Monthly Labor Review

October 2017

errata

Corrections to this article were made on January 30, 2018. Specifically, table 2 and figures 12–15 and related text were revised to include corrected estimates of self-employed workers. For more detailed information, see the errata notice at https://www.bls.gov/bls/errata/employment-projections-2016-26-corrections.htm.

Projections overview and highlights, 2016–26

Changing demographics in the population will have far-reaching effects on the labor force, the economy, and employment over the 2016–26 decade. The overall labor force participation rate is projected to decline as older workers leave the labor force, constraining economic growth. The aging baby-boomer segment of the population will drive demand for healthcare services and related occupations.

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Continued slow labor force growth; moderate economic growth, which is faster than the previous decade; and continued increases in healthcare employment are a few highlights from the most recent projections prepared by the U.S. Bureau of Labor Statistics (BLS). These projections provide a comprehensive view of expected changes in the U.S. economy over the 2016–26 decade. The projections comprise nearly every facet of the economy, from population and labor force to gross domestic product (GDP) and productivity.

This article presents an overview of the 2016–26 projections. Some highlights include the following:

- The labor force is projected to grow at a compound annual rate of 0.6 percent, from 159.2 million people in 2016 to 169.7 million people in 2026—an increase of about 10.5 million people.

- GDP is projected to grow 2.0 percent annually over the projections decade, about 1.5 times the rate of the previous decade, 2006–16, when GDP grew 1.4 percent annually.
- Real output in the service-providing sectors is projected to grow at an annual rate of 2.2 percent from 2016 to 2026, which is faster than the 1.0-percent growth experienced from 2006 to 2016.

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- Healthcare and related occupations account for 16 of the 30 fastest growing occupations from 2016 to 2026. Other occupations in the top 30 are generally energy-related occupations or employed in computer and information industries.

The labor force is projected to grow at an annual rate of 0.6 percent. This rate of growth is in response to the slow expected population growth of those 16 years and older and to changes in the population age composition and the labor force participation rates of the different age, gender, and race and ethnic groups.

The projected 2.0-percent annual growth in GDP over 2016–26 is higher than that experienced over the previous 10 years—a period heavily affected by the 2007–09 recession. However, economic growth is not expected to reach the 3.0 percent or higher growth rate achieved over most of the 1970s through early 2000s. The U.S. economy is undergoing structural changes, largely attributable to the higher percentage of population in older age groups with much lower participation rates in the labor force. With fewer people working, the economy has limited capacity to generate as much economic output.

By 2026, the service-providing industry sectors are projected to account for more than 81 percent of all wage and salary jobs in the economy and for most of the job growth. The health care and social assistance sector will account for more than one-third of the jobs added over the projections decade. The real output of the total service-providing sectors is projected to grow slightly faster than that of the overall economy from 2016 to 2026. Although employment in the goods-producing sectors is expected to grow by an annual rate of 0.1 percent from 2016 to 2026, real output in those sectors is expected to grow 2.1 percent annually over the decade.

Occupational employment is projected to grow by 7.4 percent from 2016 to 2026, nearly 1.0 percent faster than the projected growth during the 2014–24 decade. Employment growth is projected for nearly all occupational groups, from healthcare to transportation occupations. Two occupational groups are projected to decline from 2016 to 2026: production occupations, at a rate of 4.3 percent, and farming, fishing, and forestry occupations, at a rate of 0.3 percent.

Preparing the projections: methodology overview

Every 2 years, BLS prepares projections in four areas: population and labor force, aggregate demand, industry output and employment, and occupational employment. Each step in the process affects those that follow. The expectations for the population affect those for the labor force, which in turn have an effect on the projections of 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 applying U.S. Census Bureau population projections to 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 because of changes in the population. The current BLS labor force projection to 2026 is based on the 2014 national population projections of the U.S. Census Bureau and includes assumptions about future fertility and mortality rates of the U.S. population. Also included are assumptions about immigration, the most uncertain but important factor affecting the size of the future labor force.

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), LLC.[1] Energy prices come from the Energy Information Agency (EIA), and BLS determines other critical variables and supplies them to the MA model exogenously. 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.

BLS estimates models for hundreds of detailed industries that are then summed to subsectors and sectors. Factors from the macroeconomy, such as the labor force, GDP and its components, and labor productivity, affect the growth in total employment. These macrovariables, as well as the projections models for the individual industries, 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 819 occupations across 336 industries. Visit our "Projections Methodology" page for a detailed description of the projections process.

Population and labor force

Over the 2016–26 decade, changes in the growth and composition of the population will be reflected in several segments of the labor force. These changes indicate different growth patterns in labor force participation rates among the various age, gender, and race and ethnic groups. The 2016–26 BLS labor force projections anticipate a labor force that continues to grow, to age, and to change its composition and diversify.[2] The labor force is projected to increase by 10.5 million people from 2016 to 2026 and reach 169.7 million in 2026. This annual growth rate of 0.6 percent is slightly higher than its rate of growth over the 2006–16 decade.

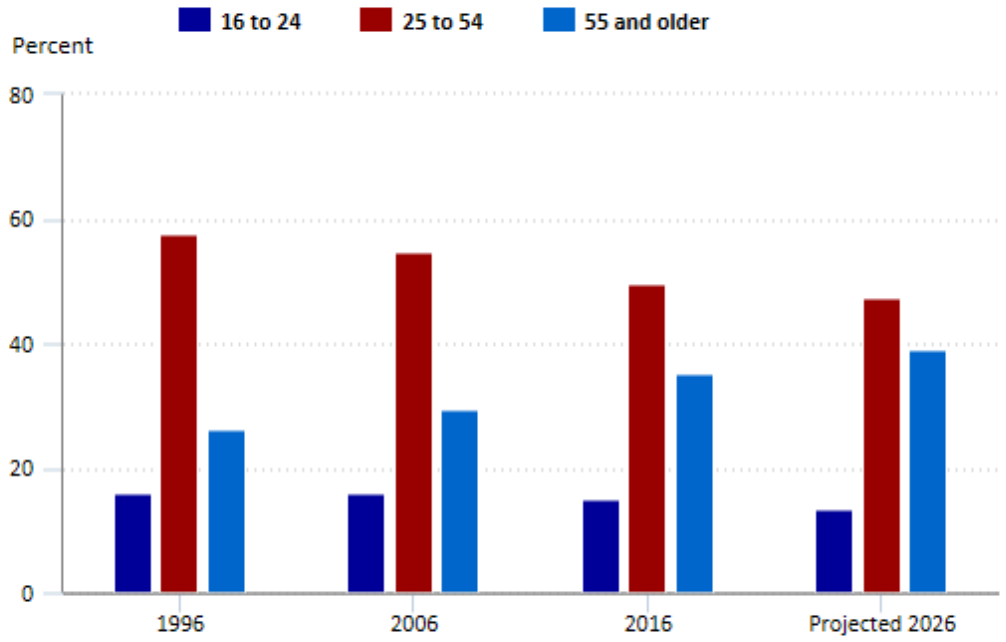
Peaking at 2.6 percent from 1970 to 1980, the annual growth rate of the labor force has been decreasing with the passage of each decade. Changes in the size and composition of the population are important in constraining labor force growth. The growth rate of the civilian noninstitutional population has slowed in past decades. The annual growth rate has declined from 1.3 percent from 1996 to 2006 to 1.0 percent over the 2006–16 decade. In the next decade, the growth of the civilian noninstitutional population is projected to slow to 0.9.

The 2016–26 decade will witness the baby-boom generation aging into the higher age groups of the 55-years-and-older labor force. In 2026, the baby boomers will be from 62 to 80 years old. As a result, a large number of them will have moved out of the labor force, ending one of the major drivers of labor force growth over the past decades.

Civilian noninstitutional population

The civilian noninstitutional population is projected to grow by 24.6 million people, reaching 278.2 million people in 2026.[3] The shares of the youth (16 to 24) and the prime age (25 to 54) groups in the civilian noninstitutional population are projected to decline over the 2016–26 period. (See figure 1.) In contrast, the share of the 55-years-and-older age group in the civilian noninstitutional population is projected to increase considerably. The demographic composition of the population substantially affects the demographic composition of the labor force. As a result, the shares of the youth and the prime age groups are also projected to decline in the labor force, whereas the share of the 55-years-and-older group is projected to increase.

