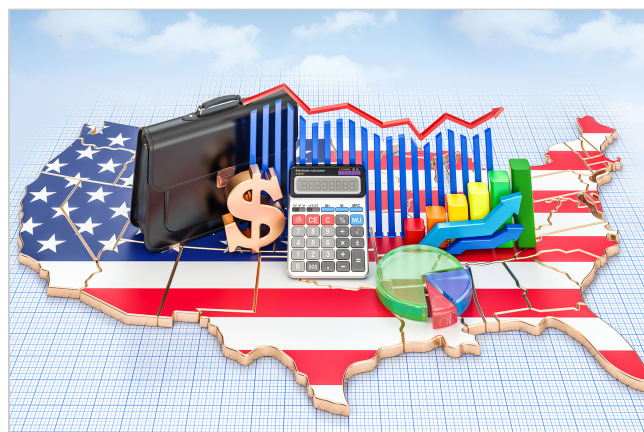


Projections overview and highlights, 2019–29

Employment and real output growth are projected to slow from 2019 to 2029. One in four people will be ages 65 and older in 2029, contributing to slower projected growth in the labor force and a continued decline in the labor force participation rate. The aging population is expected to continue to drive strong demand for a variety of healthcare services, with 3.1 million jobs projected to be added in the healthcare and social assistance sector through 2029.



The U.S. Bureau of Labor Statistics (BLS) projects 0.4-percent annual growth in employment over the 2019–29 decade.^[1] This projected growth is slower than the growth that occurred over the 2009–19 decade, which was marked by faster recovery growth following the trough of the 2007–09 Great Recession. The total economy will add about 6.0 million jobs, with employment reaching a level of 168.8 million in 2029. Various demographic trends, including an aging population, are expected to drive slow growth in the labor force and a lower labor force participation rate over the projections period. These demographic trends, combined with slower growth in the civilian noninstitutional population, will affect population and labor force, aggregate demand, industry output and employment, and occupational employment projections over the 2019–29 decade.

This article presents an overview of the 2019–29 projections. Highlights include the following:

- Labor force growth is projected to be slower (0.5-percent annual growth), in part, from an aging population and slower population growth among Hispanics.
- The labor force participation rate is projected to continue to decline from 63.1 percent in 2019 to 61.2 percent in 2029.

- Gross domestic product (GDP) is projected to continue to grow (1.8 percent annually), but at a slower rate than the historical pattern.
- Most employment gains over the 2019–29 period are expected to be in the service-providing sectors, led by strong growth in the healthcare and social assistance sector. The aging population will continue to create strong demand for industries and occupations that provide healthcare and related services.

Compared with the prior decade, population growth is expected to slow from 2019 to 2029, in part, because of the slowed growth among the Hispanic population. The median age of the population will continue to rise, with all baby boomers reaching ages 65 and older by 2029. This increase in median age and an increase in the number of younger people choosing to pursue education before entering the labor force are expected to contribute to a decline in the labor force participation rate in 2029.

Real output is projected to increase by more than \$6.8 trillion from 2019 to 2029, with most growth expected to occur in the service-providing sectors. The 1.8-percent annual growth in output projected for the total economy is slower than the 2.2-percent annual growth from 2009 to 2019.

Total employment is projected to grow 0.4-percent annually from 2019 to 2029, slower than the 1.3-percent annual growth rate experienced from 2009 to 2019, following the trough of the 2007–09 recession.^[2] By comparison, the average of the 10-year growth rates for each year over the period 2007 through 2019 was 0.5 percent. Service-providing sectors will account for most of the jobs added by 2029. Of the 6.0 million jobs projected to be added to the economy, about half (3.1 million) are expected to be in the healthcare and social assistance sector. Employment increases in this sector will stem from greater demand for a variety of healthcare services as the population continues to age and rates of chronic disease continue to increase.

Employment declines are expected in the goods-producing sectors, with the manufacturing sector leading the losses. Increasing automation, combined with international competition, will lead to employment declines in the manufacturing sector and in many of the production occupations concentrated in this sector. Changing consumer preferences and the increase in the use of technology will lead to declines in employment in the postal service, retail trade, agriculture, and several information-related industries.

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Effects of the COVID-19 pandemic on the 2019–29 projections

The 2019–29 projections do not include impacts of the coronavirus disease 2019 (COVID-19) pandemic and response efforts. BLS develops the BLS employment projections by using models based on historical data, which, in this set of projections, cover the period through 2019; therefore, all input data precede the pandemic. In addition, the 2019–29 projections were finalized in spring 2020 when substantial uncertainty about the duration and impacts of the pandemic still existed.

The BLS employment projections are long-term projections intended to capture structural change in the economy, not cyclical fluctuations. As such, they are not intended to capture the impacts of the recession that began in February 2020. However, besides the immediate recessionary impacts, the pandemic may cause new structural changes to the economy. BLS releases new employment projections annually, and subsequent projections will incorporate new information on economic structural changes as it becomes available.

To provide more information about potential impacts before the release of the 2020–30 projections, BLS has developed alternate scenarios for the 2019–29 projections period that encompass possible impacts from the pandemic. By comparing these alternate scenarios with the baseline 2019–29 projections released here, one can see how changes in consumer behavior caused by the pandemic may alter the projections for detailed occupations and industries. An analysis of these scenarios can be found in the *Monthly Labor Review* article “[Employment projections in a pandemic environment](#).”

Preparing the projections—methodology overview

BLS prepares projections in four areas: population and labor force, aggregate demand, industry output and employment, and occupational employment. Each step in the projections process affects those that follow. The expectations for the population affect those for the labor force, which in turn affect the projections for productivity and GDP growth. These projections further affect output and employment at the industry level, which then limit occupational employment projections.

BLS makes labor force projections by incorporating U.S. Census Bureau population projections in BLS projections of the labor force participation rate. In the BLS labor force model, population growth and changes in participation rates are the main factors in labor force growth. However, most of the changes in labor force growth are due to changes in the population. The current BLS labor force projections to 2029 are based on the 2018 national population projections made by the U.S. Census Bureau. The projections include assumptions about future fertility and mortality rates of the U.S. population. Also included are assumptions about immigration, an important but uncertain factor affecting the size of the future labor force (immigration data are from the Census Bureau).

Because labor force growth is one of the major determinants of long-term economic growth, labor force projections describe the future path of the economy and its capacity to create goods and services. The long-term gradual

slowdown in the labor force growth continues to be key in determining the growth of the economy and of employment.

BLS develops macroeconomic projections with a model licensed from Macroeconomic Advisers (MA) by IHS Markit.^[3] The MA model includes an assumption of full employment in the target year, allowing the projections to underscore structural changes in the economy rather than cyclical movements in the business cycle. Energy prices come from the Energy Information Administration (EIA), and BLS determines other critical variables and supplies them to the MA model exogenously.^[4] The MA model then projects economic aggregates, including total employment, output, productivity, prices, interest rates, and many other variables for the U.S. economy. These variables, most importantly nonfarm payroll employment, labor productivity, and GDP, serve as constraints for the industry output and employment projections. These critical variables set the parameters for the nation's economic growth and set the trend that GDP will follow and the number of jobs needed to support that trend.

BLS produces model-based projections for hundreds of detailed industries that are then summed to subsectors and sectors. Macroeconomic factors, such as the labor force, GDP and its components, and labor productivity, affect the growth in total employment. Along with projections models for the individual industries, these factors determine the final projections of industry employment and output.

BLS produces occupational employment projections by analyzing current and projected future staffing patterns (the distribution of occupations within an industry) in an industry–occupation matrix. Changes in the staffing pattern for each industry are projected and applied to the final industry projections, yielding detailed occupational projections by industry. This projected employment matrix includes estimates for 790 occupations across 295 industries.^[5]

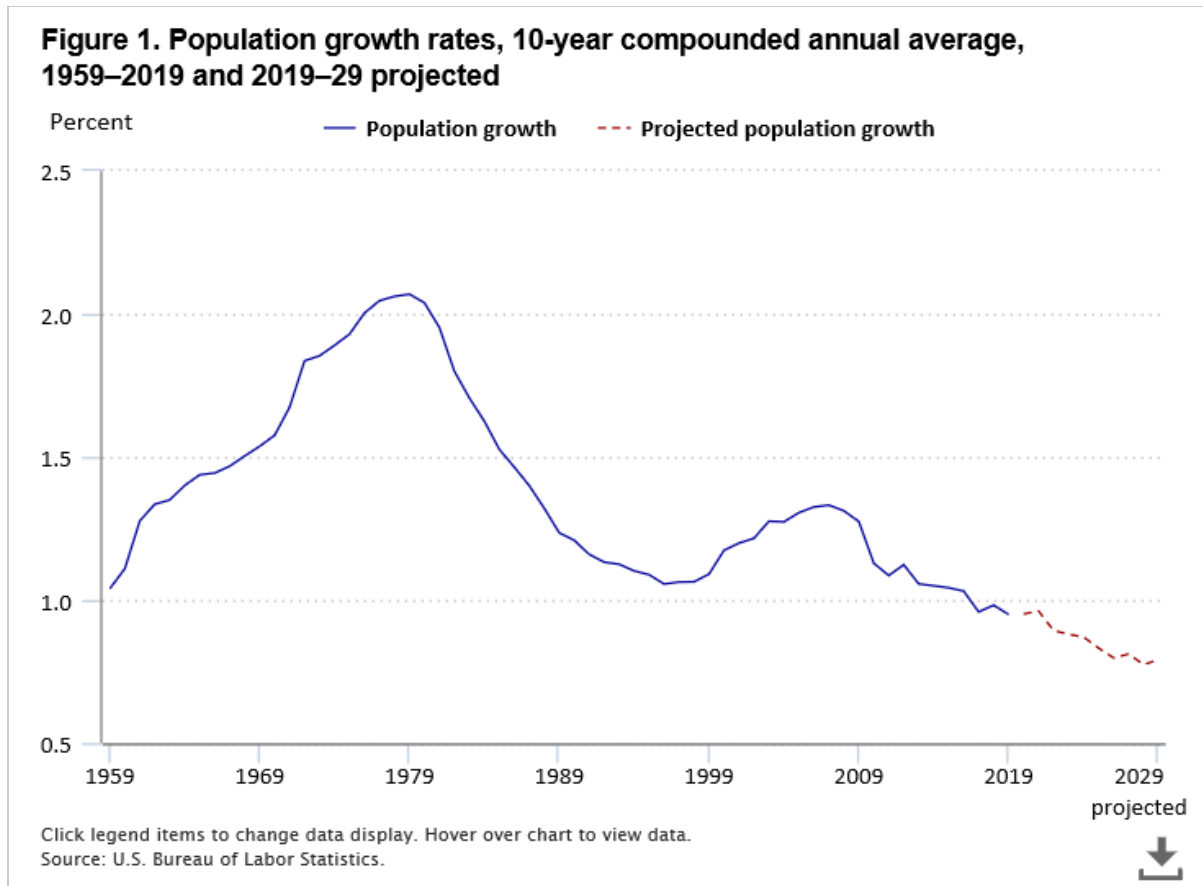
The current projections, for 2019–29, are the first set released annually. Prior projections were released every 2 years.

Population and labor force

The population and labor force (the number of people ages 16 and older who are either working or actively looking for work) have been steadily growing over the span of U.S. history.^[6] However, the growth for both has slowed over the last few decades and is expected to continue slowing over the 2019–29 decade. The labor force participation rate—the percentage of the civilian noninstitutional population in the labor force—has declined since the start of the 21st century because of the aging baby boom generation and other demographic trends. Slower growth of the population and the labor force and a continued decline in the participation rate are projected over the next decade.

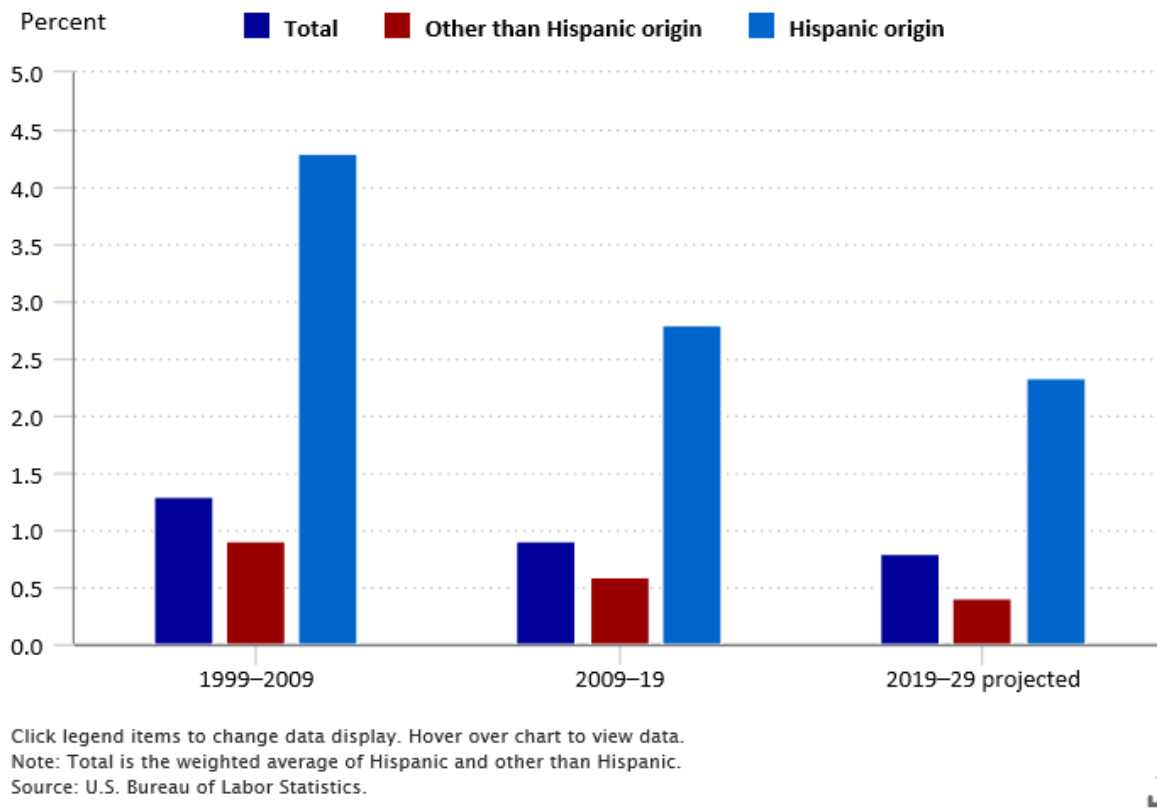
Population

Population growth has slowed substantially since the late 1970s, and this trend is projected to continue. (See figure 1.) The high growth rates in the late 1970s correspond with the start of the “echo boom,” when children of the baby boomers entered their prime childbearing years.^[7] The smaller uptick in the 2000s can be partially attributed to increased immigration. Between 1999 and 2009, 3.8 percentage points of resident population growth were attributable to immigration. Immigration then slowed a bit during and after the 2007–09 recession, contributing only 3.0 percentage points between 2009 and 2019.^[8]



