	-329,000	50,000	827,000	547,000
Education, training and library	Education, training, and library	-49,000	-8,000	1,163,000	1,105,000
Healthcare professional and technical	Healthcare professional and technical	58,000	24,000	962,000	1,044,000
Community services and the arts	Community and social services	-45,000	-23,000	801,000	733,000
	Arts, design, entertainment, sports, and media	-43,000	3,000	335,000	294,000

Change in good jobs, 2021–31					
Occupational cluster	**Occupational group**	**High school pathway**	**Middle-skills pathway**	**Bachelor's degree pathway**	**Total**
Food and personal services	Food preparation and serving	41,000	75,000	41,000	158,000
	Personal care and services	18,000	-8,000	156,000	166,000
	Protective services	95,000	-99,000	134,000	129,000
	Building and grounds cleaning and maintenance	17,000	-41,000	282,000	258,000
Healthcare support	Healthcare support	86,000	64,000	249,000	399,000
	Total	**-578,000**	**159,000**	**15,617,000**	**15,198,000**

Source: Georgetown University Center on Education and the Workforce projections using Carnevale et al., *After Everything*, 2023; US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), March Supplement, 1992–2020; and US Bureau of Economic Analysis, SARPP Regional Price Parities by State, 2020.

Note: Values may not sum to totals due to rounding. The minimum earnings threshold for good jobs is adjusted for the difference in cost of living by state and for inflation to 2020 dollars using R-CPI-U-RS.

The upskilling trend will intensify through 2031, including occupations where the majority of good jobs were held by workers with a high school diploma or less in 2021. The construction and extraction occupational group offers one of the most pronounced examples of this. In 2021, high-school educated workers had the largest share of good jobs (59 percent) in these occupations. However, between 2021 and 2031, construction and extraction occupations will add 722,000 net new good jobs on the bachelor's degree pathway and 893,000 good jobs on the middle-skills pathway, but the number of good jobs on the high school pathway will decline by a net of 421,000 jobs. This will reduce the share of good jobs available to high school-educated workers in construction and extraction occupations to 35 percent in 2031.

Meanwhile, the demand for more-educated workers will continue to be high in occupations where a large share of good jobs already go to college graduates. One example is computer and mathematical science. As of 2021, 80 percent of good jobs in this occupational group went to workers on the bachelor's degree pathway. Through 2031, there will be 618,000 net new good jobs in computer and mathematical science occupations on the bachelor's degree pathway. At the same time, the number of good computer and mathematical science jobs for workers on the high school pathway will decline by 70,000. This will reduce the share of good jobs for high-school-educated workers in computer and mathematical science occupations from 5 percent to 3 percent. Meanwhile, the number of good jobs on the middle-skills pathway in this occupational group will increase by 291,000. By 2031, the share of good jobs on the middle-skills pathway in this occupational group will increase from 14 percent to 18 percent.

In the following sections, we highlight selected occupational groups with some of the largest rates of growth or decline on each educational pathway.

Workers on the bachelor's degree pathway will experience growth in good jobs across most occupational groups.

Workers with a bachelor's degree or higher can expect growth in the number of good job opportunities available across all but two occupational groups (production and transportation and material moving are the exceptions) through 2031. The occupational groups with the greatest growth in good jobs for workers on the bachelor's degree pathway will be: management (6.3 million); business and financial operations (1.5 million); education, training, and library (1.2 million); and healthcare professional and technical (962,000).

These are among the largest occupational groups employing highly skilled workers, and they are expected to expand in the coming years, both in the total number of jobs and jobs that meet or exceed the minimum good job earnings threshold. The growth in good jobs on the bachelor's degree pathway in management occupations reflects increasing business complexity, as organizations operate within ever more intricate economic networks and regulatory environments and must cope with fast-paced technological change.

Technology and data keep expanding the number of options available to organizations. As a result, managers increasingly must make precise and targeted decisions. Intuition and knowledge of a business's traditional practices, once the hallmark of a seasoned manager, are no longer sufficient. As decision-making processes become more complex, the demand for highly skilled workers within management occupations will continue to grow throughout this decade.[82]

Business and financial operations occupations cover many of the general functions that businesses and organizations perform, including accounting, human resources, logistics, and compliance. The growth in good jobs on the bachelor's degree pathways for workers in this occupational group largely reflects upskilling in the overall economy and the increased complexity and expertise required in business and financial functions, with greater reliance on technology and more use of data. As a result, the share of good jobs in business and financial operations occupations held by workers with a bachelor's degree or higher is projected to increase by 7 percentage points, from 79 percent in 2021 to 86 percent in 2031.

Greater demand for postsecondary education and training — including not just college degree programs, but also certificates, certifications, apprenticeships, short-term training, and noncredit programs, among others — will also drive demand for teachers and other professionals within the education, training, and library occupational group. As both young people and experienced workers will seek to learn in-demand skills, education, training, and library occupations are expected to add 1.2 million good jobs over the course of the decade.

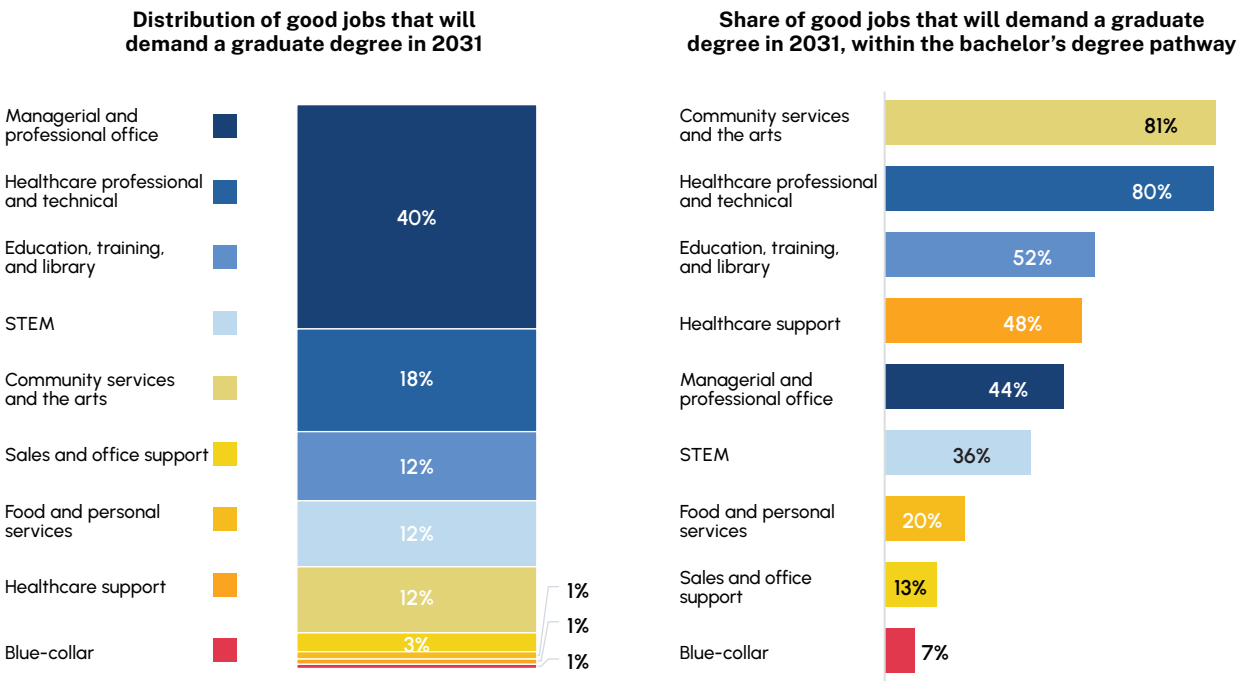
82 Carnevale et al., *America's Divided Recovery*, 2016; Carnevale and Rose, *The Economy Goes to College*, 2015.

Forty-four percent of good jobs on the bachelor's degree pathway will demand graduate degrees.

Workers with graduate degrees — including doctors, lawyers, scientists, and many researchers, educators, and business executives — are among the most highly-skilled and highly-compensated professionals in the US workforce. These workers have high chances of landing a good job, as 86 percent of all jobs available to workers with graduate degrees in 2031 are expected to meet the good job threshold. Jobs that demand graduate degrees also make up a significant portion (44 percent) of good jobs on the bachelor's degree and above pathway.

Managerial and professional office occupations will provide the largest number of good jobs for graduate degree holders, representing 40 percent of good job opportunities available to this group (Figure 7). Healthcare professional and technical occupations will be the second-largest group, accounting for 18 percent of all good jobs that will be available to workers with graduate degrees in 2031. Critically, 8 in 10 of the good jobs in community services and the arts and healthcare professional and technical occupations on the bachelor's degree pathway will demand graduate degrees.

FIGURE 7. Managerial and professional office and healthcare and technical occupations will offer the largest share of good job opportunities for workers with graduate degrees in 2031.



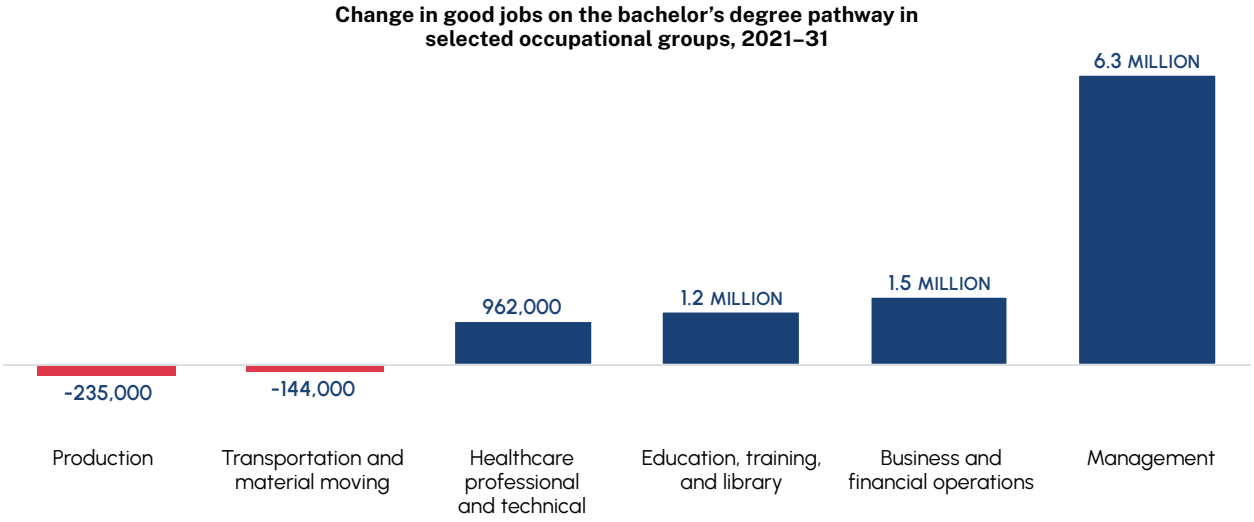
Source: Georgetown University Center on Education and the Workforce projections using Carnevale et al., *After Everything*, 2023; US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), March Supplement, 1992–2020; and US Bureau of Economic Analysis, SARPP Regional Price Parities by State, 2020.