Figure 1. Population share, by age group, 1996, 2006, 2016, and projected 2026



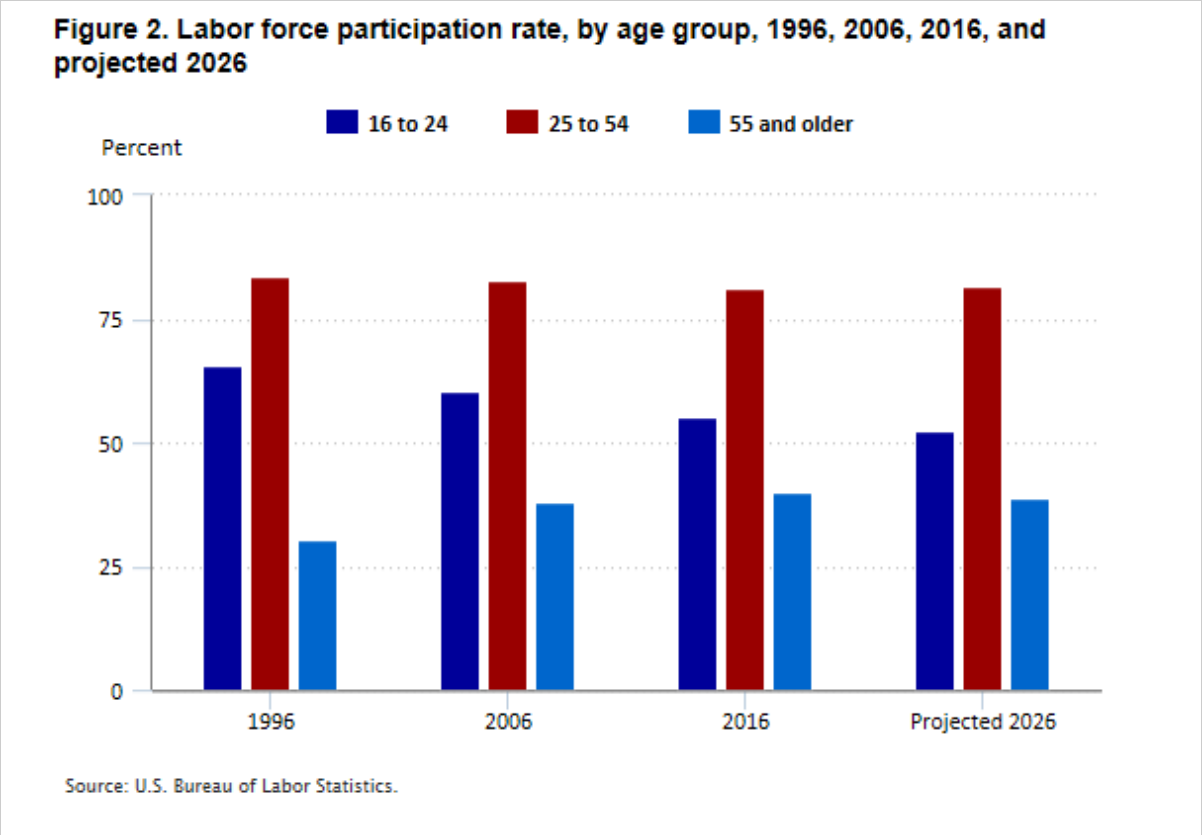
Source: U.S. Bureau of Labor Statistics.

Labor force participation rate

The overall labor force participation rate peaked at 67.1 percent from 1997 to 2000. After the recession of 2001, it started trending downward. In the aftermath of the 2007–09 recession, the overall labor force participation rate dropped sharply and continued its decline, registering at 62.7 percent in 2015. It changed little in 2016, growing by 0.1 percentage point to 62.8 percent. As a result, from its peak in 2000, the labor force participation rate had declined by 4.3 percentage points by 2016.[4]

The participation rate of baby boomers. The continued shift of the population into older age groups will have long-lasting effects on the labor force and the overall labor force participation rate. In 1996, the entire baby-boom generation was in the prime age group of 25-to 54-year-olds, with a participation rate of 83.8 percent. (See figure 2.) In 2001, the first of the baby boomers moved into the 55-and-older age group. The labor force participation rate of the older age group, which had been increasing since 1995 from a rate of 30 percent, peaked in 2012 at 40.5 percent and declined slightly to 40.0 percent in 2016. The overall labor force participation rate is projected to

decline in the next decade because of the labor force moving into higher age groups with lower participation rates as the population ages

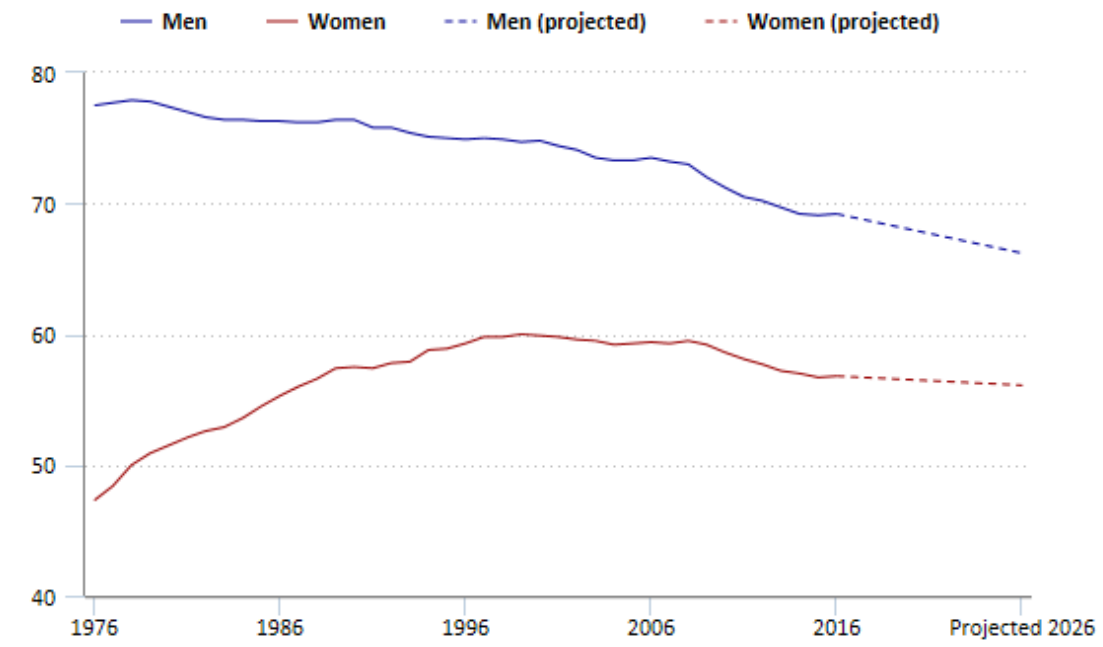


The participation rate of the prime age group, 25-to 54-year-olds. Although this group exhibits the strongest attachment to the labor market, its participation rate generally has been gradually declining since 2000. Its rate is expected to change little over the coming decade, increasing slightly from 81.3 percent to 81.6 percent. (See figure 2.)

The participation rates for teenagers and young adults. With increased school enrollment at all levels, especially the secondary and college levels, more young people than ever before are continuing their education in hopes of getting better paying jobs in the future. The participation rates of both 16-to-19-year-olds and 20-to-24-year-olds have decreased sharply over the past several decades. Their rates are expected to decline further, although at a slower rate. (See figure 2.)

Changing participation rates by gender. The participation rate of women peaked in 1999 after a half century of rapid growth. However, since 1999, their participation rate has trended down and is projected to continue trending downward. The labor force participation rate for men has been declining since the 1940s. This trend is expected to continue to 2026 as well. (See figure 3.)

Figure 3. Labor force participation rate, by gender, 1976–2016 and projected 2026



Source: U.S. Bureau of Labor Statistics.

Labor force

The labor force in 2026 is expected to be much older and to become more diverse. The median age of the labor force is expected to rise slightly from 42.0 in 2016 to 42.3 in 2026—the highest level ever recorded.

The projected labor force annual growth of 0.6 percent in the 2016–26 decade is because of slow population growth. Changes in the age composition of the population and labor force participation rates of the different age, gender, and race and ethnic groups will also affect growth. The labor force will change in composition as various age, gender, and race and ethnic groups experience different rates of change. The shares of both the youth and the prime age groups in the labor force are projected to decline, whereas older workers will continue to increase their share to about one-quarter of the labor force by 2026. The 75-and-older group is projected to have the fastest growth, followed by the 65-to-74-year-olds.

Since 1996, labor force growth for men has been lagging that for women, and this trend is expected to continue over the 2016–26 decade. The women's labor force is projected to have a 0.8-percent annual growth rate, whereas the men's labor force is projected to grow 0.5 percent. Continuing its trend from the past couple of decades, women's share of the labor force is projected to increase, and the men's share is projected to decrease.