Over the 2000–10 decade, approximately half of all immigrants reported Hispanic ethnicity.^[9] The Hispanic population grew 4.3 percent compounded annually between 1999 and 2009, faster than the 0.9-percent compounded annual growth in the non-Hispanic population. (See figure 2.) The high Hispanic growth rate was not strictly because of immigration. The birth rate amongst Hispanic individuals was higher than that of non-Hispanics.^[10]

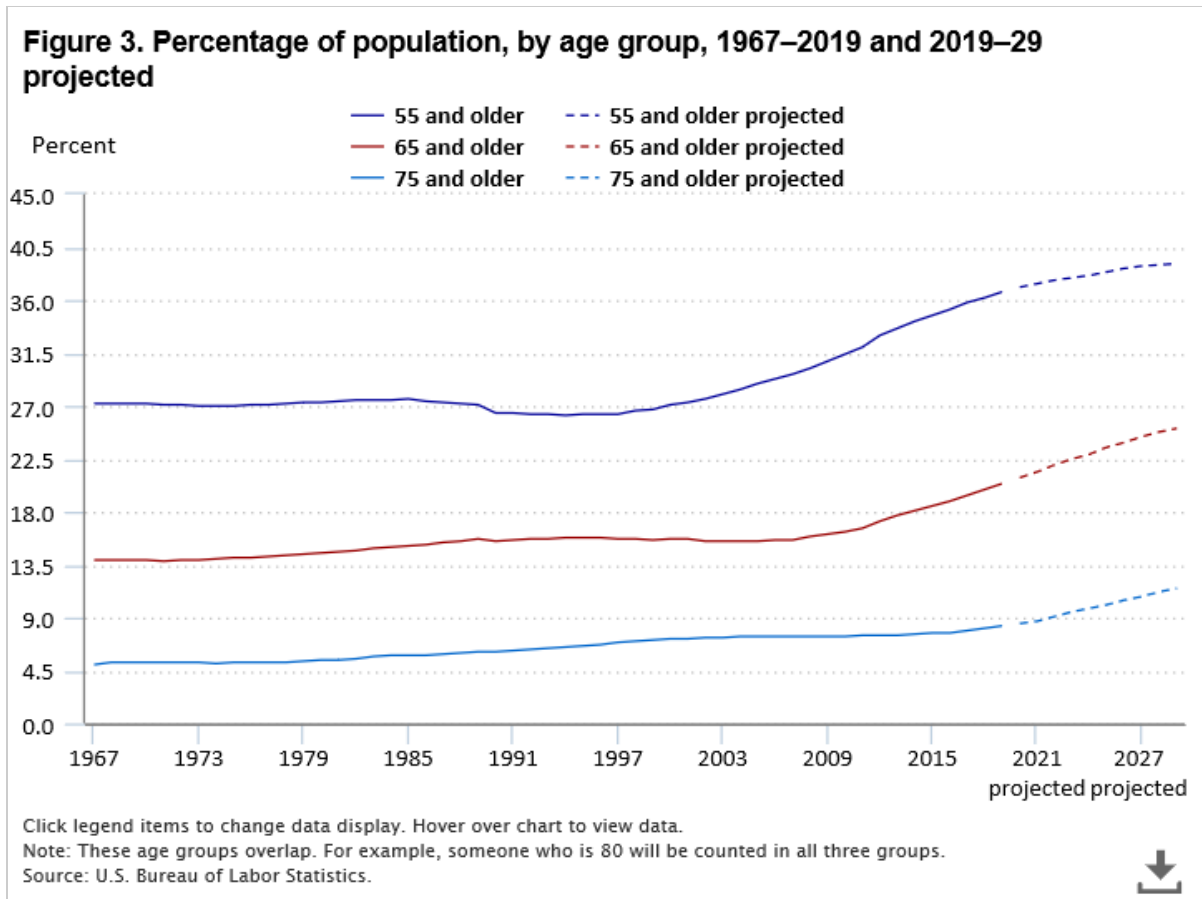
Figure 2. Population growth, by ethnicity, compounded annual average, for selected periods and 2019–29 projected



Between 2009 and 2019, the growth among foreign-born individuals living in the United States slowed.^[11] Although the Hispanic population growth rate fell to 2.8 percent compounded annually, it was still significantly higher than that of the non-Hispanic population. In spite of the immigration slowdown, the Hispanic growth rate was still responsible for boosting the overall population growth rate by 0.4 percentage point over the same 2009–19 period.

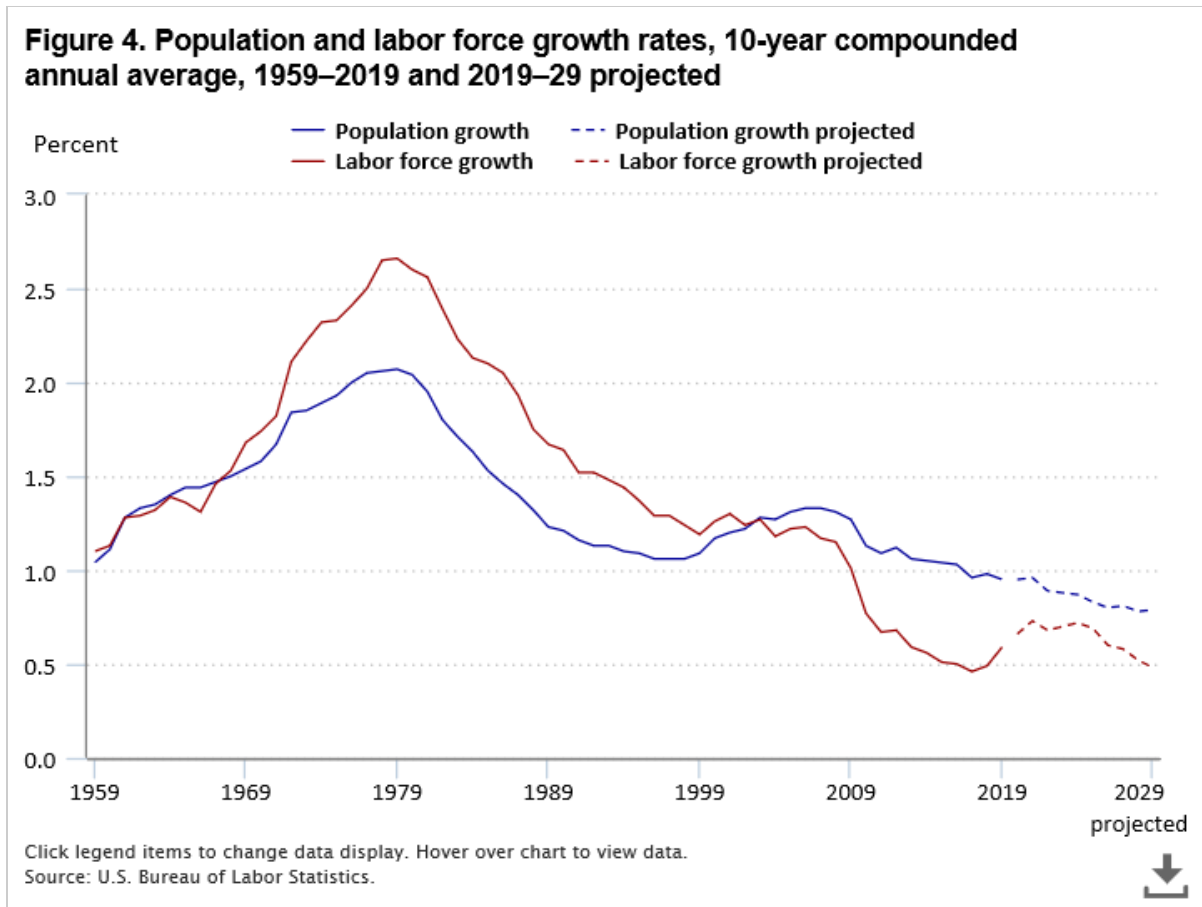
Slowing immigration is expected to continue to affect overall population growth over the projections period. The overall population growth rate is projected to decline slightly to 0.8 percent compounded annually from 2019–29. The slowdown is because of continued decreases in both the rate of Hispanic growth and non-Hispanic growth, which are expected to fall to 2.4 percent and 0.4 percent compounded annually, respectively. (See figure 2.)

Other demographic shifts are also affecting the U.S. population. A growing percentage of the population is found in the higher age categories. Baby boomers began entering the 55-and-older cohort in 2001 and the 65-and-older cohort in 2011. These trends are particularly important for the labor force because older people are less likely to work than those ages 25 to 54. Through 2029, the growth of those ages 55 and older is expected to slow because all baby boomers are already in this group. However, the 65-and-older and 75-and-older groups are expected to continue to see their increased growth rates maintained. (See figure 3.) The growth among those ages 55 and older has contributed to a lower labor force participation rate and will continue to do so in the future.



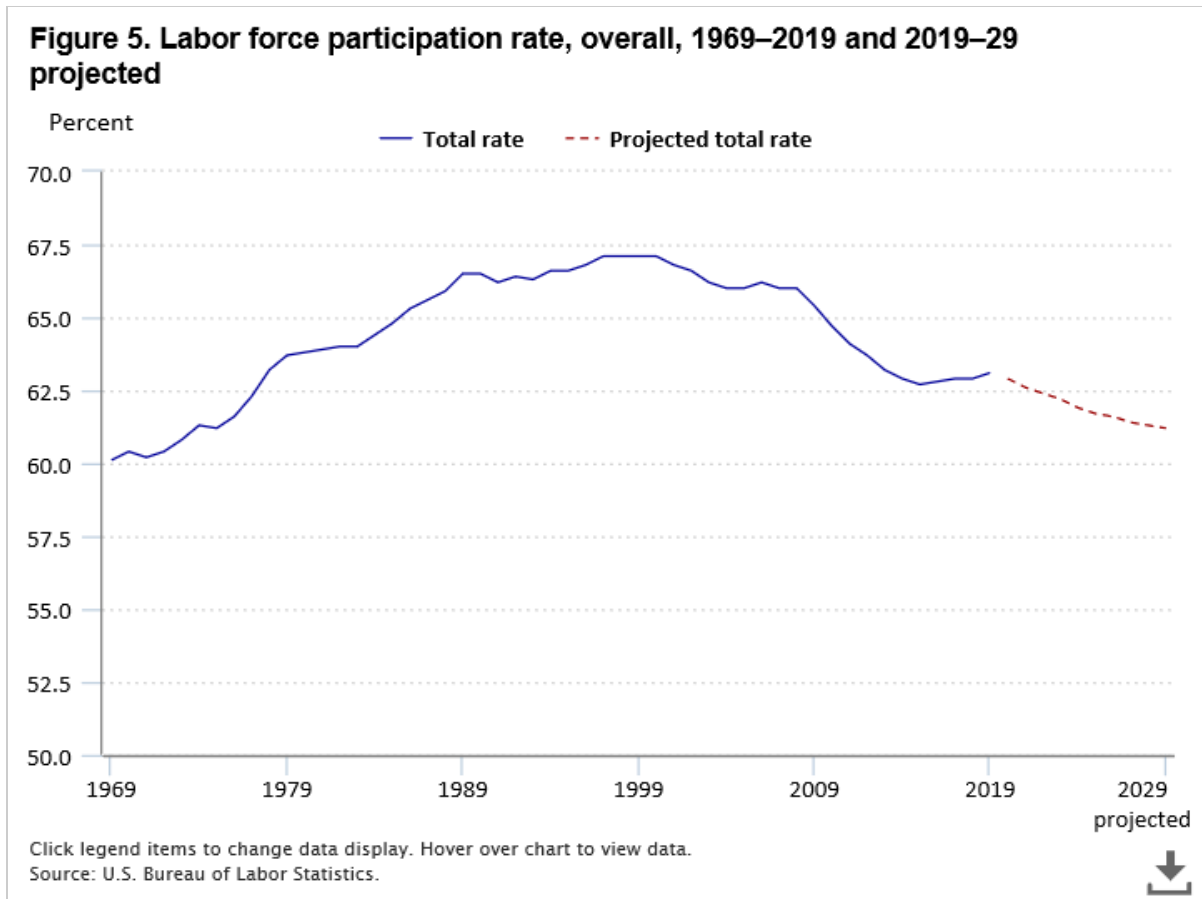
Labor force and participation rate

Growth of the labor force has slowed, in large part, because of the two previously discussed trends—the aging population and slower population growth. A large subset of the population is in the labor force; therefore, the labor force often takes a cue from population growth and behaves similarly. (See figure 4.)