Note: Values may not sum to totals due to rounding. The minimum earnings threshold for good jobs is adjusted for the difference in cost of living by state and for inflation to 2020 dollars using R-CPI-U-RS. Labels have been rounded to the nearest percent.

The growth of good jobs on the bachelor's degree pathway in healthcare professional and technical occupations is related to several factors that are driving expanded demand for healthcare services — an aging population, longer life expectancy, more chronic medical conditions, and rapid advancements in medical technologies.[83] By 2030, there will be about 71 million people in the United States over the age of 65.[84] This group of adults will have outsized healthcare needs compared to the rest of the population. This group accounts for 26 percent of physician office visits, 38 percent of emergency medical service responses, 34 percent of prescriptions, and 90 percent of beds in nursing homes.[85] Given these trends, the already strong demand for healthcare professionals will only grow.

The two occupational groups that will experience a decline in good jobs on the bachelor's degree pathway are production (-235,000 net new good jobs) and transportation and material moving (-144,000 net new good jobs) (Figure 8). Both of these are blue-collar occupational groups in which the majority of workers have a high school education. Good job opportunities in both of these

FIGURE 8. The largest growth in net new good jobs on the bachelor's degree pathway will be in management occupations, while opportunities in production and transportation and material moving occupations for these workers will decrease.



Source: Georgetown University Center on Education and the Workforce projections using Carnevale et al., *After Everything*, 2023; US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), March Supplement, 1992–2020; and US Bureau of Economic Analysis, SARPP Regional Price Parities by State, 2020.

Note: This figure only shows a selected subset of occupational groups. For a full list of changes in good jobs across all 22 occupational groups on the bachelor's degree pathway, see Table 3. The minimum earnings threshold for good jobs is adjusted for the difference in cost of living by state and for inflation to 2020 dollars using R-CPI-U-RS.

83 Carnevale et al., *Healthcare,* 2012.

84 US Census Bureau, Projected Population by Age Group and Sex, 2023.

85 Ricketts, "The Healthcare Workforce: Will It Be Ready as the Boomers Age?," 2011.

occupational groups will expand as a result of investments in the 2021 Infrastructure Investment and Jobs Act (IIJA).[86] Many of these jobs can be performed by workers with high school diplomas who complete some occupation-specific training. These occupations are not expected to offer substantial opportunity to college graduates, who will have access to a greater number of good jobs across other occupational groups.

Workers on the middle-skills pathway will experience significant growth in good jobs in many professional white-collar occupations as well as some traditional blue-collar occupations.

For workers with middle-skills education and training, the largest growth in good jobs will occur in construction and extraction occupations, which — bolstered by the IIJA and Inflation Reduction Act of 2022[87] funding — will add 893,000 net new good jobs between 2021 and 2031.

The second largest increase (resulting in 291,000 net new good jobs) will be in the computer and mathematical science occupational group. This reflects the growing number of opportunities available for workers with certificates and certifications in the technology field. For example, Google has expanded its certificate offerings for in-demand tech fields for workers without college degrees. Google has also been working with a consortium of more than 150 other companies to connect people who complete certificates to related jobs.[88]

Management occupations will experience the most significant decline in good jobs on the middle-skills pathway: a decrease of 467,000 net new good jobs (Figure 9). These losses are primarily a reflection of upskilling in management occupations. As a consequence of growing organizational complexity and an increasing emphasis on the use of data in decision-making processes, increasing numbers of good jobs in management will demand a bachelor's degree or higher.[89]

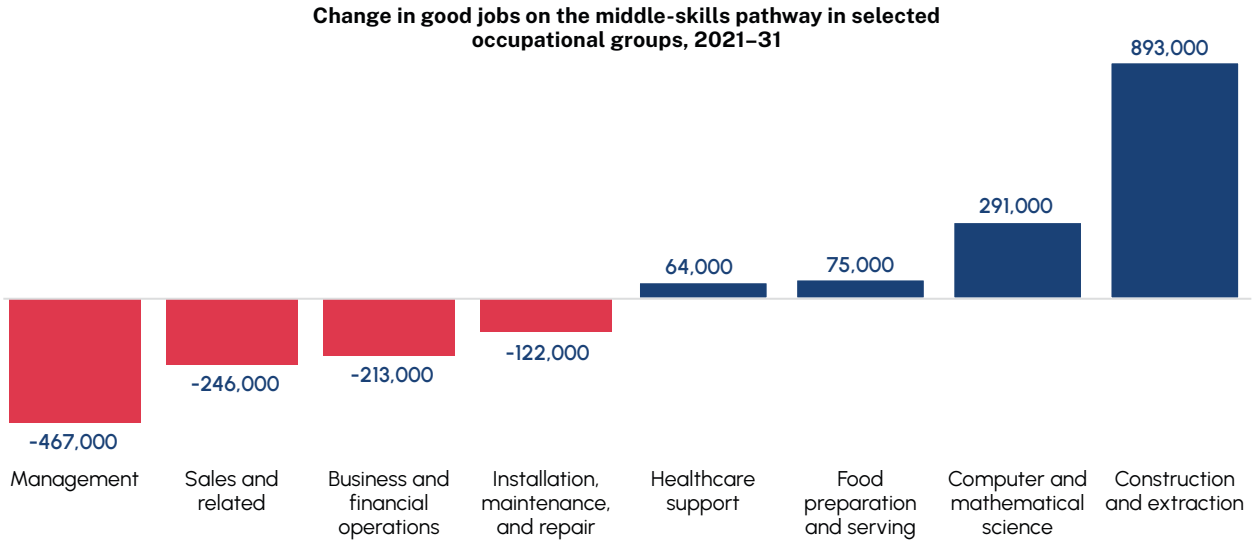
86 National League of Cities, *Hard-to-Fill Infrastructure Jobs*, 2021.

87 National League of Cities, *Hard-to-Fill Infrastructure Jobs*, 2021; Michelson, "New Job, Career Paths from Inflation Reduction Act, CHIPS Act and Infrastructure Bill," 2022.

88 Google, "Grow with Google," 2024; Katz, "What You Need to Know about Google Career Certificates," 2021.

89 Carnevale et al., *America's Divided Recovery*, 2016; Carnevale and Rose, *The Economy Goes to College*, 2015.

FIGURE 9. The largest growth in net new good jobs for workers on the middle-skills pathway will be in construction and extraction occupations, while the largest decline will be in management occupations.



Source: Georgetown University Center on Education and the Workforce projections using Carnevale et al., *After Everything*, 2023; US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), March Supplement, 1992–2020; and US Bureau of Economic Analysis, SARPP Regional Price Parities by State, 2020.

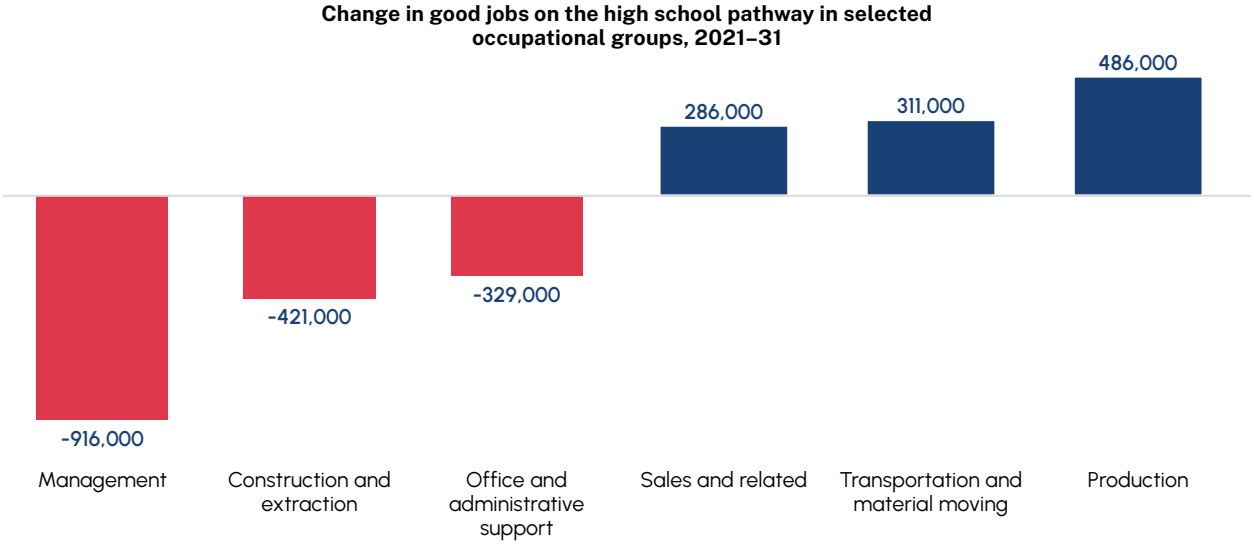
Note: This figure only shows a selected subset of occupational groups. For a full list of changes in good jobs across all 22 occupational groups on the middle-skills pathway, see Table 3. The minimum earnings threshold for good jobs is adjusted for the difference in cost of living by state and for inflation to 2020 dollars using R-CPI-U-RS.

Workers on the high school pathway will experience a decline in good jobs across many occupational groups.