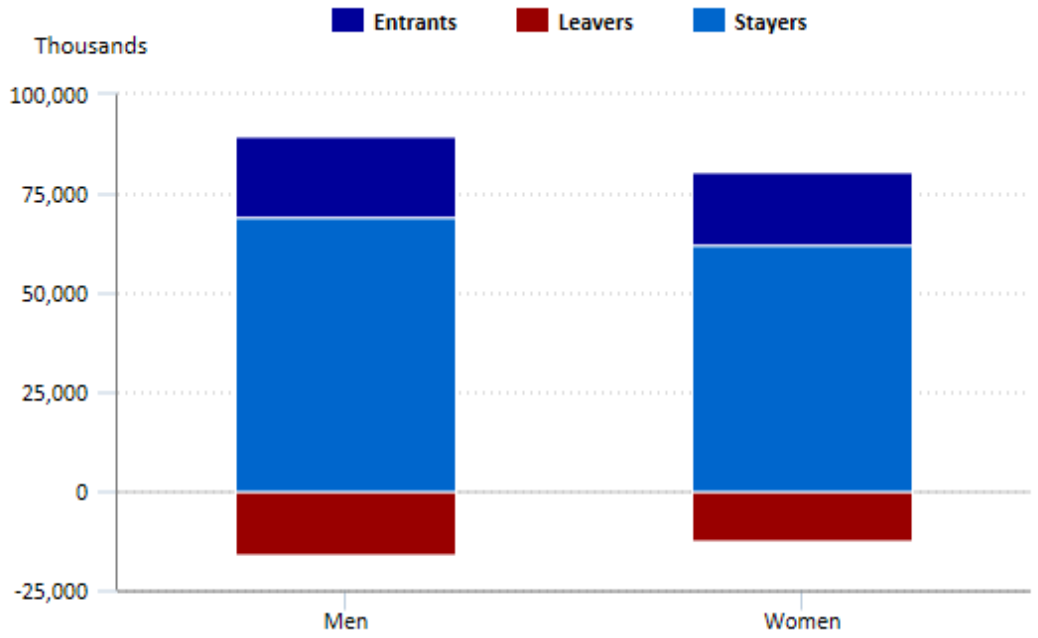
Over the 2016–26 decade, the U.S. labor force is expected to become more diverse. Because immigration is the main engine of population growth, the projected high labor force participation rates for Asian and Hispanic immigrants will increase the share of minorities more in the coming decade than previously. The participation rate of white non-Hispanics, who have always accounted for the largest share, is projected to decline.

The changing composition of the labor force among the different age, gender, and race and ethnic groups creates a dynamic that shows the movement of these different groups into and out of the labor force. This dynamic of labor force change emerges from three groups:

- Entrants: those who will be in the labor force in 2026 but who were not in it in 2016
- Leavers: those who were in the labor force in 2016 but who will exit before 2026
- Stayers: those who were in the labor force in 2016 and who will remain through 2026

Thus, the projected labor force of 2026 may be regarded as consisting of the labor force of 2016, plus the entrants and minus the leavers. (See figure 4.) BLS projects that between 2016 and 2026, nearly 39 million workers will enter the labor force and 28 million will leave. Leavers are more likely to be men, because the labor force has more older men than older women.

Figure 4. Labor force leavers, stayers, and entrants (16 years and older), by gender, 2016-26



Source: U.S. Bureau of Labor Statistics.

During the past several decades, a combination of decreasing fertility rates and increasing life expectancies has aged the U.S. population and, as a result, the labor force. The labor force is getting older if the share of the younger age group under 25 years is declining or if the share of the 55-years-and-older age group is increasing. By 2026, the labor force is projected to be much older and, as a result, the median age of the labor force is expected to increase over the decade.

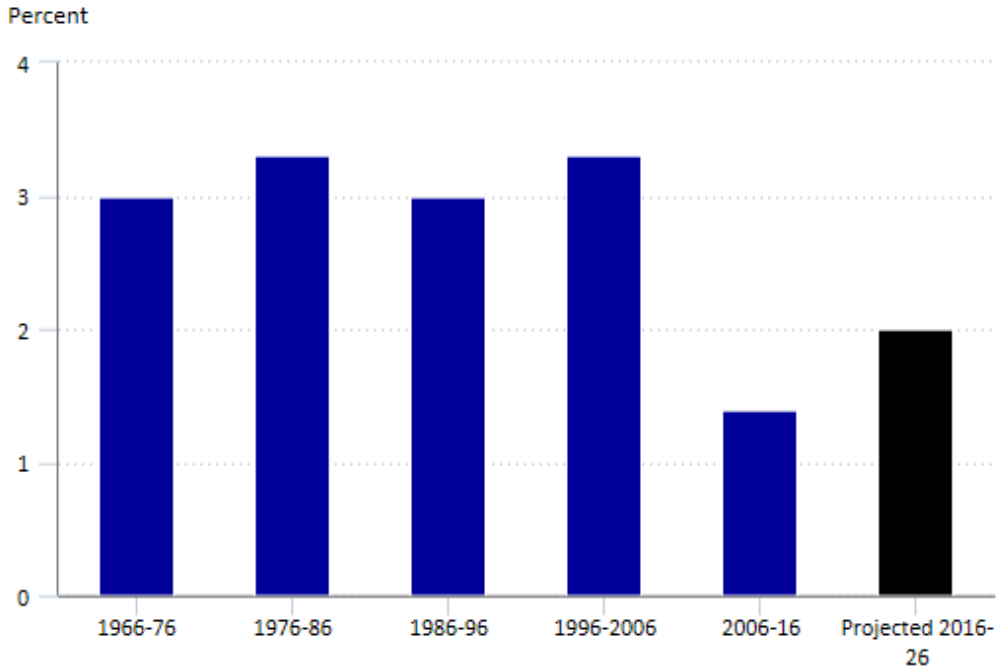
Aggregate demand

Macroeconomic projections of the U.S. economy bridge the BLS labor force projections and the BLS industry output and employment projections. Certain critical variables, including the labor force, set the parameters for the nation's economic growth, largely determining the trend that GDP will follow and the number of jobs needed to support that trend.

By design, BLS projections assume that the economy will be at full employment in the target year (2026). This assumption is useful because fluctuations in the business cycle are not foreseeable over a decade. The full-employment assumption asserts that the economy is operating at a high rate of resource utilization (which includes employment) and that output growth is sustainable.

The target-year assumption of full employment is similar to the current economic environment. In 2016, the U.S. economy was at or near full employment. From 2010 to 2016, GDP grew 2.1 percent annually. Through 2026, BLS projects GDP to grow 2.0 percent annually. This projected growth is slightly lower than that during the 2010–16 recovery;[5] because the economy is at or near full employment, growth is limited. In addition, demographic trends continue to constrain growth, unlike in prior decades in which growth was 3.0 percent or higher. (See figure 5.)

Figure 5. GDP, 10-year compound average annual rate, 1966-2016 and projected 2016-26



Source: U.S. Bureau of Labor Statistics.

Nonaccelerating inflation rate of unemployment and unemployment rate

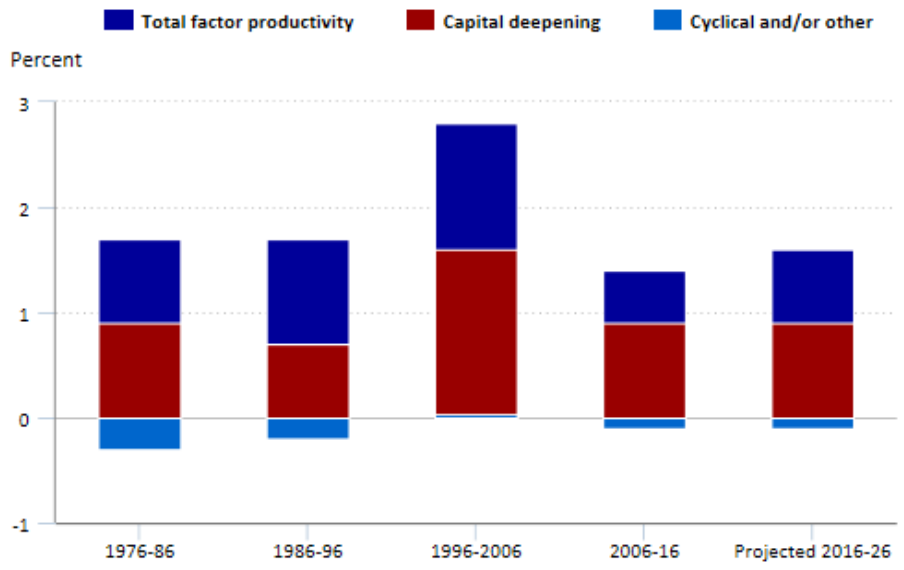
In a full-employment economy, the unemployment rate is equal to the nonaccelerating inflation rate of unemployment (NAIRU). NAIRU is one of the critical values BLS supplies to the MA model. During the 2007–09 recession, unemployment was substantially higher than the NAIRU. Since the end of the recession, unemployment has fallen from 9.6 percent in 2010 to 4.9 percent in 2016 as the economy nears full employment. BLS assumes a

NAIRU of 4.7 percent in 2026 and supplies it to the model for 2026. Since full employment is assumed, the model is solved so that unemployment equals the 4.7-percent NAIRU value.[6]

Productivity

Employment's contribution to GDP growth is determined by labor productivity. Labor productivity is defined as output per hour worked. Various sources, including investments in capital stock, technological advances, quality of the workforce, improvements in management practices, and economies of scale, can increase labor productivity. Total factor productivity encompasses all of these sources except capital. (See figure 6.) Labor productivity increases have slowed recently, which is expected following a recession during which investment declined. However, lower productivity continues to linger as the economy recovers. From 2006 to 2016, labor productivity increased 1.2 percent annually, compared with 2.8-percent annual growth the prior decade. BLS projects labor productivity to grow 1.6 percent annually from 2016 to 2026.