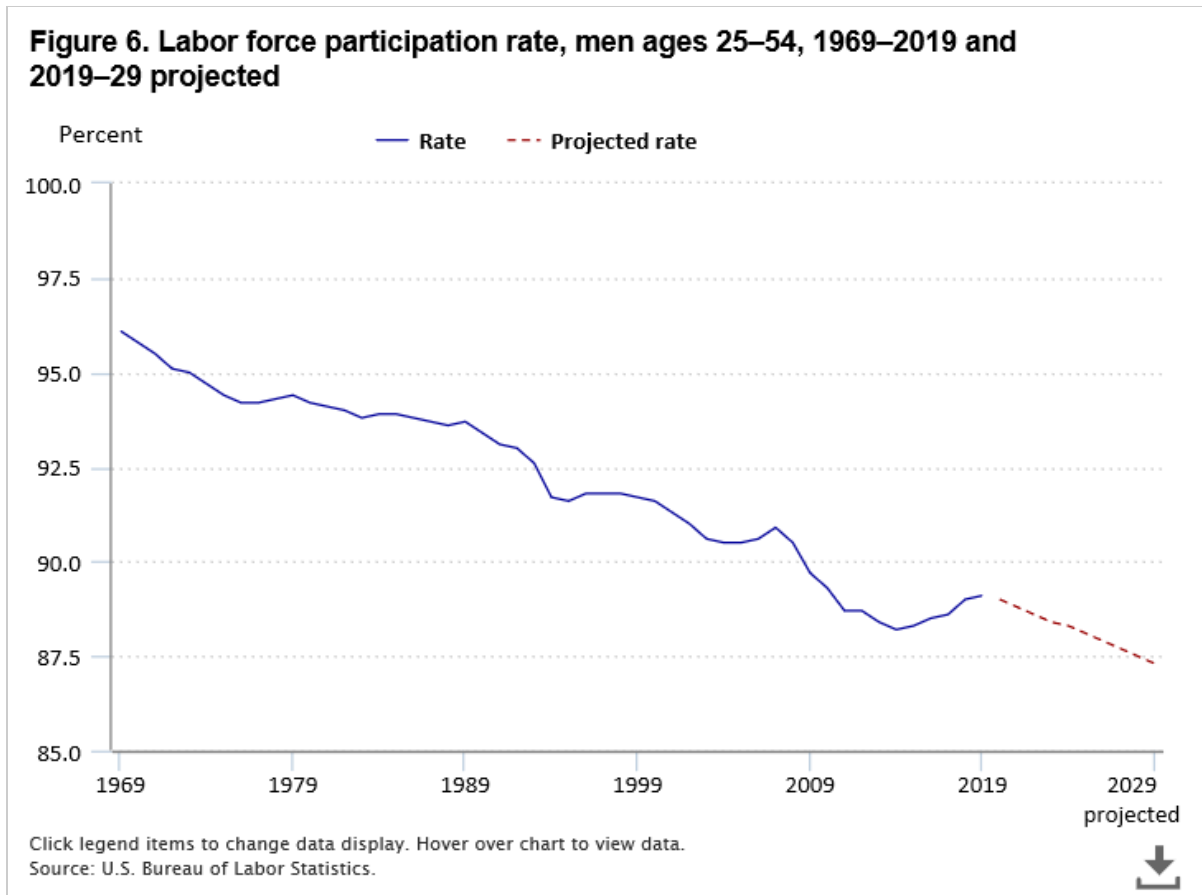


The percentage of the civilian noninstitutional population in the labor force is known as the labor force participation rate. The steady increase in the participation rate over the latter half of the 20th century was largely driven by women entering the labor force. Between 1997 and 2000, the overall participation rate peaked at 67.1 percent and has declined over most of the past two decades.

The participation rate fell steeply, well below potential growth,^[12] between 2008 and 2015 in the aftermath of the 2007–09 recession. Since 2016, the participation rate has been edging up closer to, and possibly even surpassing, its 2019 potential, as estimated by the Congressional Budget Office.^[13] Therefore, this uptick in the labor force participation rate between 2015 and 2019 appears to be due to cyclicalities and not a sustainable trend. (See figure 5.) The aging population is expected to be the largest driver of the projected decreasing participation rate because older individuals are less likely to be in the labor force.

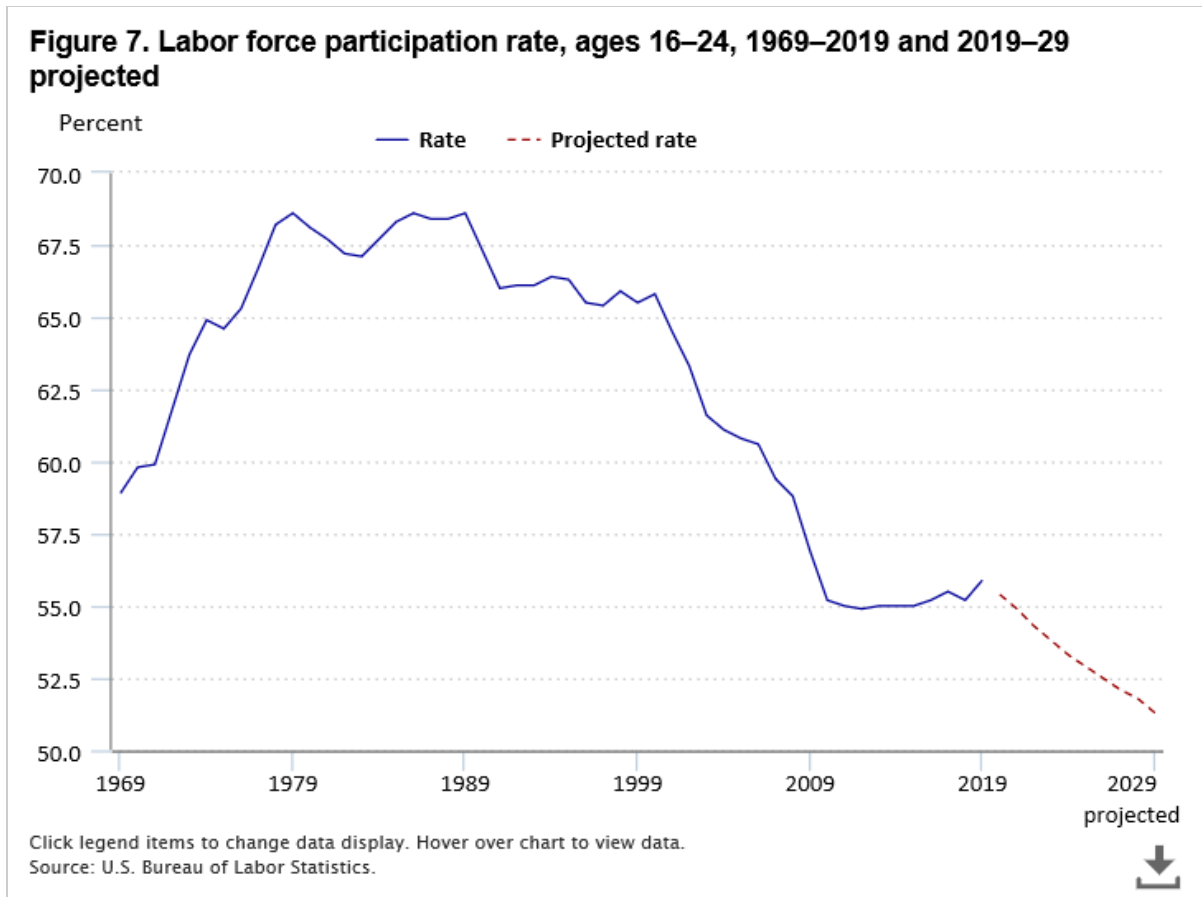


However, the aging population is not the only reason the overall participation rate is decreasing. The prime-age labor force participation rate for men ages 25 to 54 has steadily fallen, from 96.1 percent in 1969 to 89.1 percent in 2019, and is projected to continue to decline to 87.3 percent in 2029. (See figure 6.)



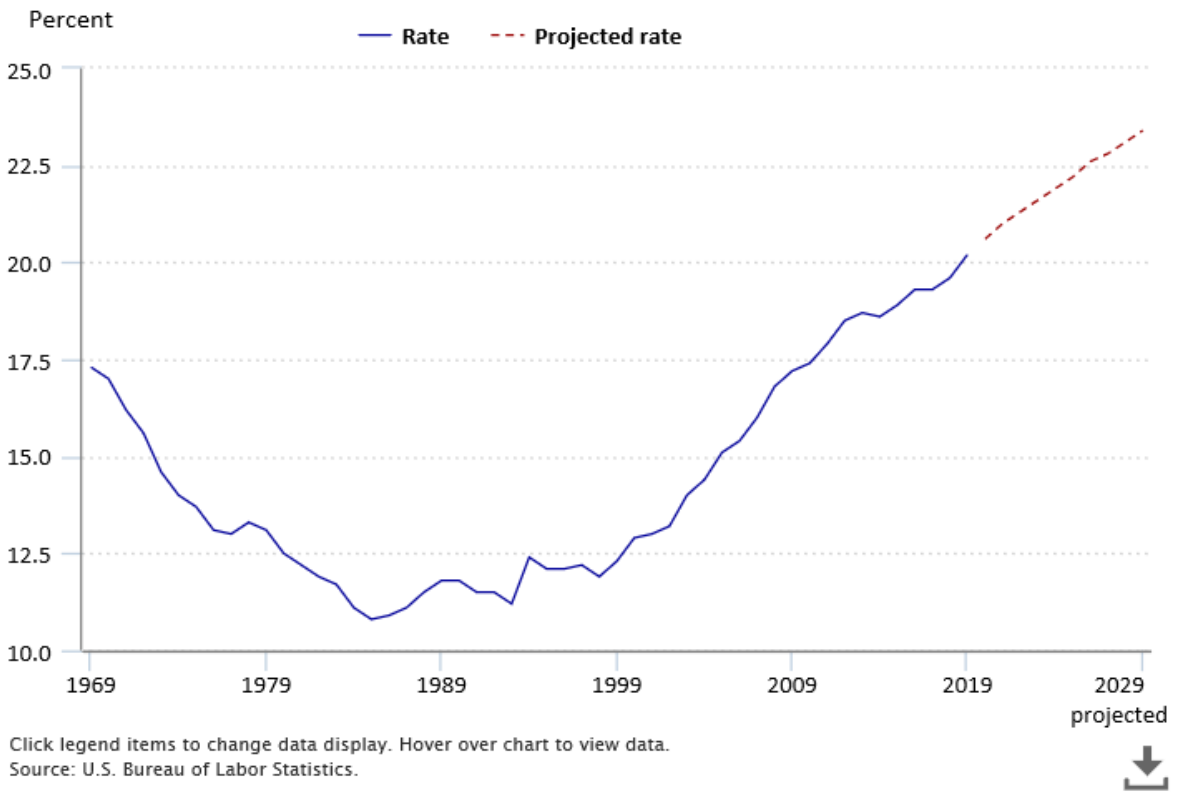
Historically, the participation rate fell the most for men with only a high school degree, some college, or an associate's degree and for men on the younger end of the prime-age range (ages 25 to 34). This group is most likely to be employed in middle-skill jobs, often considered “routine” occupations that have become automated by computers and machines. In addition, international trade and weakening unions have contributed to a decline in these middle-skill jobs.^[14]

The participation rate of youths, ages 16 to 24, for both genders also has declined. The 16- to 24-year-old participation rate fell from 65.5 percent in 1999 to 55.9 percent in 2019. It is projected to decline still further, to 51.3 percent in 2029. (See figure 7.) The decline in labor force participation of youth corresponds to a higher fraction of young people attending school.^[15]



While prime-age (25 to 54) individuals—particularly men—and youths are working less, older individuals are working more. The participation rate for the 65-and-older group has been rising since the 1990s and is projected to continue to rise. (See figure 8.) Several factors are driving this trend, including longer, healthier lifespans and shifts in retirement programs, which include changes to Social Security.^[16] Despite these shifts, people ages 25 to 54 are projected to continue to have much higher participation rates than those ages 65 and older (81.8 percent and 23.4 percent, respectively).