Good job opportunities for workers with a high school diploma or less will decline in 10 out of 22 occupational groups between 2021 and 2031. The largest decline will be in management occupations. By 2031, this occupational group will have 916,000 fewer good jobs on the high school pathway than in 2021. This decline reflects the broader upskilling trend toward preferring workers with a bachelor's degree or higher in management occupations. The number of good jobs for high school-educated workers will also decline in construction and extraction and office and administrative support occupations, again as a result of the preference for higher levels of education within those occupations.

However, not all occupational groups will see declines in good jobs for workers on the high school pathway. The number of good jobs will increase in the production; transportation and material moving; and sales and related occupational groups for workers on the high school pathway. Among these groups, the largest increase in good jobs will be in production occupations, which will add 486,000 net new good jobs for workers with a high school diploma or less (Figure 10). The second largest increase, 311,000 net new good jobs, will be in transportation and material moving occupations. Both of these occupational groups will benefit from the Infrastructure Investment and Jobs Act of 2021.[90]

FIGURE 10. Workers on the high school pathway will see the largest decline in good jobs in management occupations through 2031, but will gain net new good jobs in production, transportation and material moving, and sales and related occupations.



Source: Georgetown University Center on Education and the Workforce projections using Carnevale et al., *After Everything*, 2023; US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), March Supplement, 1992–2020; and US Bureau of Economic Analysis, SARPP Regional Price Parities by State, 2020.

Note: This figure only shows a selected subset of occupational groups. For a full list of changes in good jobs across all 22 occupational groups on the high school pathway, see Table 3. The minimum earnings threshold for good jobs is adjusted for the difference in cost of living by state and for inflation to 2020 dollars using R-CPI-U-RS.

90 National League of Cities, *Hard-to-Fill Infrastructure Jobs*, 2021.

PART V

Promising Occupations for Workers on Each Educational Pathway

To this point, this report has focused on the growth and share of good job opportunities across occupational groups and by educational pathway from 2021 to 2031. In this part, we examine promising occupations on each of the three educational pathways.

Our promising occupations analysis seeks to answer the following questions:

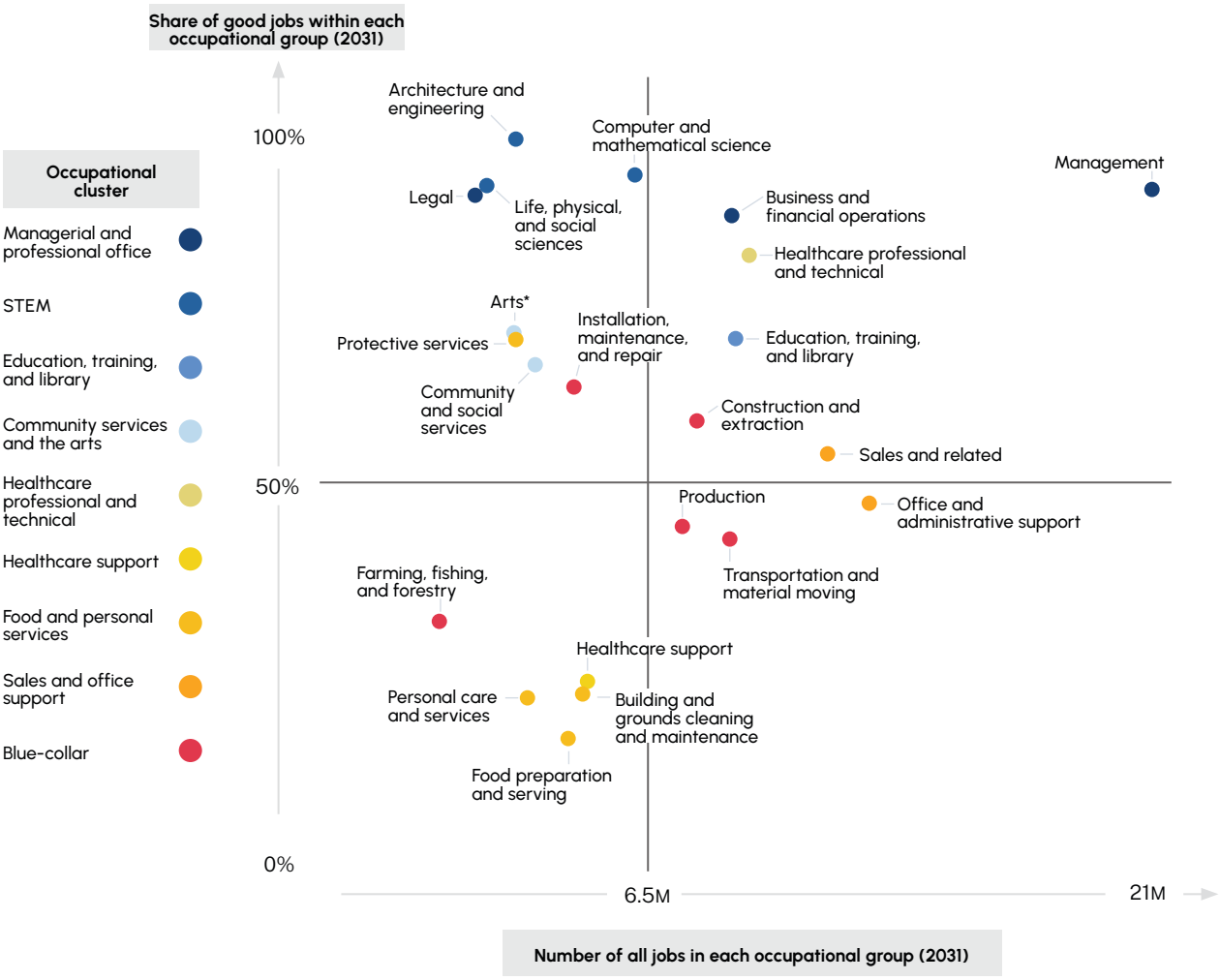
- Which occupations offer the greatest likelihood of securing a good job?
- Which occupations should workers with a bachelor's degree or higher, middle-skills, or a high school diploma or less target in order to maximize their chances of having a good job in 2031?
- What fields should career counselors suggest to current and future workers with varying degrees and qualifications?
- What training options should workforce development professionals and policymakers promote for job seekers?

The first question is a critical one, as future job availability within a given occupation does not necessarily mean that the majority of jobs in that occupation will be good. Although some occupational groups will be a significant source of jobs overall, a majority of those jobs may not meet the good job threshold. For example, the office and administrative support occupational group offers the second-largest number of jobs for all workers ages 25–64, and will continue to do so into 2031. But just 47 percent of all office and administrative support jobs will be good in 2031.

Through this lens, six occupational groups will offer the best combination of a higher number of jobs overall and a greater share of those jobs that will meet our good jobs threshold. These occupational groups include management; business and financial operations; healthcare professional and technical; education, training, and library; construction and extraction; and sales and related (Figure 11). Management offers by far the greatest number of jobs overall (21.1 million) and one of the highest shares of good jobs (87 percent).

Other occupational groups will offer a higher share of good jobs than average, but will make up a relatively small share of the total jobs available in 2031. STEM occupations — architecture and engineering; computer and mathematical science; and life, physical, and social sciences — are a prime example: 93 percent of all architecture and engineering jobs are projected to meet our definition of a good job in 2031, but this occupational group will account for only 2 percent of the jobs available to the 25-to-64-year-old workforce. Several other occupational groups that are relatively small and

Figure 11. Management, business and financial operations; healthcare professional and technical; and education, training, and library occupations will offer the best combination of a large number of jobs and the highest share of good jobs in 2031.



Source: Georgetown University Center on Education and the Workforce projections using Carnevale et al., *After Everything*, 2023; US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), March Supplement, 1992–2020; and US Bureau of Economic Analysis, SARPP Regional Price Parities by State, 2020.

Note: *Arts refers to the arts, design, entertainment, sports, and media occupational group.

will offer a higher share of good jobs than average include arts, design, entertainment, sports, and media occupations; community and social services occupations; installation, maintenance, and repair occupations; legal occupations; and protective services occupations.

Two blue-collar occupational groups — production and transportation and material moving — along with office support occupations will offer relatively large numbers of jobs overall, but less than half of those jobs will meet the good jobs earnings threshold. Another five occupational groups will offer

relatively limited job opportunity overall, as well as a small share of good jobs within this already contracted scope. These include food preparation and serving; personal care and services; building and grounds cleaning and maintenance; healthcare support; and farming, fishing, and forestry.

Certain occupational groups are expected to expand rapidly between 2021 and 2031. Despite overall growth, they currently offer few good job opportunities and will not add many new good jobs in the years to come. For instance, the number of jobs in healthcare support occupations will increase by 30 percent from 2021 to 2031, but just 24 percent of healthcare support jobs in 2031 will meet the good job threshold. Meanwhile, another growing occupational group — healthcare professional and technical — will offer workers much greater opportunity to secure a good job: 79 percent of jobs within this occupational group will be good by 2031. In other words, growth in an occupation does not necessarily mean that it offers the best odds of finding a good job or is a "promising occupation," as defined in this report.

Promising occupations offer a way to better understand future good jobs opportunities on each educational pathway.

To better help the public and workers make sense of this, we have developed a concept of promising occupations on each educational pathway. Promising occupational groups on each educational pathway must meet two criteria:

- More than half of jobs in the occupational group are projected to be good for workers on a given educational pathway in 2031, and
- The occupational group will employ a higher share of workers on a specific educational pathway than will the overall economy in 2031 (52 percent on the bachelor's degree pathway, 22 percent on the middle-skills pathway, and 26 percent on the high school pathway).

The first criterion maximizes the odds that the job the worker holds will be good. If less than half of all jobs in the occupational group for workers with a particular education level are good, then the odds are that the worker with that education level may end up in a low-paying job.