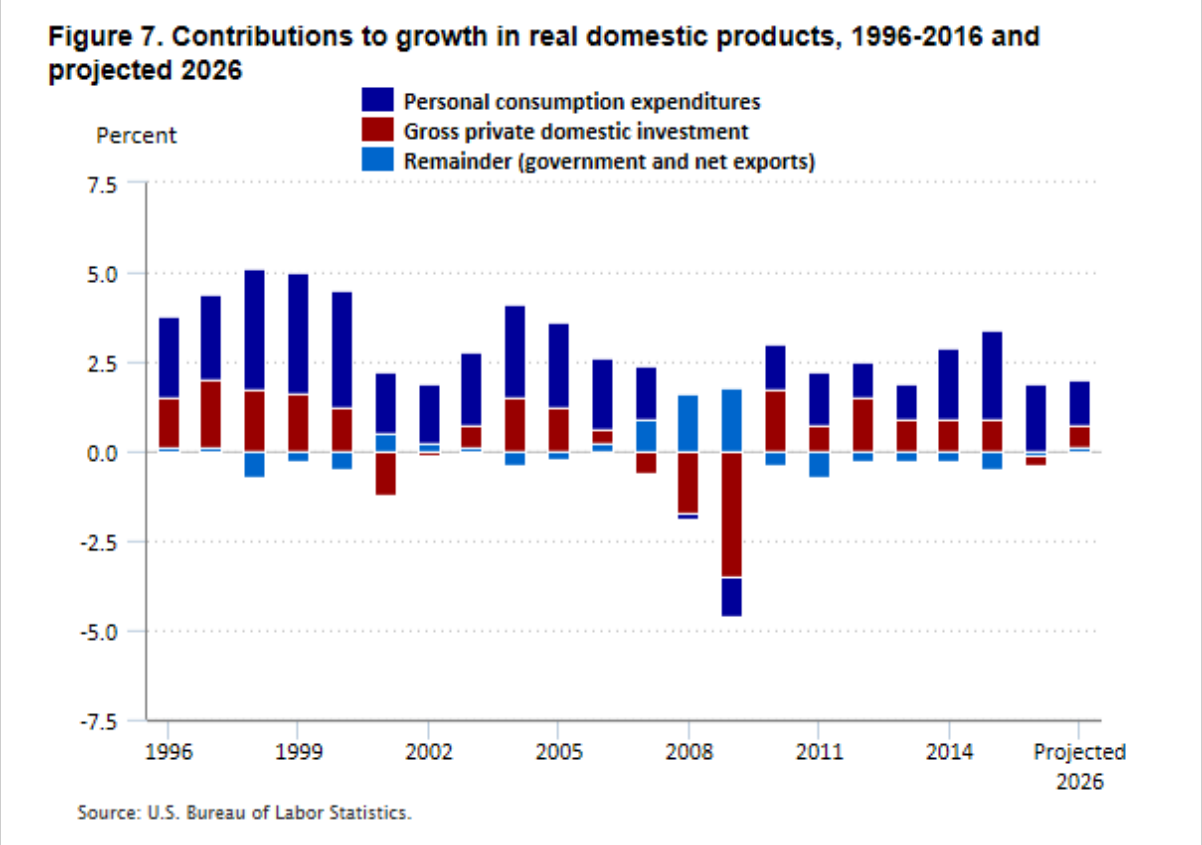
Figure 6. Growth in labor productivity and its components, 10-year compound average annual rate, 1976-2016 and projected 2016-26



Source: U.S. Bureau of Labor Statistics.

Gross domestic product

GDP growth can be examined through contributions on the demand side. Personal consumption expenditures (PCE) are usually the main contributor to U.S. GDP growth, while gross private investment is a supplemental driver. During the 2007–09 recession, PCE and investment declined, causing GDP to decline. Government expenditures and net exports often minimally affect GDP growth. However, during the recession, expansionary governmental policies and net exports were substantial, dampening the decline of GDP. (See figure 7.)



Because of pent-up demand, private domestic investment increased substantially after the recession ended, contributing to a larger-than-normal share of GDP growth—about half—from 2010 to 2013. Private investment has since stabilized, accounting for a smaller portion of GDP growth. PCE, as a percentage of GDP growth, took longer to recover than investment but is once again the driving force behind GDP growth. These trends are expected to continue. From 2016 to 2026, PCE is expected to grow 1.9 percent annually and contribute to 1.3 percentage points of GDP growth. Over the same decade, gross private investment is projected to grow 3.3 percent annually and contribute 0.6 percentage points of GDP growth.

Government spending and net exports are expected to contribute minimally to GDP. Government consumption and gross investment is expected to grow 0.8 percent annually through 2026. This growth is driven by state and local consumption and investment, which are projected to grow 1.2 percent annually. Federal government consumption and investment are projected to be flat over the next decade. Net exports are projected to grow 1.1 percent annually over the next 10 years, resulting in a trade deficit of 653.1 billion by 2026. Exports are projected to grow 4.4 percent annually and imports 3.8 percent annually over the 2016–26 decade.

Fiscal and monetary policy

In the wake of the 2007–09 recession, the Federal Reserve aggressively set monetary policy. The federal funds rate was below 0.25 percent from December 2008 through December 2015. As the labor market recovered and inflation stabilized, the Federal Reserve gradually allowed this rate to increase—the target rate was between 1.00 and 1.25 percent in the summer of 2017. The federal funds rate is expected to continue increasing. The Federal

Reserve has stated that it expects "economic conditions will evolve in a manner that will warrant gradual increases in the federal funds rate."[7] BLS projects a federal funds rate of 3.3 percent in 2026.

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 are also held constant, at their current levels.

Energy prices

Considerable uncertainty is faced when energy prices are projected because of their volatility. Twice in the past decade, oil prices declined by more than 50 percent over a 12-month period (once in 2008 and again between 2014 and 2015). Natural gas prices have seen similar declines. BLS replaced the projected energy prices in the MA model with prices from the reference case published in the EIA *2017 Annual Energy Outlook*. EIA estimates include prices for West Texas Intermediate (WTI) crude oil, Brent crude oil, and natural gas and assume current energy regulations will remain unchanged.[8] Oil prices at the start of the projections are the lowest they have been since 2004. Natural gas is the lowest since 1999. Over the next 10 years, prices are expected to increase, although not to previous highs. In the terminal year, prices per barrel of WTI and Brent crude oil are projected to be $82.40 and $88.50, respectively. The price of natural gas is projected to be $4.60 per million British thermal units in 2026.

BLS ran a sensitivity analysis exercise on the basis of the low and high oil price scenarios published by EIA. However, the alternative oil price scenarios minimally affected the projected rate of GDP growth and other key macrovariables.

Output and employment projections, 2016−26

Industry output and employment and occupational employment are projected to increase more in the 2016–26 decade than in the previous decade. Industry output and employment projections were prepared with the use of the North American Industry Classification System (NAICS) for the 2016–26 decade. Major sectors—hereafter referred to as "sectors"—are aggregations of NAICS industries. Occupational employment projections for the decade use the Standard Occupational Classification (SOC) system.

Industry output

BLS projects that real output will increase from almost $28.2 trillion in 2016 to just over $34.6 trillion in 2026.[9] The more than $6.4 trillion increase is larger than the 2006–16 increase of over $1.9 trillion. Most of the increase in real output is projected to come from nonagricultural sectors, specifically service-providing sectors.

Sector output. Real output in the service-providing sectors is projected to grow at an annual rate of 2.2 percent from 2016 to 2026,[10] which is faster than the 1.0-percent growth experienced from 2006 to 2016. Over the 2016–26 decade, this 2.2-percent projected growth in output is about the same as the 2.1-percent projected growth for the economy. All service-producing sectors are projected to experience real output growth over the projections decade, except the federal government sector—it is projected to decline slightly at 0.1 percent annually. The health care and social assistance sector is expected to have the fastest growth in real output, increasing at a 3.1-percent annual rate.

Real output in the nonagricultural goods-producing sectors is projected to grow 2.1 percent a year from 2016 to 2026, which is the same as the expected growth rate for the overall economy. However, the expected growth is much faster than the 0.1-percent increase experienced by nonagricultural goods-producing sectors from 2006 to 2016. The mining sector is expected to have the fastest growth among goods-producing sectors, increasing annually at 2.9 percent. Output in the construction sector is expected to grow 2.7-percent annually, offsetting the 1.3-percent annual decline in output that occurred during the 2006–16 decade.

The agricultural sectors (include forestry, fishing, and hunting, as well as crop and animal production) are projected to grow 1.4 percent annually during the 2016–26 decade. This increase compares favorably with the 0.5-percent annual decline in the agricultural sector from 2006 to 2016.