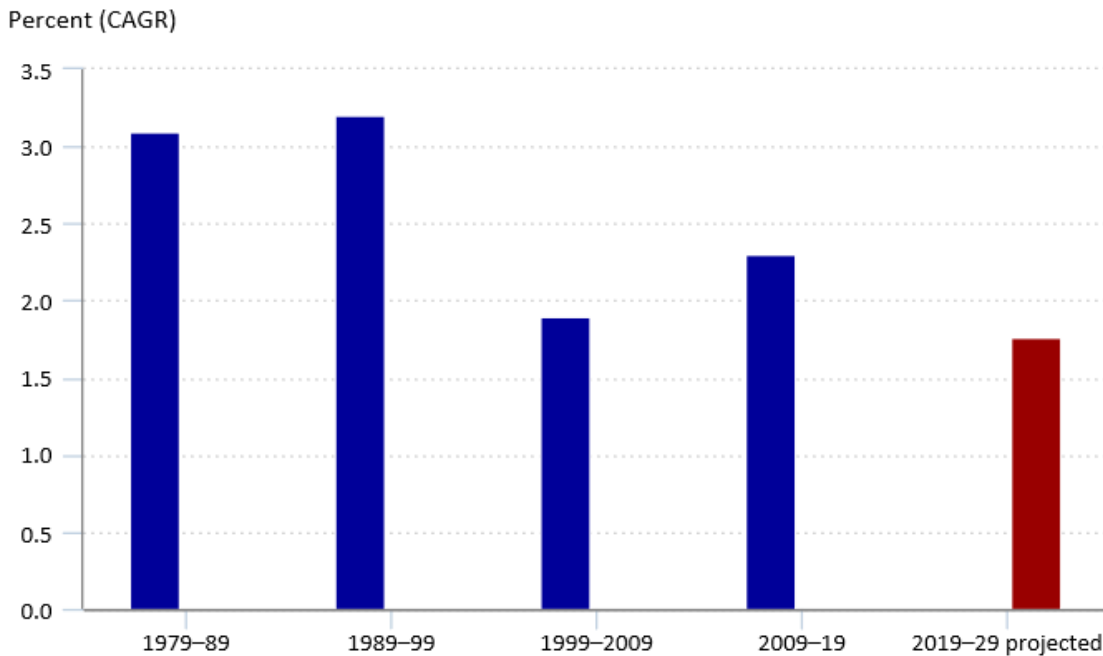
Figure 8. Labor force participation rate, ages 65 and older, 1969–2019 and 2019–29 projected



Macroeconomic projections

The U.S. economic output—which is associated with GDP—has grown throughout history. BLS projects output will continue growing; however, the 1.8-percent annual compounded growth through 2029 is slower than the rate seen in recent decades. (See figure 9.) The slower growth in the labor force will result in this slower GDP growth. However, the labor force is not the only contributor. BLS uses a potential output assumption in the target year (2029) to remove cyclicalities from projections. However, cyclicalities can remain in the base year. In 2019, the economy was at its full potential—so little to no cyclicalities existed. This situation is unusual; more often than not, the economy is below its potential, which gives it more room to grow. This constraint on growth is another reason GDP growth is expected to grow slower than it has historically.

Figure 9. Gross domestic product, 10-year compound annual growth rate, for selected periods and 2019–29 projected

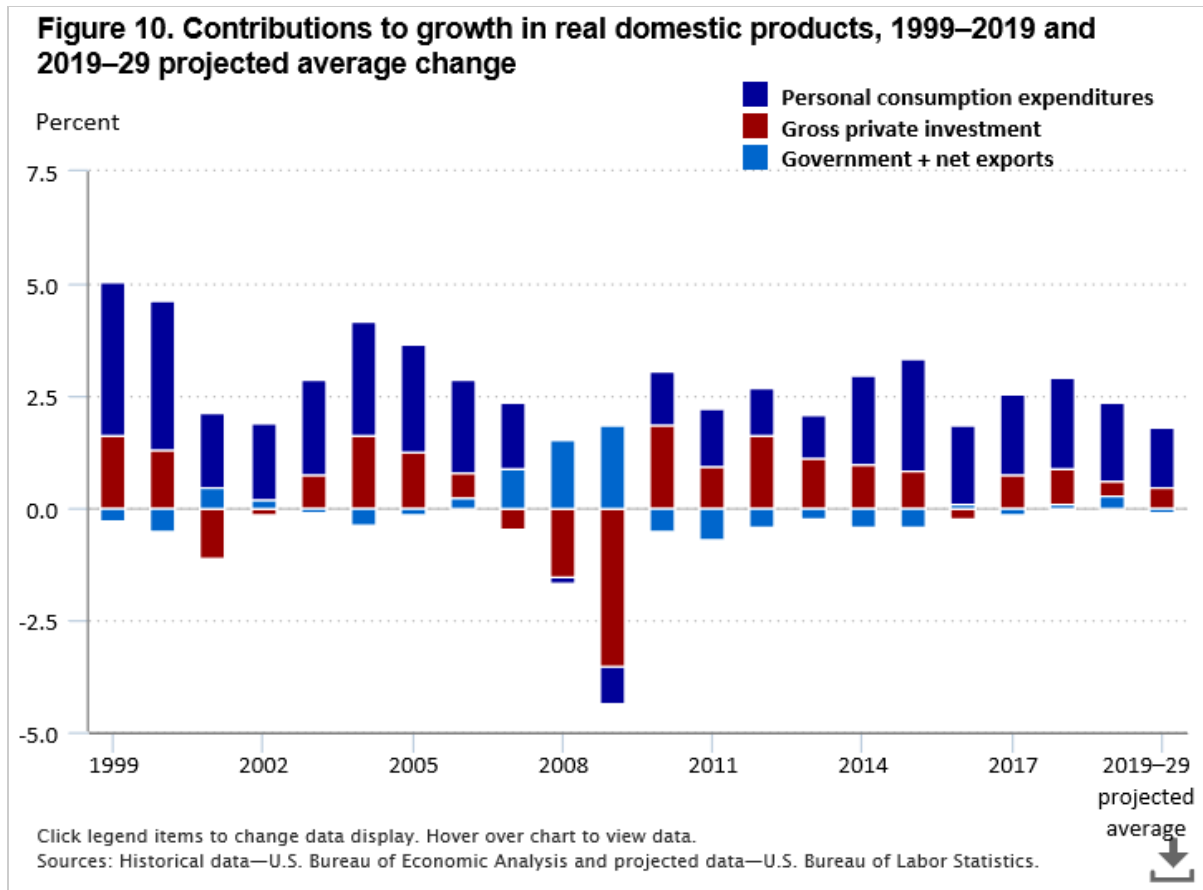


Hover over chart to view data.
 Note: CAGR = compound annual growth rate.
 Source: U.S. Bureau of Labor Statistics.



Figure 9 shows GDP growth over 10-year periods. Through the 1980s and 1990s, GDP growth hovered above 3-percent compound annual growth. During the 2007–09 recession, GDP growth plummeted, which is reflected in the slower growth over the 1999–2009 decade. The 2.3-percent compound annual growth from 2009–19 is not expected to be a new structural trend. The base year used for calculating this growth (2009) was one of the worst economic times in this country’s history. In addition, much of the recent 2018 and 2019 increase can be attributed to the 2017 Tax Cuts and Jobs Act, which is expected to result in a short-term boost, with little further effect on GDP growth in 2020 or beyond.^[17]

Personal consumption expenditures are expected to be the primary driver of GDP growth over the next decade. This scenario is typical—consumption generally drives the majority of U.S. GDP growth. The exceptions are during a recession when government spending picks up slack from other sectors and sometimes after a recession when investment increases to make up for deferred investment during a recession. Over the next 10 years, 1.3 percentage points of annual compound growth are projected to be attributed to growth in consumption and 0.5 percentage point to investment. (See figure 10.)



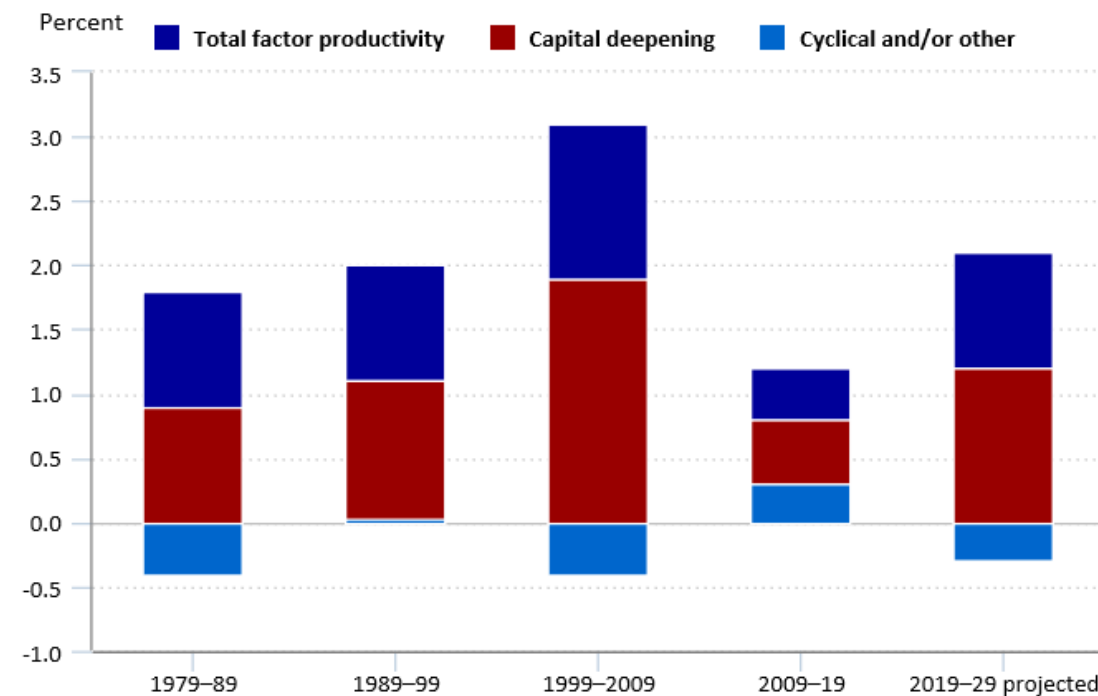
Employment, nonaccelerating inflation rate of unemployment, and productivity

The labor force includes not only the employed but also the unemployed. At full employment, the rate of unemployment is relatively low. However, the unemployment rate never reaches zero—frictional unemployment will always exist as workers transfer between jobs and seek new jobs. The unemployment rate when the economy is at full employment is called nonaccelerating inflation rate of unemployment (NAIRU). The unemployment rate, at NAIRU, is set at 4.4 percent in 2029.^[18]

NAIRU and the labor force have important implications for the projection of GDP. Labor productivity also affects GDP. Labor productivity is measured as the total output divided by hours worked in the economy. Productivity growth decreased in the wake of the 2007–09 recession. BLS projects productivity to return to a more normal pattern of growth over the next decade, 1.8-percent compound annual growth, compared with 1.1-percent compound annual growth in 2009–19. This percent growth is still significantly slower than the 2.7-percent compound annual growth experienced from 1999 to 2009.

Capital deepening, an increase in the capital to labor ratio, is the largest driver of productivity. Other drivers are lumped together and are called total factor productivity. These other drivers include technological advances, education or quality of the workforce, improvements in management practices, and economies of scale. Over the upcoming decade, capital deepening is projected to make up 1.2 percentage points of productivity compounded annual growth, compared with 0.9 percentage point for total factor productivity. (See figure 11.)

Figure 11. Growth in labor productivity and its components, 10-year compound annual average rate, for selected periods and projected 2019–29



Click legend items to change data display. Hover over chart to view data.
Source: U.S. Bureau of Labor Statistics.

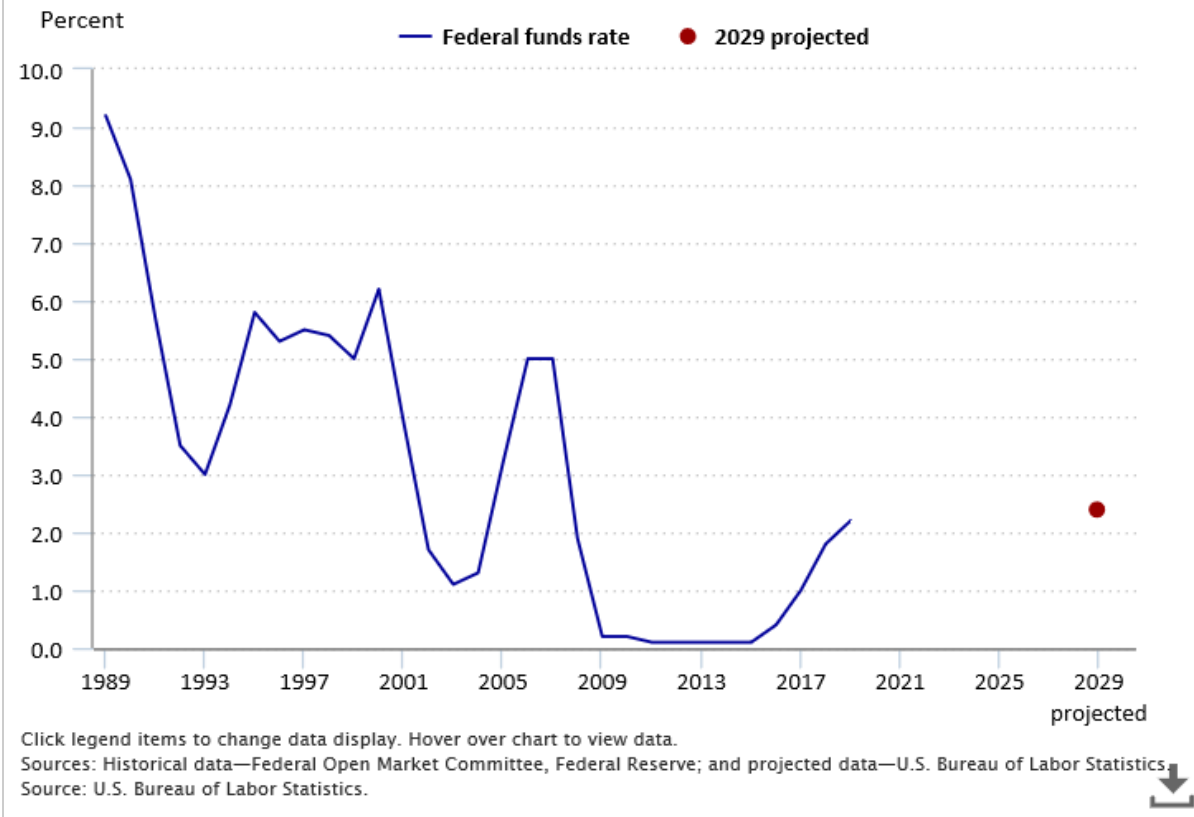


Fiscal and monetary policy

The monetary policy goal of the Federal Reserve is to foster economic conditions that achieve both stable prices and maximum sustainable employment.^[19] The Federal Reserve targets 2-percent inflation to achieve its stable prices mandate.^[20] In some environments, balancing these mandates may be challenging. Up to February 2020, however, the economy has managed to achieve full employment while inflation has been consistent, around 2.0 percent.^[21]

The Federal Reserve's primary tool for managing this goal is through the federal funds rate. The federal funds rate is the rate at which banks lend money to each other. Consumer borrowing rates are higher than this rate, but they tend to move with it. The federal funds rate has been trending upward since it was lowered to 0.0 in the wake of the 2007–09 recession. In 2019, the federal funds rate was 2.2 percent, and it is projected to increase to 2.4 percent in 2029. (See figure 12.) This percentage is significantly below the federal funds rate for much of history—it reached 5.0 percent before the 2007–09 recession (in 2007) and above 6.0 percent before the 2001 recession (in 2000).