The second criterion addresses the extent to which good job opportunities will be available to workers on a given educational pathway within a specific occupational group. For example, while 74 percent of the jobs on the high school pathway in computer and mathematical science occupations will be good in 2031, just 4 percent of all jobs in computer and mathematical science occupations will be on the high school pathway. So, while it is likely that a job in computer and mathematical science occupations will be good for workers with a high school diploma or less, the odds that workers on this educational pathway will land a good job in this occupational group are very limited. Consequently, this occupational group and others like it should not be considered promising for workers with a high school diploma or less. On the other hand, the management occupational group is considered a promising occupation for workers with a bachelor's degree or higher. This is because 91 percent of all management jobs available on the bachelor's degree pathway are expected to be good in 2031, and 79 percent of all management jobs will be available to workers with bachelor's or graduate degrees compared to 52 percent of jobs across all occupations.

The bachelor's degree pathway offers the largest number of promising occupational groups.

Management

- Share of good jobs in management occupations that will be on the bachelor's degree pathway in 2031: 83 percent
- Likelihood of having a good job in management occupations on the bachelor's degree pathway in 2031: 91 percent
- Share of good jobs on the bachelor's degree pathway that will be in management occupations in 2031: 26 percent
- Share of all jobs in management occupations that will be on the bachelor's degree pathway in 2031: 79 percent

Management occupations are spread across many industries, as many workers in these occupations start out their careers in a different occupation and then advance to management. Major management occupations include general and operations managers, chief executives and legislators, financial managers, computer and information systems managers, and sales managers.[91] This occupational group will offer the largest number of good job opportunities in 2031. This group will be particularly good for individuals with bachelor's and graduate degrees, as 83 percent of good jobs in management in 2031 will be on the bachelor's degree pathway.

Business and financial operations

- Share of good jobs in business and financial operations occupations that will be on the bachelor's degree pathway in 2031: 86 percent
- Likelihood of having a good job in business and financial operations occupations on the bachelor's degree pathway in 2031: 87 percent
- Share of good jobs on the bachelor's degree pathway that will be in business and financial operations occupations in 2031: 11 percent
- Share of all jobs in business and financial operations occupations that will be on the bachelor's degree pathway in 2031: 83 percent

Workers in this occupational group perform tasks such as designing and implementing organizational systems, policies, and procedures, analyzing data and developing solutions to identified problems, maintaining employment records, recruiting and hiring employees, developing training materials, and purchasing merchandise and supplies. They also assist with financial aspects of organizational operations and provide advice and services to individuals on financial matters, including accounting,

91 Georgetown University Center on Education and the Workforce analysis of data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), Annual Social and Economic Supplement, 1993–2021 (pooled), and US Bureau of Labor Statistics, Occupational Employment and Wage Statistics, 2021.

budgeting, taxes, investments, credit, and insurance.[92] Major business and financial operations occupations include financial analysts, accountants and auditors, project management specialists, management analysts, and personal financial advisors.[93] This will be another occupational group where good jobs will overwhelmingly favor workers with a bachelor's degree or higher, with 86 percent of good jobs being available to these workers in 2031.

Legal

- Share of good jobs in legal occupations that will be on the bachelor's degree pathway in 2031: 93 percent
- Likelihood of having a good job in legal occupations on the bachelor's degree pathway in 2031: 91 percent
- Share of good jobs on the bachelor's degree pathway that will be in legal occupations in 2031: 2 percent
- Share of all jobs in legal occupations that will be on the bachelor's degree pathway in 2031: 88 percent

Professionals in this occupational group prosecute, defend, and adjudicate lawsuits, advise clients and the public on applicable laws, and prepare legal documents. Practicing the law generally requires a professional degree and a license. Consequently, people aspiring to earn a good living within the legal field will need to pursue education beyond the bachelor's degree. Major legal occupations include lawyers; judges, magistrates, and other judicial workers; and paralegals and legal assistants.[94] The vast majority, 93 percent, of good jobs in these occupations will be available to workers with bachelor's and graduate degrees in 2031.

Healthcare professional and technical

- Share of good jobs in healthcare professional and technical occupations that will be on the bachelor's degree pathway in 2031: 77 percent
- Likelihood of having a good job in healthcare professional and technical occupations on the bachelor's degree pathway in 2031: 86 percent
- Share of good jobs on the bachelor's degree pathway that will be in healthcare professional and technical occupations in 2031: 10 percent
- Share of all jobs in healthcare professional and technical occupations that will be on the bachelor's degree pathway in 2031: 70 percent

92 National Center for O*NET Development, O*NET OnLine, 2022.

93 Georgetown University Center on Education and the Workforce analysis of data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), Annual Social and Economic Supplement, 1993–2021 (pooled), and from US Bureau of Labor Statistics, Occupational Employment and Wage Statistics, 2021.

94 Georgetown University Center on Education and the Workforce analysis of data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), Annual Social and Economic Supplement, 1993–2021 (pooled), and from US Bureau of Labor Statistics, Occupational Employment and Wage Statistics, 2021; National Center for O*NET Development, O*NET OnLine, 2022.

This occupational group includes various professionals who deliver medical and healthcare services. Some of the economy's most highly-paid and educated workers belong to this occupational group. In addition, many of these workers are required to obtain and maintain a professional license from the state where they practice.[95] Major healthcare professional and technical occupations include physicians and surgeons, dentists, pharmacists, veterinarians, registered nurses, and licensed practical and vocational nurses, as well as physician assistants, dental hygienists, and physical and occupational therapists.[96] Among all good healthcare professional and technical jobs, 77 percent will demand a bachelor's degree or higher.

Education, training, and library

- Share of good jobs in education, training, and library occupations that will be on the bachelor's degree pathway in 2031: 97 percent
- Likelihood of having a good job in education, training, and library occupations on the bachelor's degree pathway in 2031: 74 percent
- Share of good jobs on the bachelor's degree pathway that will be in education, training, and library occupations in 2031: 10 percent
- Share of all jobs in education, training, and library occupations that will be on the bachelor's degree pathway in 2031: 90 percent

Workers in these occupations educate and train children and adults.[97] Unsurprisingly, these occupations prize educational attainment more than many others. Some of the jobs in these occupations, particularly those in secondary public schools and early childhood education, do not offer earnings that are highly competitive with other career opportunities for workers with bachelor's and graduate degrees. Nevertheless, the majority (74 percent) of the jobs on the bachelor's degree pathway will meet or exceed the threshold for a good job in 2031. Major education, training, and library occupations include elementary and middle school teachers, professors and postsecondary education teachers, and librarians.[98] Ninety-seven percent of all good jobs in these occupations will be on the bachelor's degree pathway in 2031.

95 Carnevale et al., *Healthcare*, 2012.

96 Georgetown University Center on Education and the Workforce analysis of data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), Annual Social and Economic Supplement, 1993–2021 (pooled), and from US Bureau of Labor Statistics, Occupational Employment and Wage Statistics, 2021.

97 National Center for O*NET Development, O*NET OnLine, 2022.

98 Georgetown University Center on Education and the Workforce analysis of data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), Annual Social and Economic Supplement, 1993–2021 (pooled), and from US Bureau of Labor Statistics, Occupational Employment and Wage Statistics, 2021.

Computer and mathematical science

- Share of good jobs in computer and mathematical science occupations that will be on the bachelor's degree pathway in 2031: 79 percent
- Likelihood of having a good job in computer and mathematical science occupations on the bachelor's degree pathway in 2031: 93 percent
- Share of good jobs on the bachelor's degree pathway that will be in computer and mathematical science occupations in 2031: 8 percent
- Share of all jobs in computer and mathematical science occupations that will be on the bachelor's degree pathway in 2031: 76 percent

Computer and mathematical science occupations have been — and will continue to be — central to the technological transformation of the US economy.[99] Workers in these occupations may facilitate the use of computer hardware, software, and networks, or use math to conduct analyses or assessments. Major computer and mathematical science occupations include software developers, statisticians, networking and computer systems administrators, actuaries, and mathematicians.[100] In 2031, 79 percent of good jobs in these occupations will demand workers with bachelor's and graduate degrees.

Architecture and engineering

- Share of good jobs in architecture and engineering occupations that will be on the bachelor's degree pathway in 2031: 84 percent
- Likelihood of having a good job in architecture and engineering occupations on the bachelor's degree pathway in 2031: 96 percent
- Share of good jobs on the bachelor's degree pathway that will be in architecture and engineering occupations in 2031: 4 percent
- Share of all jobs in architecture and engineering occupations that will be on the bachelor's degree pathway in 2031: 82 percent

Workers in architecture, surveying, and mapping occupations plan and design buildings and create maps from data that they gather.[101] Engineering professionals plan, research, design, develop, test, and repair machines, structures, electronics, equipment, vehicles, products, and processes.[102] Architecture and engineering occupations rely heavily on workers with bachelor's and graduate degrees and will provide good jobs to nearly all workers with these credentials in this occupational group. Major architecture and engineering occupations include civil engineers, industrial engineers,

99 Carnevale et al., *America's Divided Recovery,* 2016.

100 Georgetown University Center on Education and the Workforce analysis of data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), Annual Social and Economic Supplement, 1993–2021 (pooled), and US Bureau of Labor Statistics, Occupational Employment and Wage Statistics, 2021.

101 National Center for O*NET Development, O*NET OnLine, 2022.

102 National Center for O*NET Development, O*NET OnLine, 2022.

electrical engineers, mechanical engineers, aerospace engineers, and architects.[103] Good jobs on the bachelor's degree pathway will make up 84 percent of all good jobs in architecture and engineering in 2031.

Life, physical, and social sciences

- Share of good jobs in life, physical and social sciences occupations that will be on the bachelor's degree pathway in 2031: 94 percent
- Likelihood of having a good job in life, physical and social sciences occupations on the bachelor's degree pathway in 2031: 88 percent
- Share of good jobs on the bachelor's degree pathway that will be in life, physical and social sciences occupations in 2031: 3 percent
- Share of all jobs in life, physical, and social sciences occupations that will be on the bachelor's degree pathway in 2031: 94 percent

Scientists and those who assist them conduct research studies and experiments, collect samples, analyze data, and write scientific papers. Not surprisingly, a large majority of workers in life, physical, and social sciences occupations are college graduates with bachelor's and graduate degrees. Major life, physical and social sciences occupations include medical scientists, chemists, biological scientists, psychologists, political scientists, and economists.[104] Workers on the bachelor's degree pathway will account for 94 percent of all good jobs in this occupational group in 2031.