Fastest growing output. The information sector is projected to have 5 of the 20 fastest growing real output industries, 3 of which are the fastest growing real output industries in the economy. The increased need for network security, cloud computing, high-speed Internet, and Web publishing is driving the rise in the projected real output of the sector. The satellite telecommunications, telecommunications resellers, and all other telecommunications industry has the second highest projected real output growth during the 2016–26 projections decade, growing annually at 5.3 percent**.** This same industry also is expected to have rapidly declining wage and salary employment over the decade. This decline can be explained by use of new technology, which increases productivity. Output will continue to grow, even as fewer workers are needed.

The health care and social assistance sector contains 7 of the 20 industries with the fastest growing real output. The offices of physicians industry, the offices of other health practitioners industry, and the hospitals industry are 3 of the 7 fastest growing industries. The aging of the population and an expected rise in chronic conditions, such as diabetes, will lead to higher demand of all types of healthcare services.

Most rapidly declining output. The federal government sector has four of the nine industries that are expected to decline in real output, largely because of pressure to reduce government spending in order to reduce the budget deficit. The Postal Service industry is projected to have the largest decline in output of all industries, falling 1.7 percent annually over the projections decade. The increases in use of social media and of the Internet—for email communication, bill payment, and digital subscriptions—are factors affecting this decline.

The manufacturing sector has another four of the nine industries expected to have a decline in real output. The textile mills and textile product mills industry, shrinking 1.0 percent annually over the 2016–26 decade, is the third fastest declining industry; the apparel, leather, and allied product manufacturing industry, shrinking 0.5 percent annually over the 2016–26 decade, is the seventh fastest declining. Factors that contribute to these declines include automation and outsourcing to overseas production for cheaper labor.

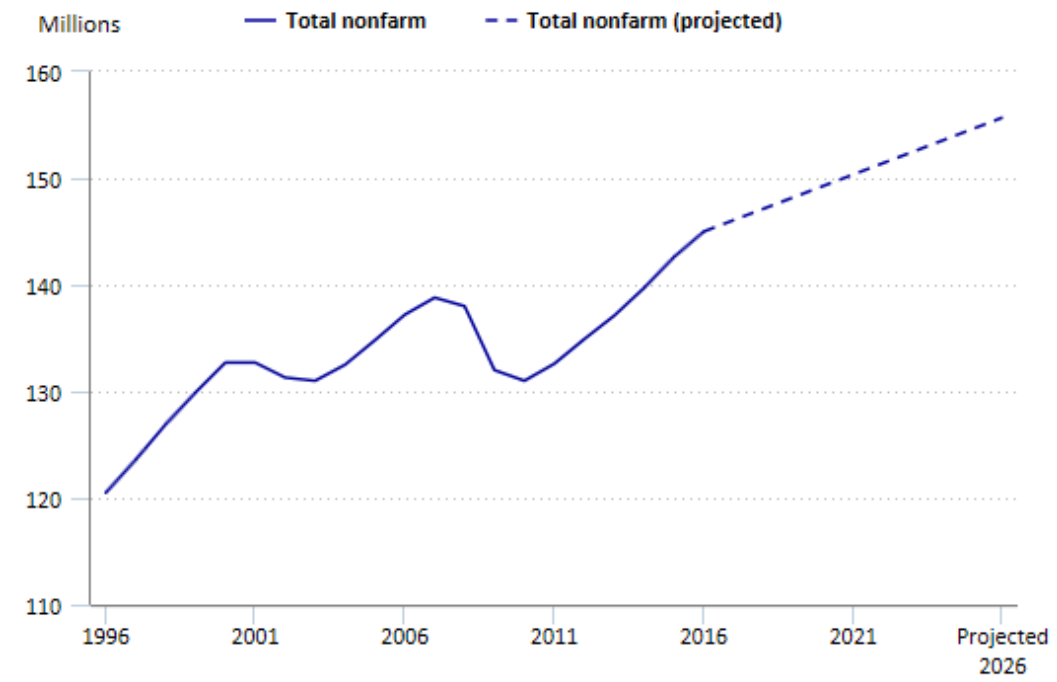
The Information sector is the only other sector with an industry that is expected to decline. As more news, entertainment, and literary content are distributed digitally, the output of the newspaper, periodical, book, and directory publishers industry is expected to decline, falling 0.9 percent annually over the projection period.

Industry and occupational employment projections

BLS projects that total employment in 2026 will reach about 167.6 million,[11] an increase from 2016 of over 11.5 million. This growth represents a 0.7-percent annual rate of growth, which is faster than the 0.5-percent annual rate of growth experienced from 2006 to 2016. Most of the increase in employment, over 93 percent, is for

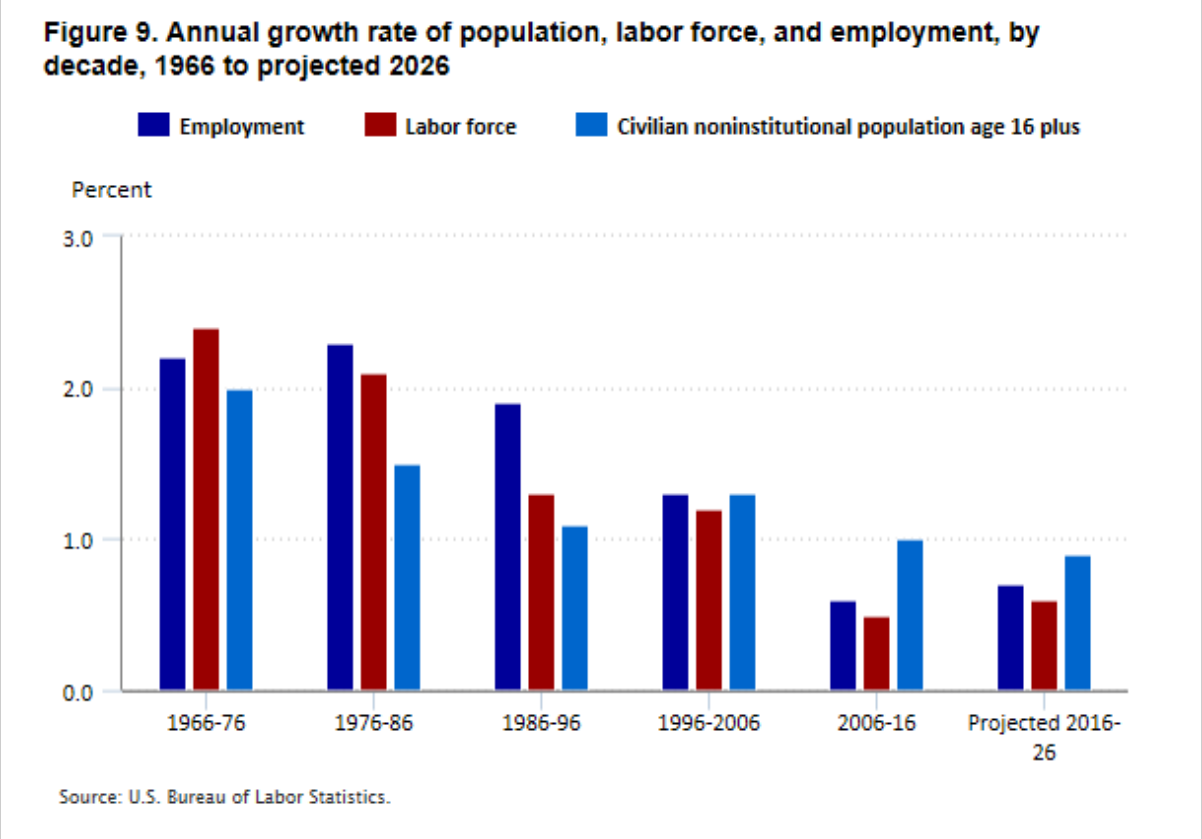
nonagricultural wage and salary workers. Their job count is projected to rise from about 145.0 million in 2016 to more than 155.7 million in 2026, an increase of over 10.7 million jobs.[12] (See figure 8.) This increase is larger than the 7.8 million jobs that were added from 2006 to 2016. The 2016–26 employment increase for nonagricultural wage and salary workers, at a growth rate of 0.7 percent a year, is projected to be larger than the 0.6-percent annual growth rate from 2006 to 2016.

Figure 8. Total nonagricultural wage and salary employment, 1996-2016 and projected 2026



Source: U.S. Bureau of Labor Statistics.

The labor force and changing demographics in the population affect employment growth, just as they affect GDP and other macroeconomic measures. An aging population leads to a declining participation rate, limiting the number of workers available for employment. Employment is expected to grow slightly faster than it did over the previous 10 years—a decade heavily affected by the 2007–09 recession—but much slower than it did over the 1980s, 1990s, and mid-2000s. (See figure 9.)