Figure 12. Federal funds rate, historic and projected 2029

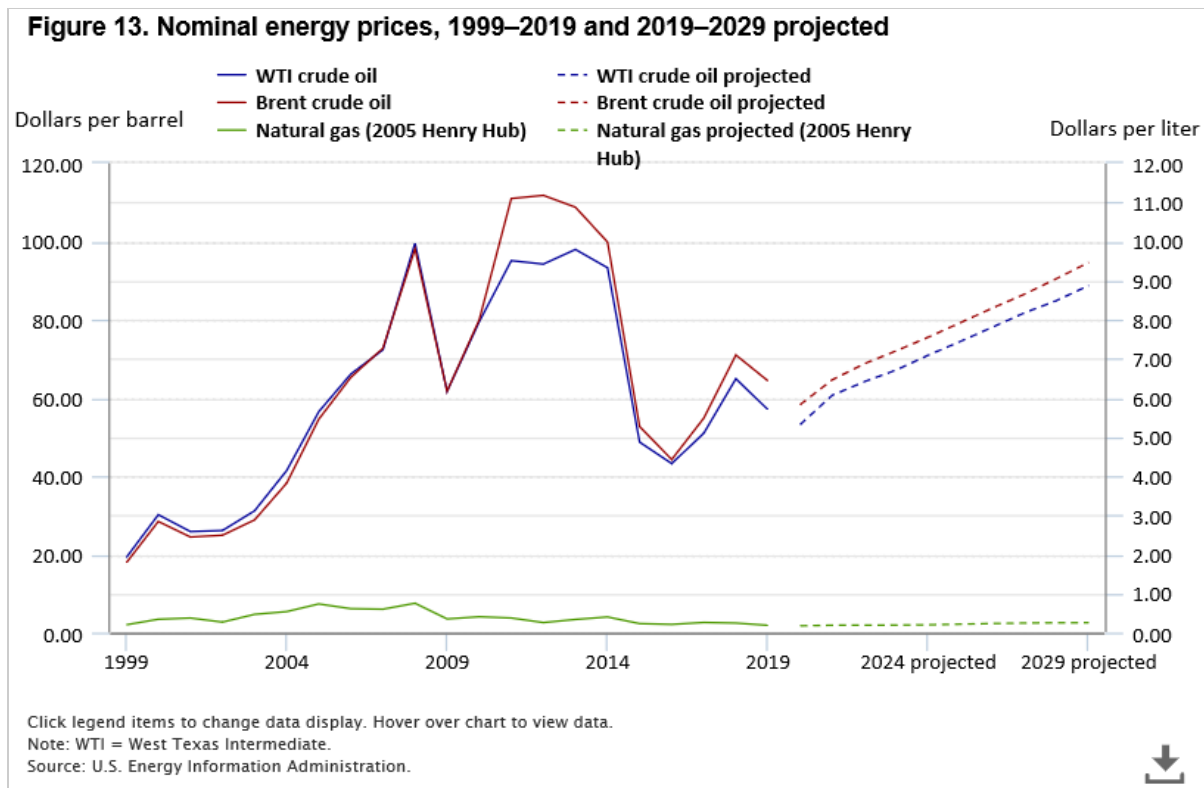


After the 2007–09 recession, there was some concern that low interest rates and an expanding money supply could cause excess inflation.^[22] However, this worry turned out to be unfounded. Over time, the natural rate of interest can vary in response to shifts in preferences and technology. Evidence shows that such a shift to a lower natural rate may be occurring.^[23] One reason that may explain the change is the aging of the population. As people live longer, they prefer to save more money to supplant a longer retirement period, which increases the supply of borrowable money and drives down interest rates.^[24]

Assumptions about fiscal policy, including tax policies and government spending, substantially affect expectations for government revenue, national debt, and economic growth. BLS generally assumes no major changes to current tax laws over the projections decade. Effective marginal tax rates also are held constant at their current levels.

Energy prices

Energy prices, particularly oil prices, are another macroeconomic variable of interest because of their influence on consumer spending. Lower prices are generally associated with more economic growth because they free up additional money for consumer discretionary spending. However, if prices fall exceptionally fast, the energy sector may contract, which negatively influences GDP. Energy prices used by BLS within the U.S. Macro Model (MA/ U.S.) from IHS Markit are supplied from the EIA's January 2020 Annual Energy Outlook.^[25] From 2019 to 2029, oil prices are projected to rise approximately 50 percent, from \$57 to \$89 for West Texas Intermediate (WTI) and \$64 to \$95 for Brent. (See figure 13.)



Industry output and employment projections to 2029

BLS projects real gross industry output will increase slightly more in the 2019–29 decade than it did during the previous decade, whereas employment growth will be slower. Industry output and employment projections were prepared with the use of the North American Industry Classification System (NAICS). Major sectors—hereafter referred to as “sectors”—are aggregations of NAICS industries.

Industry output

BLS projects that real gross industry output will increase from just over \$34.0 trillion in 2019 to roughly \$40.9 trillion in 2029.^[26] The more than \$6.8 trillion increase by 2029 is slightly larger than the increase during the previous decade. However, overall growth is projected to slow to a 1.8-percent rate over the 2019–29 period from a 2.2-percent rate over the 2009–19 recovery period. Most of the increase in real output (74.2 percent) is projected to come from service-providing sectors.

Sector output

In line with projections for the 2018–28 period, output for service-providing sectors is projected to grow at an average rate of 2.0 percent per year from 2019 to 2029. (See table 1.) This rate is slower than the 2.3-percent growth experienced from 2009 to 2019. Over the 2019–29 decade, the projected 2.0-percent growth in output for service-providing sectors is slightly faster than the 1.8-percent projected growth for the entire U.S. economy. All service-providing sectors are projected to experience real-output growth over the 2019–29 projections period, except for the federal government sector, which is projected to decline slightly at a rate of 0.1 percent annually.

The healthcare and social assistance sector is projected to have the fastest growth rate among service-providing sectors in 2019–29, with a projected annual growth rate at 2.9 percent.

Table 1. Output by major industry sector, 2009–29

Industry sector	Billions of chained 2012 dollars			Compound annual rate of change		Billions of dollars			Percent distribution		
	2009	2019	2029	2009–19	2019–29	2009	2019	2029	2009	2019	2029
Total	\$27,293.3	\$34,049.9	\$40,867.6	2.2	1.8	\$25,021.9	\$37,733.5	\$53,862.7	100.0	100.0	100.0
Goods-producing, excluding agriculture	6,914.1	8,473.7	9,921.6	2.1	1.6	6,034.9	8,637.5	12,465.7	24.1	22.9	23.1
Mining	485.8	635.3	835.5	2.7	2.8	404.0	549.2	1,037.2	1.6	1.5	1.9
Construction	1,161.5	1,418.9	1,616.3	2.0	1.3	1,099.0	1,728.5	2,284.6	4.4	4.6	4.2
Manufacturing	5,261.6	6,384.1	7,434.0	2.0	1.5	4,532.0	6,359.8	9,143.9	18.1	16.9	17.0
Service-providing excluding special industries	18,646.8	23,486.7	28,546.7	2.3	2.0	17,410.90	26,800.0	38,257.7	69.6	71.0	71.0
Utilities	443.6	458.6	534.5	0.3	1.5	436.5	505.7	718.6	1.7	1.3	1.3
Wholesale trade	1,223.5	1,885.8	2,440.7	4.4	2.6	1,154.8	2,051.6	3,207.1	4.6	5.4	6.0
Retail trade	1,271.2	1,842.1	2,339.3	3.8	2.4	1,207.7	1,936.3	2,678.5	4.8	5.1	5.0
Transportation and warehousing	940.4	1,128.4	1,327.9	1.8	1.6	782.0	1,274.7	1,900.2	3.1	3.4	3.5
Information	1,226.6	1,914.2	2,489.5	4.6	2.7	1,219.7	1,899.2	2,602.6	4.9	5.0	4.8
Financial activities	3,613.6	4,227.0	4,953.4	1.6	1.6	3,323.4	5,402.7	7,142.7	13.3	14.3	13.3
Professional and business services	2,750.9	3,763.7	4,720.1	3.2	2.3	2,610.2	4,266.1	6,039.6	10.4	11.3	11.2
Educational services	314.0	313.1	371.3	0.0	1.7	273.5	381.4	586.3	1.1	1.0	1.1
Health care and social assistance	1,829.6	2,402.3	3,201.2	2.8	2.9	1,724.1	2,641.2	4,271.0	6.9	7.0	7.9
Leisure and hospitality	1,013.8	1,347.3	1,662.8	2.9	2.1	955.2	1,581.3	2,491.5	3.8	4.2	4.6
Other services	563.9	651.6	773.6	1.5	1.7	526.5	765.4	1,111.0	2.1	2.0	2.1
Federal government	1,125.7	1,118.8	1,112.4	–0.1	–0.1	1,056.2	1,259.9	1,507.3	4.2	3.3	2.8
State and local government	2,333.5	2,475.1	2,754.4	0.6	1.1	2,141.3	2,834.4	4,001.4	8.6	7.5	7.4
Agriculture, forestry, fishing, and hunting	459.5	571.6	684.5	2.2	1.8	342.8	460.6	771.7	1.4	1.2	1.4
Special Industries ⁽¹⁾	1,273.7	1,505.5	1,671.1	1.7	1.0	1,233.1	1,835.5	2,367.6	4.9	4.9	4.4
Residual ⁽²⁾	–0.7	12.4	43.7	—	—	—	—	—	—	—	—

Notes:

⁽¹⁾ Consists of nonproducing accounting categories to reconcile the input–output system with National Income and Product Accounts.

⁽²⁾ Residual is shown for the first level only. Subcategories do not necessarily add to higher categories as a by-product of chain-weighting.

Source: U.S. Bureau of Labor Statistics.

Real output in the goods-producing sectors (excluding agriculture) is projected to grow at a rate of 1.6 percent per year from 2019 to 2029, which is slower than the expected growth rate of 1.8 percent for the overall economy. The 1.6-percent growth rate for the goods-producing sectors is slower than the 2.1-percent increase experienced a decade earlier, but roughly in line with the overall slowing of output growth. Within the nonagricultural goods-producing sectors, mining has the fastest projected growth rate—2.8 percent annually for the next 10 years.

The agricultural sector (including forestry, fishing, and hunting) is projected to grow at a rate of 1.8 percent per year for the 2019–29 projections period, the same as the projected rate for overall output growth. This rate is slower than the rate of 2.2-percent annual growth experienced a decade earlier by both the agricultural sector and total output.

Fastest growing output

Within the service-providing sector, the information sector is projected to have 3 of the 20 fastest growing real-output industries from 2019 to 2029: software publishers; other information services; and data processing, hosting, and related services. The software publishers industry, in particular, continues to be the fastest growing real-output industry in the U.S. economy, as more consumers demand software to accommodate lifestyle needs, such as Internet of Things,^[27] network integration, cloud computing, and web services. The software publishers industry is projected to grow at a rate of 4.8 percent annually over the 2019–29 projections period.

The healthcare and social assistance sector includes 10 of the 20 industries with the fastest growing real output for the 2019–29 projections period. Within healthcare and social assistance, offices of physicians, outpatient care centers, other ambulatory healthcare services, and medical and diagnostic laboratories industries are projected to grow the fastest. The aging of the population and the continued expected rise in chronic health conditions, such as diabetes, are expected to drive demand for healthcare services overall.