Community and social services

- Share of good jobs in community and social services occupations that will be on the bachelor's degree pathway in 2031: 96 percent
- Likelihood of having a good job in community and social services occupations on the bachelor's degree pathway in 2031: 67 percent
- Share of good jobs on the bachelor's degree pathway that will be in community and social services occupations in 2031: 4 percent
- Share of all jobs in community and social services occupations that will be on the bachelor's degree pathway in 2031: 92 percent

These occupations serve communities and provide social services, such as counseling, social work, and administering public assistance programs.[105] These jobs tend to pay less than others on the

103 Georgetown University Center on Education and the Workforce analysis of data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), Annual Social and Economic Supplement, 1993–2021 (pooled), and from US Bureau of Labor Statistics, Occupational Employment and Wage Statistics, 2021.

104 Georgetown University Center on Education and the Workforce analysis of data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), Annual Social and Economic Supplement, 1993–2021 (pooled), and from US Bureau of Labor Statistics, Occupational Employment and Wage Statistics, 2021; National Center for O*NET Development, O*NET OnLine, 2022.

105 National Center for O*NET Development, O*NET OnLine, 2022.

bachelor's degree pathway, resulting in fewer good jobs. Major community and social services occupations include social workers, counselors and advisors, and clergy.[106] In 2031, 96 percent of good jobs in community and social services occupations will be on the bachelor's degree pathway.

Arts, design, entertainment, sports, and media

- Share of good jobs in arts, design, entertainment, sports, and media occupations that will be on the bachelor's degree pathway in 2031: 81 percent
- Likelihood of having a good job in arts, design, entertainment, sports, and media occupations on the bachelor's degree pathway in 2031: 74 percent
- Share of good jobs on the bachelor's degree pathway that will be in arts, design, entertainment, sports, and media occupations in 2031: 3 percent
- Share of all jobs in arts, design, entertainment, sports and media occupations that will be on the bachelor's degree pathway in 2031: 75 percent

This diverse occupational group — which includes painting, designing, acting, newsgathering, multimedia production, and performing — will provide a broad array of opportunities to workers with bachelor's and graduate degrees. Seventy-four percent of jobs on the bachelor's degree pathway in these occupations will be good in 2031, and workers with bachelor's and graduate degrees will account for 81 percent of all workers employed in good jobs in these occupations. Major arts, design, entertainment, sports, and media occupations include graphic designers; public relations specialists; writers and authors; actors, producers, and directors; editors, news analysts, reporters, and correspondents; and athletes, coaches, umpires, and related workers.[107]

106 Georgetown University Center on Education and the Workforce analysis of data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), Annual Social and Economic Supplement, 1993–2021 (pooled), and from US Bureau of Labor Statistics, Occupational Employment and Wage Statistics, 2021.

107 Georgetown University Center on Education and the Workforce analysis of data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), Annual Social and Economic Supplement, 1993–2021 (pooled), and from US Bureau of Labor Statistics, Occupational Employment and Wage Statistics, 2021; National Center for O*NET Development, O*NET OnLine, 2022.

The middle-skills pathway offers a variety of promising blue-collar, healthcare, and protective services occupations.

Construction and extraction

- Share of good jobs in construction and extraction occupations that will be on the middle-skills pathway in 2031: 42 percent
- Likelihood of having a good job in construction and extraction occupations on the middle-skills pathway in 2031: 69 percent
- Share of good jobs on the middle-skills pathway that will be in construction and extraction occupations in 2031: 12 percent
- Share of all jobs in construction and extraction occupations that will be on the middle-skills pathway in 2031: 35 percent

Workers in construction and extraction occupations build and repair houses, offices, roads, bridges, and other structures, as well as work in mining and drilling. This occupational group includes specialized workers, such as electricians, plumbers, carpenters, and boilermakers. Bolstered by federal government funding through the Infrastructure Investment and Jobs Act,[108] middle-skills construction and extraction good job opportunities are expected to grow by 893,000 net new good jobs between 2021 and 2031. Major construction and extraction occupations include electricians; carpenters; pipelayers, plumbers, pipefitters, and steamfitters; and elevator and escalator installers and repairers.[109] Good jobs on the middle-skills pathway will account for 42 percent of all good jobs in construction and extraction occupations, compared to 19 percent of good jobs overall that will be available to workers with middle-skills education and training.

Healthcare professional and technical

- Share of good jobs in healthcare professional and technical occupations that will be on the middle-skills pathway in 2031: 20 percent
- Likelihood of having a good job in healthcare professional and technical occupations on the middle-skills pathway in 2031: 65 percent
- Share of good jobs on the middle-skills pathway that will be in healthcare professional and technical occupations in 2031: 9 percent
- Share of all jobs in healthcare professional and technical occupations that will be on the middle-skills pathway in 2031: 24 percent

108 Michelson, "New Job, Career Paths from Inflation Reduction Act, CHIPS Act and Infrastructure Bill," 2022.

109 Georgetown University Center on Education and the Workforce analysis of data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), Annual Social and Economic Supplement, 1993–2021 (pooled), and from US Bureau of Labor Statistics, Occupational Employment and Wage Statistics, 2021.

Healthcare professional and technical occupations will make up 9 percent of all middle-skills good jobs, making it the fourth largest occupational group for middle-skills good jobs. And the majority (65 percent) of middle-skills healthcare professional and technical jobs are expected to be good in 2031. Major healthcare professional and technical occupations for good jobs on the middle-skills pathway include licensed practical and licensed vocational nurses; diagnostic related technologists and technicians; dental hygienists; respiratory therapists; and emergency medical technicians and paramedics.[110]

Protective services

- Share of good jobs in protective services occupations that will be on the middle-skills pathway in 2031: 31 percent
- Likelihood of having a good job in protective services occupations on the middle-skills pathway in 2031: 69 percent
- Share of good jobs on the middle-skills pathway that will be in protective services occupations in 2031: 4 percent
- Share of all jobs in protective services occupations that will be on the middle-skills pathway in 2031: 30 percent

Workers in protective services occupations support and promote public safety and order. Major protective services occupations include firefighters; police and sheriff's patrol officers; detectives and criminal investigators; and security guards.[111] In 2031, 31 percent of all good jobs in protective services occupations will be on the middle-skills pathway, compared to 19 percent of all good jobs in the economy that will be available to workers with middle-skills education and training.

Installation, maintenance, and repair

- Share of good jobs in installation, maintenance, and repair occupations that will be on the middle-skills pathway in 2031: 38 percent
- Likelihood of having a good job in installation, maintenance, and repair occupations on the middle-skills pathway in 2031: 69 percent
- Share of good jobs on the middle-skills pathway that will be in installation, maintenance, and repair occupations in 2031: 6 percent
- Share of all jobs in installation, maintenance, and repair occupations that will be on the middle-skills pathway in 2031: 34 percent

110 Georgetown University Center on Education and the Workforce analysis of data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), Annual Social and Economic Supplement, 1993–2021 (pooled), and from US Bureau of Labor Statistics, Occupational Employment and Wage Statistics, 2021.

111 Georgetown University Center on Education and the Workforce analysis of data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), Annual Social and Economic Supplement, 1993–2021 (pooled), and from US Bureau of Labor Statistics, Occupational Employment and Wage Statistics, 2021.

These occupations entail installing, maintaining, and repairing appliances, machinery, and equipment.[112] Major installation, maintenance, and repair occupations include automotive service technicians and mechanics; heating, air conditioning, and refrigeration mechanics and installers; aircraft mechanics and service technicians; and electrical and electronics repairers.[113] This occupational group will particularly favor middle-skills workers, with a plurality (38 percent) of good jobs in this occupational group available to workers on the middle-skills pathway, compared to 19 percent of all good jobs in the US that will be available to these workers in 2031.

Production

- Share of good jobs in production occupations that will be on the middle-skills pathway in 2031: 32 percent
- Likelihood of having a good job in production occupations on the middle-skills pathway in 2031: 56 percent
- Share of good jobs on the middle-skills pathway that will be in production occupations in 2031: 7 percent
- Share of all jobs in production occupations that will be on the middle-skills pathway in 2031: 25 percent

Workers in production occupations contribute to making and assembling goods of all kinds, from food and paper, to textiles and electronics.[114] Although these occupations have traditionally employed workers with a high school education, they are increasingly demanding that workers have education and training beyond high school. This occupational group is likely to be significantly affected by automation and will undergo a major shift in skills required to perform these jobs over the decade. At the same time, these jobs will likely experience benefits from federal investments through the CHIPS and Science Act and Inflation Reduction Act.[115] Major production occupations include inspectors, testers, sorters, samplers, and weighers; tool and die makers; power plant operators; and welders, cutters, solderers, and brazers.[116] In 2031, 32 percent of good jobs in production occupations will be on the middle-skills pathway.

112 National Center for O*NET Development, O*NET OnLine, 2022.

113 Georgetown University Center on Education and the Workforce analysis of data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), Annual Social and Economic Supplement, 1993–2021 (pooled), and from US Bureau of Labor Statistics, Occupational Employment and Wage Statistics, 2021.

114 National Center for O*NET Development, O*NET OnLine, 2022.

115 Michelson, "New Job, Career Paths from Inflation Reduction Act, CHIPS Act and Infrastructure Bill," 2022.

116 Georgetown University Center on Education and the Workforce analysis of data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), Annual Social and Economic Supplement, 1993–2021 (pooled), and from US Bureau of Labor Statistics, Occupational Employment and Wage Statistics, 2021.

The high school pathway offers just one promising occupational group.

Installation, maintenance, and repair

- Share of good jobs in installation, maintenance, and repair occupations that will be on the high school pathway in 2031: 40 percent
- Likelihood of having a good job in installation, maintenance, and repair occupations on the high school pathway in 2031: 51 percent
- Share of good jobs on the high school pathway that will be in installation, maintenance, and repair occupations in 2031: 8 percent
- Share of all jobs in installation, maintenance, and repair occupations that will be on the high school pathway in 2031: 49 percent

The only promising occupational group for workers with a high school diploma or less in 2031 will be installation, maintenance, and repair. These are occupations in which workers set up, maintain, and fix a range of products and equipment. In 2031, the majority (51 percent) of installation, maintenance, and repair jobs on the high school pathway will be good. Forty percent of all good jobs in these occupations will be on the high school pathway, compared to 15 percent of all good jobs in the overall workforce. However, it is important to note that this occupational group will only add 13,000 net new good jobs for workers on the high school pathway between 2021 and 2031. Major installation, maintenance, and repair occupations for good jobs on the high school pathway include computer, automated teller, and office machine repairers; precision instrument and equipment repairers; and electronic home entertainment equipment installers and repairers.[117]

117 Georgetown University Center on Education and the Workforce analysis of data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), Annual Social and Economic Supplement, 1993–2021 (pooled), and from US Bureau of Labor Statistics, Occupational Employment and Statistics, 2021.