Industry sector employment. The service-providing sectors are projected to add more than 10.5 million jobs to reach over 135.8 million jobs by 2026. This increase represents just over 91 percent of all jobs added from 2016 to 2026. Employment in the service-providing sectors is expected to grow by 0.8 percent annually from 2016 to 2026, which is slightly faster than the 0.7-percent growth in jobs for the entire economy. (See table 1.) This growth is slower than the 0.9-percent annual growth that the sector experienced from 2006 to 2016. As with the last three sets of projections, the health care and social assistance sector is projected to have the most employment growth. The sector is expected to increase by almost 4 million jobs and is expected to reach over 23 million jobs by 2026. Employment in the health care and social assistance sector is projected to grow at a 1.9-percent annual rate, which is more than twice as fast as the overall annual growth of jobs in the entire economy. This growth rate is below the 2.3-percent annual growth rate that took place during the 2006–16 decade for the health care and social assistance sector.

Table 1. Employment by major industry sector

Industry sector	Thousands of jobs			Compound annual rate of change	
	2006	2016	2026	2006–16	2016–26
Total [1]	148,988.2	156,063.8	167,582.3	0.5	0.7
Nonagriculture wage and salary [2]	137,190.9	144,979.3	155,724.8	0.6	0.7
Goods-producing, excluding agriculture	22,466.7	19,685.2	19,904.2	–1.3	0.1
Mining	619.7	626.1	716.9	0.1	1.4
Construction	7,691.2	6,711.0	7,575.7	–1.4	1.2

See footnotes at end of table.

Table 1. Employment by major industry sector

Industry sector	Thousands of jobs			Compound annual rate of change	
	2006	2016	2026	2006–16	2016–26
Manufacturing	14,155.8	12348.1	11,611.7	–1.4	–0.6
Services-providing excluding special industries	114,724.2	125,294.1	135,820.6	0.9	0.8
Utilities	548.5	556.2	559.6	0.1	0.1
Wholesale trade	5,904.6	5,867.0	6,012.8	–0.1	0.2
Retail trade	15,353.2	15,820.4	16,232.7	0.3	0.3
Transportation and warehousing	4,469.6	4,989.1	5,353.4	1.1	0.7
Information	3,037.9	2,772.3	2,824.8	–0.9	0.2
Financial activities	8,366.6	8,284.8	8,764.6	–0.1	0.6
Professional and business services	17,566.2	20,135.6	22,295.3	1.4	1.0
Educational services	2,900.9	3,559.7	4,066.2	2.1	1.3
Health care and social assistance	15,253.3	19,056.3	23,054.6	2.3	1.9
Leisure and hospitality	13,109.7	15,620.4	16,939.4	1.8	0.8
Other services	6,240.5	6,409.4	6,761.4	0.3	0.5
Federal government	2,732.0	2,795.0	2,739.2	0.2	–0.2
State and local government	19,241.2	19,427.9	20,216.6	0.1	0.4
Agriculture, forestry, fishing, and hunting [3]	2,111.2	2,351.5	2,345.4	1.1	0.0
Agriculture wage and salary	1,218.6	1,501.0	1,518.0	2.1	0.1
Agriculture self-employed	892.6	850.5	827.5	–0.5	–0.3
Nonagriculture self-employed	9,686.0	8,733.0	9,512.1	–1.0	0.9

Notes:

[1] Employment data for wage and salary workers are from the U.S. Bureau of Labor Statistics Current Employment Statistics survey, which counts jobs, whereas self-employed, unpaid family workers, and agriculture, forestry, fishing, and hunting are from the Current Population Survey (household survey), which counts workers.

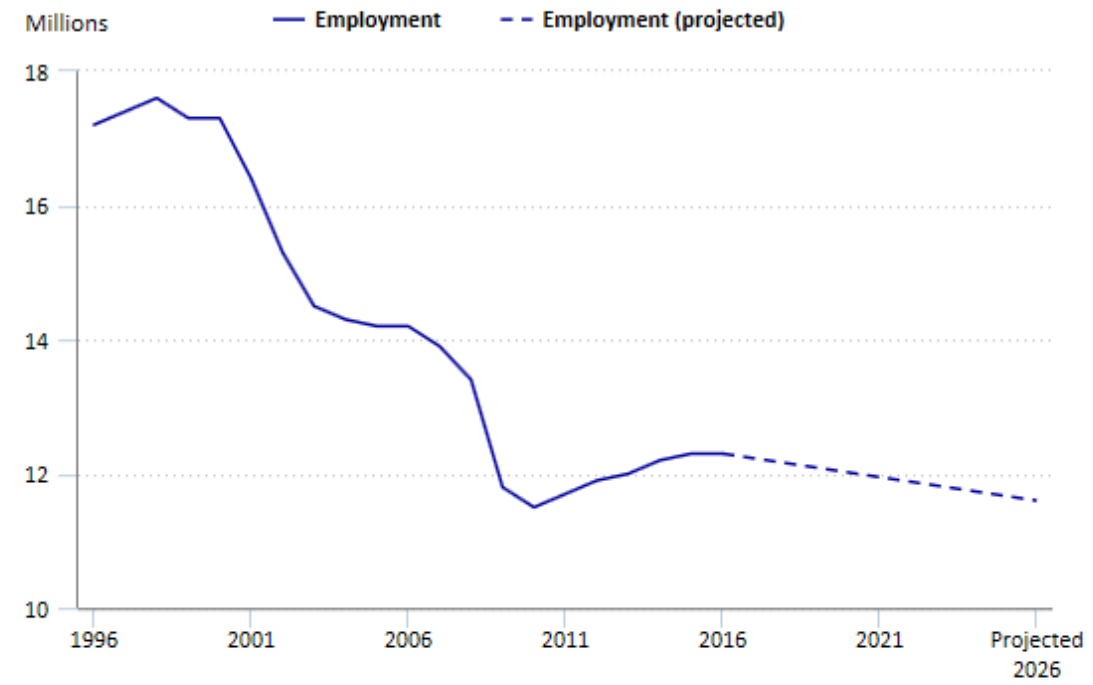
[2] Includes wage and salary data from the Current Employment Statistics survey, except private households, which are from the Current Population Survey. Logging workers are excluded.

[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, Employment Projections Program.

Employment in the goods-producing sectors excluding agriculture is projected to increase by 219,000 jobs over the 2016–26 decade. This growth contrasts with the loss of almost 2.8 million jobs over the previous decade. Manufacturing, the largest sector in this group, is projected to have the largest decrease in jobs over the 2016–26 projections decade, declining by 736,400 jobs. Although large, the loss is about 40 percent of that experienced from 2006 to 2016, which saw a decrease in more than 1.8 million manufacturing jobs. (See figure 10.)

Figure 10. Manufacturing wage and salary employment, 1996–2016 and projected 2026



Source: U.S. Bureau of Labor Statistics.

Employment in the construction sector is expected to increase substantially, adding 864,700 jobs. This increase almost makes up for the 980,200 jobs that were lost during the 2006–16 decade, nearly bringing the construction sector back to its prerecession level. (See figure 11.)

Figure 11. Construction wage and salary employment, 1996–2016 and projected 2026

Source: U.S. Bureau of Labor Statistics.

Total employment in the agriculture, forestry, fishing, and hunting sector is expected to decline by 6,100 jobs from 2016 to 2026, a result of a decline of 23,000 in self-employment over the projections decade. This total decline is smaller for the sector than the expected loss of 110,500 jobs over the 2014–24 projections decade.[13] This decline was largely a result of falling employment projected in the crop production industry.

Total crop production industry employment was projected to decline 0.7 percent annually during the 2014–24 decade but is now expected to grow 0.2 percent annually over the 2016–26 projections decade.[14] As farms are consolidating and getting larger, they are adopting precision agriculture technologies, leading to an increase in hired labor.[15]

Occupational projections of major groups. BLS uses the 2010 SOC system to categorize occupations in 22 major groups.[16] Occupations are classified in the SOC based on the type of work performed, their tasks, and their duties; for example, statisticians, mathematicians, computer programmers, and web developers are all in the computer and mathematical occupational group. Table 2 shows the projected employment change, in terms of both numeric and percent change, for all 22 major groups.

Table 2. Employment by major occupational group, 2016 and projected 2026 (numbers in thousands)

2016 National Employment Matrix title	Matrix code	Employment		Change, 2016–26		Median annual wage, 2016 (1)
		2016	2026	Number	Percent	
Total, all occupations	00-0000	156,063.8	167,582.3	11,518.6	7.4	$37,040

See footnotes at end of table.