Most rapidly declining output

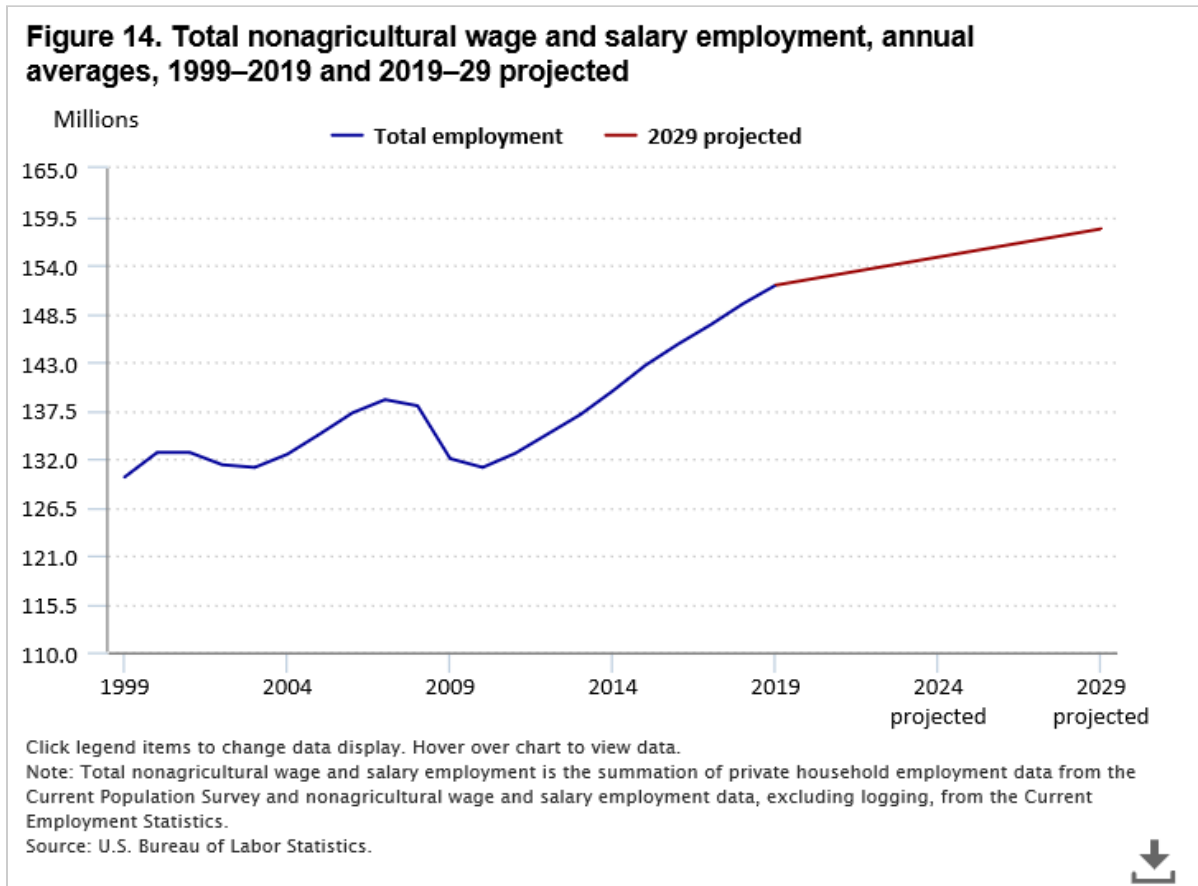
The manufacturing sector includes 3 of the 10 industries projected to decline in real output, with the tobacco manufacturing industry projected to have the fastest annual rate of decline over the next decade (–2.1 percent). The continued decline in the number of people who use tobacco products is one of the reasons for the industry’s drop in real output. The alumina and aluminum production and processing industry and the textile mills and textile product mills industry, both in the manufacturing sector, are the second- and fourth-fastest declining industries overall. Increased outsourcing to overseas production for lower labor costs contributes to the overall decline in manufacturing.

The federal government sector includes 6 of the 10 industries that are projected to decline in real output, in part, because of continued pressure to reduce government spending.^[28] Of all industries, the postal service is projected to have the third-largest decline in real output, decreasing by 0.8 percent annually over the next decade. The continued increase in the use of alternative methods of communication—such as email, electronic bill payment, and digital subscriptions, to name a few—contribute to the decline in real output.

Industry employment projections

BLS uses projected output and labor force data to create projections of total employment by industry. BLS projects total employment in 2029 to reach 168.8 million, an increase from 2019 of about 6.0 million. This growth represents a 0.4-percent annual growth rate, which is lower than the 1.3-percent growth rate experienced from the

2009 recession trough to 2019. Most of the increase in employment stems from nonagricultural wage and salary workers: the number of nonagricultural wage and salary jobs is projected to rise from 151.7 million in 2019 to 158.1 million in 2029, an increase of about 6.4 million jobs.^[29] (See figure 14.) This increase is less than the 19.7 million jobs that were added from 2009 to 2019. The 2019–29 employment increase for nonagricultural wage and salary workers, at a growth rate of 0.4 percent per year, is projected to be slower than the 1.4-percent annual growth rate experienced from 2009 to 2019.



Sector employment

Employment in service-providing sectors is projected to increase by roughly 6.5 million jobs, reaching about 137.2 million by 2029. This projected increase represents most of the jobs to be added over the 2019–29 projections period. Employment in service-providing sectors is expected to grow by 0.5 percent annually over the next decade, slightly faster than the 0.4-percent annual growth for the overall economy. (See table 2.) This growth, however, is slower than the 1.4-percent annual growth rate experienced by the service-providing sectors from 2009 to 2019.

Table 2. Employment by major industry sector, 2009–29

Industry sector	Thousands of jobs			Change		Percent distribution			Compound annual rate of change	
	2009	2019	2029	2009–19	2019–29	2009	2019	2029	2009–19	2019–29
Total ⁽¹⁾	143,036.4	162,795.6	168,834.7	19,759.2	6,039.1	100.0	100.0	100.0	1.3	0.4
Nonagriculture wage and salary ⁽²⁾	132,029.2	151,709.7	158,115.6	19,680.5	6,405.9	92.3	93.2	93.7	1.4	0.4
Goods-producing, excluding agriculture	18,507.7	21,016.3	20,964.9	2,508.6	–51.4	12.9	12.9	12.4	1.3	0.0
Mining	643.3	684.6	777.8	41.3	93.2	0.4	0.4	0.5	0.6	1.3
Construction	6,016.5	7,492.2	7,792.4	1,475.7	300.2	4.2	4.6	4.6	2.2	0.4
Manufacturing	11,847.9	12,839.5	12,394.7	991.6	–444.8	8.3	7.9	7.3	0.8	–0.4
Services-providing excluding special industries	113,521.5	130,693.4	137,150.7	17,171.9	6,457.3	79.4	80.3	81.2	1.4	0.5
Utilities	560.1	549.0	506.7	–11.1	–42.3	0.4	0.3	0.3	–0.2	–0.8
Wholesale trade	5,520.9	5,903.4	5,801.3	382.5	–102.1	3.9	3.6	3.4	0.7	–0.2
Retail trade	14,527.6	15,644.2	15,275.9	1,116.6	–368.3	10.2	9.6	9.0	0.7	–0.2
Transportation and warehousing	4,224.7	5,618.1	5,944.1	1,393.4	326.0	3.0	3.5	3.5	2.9	0.6
Information	2,803.8	2,859.4	2,853.2	55.6	–6.2	2.0	1.8	1.7	0.2	0.0
Financial activities	7,838.0	8,746.0	8,799.9	908.0	53.9	5.5	5.4	5.2	1.1	0.1
Professional and business services	16,633.8	21,313.1	22,831.4	4,679.3	1,518.3	11.6	13.1	13.5	2.5	0.7
Educational services	3,090.5	3,764.5	4,230.0	674.0	465.5	2.2	2.3	2.5	2.0	1.2
Health care and social assistance	16,539.8	20,412.6	23,491.7	3,872.8	3,079.1	11.6	12.5	13.9	2.1	1.4
Leisure and hospitality	13,077.5	16,575.9	17,691.5	3,498.4	1,115.6	9.1	10.2	10.5	2.4	0.7
Other services	6,150.1	6,713.8	6,994.7	563.7	280.9	4.3	4.1	4.1	0.9	0.4
Federal government	2,832.0	2,834.0	2,650.4	2.0	–183.6	2.0	1.7	1.6	0.0	–0.7
State and local government	19,722.7	19,759.4	20,080.0	36.7	320.6	13.8	12.1	11.9	0.0	0.2
Agriculture, forestry, fishing, and hunting ⁽³⁾	2,011.9	2,303.6	2,265.1	291.7	–38.6	1.4	1.4	1.3	1.4	–0.2
Agriculture wage and salary	1,175.7	1,565.2	1,600.5	389.5	35.3	0.8	1.0	0.9	2.9	0.2
Agriculture self-employed	836.2	738.4	664.5	–97.8	–73.9	0.6	0.5	0.4	–1.2	–1.0
Nonagriculture self-employed	8,995.3	8,782.3	8,454.1	–213.0	–328.2	6.3	5.4	5.0	–0.2	–0.4

Notes:

⁽¹⁾ Employment data for wage and salary workers are from the BLS Current Employment Statistics survey, which counts jobs, whereas self-employed and agriculture, forestry, fishing, and hunting are from the Current Population Survey (household survey), which counts workers.

⁽²⁾ Includes wage and salary data from the Current Employment Statistics survey, except private households, which is from the Current Populations Survey. Logging workers are excluded.

⁽³⁾ Includes agriculture, forestry, fishing, and hunting data from the Current Population Survey, except logging, which is from Current Employment Statistics survey. Government wage and salary workers are excluded.

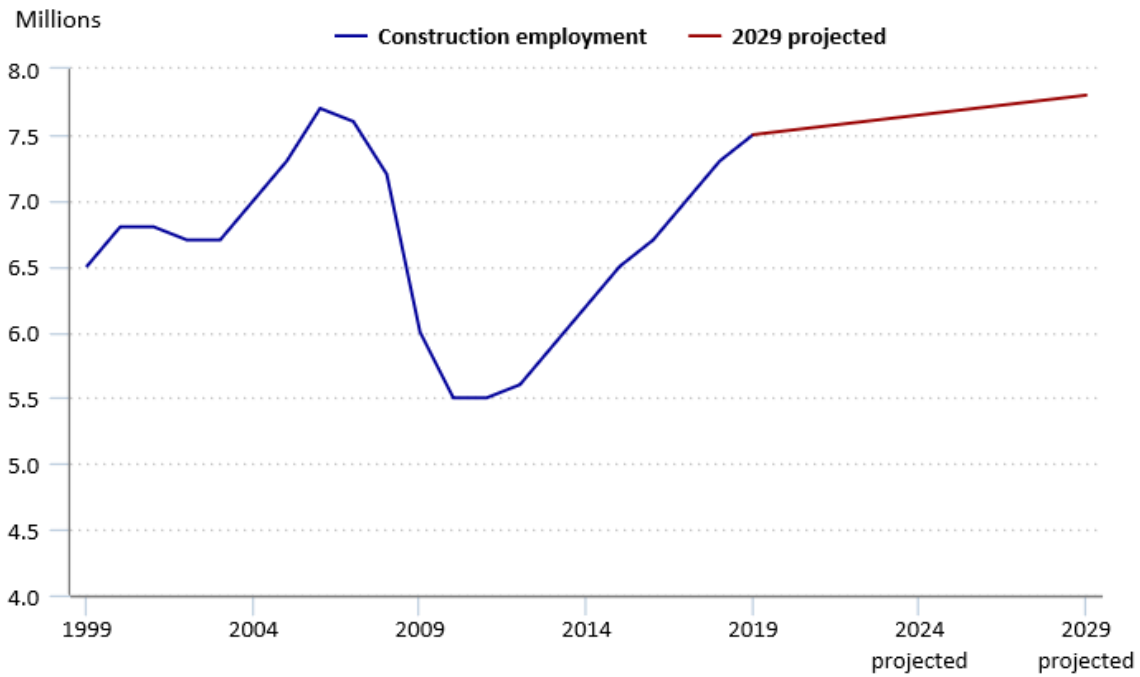
Source: U.S. Bureau of Labor Statistics.

In line with the last five sets of projections, the healthcare and social assistance sector is projected to have the most employment growth of any sector over the next decade. Employment in healthcare and social assistance is projected to add about 3.1 million jobs over the 2019–29 decade, reaching a level of 23.5 million by 2029. The sector is projected to grow at an annual rate of 1.4 percent, more than 3 times as fast as the annual growth for the overall economy. The projected growth for the healthcare and social assistance sector, however, is still slower than the 2.1-percent annual growth experienced during the 2009–19 period.

Conversely, the retail trade industry is projected to have the largest employment decline among all service-providing industries. Employment in the retail trade industry is projected to decline by 368,300 jobs from 2019 to 2029, a sharp contrast from the previous decade when it added 1.1 million jobs. The declining trend in retail trade employment is driven by several factors, including bankruptcy and consolidation of big box stores and the shift of consumer-spending behavior in favor of e-commerce shopping.^[30]

Overall employment in the goods-producing sectors (excluding agriculture) is projected to decline over the 2019–29 projections period. These sectors experienced modest gains from 2009 to 2019 (+2.5 million jobs), offsetting larger losses experienced during the decade prior (1999–2009). Employment in the construction sector is projected to increase by 300,200 from 2019 to 2029, growing at an annual rate of 0.4 percent. This increase is much smaller than the job gains experienced during the previous decade, when construction added nearly 1.48 million jobs as the sector recovered following steep losses during the Great Recession. (See figure 15.) The manufacturing sector, the largest sector within the goods-producing sectors (excluding agriculture), accounts for over half of total employment in the goods-producing sectors. The manufacturing sector is projected to decline by 444,800 jobs over the next decade, overshadowing increases in the mining and construction industries. During the previous decade, manufacturing added 991,600 jobs. (See figure 16.)