Conclusion

We are living in dynamic times with rapid changes on multiple fronts, including advances in technology, shifts in the demographic makeup of America, evolving public policy, and businesses redefining what they need from workers. Then there are the force majeure events that radically reshaped our lives over the past several years. For example, few could have predicted the coronavirus pandemic, which precipitated a rapid recalibration of the labor force, supply chain disruptions, and inflation to rise to levels not seen since the 1980s. Unprecedented conflicts in Ukraine and the Middle East add new uncertainty to the global outlook. Given the turbulence of the early 2020s, one might understandably worry that the rest of the decade might prove to be similarly volatile.

Indeed, much could change between now and 2031. Despite the many unknowns, our projections consistently point towards continued growth in good jobs. By 2031, there will be 15.2 million more good jobs than there were in 2021. At the same time, the share of good jobs as a proportion of all jobs will increase from 59 percent to 62 percent.

While there will be good jobs on every educational pathway in 2031—13.2 million good jobs on the high school pathway, 16.4 million good jobs on the middle-skills pathway, and 58.2 million good jobs on the bachelor's degree pathway—access to the greatest economic opportunity is increasingly tied to postsecondary education and training.

Our projections show that the future good jobs landscape will favor workers who have higher levels of education and training. The number of good jobs on the bachelor's degree pathway will grow by 37 percent by 2031, resulting in 15.6 million additional good jobs available to workers with a bachelor's degree or higher. The number of good jobs on the middle-skills pathway will be relatively stable, with growth of 1 percent from 2021 to 2031, resulting in 159,000 more good jobs available to workers with middle-skills education and training. At the other end of the spectrum, the number of good jobs on the high school pathway will decline by 4 percent over the decade, resulting in 578,000 fewer good jobs available to workers with a high school diploma or less.

This upskilling trend is reflected both across and within occupations. Occupational groups that have high concentrations of workers with bachelor's and graduate degrees—such as those in the managerial and professional office occupational cluster—are also the occupations that will experience some of the largest growth in good jobs through 2031. Moreover, within many occupational groups, good jobs on the bachelor's degree pathway will grow, while good jobs on the high school pathway will decline. These occupational groups include management; business and financial operations; computer and mathematical science; architecture and engineering; community and social services; education, training, and library; arts, design, entertainment, sports, and media; office and administrative support; and construction and extraction.

This is not to say that there will be no good jobs on the high school pathway: blue-collar occupations, bolstered in part by government investments in infrastructure, will offer some opportunity for good jobs for workers with a high school diploma or less. Still, even though blue-collar occupations will offer the best path to a good job for high-school educated workers, the majority of blue-collar jobs on the high school pathway will be low-wage. Just 36 percent of all jobs on the high school pathway will be good, compared to 79 percent of jobs on the bachelor's degree pathway and 52 percent of jobs on the middle-skills pathway. When viewed through the lens of promising occupations — or those occupations that offer both a high share of good jobs and a disproportionate number of job opportunities for workers on a particular educational pathway — only one occupation (installation, maintenance, and repair) meets the criteria for this designation along the high school pathway. By contrast, the bachelor's degree pathway has 10 promising occupational groups, and the middle-skills pathway has five. In addition, many good jobs will likely demand some specialized training or skills acquired through on-the-job learning and experience, even on the high school pathway.

It is possible that the middle-skills pathway may become more promising for workers, particularly as compared to the past several decades. Slower growth in the labor force may lead employers to expand their hiring of middle-skill workers.[118] Further investments in infrastructure, clean energy, and semiconductor manufacturing will also provide new jobs for middle-skills workers.[119] More specifically, our projections indicate that construction and extraction occupations will add close to 900,000 net new good jobs on the middle-skills pathway through 2031. Computer and mathematical science occupations will add the second largest number of good jobs (291,000) available to middle-skill workers through 2031. While still in its infancy, developments in generative AI may also complement the work of middle-skills workers, enabling them to move into roles that previously would not have been available to them.[120] Our projections underline the importance of providing more high-quality training opportunities along the middle-skills pathway to help workers realize their potential.

While the forecast for good jobs looks promising, whether we collectively make good on that promise depends in large part on the following:

- Will we give our students the education they need to succeed in the high-skill economy of the 21st century?
- Will we give our workers the opportunity to learn new skills so they can adapt to the changing technology and business environment?
- Will we consider the social and ethical implications of new technologies along with their technical and economic benefits?
- Will we provide the necessary accommodations to aging workers so they can continue to contribute to our economy if they so choose?
- Will we adopt a common-sense immigration policy that considers the economic needs of our country?

118 Fuller et al., *The Emerging Degree Reset*, 2022.

119 Pollin et al., *Employment Impacts,* 2024.

120 Acemoglu, "Can We Have Pro-Worker AI?," 2023.

- Will we find a sensible way to address growing income and wealth inequality such that it does not undermine economic growth and development?

The good jobs projections presented in this report provide a sense of the likely direction of the job market, but the future is not set in stone. Policy and practice decisions will play an important role in shaping that future. To truly set individuals up to thrive in the modern economy, we will need to ensure that all learners and workers have access to a variety of educational and career pathways that both fit their needs and meet the demands of the modern economy, along the entirety of the pre-K through workforce continuum.

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APPENDIX A

Methodology

The projected number of jobs in 2031 by occupational group and educational pathway in this report is based on the projected growth rates of all jobs by occupational group and educational pathway from the Georgetown University Center on Education and the Workforce's 2023 report, *After Everything: Projections of Jobs, Education, and Training Requirements, 2021–2031.* That report used a comprehensive assessment of a variety of macroeconomic factors, changes in occupational structure, and trends in educational distributions within occupations to forecast educational demand through 2031.[1] Using the number of jobs in 2021 and the projected number of jobs in 2031 in that report, we calculated the growth rates for 66 combinations of 22 occupational groups and three educational pathways.

Occupational groups:

- Management occupations
- Business and financial operations occupations
- Legal occupations
- Computer and mathematical science occupations
- Architecture and engineering occupations
- Life, physical, and social sciences occupations
- Education, training, and library occupations
- Community and social services occupations
- Arts, design, entertainment, sports, and media occupations
- Healthcare professional and technical occupations
- Healthcare support occupations
- Protective services occupations
- Food preparation and serving occupations
- Building and grounds cleaning and maintenance occupations
- Personal care and services occupations
- Sales and related occupations
- Office and administrative support occupations
- Farming, fishing, and forestry occupations
- Construction and extraction occupations
- Installation, maintenance, and repair occupations
- Production occupations
- Transportation and material moving occupations

1 For more information on the methodology used to project all jobs by education, see the technical appendix for Carnevale et al., *After Everything*, 2023.

The three educational pathways are the

- High school pathway, which includes workers with a high school diploma or less;
- Middle-skills pathway, which includes workers with an associate's degree or some college credit but no degree; and
- Bachelor's degree pathway, which includes workers with bachelor's and graduate degrees.

The 2021 employment totals for workers ages 25–64 were based on analysis of data from the Current Population Survey (CPS), Annual Social and Economic Supplement, 2021. Individuals who were employed during the week prior to the survey and had a positive income from work from the prior year were included in the universe of workers for the purposes of this analysis. The growth rates from *After Everything* were then applied to the total employment numbers for workers ages 25–64 for each of the 66 combinations to forecast all jobs for this age group in 2031.

Good jobs were denoted using the 2020 national earnings thresholds of $37,753 for workers ages 25–44 and $48,540 for workers ages 45–64 (these are equivalent to $42,779 and $55,003 in 2022 dollars, which round to $43,000 and $55,000), adjusted to account for cost-of-living differences by state, using US Bureau of Economic Analysis, SARPP, Regional Price Parities by State (RPPs): All Items Index, 2020. The earnings from all prior years (1992–2019) were adjusted to 2020 dollars, using the Consumer Price Index retroactive series using current methods (R-CPI-U-RS) from the US Bureau of Labor Statistics. The earnings thresholds in the report were updated to 2022 dollars to provide references that are more in line with recent increases in inflation.

For each of the 66 categories, the 1992–2020 trend for the likelihood of having a good job (i.e., the share of all jobs that meet the good jobs threshold) was calculated based on the total employment and the number of workers with good jobs for individuals ages 25–64, using the data from the Current Population Survey (CPS), Annual Social and Economic Supplement, 1993–2021. These trend data were then used to forecast the likelihood of having a good job for 2021–31, for each of the 66 combinations of occupational groups and educational pathways, using exponential smoothing.[2]

2 Double-or triple-exponential smoothing approaches were used, depending on the amount of cyclicality in the data.

In addition, the projections for the numbers of good jobs in 2031 were further double-adjusted for the following combinations of occupational groups and educational pathways (as exponential smoothing was not found to provide sufficiently reliable forecast for these):[3]

- Business and financial operations occupations on the middle-skills pathway
- Life, physical, and social sciences occupations on the high school pathway
- Life, physical, and social sciences occupations on the middle-skills pathway
- Community and social services occupations on the middle-skills pathway
- Community and social services occupations on the bachelor's degree pathway
- Legal occupations on the middle-skills pathway
- Arts, design, entertainment, sports, and media occupations on the bachelor's degree pathway
- Healthcare support occupations on the bachelor's degree pathway
- Food preparation and serving occupations on the bachelor's degree pathway
- Building and grounds cleaning and maintenance occupations on the bachelor's degree pathway
- Farming, fishing, and forestry occupations on the middle-skills pathway
- Farming, fishing, and forestry occupations on the bachelor's degree pathway
- Installation, maintenance, and repair occupations on the bachelor's degree pathway
- Production occupations on the bachelor's degree pathway

The estimates for these combinations were double-adjusted based on the forecasts of the likelihood of a good job in 2031 at the overall educational pathway level and the overall occupation group level, using exponential smoothing.