Table 2. Employment by major occupational group, 2016 and projected 2026 (numbers in thousands)

2016 National Employment Matrix title	Matrix code	Employment		Change, 2016–26		Median annual wage, 2016 [1]
		2016	2026	Number	Percent	
Management occupations	11-0000	9,533.1	10,340.4	807.3	8.5	100,790
Business and financial operations occupations	13-0000	8,066.8	8,840.7	773.8	9.6	66,530
Computer and mathematical occupations	15-0000	4,419.0	5,026.5	607.5	13.7	82,830
Architecture and engineering occupations	17-0000	2,601.0	2,795.4	194.3	7.5	77,900
Life, physical, and social science occupations	19-0000	1,299.5	1,424.3	124.8	9.6	63,340
Community and social service occupations	21-0000	2,570.7	2,942.6	371.9	14.5	42,990
Legal occupations	23-0000	1,283.3	1,399.5	116.2	9.1	79,650
Education, training, and library occupations	25-0000	9,426.5	10,315.4	888.9	9.4	48,000
Arts, design, entertainment, sports, and media occupations	27-0000	2,772.9	2,941.0	168.1	6.1	47,190
Healthcare practitioners and technical occupations	29-0000	8,751.5	10,088.1	1,336.6	15.3	63,420
Healthcare support occupations	31-0000	4,315.6	5,335.2	1,019.6	23.6	27,910
Protective service occupations	33-0000	3,505.6	3,663.8	158.2	4.5	38,660
Food preparation and serving related occupations	35-0000	13,206.1	14,438.1	1,232.0	9.3	20,810
Building and grounds cleaning and maintenance occupations	37-0000	5,654.1	6,177.9	523.8	9.3	24,700
Personal care and service occupations	39-0000	6,419.7	7,647.4	1,227.6	19.1	22,710
Sales and related occupations	41-0000	15,747.8	16,206.5	458.7	2.9	26,590
Office and administrative support occupations	43-0000	23,081.2	23,230.8	149.6	0.6	34,050
Farming, fishing, and forestry occupations	45-0000	1,060.1	1,056.7	-3.5	-0.3	23,510
Construction and extraction occupations	47-0000	6,812.5	7,560.0	747.6	11.0	43,610
Installation, maintenance, and repair occupations	49-0000	5,905.4	6,293.6	388.2	6.6	43,440
Production occupations	51-0000	9,356.9	8,950.0	-406.9	-4.3	33,130
Transportation and material moving occupations	53-0000	10,274.2	10,908.4	634.3	6.2	30,730

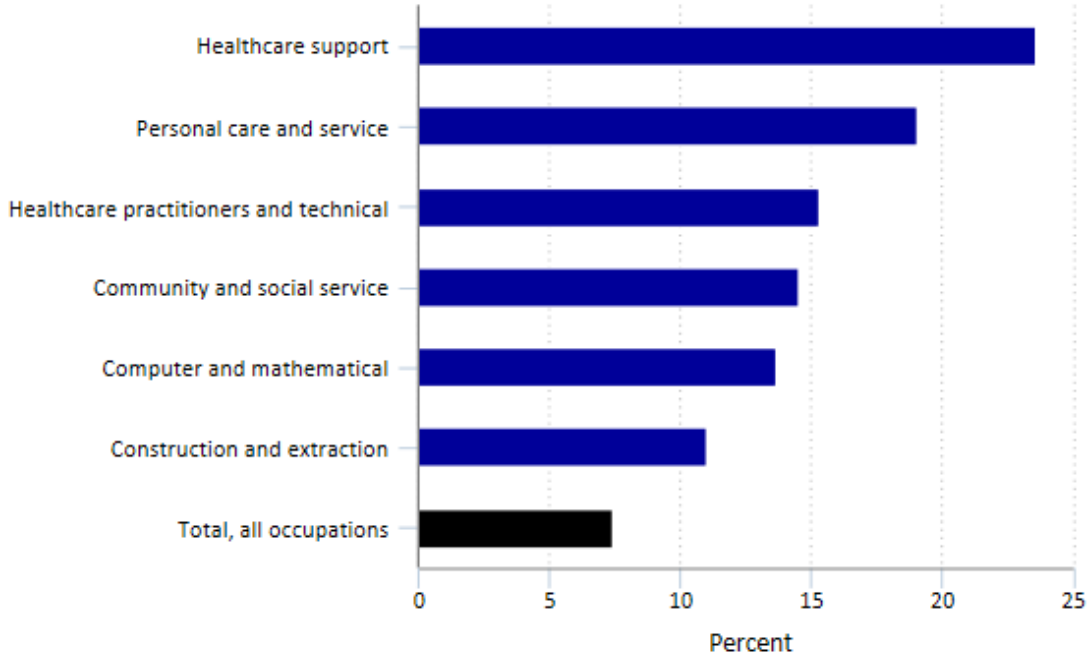
Notes:

[1] Data are from the U.S. Bureau of Labor Statistics, Occupational Employment Statistics program.

Source: U.S. Bureau of Labor Statistics, Employment Projections program.

The rapid growth expected in the health care and social assistance sector is illustrated here with employment in healthcare support occupations growing the fastest among occupational groups, at 23.6 percent. (See figure 12.) Increases in healthcare and related employment also are reflected in the high projected growth rates for healthcare practitioners and technical occupations, personal care and service occupations, and community and social service occupations. Personal care and service occupations include personal care aides, the detailed occupation projected to add the most new jobs from 2016 to 2026.

Figure 12. Projected percent change, by select occupational groups, 2016-26



Source: U.S. Bureau of Labor Statistics.

Other occupational groups in which employment is projected to grow markedly faster than the average for all occupations (7.4 percent) include computer and mathematical occupations and construction and extraction occupations. Computer occupations are expected to see job growth as various technologies expand and are adopted by more and more users. The recovery of the construction industry to near prerecession levels and the expected increase in energy prices will drive employment growth for associated occupations in construction and extraction.

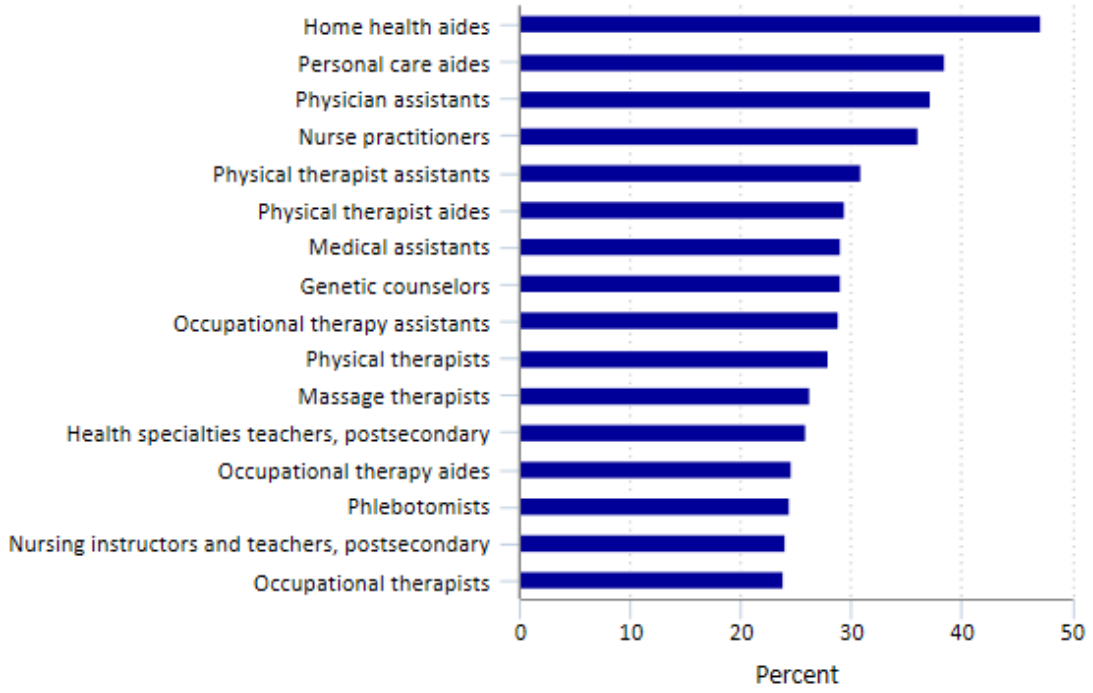
Two major occupational groups are expected to lose employment: production occupations, with a projected decline of 4.3 percent over the decade, and farming, fishing, and forestry occupations, with a projected decline of 0.3 percent over the decade. These employment declines will be largely due to productivity growth in the manufacturing sector and the agriculture, forestry, fishing, and hunting sector, respectively.

Fastest growing employment. Employment in the health care and social assistance sector is projected to grow the fastest among all sectors. It also has 8 of the 20 fastest growing industries. Factors that contribute to the large increase in the number of these jobs are the needs of an aging baby-boom population, longer life expectancies, and growing rates of chronic conditions.[17] Employment in the home health care services industry is projected to grow the fastest over the 2016–26 projections decade, increasing annually at 4.4 percent. This rapid growth is due to patient preference and shifts in federal funding toward in-home or community-based care.[18]

The projected fast growth in health care and social assistance sector employment is expected to increase employment substantially in many healthcare occupations from 2016 to 2026. (See figure 13.) Healthcare occupations and those associated with healthcare account for 16 of the 30 fastest growing occupations, with

employment of home health aides projected to grow the fastest at 47.3 percent. Therapy occupations, such as occupational and physical therapists and their assistants and aides, also are projected to increase employment. Increased demand for these workers' services by aging baby boomers and those with chronic conditions will drive the projected employment growth.