Figure 15. Construction wage and salary employment, annual averages, 1999–2019 and 2019–29 projected

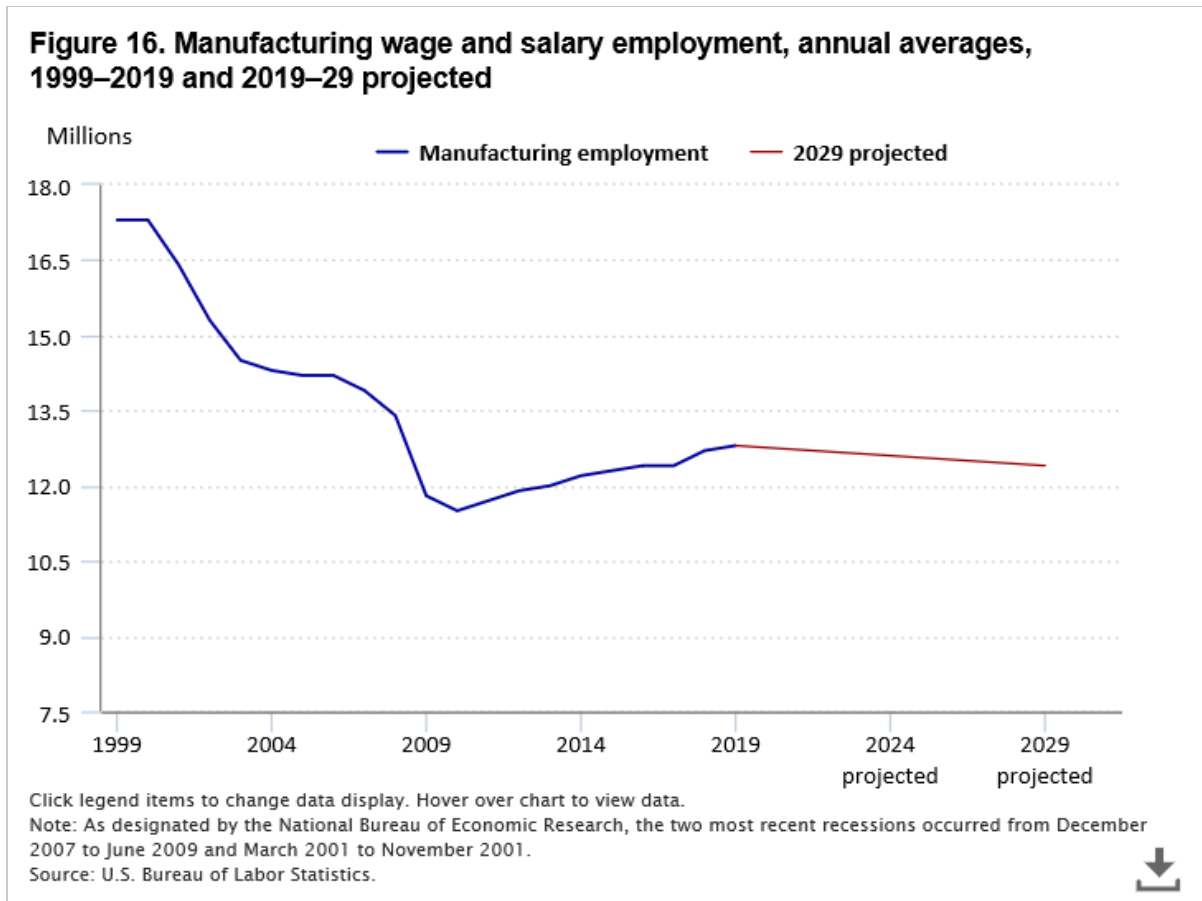


Click legend items to change data display. Hover over chart to view data.

Note: As designated by the National Bureau of Economic Research, the two most recent recessions occurred from December 2007 to June 2009 and March 2001 to November 2001.

Source: U.S. Bureau of Labor Statistics.





The agriculture, forestry, fishing, and hunting sector is projected to decline by 38,600 jobs from 2019 to 2029. During the previous 2009–19 decade, this sector added 291,700 jobs. The projected decline is largely due to a combination of the slowed employment growth in the crop production industry and a continued decline in the number of self-employed workers within the agriculture, forestry, fishing, and hunting sector. Employment in the crop production industry is projected to increase by 66,200 jobs for the 2019–29 decade, whereas 336,100 jobs were added to the industry during the previous decade. Along with employment growth in the crop production industry that is projected to slow, the number of self-employed workers in the agriculture, forestry, fishing, and hunting sector is projected to decline by 73,900 over the next decade, further exacerbating the loss of self-employed jobs that occurred in this industry during the last decade. This loss is due, in part, to the overall declining number of small farms, to the emergence of large farming operations, and to older workers being more likely to be self-employed than any other working age group in this industry.^[31]

Fastest growing industry employment

Although overall agriculture, forestry, fishing, and hunting sector employment is projected to decline from 2019 to 2029, employment in the forestry industry component is projected to grow the fastest among all industries for the 2019–29 projections period. The forestry industry is projected to grow at an annual rate of 3.7 percent. However, because of the industry’s small size, its fast projected growth does little to offset the declines expected in agriculture, forestry, fishing, and hunting sector employment. In the previous decade, the forestry industry declined at a rate of 2.4 percent annually.

Over the next decade, 5 out of the 20 fastest growing industries are in the healthcare and social assistance sector: individual and family services, home healthcare services, outpatient care centers, offices of other health practitioners, and other ambulatory healthcare services. Factors that contribute to the large projected increase in the number of healthcare and social assistance jobs include increased demand to care for the aging of the baby boom population, longer life expectancies, and continued growth in the number of patients with chronic conditions.³² At an annual growth rate of 3.4 percent, employment in the individual and family services industry is projected to be the second-fastest growing industry overall.

For the 2019–29 projections period, three industries within the professional and business services sector are projected to be among the fastest growing industries overall. Within this sector, computer systems design and related services; management, scientific, and technical consulting services; and office administrative services are projected to experience fast job gains. Increased demand for technology and the growing complexity of business operations will contribute to the overall fast employment growth in professional and business services.^[33]

Most rapidly declining industry employment

The manufacturing sector is projected to lose the most jobs and have the most rapid employment decline of all sectors over the 2019–29 projections period. The manufacturing sector includes 12 of the 20 industries projected to have the largest job declines. Increased international competition and continued automation that increases overall production with fewer workers will continue to contribute to the loss of jobs for this sector.³⁴ The tobacco manufacturing industry is projected to have the most rapid declines in industry employment, falling by 5.2 percent annually.

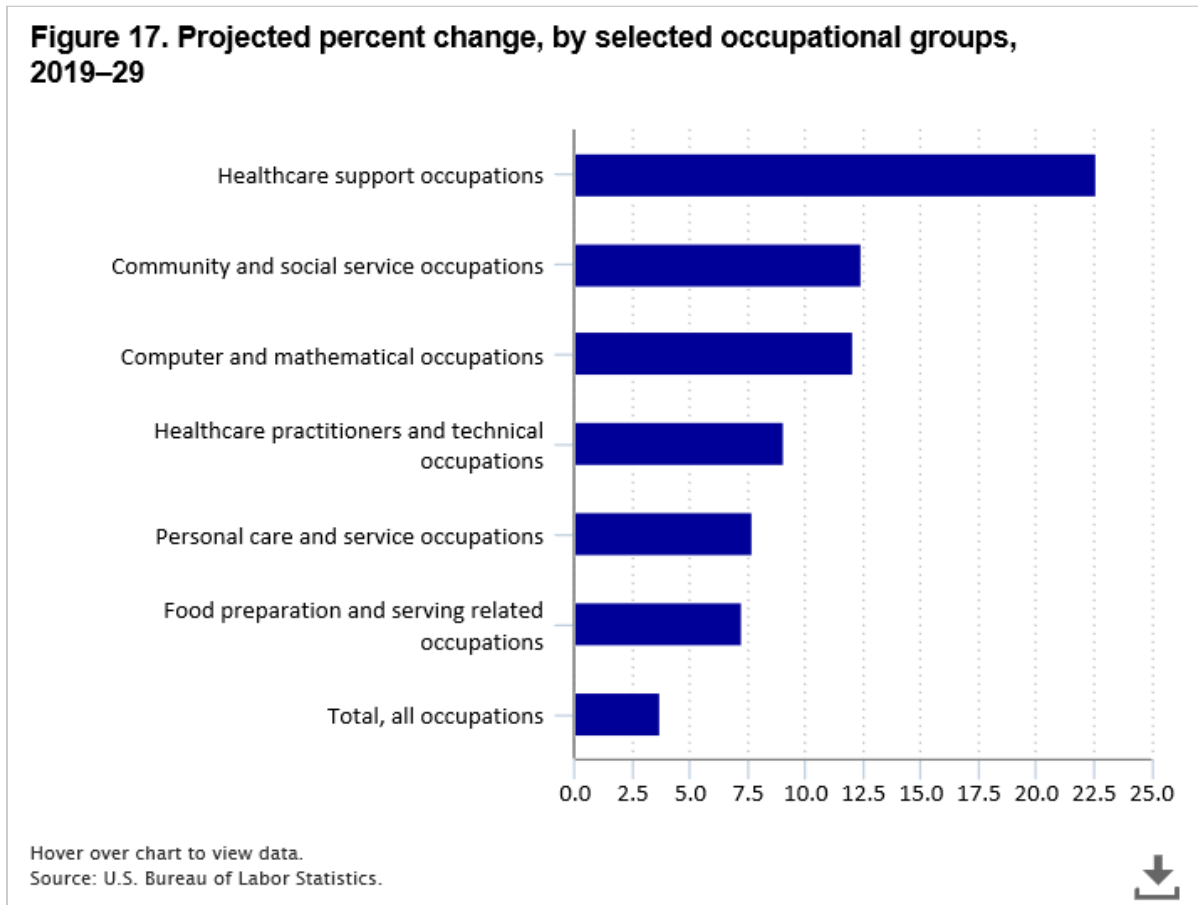
The information sector includes 3 of the 20 overall most rapidly declining industries for the 2019–29 decade. The first one is the cable and other subscription programming industry, which is the second-fastest declining industry within this sector for the projections period, and is projected to decline by 4.8 percent annually from 2019 to 2029. The second one is the newspaper, periodical, book, and directory publishers industry and is projected to decline by 4.0 percent annually. The wired telecommunications carriers, the third industry, is projected to lose jobs at an annual rate of 2.1 percent for the same period. The expectation of continued technological changes leading to fewer job opportunities, the continued trajectory toward digital readership versus print subscription, and a decline in the number of overall subscriptions will contribute to these employment declines.³⁵

Occupational projections of major groups

To construct projections by occupation, BLS combines the projected total industry employment with staffing-pattern information. BLS uses the Standard Occupational Classification (SOC) system to categorize occupations in 22 major groups.^[36] Occupations are classified in the SOC system on the basis of the type of work performed, job tasks, and job duties. Examples include statisticians, mathematicians, computer programmers, and web developers, and all are in the broader computer and mathematical occupational group.

Healthcare support is the fastest growing occupational group, with a projected growth rate of 22.6 percent. (See figure 17.) Increased demand for healthcare and related employment is also reflected in the high projected growth rates for healthcare practitioners and technical occupations and community and social service occupations.

Healthcare support occupations include home health and personal care aides, the detailed occupation projected to add the most new jobs from 2019 to 2029.^[37]



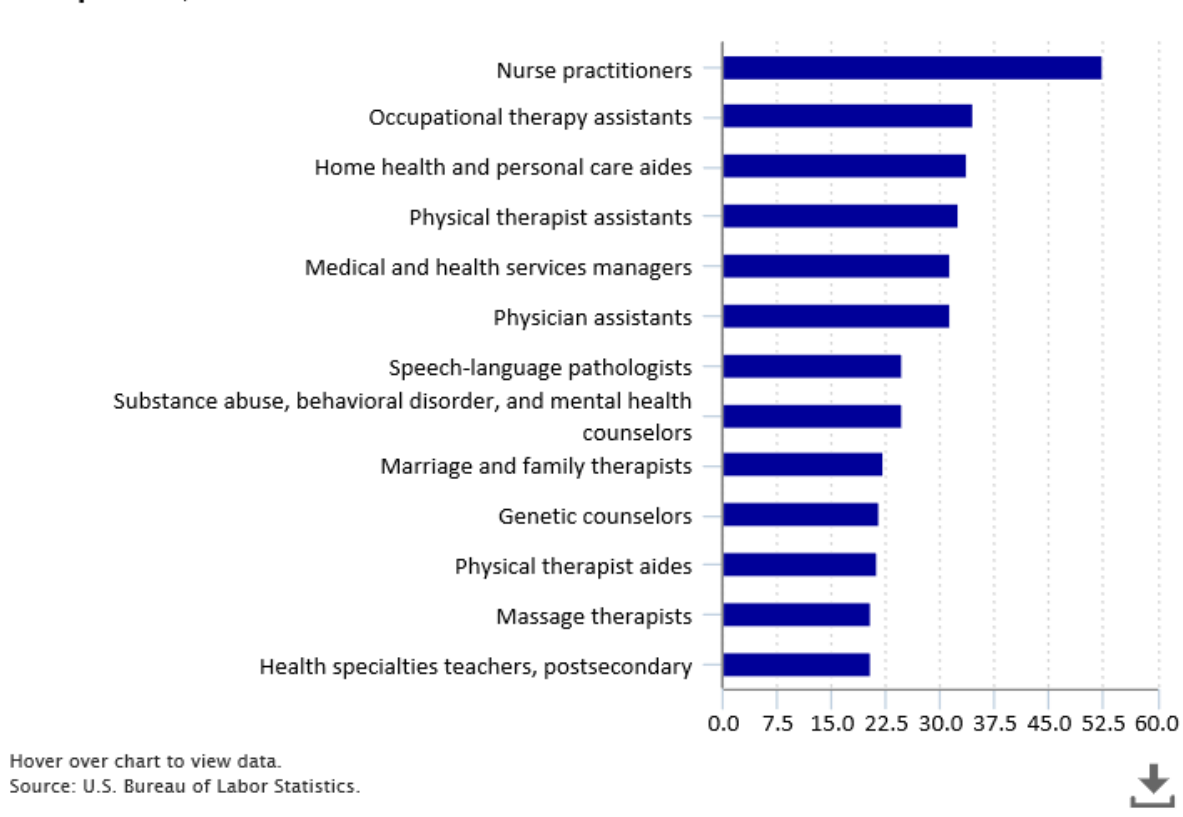
Other occupational groups in which employment is projected to grow markedly faster than the average for all occupations (3.7 percent) include computer and mathematical occupations, personal care and service occupations, and food preparation and serving related occupations. Computer occupations are expected to see job growth as strong demand is expected for IT (information technology) security and software development and as new products associated with the Internet of Things are developed. Rising incomes and a higher share of expenditures on food away from home are expected to drive growth for food preparation workers.^[38]

Four major occupational groups are expected to lose employment: office and administrative support occupations, with a projected decline of 4.7 percent over the decade; production occupations, with a projected decline of 4.5 percent; sales and related occupations, with a projected decline of 2.0 percent; and farming, fishing, and forestry occupations, with a projected decline of 0.1 percent. Although employment declines among sales and related occupations will result from increasing competition from e-commerce, declines in the other groups reflect the increasing adoption of automation and productivity-enhancing technology in clerical and administrative work, manufacturing, and agriculture.