Promising occupations for each educational pathway were identified on the basis of two criteria:

- More than half of jobs in the occupational group are projected to be good for workers on a given educational pathway in 2031.
- The occupational group will employ a higher share of workers on a specific educational pathway than will the overall economy in 2031.

3 The following occupational group and educational pathway combinations were also initially included in the adjustment group, but were reverted to unadjusted estimates, as adjustments provided estimates that were outside of the 95 percent confidence interval for the original forecasts: computer and mathematical science occupations on the high school pathway; legal occupations on the high school pathway; and arts, design, entertainment, sports, and media occupations on the high school pathway.

APPENDIX B

Good Jobs Thresholds by Cost of Living by State

	Adjusted minimum good job earnings threshold, 2020 (in 2022$)	
	For workers ages 25–44 (highest to lowest)	For workers ages 45–64 (highest to lowest)
Hawaii	$47,900	$61,600
District of Columbia	$47,700	$61,300
New Jersey	$47,600	$61,100
California	$47,200	$60,700
New York	$47,100	$60,600
Massachusetts	$46,000	$59,100
Washington	$45,900	$59,100
Maryland	$45,500	$58,600
New Hampshire	$44,400	$57,000
Connecticut	$44,300	$56,900
Alaska	$44,200	$56,800
Colorado	$44,000	$56,600
Oregon	$43,900	$56,400
Rhode Island	$43,600	$56,000
Virginia	$43,200	$55,500
Florida	$43,100	$55,400
Illinois	$43,000	$55,300
Texas	$42,600	$54,800
Vermont	$42,500	$54,600
Arizona	$42,400	$54,500
Minnesota	$42,200	$54,200
Delaware	$41,900	$53,800
Pennsylvania	$41,700	$53,700

	Adjusted minimum good job earnings threshold, 2020 (in 2022$)	
	For workers ages 25–44 (highest to lowest)	For workers ages 45–64 (highest to lowest)
Nevada	$41,500	$53,400
Maine	$41,400	$53,200
Utah	$40,800	$52,400
Georgia	$40,400	$52,000
Michigan	$40,200	$51,700
Wisconsin	$39,900	$51,300
Nebraska	$39,700	$51,100
Louisiana	$39,700	$51,000
Indiana	$39,600	$50,900
Missouri	$39,600	$50,900
Montana	$39,500	$50,800
Kansas	$39,500	$50,800
Wyoming	$39,500	$50,700
Tennessee	$39,400	$50,700
North Dakota	$39,400	$50,600
North Carolina	$39,300	$50,500
Ohio	$39,200	$50,400
South Carolina	$39,200	$50,400
New Mexico	$39,200	$50,400
South Dakota	$39,200	$50,300
Oklahoma	$39,100	$50,200
Idaho	$39,000	$50,200
Iowa	$38,900	$50,100
Kentucky	$38,400	$49,400
Alabama	$38,200	$49,100
Arkansas	$38,200	$49,100
West Virginia	$37,600	$48,400
Mississippi	$37,500	$48,300

Source: Georgetown University Center on Education and the Workforce estimates based on data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), 2021; and US Bureau of Economic Analysis, SARPP Regional Price Parities by State (All Items Index), 2020.

APPENDIX C

Occupational Groups to BLS Occupation Groups Crosswalk

Occupational clusters	Occupational groups	BLS occupational groups
Managerial and professional office	Management	Management
	Business and financial operations	Business and financial
	Legal	Legal
STEM	Computer and mathematical science	Computer and information technology
		Math
	Architecture and engineering	Architecture and engineering
	Life, physical, and social sciences	Life, physical, and social science
Education, training and library	Education, training, and library	Education, training, and library
Community services and the arts	Community and social services	Community and social services
	Arts, design, entertainment, sports, and media	Arts and design
		Entertainment and sports
		Media and communication
Sales and office support	Sales and related	Sales
	Office and administrative support	Office and administrative support
Healthcare professional and technical	Healthcare professional and technical	Healthcare
Healthcare support	Healthcare support	
Food and personal services	Food preparation and serving	Food preparation and serving
	Personal care and services	Personal care and service
	Protective services	Protective services
	Building and grounds cleaning and maintenance	Building and grounds cleaning
Blue-collar	Construction and extraction	Construction and extraction
	Farming, fishing, and forestry	Farming, fishing, and forestry
	Installation, maintenance, and repair	Installation, maintenance, and repair
	Transportation and material moving	Transportation and material moving
	Production	Production

Source: Georgetown University Center on Education and the Workforce aggregations based on US Bureau of Labor Statistics, Occupational Outlook Handbook, 2022.

APPENDIX D

Additional Information on the Promising Occupational Groups on the Three Educational Pathways

This appendix presents additional information on promising occupations. This information includes the detailed occupations with the highest share of workers on the relevant educational pathway, the largest occupations in each occupational group, and the occupations with the highest median earnings in 2021 in each occupational group.

Promising occupations on the bachelor's degree pathway

Management

Management occupations in which workers with a bachelor's degree or higher hold a significant share of good jobs:

- Natural sciences managers
- Education administrators
- Architectural and engineering managers
- Social and community service managers
- Computer and information systems managers
- Chief executives and legislators[4]

Largest management occupations:

- General and operations managers
- Financial managers
- Managers, all other
- Computer and information systems managers
- Sales managers

4 Georgetown University Center on Education and the Workforce analysis of data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), Annual Social and Economic Supplement, 1993–2021 (pooled).

Management occupations with the highest median earnings:

- Chief executives ($179,000)
- Computer and information systems managers ($159,000)
- Architectural and engineering managers ($152,000)
- Natural sciences managers ($138,000)
- Marketing managers ($135,000)[5]

Business and financial operations

Business and financial operations occupations in which workers with a bachelor's degree or higher hold a significant share of good jobs:

- Financial analysts
- Meeting and convention planners
- Accountants and auditors
- Personal financial advisors
- Financial examiners[6]

Largest business and financial operations occupations:

- Accountants and auditors
- Business operations specialists, all other
- Management analysts
- Project management specialists
- Human resources specialists

Business and financial operations occupations with the highest median earnings:

- Financial risk specialists ($100,000)
- Project management specialists ($95,000)
- Personal financial advisors ($94,000)
- Management analysts ($93,000)
- Financial and investment analysts ($92,000) [7]

5 Georgetown University Center on Education and the Workforce analysis of data from US Bureau of Labor Statistics, Occupational Employment and Wage Statistics, 2021.

6 Georgetown University Center on Education and the Workforce analysis of data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), Annual Social and Economic Supplement, 1993–2021 (pooled).

7 Georgetown University Center on Education and the Workforce analysis of data from US Bureau of Labor Statistics, Occupational Employment and Wage Statistics, 2021.

Legal

Legal occupations in which workers with a bachelor's degree or higher hold a significant share of good jobs:

- Lawyers
- Judges, magistrates, and other judicial workers[8]

Largest legal occupations:

- Lawyers
- Paralegals and legal assistants
- Title examiners, abstractors, and searchers

Legal occupations with the highest median earnings:

- Judges, magistrate judges, and magistrates ($148,000)
- Lawyers ($128,000)
- Administrative law judges, adjudicators, and hearing officers ($103,000)[9]

Healthcare professional and technical

Healthcare professional and technical occupations in which workers with a bachelor's degree or higher hold a significant share of good jobs:

- Audiologists
- Podiatrists
- Dentists
- Physicians and surgeons
- Veterinarians
- Chiropractors
- Optometrists
- Pharmacists[10]

8 Georgetown University Center on Education and the Workforce analysis of data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), Annual Social and Economic Supplement, 1993–2021 (pooled).

9 Georgetown University Center on Education and the Workforce analysis of data from US Bureau of Labor Statistics, Occupational Employment and Wage Statistics, 2021.

10 Georgetown University Center on Education and the Workforce analysis of data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), Annual Social and Economic Supplement, 1993–2021 (pooled).

Largest healthcare professional and technical occupations:

- Registered nurses
- Licensed practical and vocational nurses
- Pharmacy technicians
- Clinical laboratory technologists and technicians
- Pharmacists

Healthcare professional and technical occupations with the highest median earnings:

- Physicians and surgeons, various specialties ($208,000 or higher)[11]
- Nurse anesthetists ($196,000)
- Dentists, all other specialties ($175,000)
- Pediatricians, general ($170,000)
- Dentists, general ($160,000)
- Podiatrists ($146,000)[12]

Education, training, and library

Education, training, and library occupations in which workers with a bachelor's degree or higher hold a significant share of good jobs:

- Elementary and middle school teachers
- Secondary school teachers
- Special education teachers
- Postsecondary education teachers
- Librarians[13]

Largest education, training, and library occupations:

- Elementary school teachers
- Teaching assistants
- Secondary school teachers
- Middle school teachers
- Preschool teachers

11 Annual median earnings for physicians and surgeons across various specialties are top-coded to $208,000 or more in US Bureau of Labor Statistics, Occupational Employment and Wage Statistics, 2021.

12 Georgetown University Center on Education and the Workforce analysis of data from US Bureau of Labor Statistics, Occupational Employment and Wage Statistics, 2021.

13 Georgetown University Center on Education and the Workforce analysis of data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), Annual Social and Economic Supplement, 1993–2021 (pooled).

Education, training, and library occupations with the highest median earnings:

- Law professors/Postsecondary teachers ($123,000)
- Engineering professors/Postsecondary teachers ($105,000)
- Economics professors/Postsecondary teachers ($105,000)
- Health specialties professors/Postsecondary teachers ($103,000)
- Atmospheric, earth, marine, and space professors/Postsecondary teachers ($98,000)[14]

Computer and mathematical science

Computer and mathematical science occupations in which workers with a bachelor's degree or higher hold a significant share of good jobs:

- Actuaries
- Mathematical science occupations, other
- Statisticians
- Software developers
- Database administrators[15]

Largest computer and mathematical science occupations:

- Software developers
- Computer user support specialists
- Computer systems analysts
- Computer occupations, all other
- Networking and computer systems administrators

Computer and mathematical science occupations with the highest median earnings:

- Computer and information research scientists ($131,000)
- Database architects ($123,000)
- Software developers ($121,000)
- Computer network architects ($121,000)
- Mathematicians ($108,000)[16]

14 Georgetown University Center on Education and the Workforce analysis of data from US Bureau of Labor Statistics, Occupational Employment and Wage Statistics, 2021.

15 Georgetown University Center on Education and the Workforce analysis of data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), Annual Social and Economic Supplement, 1993–2021 (pooled).

16 Georgetown University Center on Education and the Workforce analysis of data from US Bureau of Labor Statistics, Occupational Employment and Wage Statistics, 2021.

Architecture and engineering

Architecture and engineering occupations in which workers with a bachelor's degree or higher hold a significant share of good jobs:

- Architects, except naval
- Aerospace engineers
- Chemical engineers
- Environmental engineers
- Petroleum, mining, and geological engineers[17]

Largest architecture and engineering occupations:

- Civil engineers
- Industrial engineers
- Mechanical engineers
- Electrical engineers
- Engineers, all other

Architecture and engineering occupations with the highest median earnings:

- Petroleum engineers ($131,000)
- Computer hardware engineers ($128,000)
- Aerospace engineers ($122,000)
- Nuclear engineers ($120,000)
- Chemical engineers ($92,000)[18]

17 Georgetown University Center on Education and the Workforce analysis of data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), Annual Social and Economic Supplement, 1993–2021 (pooled).

18 Georgetown University Center on Education and the Workforce analysis of data from US Bureau of Labor Statistics, Occupational Employment and Wage Statistics, 2021.

Life, physical, and social sciences

Life, physical, and social sciences occupations in which workers with a bachelor's degree or higher hold a significant share of good jobs:

- Medical and life scientists, other
- Environment scientists and geoscientists
- Economists and market researchers
- Biological scientists
- Psychologists[19]

Largest life, physical, and social sciences occupations:

- Medical scientists
- Occupational, health, and safety specialists
- Chemists
- Environmental scientists and specialists
- Biological technicians

Life, physical, and social sciences occupations with the highest median earnings:

- Physicists ($152,000)
- Astronomers ($128,000)
- Political scientists ($123,000)
- Economists ($106,000)
- Industrial-organizational psychologists ($105,000)[20]

Community and social services

Community and social services occupations in which workers with a bachelor's degree or higher hold a significant share of good jobs:

- Counselors
- Clergy
- Social workers
- Directors of religious activities and education
- Religious workers, other[21]

19 Georgetown University Center on Education and the Workforce analysis of data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), Annual Social and Economic Supplement, 1993–2021 (pooled).

20 Georgetown University Center on Education and the Workforce analysis of data from US Bureau of Labor Statistics, Occupational Employment and Wage Statistics, 2021.

21 Georgetown University Center on Education and the Workforce analysis of data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), Annual Social and Economic Supplement, 1993–2021 (pooled).

Largest community and social services occupations:

- Social and human service assistants
- Child, family, and school social workers
- Substance abuse, behavioral disorder, and mental health counselors
- Educational, guidance, and career counselors and advisors
- Healthcare social workers

Community and social services occupations with the highest median earnings:

- Social workers, all other ($62,000)
- Healthcare social workers ($61,000)
- Health education specialists ($61,000)
- Educational, guidance, and career counselors and advisors ($61,000)
- Probation officers and correctional treatment specialists ($60,000)[22]

Arts, design, entertainment, sports, and media

Arts, design, entertainment, sports, and media occupations in which workers with a bachelor's degree or higher hold a significant share of good jobs:

- Editors, news analysts, reporters, and correspondents
- Writers and authors
- Public relations specialists
- Actors, producers, and directors
- Athletes, coaches, umpires, and related workers[23]

Largest arts, design, entertainment, sports, and media occupations:

- Public relations specialists
- Graphic designers
- Coaches and scouts
- Merchandise displayers and window trimmers
- Producers and directors

22 Georgetown University Center on Education and the Workforce analysis of data from US Bureau of Labor Statistics, Occupational Employment and Wage Statistics, 2021.

23 Georgetown University Center on Education and the Workforce analysis of data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), Annual Social and Economic Supplement, 1993–2021 (pooled).

Arts, design, entertainment, sports, and media occupations with the highest median earnings:

- Art directors ($101,000)
- Producers and directors ($79,000)
- Special effects artists and animators ($79,000)
- Technical writers ($78,000)
- Fashion designers ($77,000)[24]

Promising occupations on the middle-skills pathway

Construction and extraction

Construction and extraction occupations in which workers with middle-skills education and training hold a significant share of good jobs:

- Electricians
- Elevator installers and repairers
- Construction and building inspectors
- Pipelayers, plumbers, pipefitters, and steamfitters
- Sheet metal workers[25]

Largest construction and extraction occupations:

- Construction laborers
- Carpenters
- First-line supervisors of construction and extraction workers
- Electricians
- Plumbers, pipefitters, and steamfitters

Construction and extraction occupations with the highest median earnings:

- Elevator and escalator installers and repairers ($98,000)
- Pile driver operators ($76,000)
- First-line supervisors of construction and extraction workers ($72,000)
- Boilermakers ($64,000)

24 Georgetown University Center on Education and the Workforce analysis of data from US Bureau of Labor Statistics, Occupational Employment and Wage Statistics, 2021.

25 Georgetown University Center on Education and the Workforce analysis of data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), Annual Social and Economic Supplement, 1993–2021 (pooled).

- Rail-track laying and maintenance equipment operators ($62,000)[26]

Healthcare professional and technical

Healthcare professional and technical occupations in which workers with middle-skills education and training hold a significant share of good jobs:

- Licensed practical and licensed vocational nurses
- Emergency medical technicians and paramedics
- Respiratory therapists
- Diagnostic related technologists and technicians
- Dental hygienists[27]

Protective services

Protective services occupations in which workers with middle-skills education and training hold a significant share of good jobs:

- Firefighters
- First-line supervisors of fire-fighting and prevention workers
- First-line supervisors of correctional officers
- Fire inspectors
- Sheriffs, bailiffs, correctional officers, and jailers[28]

Largest protective services occupations:

- Security guards
- Police and sheriff's patrol officers
- Correctional officers and jailers
- Firefighters
- First-line supervisors of police and detectives

Protective services occupations with the highest median earnings:

- First-line supervisors of police and detectives ($99,000)
- Detectives and criminal investigators ($84,000)

26 Georgetown University Center on Education and the Workforce analysis of data from US Bureau of Labor Statistics, Occupational Employment and Wage Statistics, 2021.

27 Georgetown University Center on Education and the Workforce analysis of data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), Annual Social and Economic Supplement, 1993–2021 (pooled).

28 Georgetown University Center on Education and the Workforce analysis of data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), Annual Social and Economic Supplement, 1993–2021 (pooled).

- First-line supervisors of firefighting and prevention workers ($78,000)
- Transit and railroad police ($65,000)
- Police and sheriff's patrol officers ($65,000)[29]

Installation, maintenance, and repair

Installation, maintenance, and repair occupations in which workers with middle-skills education and training hold a significant share of good jobs:

- Avionics technicians
- Aircraft mechanics and service technicians
- Security and fire alarm systems installers
- Precision instrument and equipment repairers
- Electrical and electronics repairers, transportation equipment, and industrial and utility equipment[30]

Largest installation, maintenance, and repair occupations:

- General maintenance and repair workers
- Automotive service technicians and mechanics
- First-line supervisors of mechanics, installers, and repairers
- Industrial machinery mechanics
- Heating, air conditioning, and refrigeration mechanics and installers

Installation, maintenance, and repair occupations with the highest median earnings:

- Electrical and electronics repairers, powerhouse, substation, and relay ($93,000)
- Signal and track switch repairers ($81,000)
- Electrical power-line installers and repairers ($78,000)
- Electrical and electronics installers and repairers, transportation equipment ($77,000)
- First-line supervisors of mechanics, installers, and repairers ($71,000)[31]

29 Georgetown University Center on Education and the Workforce analysis of data from US Bureau of Labor Statistics, Occupational Employment and Wage Statistics, 2021.

30 Georgetown University Center on Education and the Workforce analysis of data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), Annual Social and Economic Supplement, 1993–2021 (pooled).

31 Georgetown University Center on Education and the Workforce analysis of data from US Bureau of Labor Statistics, Occupational Employment and Wage Statistics, 2021.

Production

Production occupations in which workers with middle-skills education and training hold a significant share of good jobs:

- Tool and die makers
- Medical, dental, and ophthalmic laboratory technicians
- Aircraft structure, surfaces, rigging, and systems assemblers
- Engine and other machine assemblers
- Power plant operators, distributors, and dispatchers[32]

Largest production occupations:

- Miscellaneous assemblers and fabricators
- First-line supervisors of production and operating workers
- Inspectors, testers, sorters, samplers, and weighers
- Welders, cutters, solderers, and brazers
- Packaging and filling machine operators and tenders

Production occupations with the highest median earnings:

- Nuclear power reactor operators ($104,000)
- Power distributors and dispatchers ($99,000)
- Power plant operators ($81,000)
- Petroleum pump system operators, refinery operators, and gaugers ($80,000)
- Gas plant operators ($78,000)[33]

Promising occupations on the high school pathway

Installation, maintenance, and repair

Installation, maintenance, and repair occupations in which workers with a high school diploma or less currently hold a significant share of good jobs:

- Automotive body and related repairers
- Manufactured building and mobile home installers
- Vehicle and mobile equipment mechanics, installers, and repairers, other
- Helpers
- Bus and truck mechanics and diesel engine specialists[34]

32 Georgetown University Center on Education and the Workforce analysis of data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), Annual Social and Economic Supplement, 1993–2021 (pooled).

33 Georgetown University Center on Education and the Workforce analysis of data from US Bureau of Labor Statistics, Occupational Employment and Wage Statistics, 2021.

34 Georgetown University Center on Education and the Workforce analysis of data from US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), Annual Social and Economic Supplement, 1993–2021 (pooled).

The Future of Good Jobs: Projections through 2031 can be accessed online at cew.georgetown.edu/goodjobsprojections2031.

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