Fastest growing occupational employment

The projected fast employment growth in the healthcare and social assistance sector is expected to increase employment substantially in many healthcare occupations from 2019 to 2029. (See figure 18.) Healthcare occupations and those associated with healthcare (including mental health) account for 13 of the 30 fastest growing occupations from 2019 to 2029. Increased demand for healthcare services by aging baby boomers and people with chronic conditions will drive the projected employment growth.^[39] Several of the fastest growing healthcare occupations—including nurse practitioners, occupational therapy assistants, and physician assistants—are projected to be in greater demand because team-based healthcare models are increasingly used to deliver healthcare services.^[40]

Figure 18. Projected percent change, by selected healthcare and related occupations, 2019–29



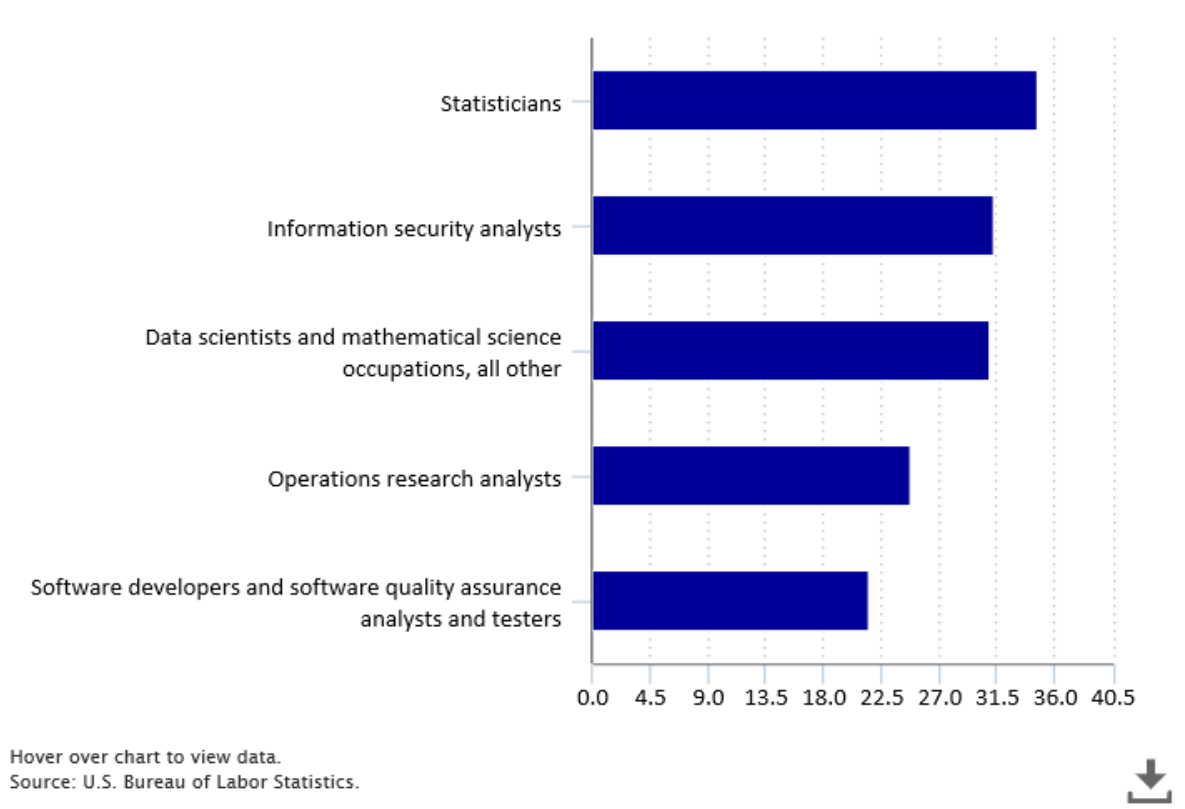
Within the community and social service occupational group, two healthcare-related counseling occupations are also projected to grow rapidly. Substance abuse, behavioral disorder, and mental health counselors and marriage and family therapists are projected to have fast employment growth because of increased demand for treatment of mental and behavioral issues, including opioid addiction. Healthcare-associated occupations from the management and education occupational groups—medical and health services managers and postsecondary health specialties teachers—are also expected to be among the fastest growing occupations.

Growth in information and related computer industries is expected to drive employment growth for several occupations in the computer and mathematical group. This group contains 5 of the 30 fastest growing occupations. As more devices are connected to the internet, the need to combat cybersecurity threats will increase. The risk of cyberattacks is expected to create demand for information security analysts, who will be needed to prevent the theft of critical information and to prevent service attacks on computer networks. Employment of these analysts is

projected to increase 31.2 percent from 2019 to 2029. The expected increased use of mobile devices and software to operate or manage everything from home appliances to medical devices will create demand for software developers and software quality assurance analysts and testers. Employment in this occupation is projected to grow 21.5 percent over the decade. Increased use of mobile devices will also drive demand for web-based and application-based video content, which in turn will lead to employment demand for film and video editors. This occupation's employment is projected to grow 21.6 percent from 2019 to 2029.

Employment is projected to grow for statisticians, data scientists, and operations research analysts because of the increasing widespread use of statistical analysis to make informed business, healthcare, and policy decisions. (See figure 19.) In addition, the growing amount of data available online ("big data") will open new areas for analysis for these occupations.

Figure 19. Projected percent change, by selected computer and mathematical occupations, 2019–29



Two of the top three projected fastest growing occupations—wind turbine service technicians and solar photovoltaic (PV) installers—are involved in alternative energy production. Employment for wind turbine service technicians is expected to grow extremely fast (60.7 percent) from 2019 to 2029 as the expansion and adoption of wind turbines and their installation create new jobs. However, because this occupation is relatively small, with a 2019 employment level of 7,000, the fast growth will account for only about 4,300 new jobs over the next 10 years. In addition, developments in solar energy generation have made solar energy increasingly competitive with traditional power generation sources, such as coal and natural gas, and are expected to drive employment growth

for PV installers. Employment of these workers is projected to grow 50.5 percent over the next 10 years. Like wind turbine service technicians, this occupation is small and its rapid growth will account for only about 6,100 new jobs.

Most rapidly declining occupational employment

As noted earlier, the manufacturing sector is projected to lose the most jobs and has one of the most rapid employment declines of any sector over the projections decade. The decline in employment in the manufacturing sector is expected to decrease employment over the projections decade in several occupations concentrated in manufacturing. Production occupations are projected to experience the second-strongest employment decline of any occupational group, because of a combination of productivity-enhancing technologies, such as robotics, and international competition.^[41] Of the 30 occupations with the fastest employment declines, 12 are in the production occupational group and include various machine and tool setters, assemblers, and operators. Although their employment is projected to decline rapidly, they are relatively small occupations and are projected to lose 45,800 jobs, in total.

Similarly, technological changes are expected to continue to negatively affect the employment of several office and administrative support occupations. For example, software tools can help schedule meetings and appointments (replacing secretaries and administrative assistants), and digital data collection and handwriting recognition software can perform work previously done by data entry keyers. Of the 30 occupations with the fastest declining employment, 8 are office and administrative support occupations. Collectively, these 8 occupations are projected to lose about 257,400 jobs from 2019 to 2029.

Sales and related occupations are also expected to decline in employment over the next decade, largely because of competition from e-commerce activity and automation of checkout positions. Cashiers, retail salespersons, and first-line supervisors of retail sales workers are each projected to see employment declines from 2019 to 2029, for a combined loss of 371,600 jobs, as online shopping displaces brick-and-mortar retail employment.^[42]

Farming, fishing, and forestry occupations are also projected to decline, by 0.1 percent from 2019 to 2029. Consolidation in the agricultural industry—a greater share of farming output moving from small to large farms—is allowing more agricultural output to be produced with fewer workers. In addition, automating technology, such as robotics, is reducing employment demand for farm laborers.^[43]

Conclusions

An aging population and slower population growth will result in slower growth in the labor force from 2019 to 2029 than in prior decades. Older people participate in the labor force less than younger people do, so fewer people are available to be employed. As a result, the projected growth for all jobs, at 3.7 percent, is slower than it was during the prior projections decade. In addition, since the base year of the projections (2019) is after a long economic expansion, economic growth rates are expected to be lower than rates in previous projection cycles.

From 2019 to 2029, employment in the service-providing sectors is projected to grow while that in the goods-producing sector is projected to decline. Occupations that provide healthcare or services related to healthcare are projected to be the most represented among the fastest growing occupations. An aging population is projected to demand more healthcare and related services. In addition, the number of people with chronic conditions is

projected to continue to grow, adding to the demand for healthcare-related occupations. Other occupations projected to grow rapidly include those involved with computers, math, and alternative energy.

SUGGESTED CITATION

Kevin S. Dubina, Janie-Lynn Kim, Emily Rolen, and Michael J. Rieley, "Projections overview and highlights, 2019–29," *Monthly Labor Review*, U.S. Bureau of Labor Statistics, September 2020, <https://doi.org/10.21916/mlr.2020.21>

NOTES

¹ Annual growth refers to a compounded annual growth rate.

² Total employment is the summation of the employment figures for nonagricultural wage and salary workers; agricultural, forestry, fishing, and hunting workers; and self-employed workers. Nonagricultural wage and salary employment data are from the U.S. Bureau of Labor Statistics (BLS) Current Employment Statistics (CES) survey, excluding data for logging, and include private household employment data, which are provided by the Current Population Survey (CPS). The CPS also provides data for self-employed workers and agricultural, forestry, fishing, and hunting workers, except data for logging workers, which are provided by the CES survey.

³ BLS develops macroeconomic projections with the Macroeconomic Advisers (MA) model, a structural econometric model of the U.S. economy. The model, licensed from MA by IHS Markit, comprises more than 1,000 variables, behavioral equations, and identities. Central characteristics of the MA model are a life-cycle model of consumption, a neoclassical view of investment, and a vector autoregression for the monetary policy sector of the economy. The full-employment foundation of the model is the most critical characteristic for the BLS outlook. Within MA, a submodel calculates an estimate of potential output from the nonfarm business sector. The calculation is based on full-employment estimates of the sector's hours worked and output per hour. Error-correction models are embedded in the MA model so that the model's solution is aligned with the full-employment submodel. MA does not forecast sharp cyclical movements in the economy over the 10-year projection horizon. "Add-factors" are either left unchanged after the first couple of years of the solution or returned to historical norms. Add-factors represent changes made to the base result of a forecast or projection equation; see "Glossary of statistical terms" (Paris: Organisation for Economic Co-operation and Development, September 25, 2001, updated March 28, 2014), <https://stats.oecd.org/glossary/detail.asp?ID=44>. The structure of the model, exogenous assumptions, and MA's view of the Federal Reserve's long-term policy objective largely determine the characteristics of the model's long-term outlook for the economy. For more information, see <http://www.macroadvisers.com/>.

⁴ Energy Information Administration (EIA) estimates include prices for West Texas Intermediate crude oil, Brent crude oil, and natural gas and assume current energy regulations will remain unchanged. For more information, see *Annual energy outlook 2020* (U.S. Energy Information Administration, January 29, 2020, released annually), <https://www.eia.gov/outlooks/aeo/>.

⁵ Visit our "Employment projections methods overview" page for a detailed description of the projections process at <https://www.bls.gov/emp/documentation/projections-methods.htm>.

⁶ For pre-1946 data, see https://www2.census.gov/library/publications/1949/compendia/hist_stats_1789-1945/hist_stats_1789-1945-chD.pdf, and for post-1946 data, see <https://www.bls.gov/cps/>.

⁷ Population Research Institute staff, "U.S. birth 'echo boom' fades away" (Population Research Institute, September 1, 1995), <https://www.pop.org/u-s-birth-echo-boom-fades-away/>.

⁸ "Foreign born CPS data tables," table 1.1 for 1999, 2009, and 2019 (U.S. Census Bureau), <https://www.census.gov/topics/population/foreign-born/data/tables/cps-tables.html>. Note that these U.S. Census Bureau data encompass the resident population. The percentage points attributed to noninstitutional population growth are higher because few immigrants are children (ages 0–15), of whom are included in the resident population.

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- ¹¹ Sandra Leigh Johnson, “Drops in natural increase, net international migration resulted in 0.5% annual growth to 328.2M,” *Population* (U.S. Census Bureau, December 30, 2019), <https://www.census.gov/library/stories/2019/12/new-estimates-show-us-population-growth-continues-to-slow.html>.
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- ¹³ Joshua Montes, “CBO’s projection of labor force participation rates,” “Figure 10. Aggregate labor force participation rate,” Working Paper 2018-04 (Congressional Budget Office, March 2018), p. 20, <https://www.cbo.gov/system/files/115th-congress-2017-2018/workingpaper/53616-wp-laborforceparticipation.pdf>.
- ¹⁴ Didem Tüzemen, “Why are prime-age men vanishing from the labor force?” *Economic Review* (Federal Reserve Bank of Kansas City, first quarter 2018), <https://www.kansascityfed.org/~media/files/publicat/econrev/econrevarchive/2018/1q18tuzemen.pdf>.
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- ¹⁷ Karel Mertens, “U.S. tax cuts boost economy—but for how long?” *Dallas Fed Economics* (Federal Reserve Bank of Dallas, June 4, 2019), <https://www.dallasfed.org/research/economics/2019/0604>.
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- ¹⁹ “The Federal Reserve’s dual mandate” (Federal Reserve Bank of Chicago, updated August 10, 2020), <https://www.chicagofed.org/research/dual-mandate/dual-mandate>.
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