Figure 13. Healthcare and -related occupations, projected employment change, 2016-26

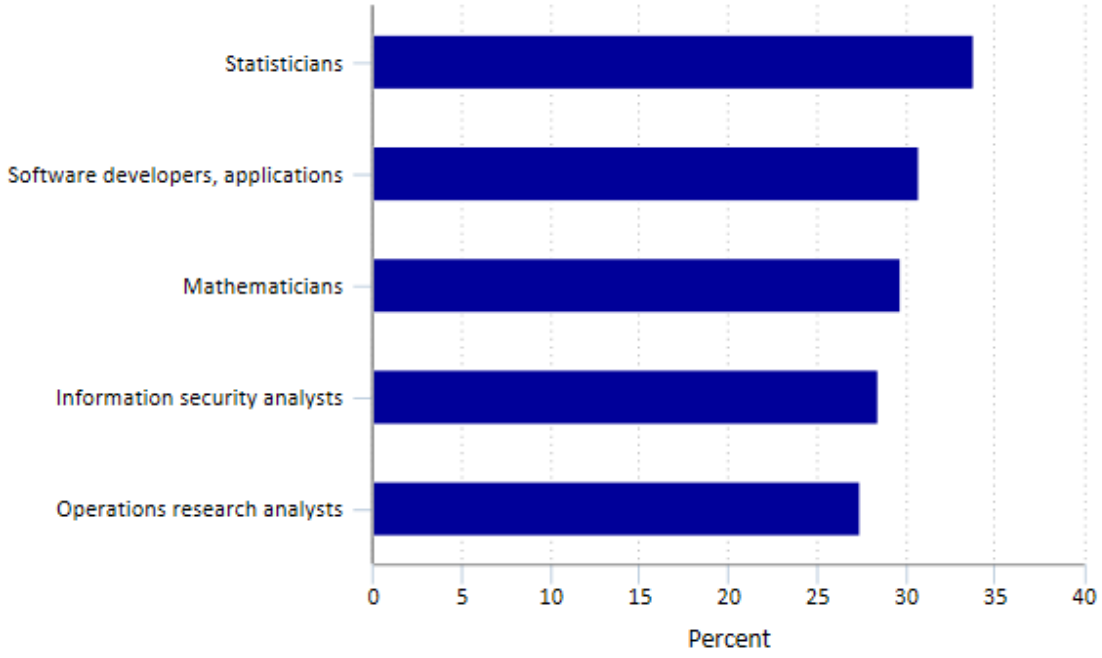


Source: U.S. Bureau of Labor Statistics.

The information sector includes 2 of the 20 fastest growing industries over the projections decade. Within this sector, employment increases in other information services make this the second fastest growing industry, rising 4.0 percent annually over the decade. An increase in Internet entertainment sites and video broadcast sites, including audio and video-streaming services, contribute to the fast employment growth.

Growth in information and related computer industries is expected to drive employment growth for several occupations in the computer and mathematical group. (See figure 14.) Increased use of mobile devices and the addition of software in everything from home appliances to medical devices will create demand for application software developers. Employment in this occupation is projected to grow 30.7 percent over the decade. As more devices are connected to the Internet, the need to combat cybersecurity threats will increase. Information security analysts are expected to be needed to prevent the theft of critical information and service attacks on computer networks. Employment of these analysts is projected to increase 28.5 percent from 2016 to 2026.

Figure 14. Computer and mathematical occupations, projected employment change, 2016-26

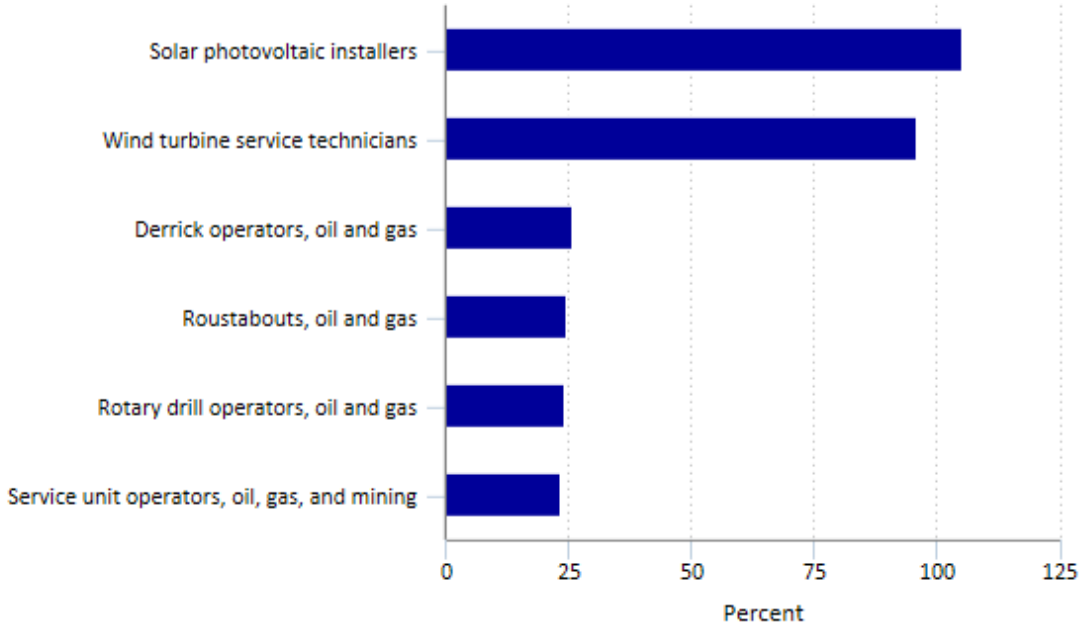


Source: U.S. Bureau of Labor Statistics.

Employment is expected to grow for statisticians, mathematicians, and operations research analysts, a result of widespread use of statistical analysis to make informed business, healthcare, and policy decisions. In addition, the growing amount of data available online will open new areas for analysis.

Of the 30 fastest growing occupations, 6 are involved in energy production. (See figure 15.) Employment for solar photovoltaic (PV) installers is expected to grow extremely fast (104.9 percent) as the expansion and adoption of solar panels and their installation create new jobs. However, because this is a relatively small occupation, with a 2016 employment level of 11,300, this growth will account for only about 11,800 new jobs over the next 10 years. Developments in wind energy generation have made this energy option increasingly competitive with traditional forms of power generation, such as coal and natural gas, and are expected to drive employment growth for wind turbine service technicians. Employment of these workers is projected to grow 96.3 percent. As with solar PV installers, this occupation is small, and its rapid growth will account for only about 5,600 new jobs.

Figure 15. Energy-related occupations, projected employment change, 2016-26



Source: U.S. Bureau of Labor Statistics.

Faster-than-average employment growth from 2016 to 2026 is projected for a number of oil and gas occupations, including roustabouts, service unit operators, rotary drill operators, and derrick operators. The oil price assumptions in the MA model (see the earlier "Aggregate demand" section) are expected to cause employment growth in the oil and gas extraction industry, at an annual growth rate of 1.7 percent over the 2016–26 decade. Similarly, employment is expected to grow 2.4 percent annually in the support activities for the mining industry over the same decade. This industry growth also will translate to more jobs in occupations related to this industry by 2026.

Most rapidly declining employment. The manufacturing sector is projected to lose the most jobs and have the most rapid employment decline of any sector over the projections decade. The large manufacturing sector contains 14 of the 20 industries projected to have the most rapid employment declines. Some factors contributing to the loss of jobs in the manufacturing sector are international competition and the adoption of new productivity-enhancing technologies, such as robots.[19] The tobacco manufacturing industry is projected to have the most rapid declines in industry employment, falling 4.7 percent annually. The continued decline in the rate of people who use tobacco products is one of the reasons for the industry's drop in employment.

The decline in employment in the manufacturing sector is expected to decrease employment over the projections decade in a number of occupations concentrated in those industries. In fact, 16 of the 30 occupations with the fastest employment declines are in the production occupational group. These occupations include various machine and tool setters, assemblers, and operators, and their employment losses are expected to total about 110,300 jobs.

Although the information sector has 2 of the 20 fastest growing industries over the projections decade, it also contains 4 of the 20 most rapidly declining industries. Contributing to these industry declines are technological changes that lead to fewer job opportunities. The newspaper, periodical, book, and directory publishers industry is projected to be among the most rapidly declining industries, with employment falling 2.6 percent annually. A shift toward digital, from print, subscriptions contributes to the decline in this industry, as well as to the increase in the other information services industry.[20]

Technological changes are expected to continue to negatively affect the employment of several office and administrative support occupations. Employment declines are projected for data entry keyers, word processors and typists, computer operators, and executive secretaries and administrative assistants, among other occupations. Of the 30 occupations with the fastest declining employment, 7 are from this group; collectively, they are projected to lose about 256,700 jobs from 2016 to 2026.

Conclusions

An aging and slowly growing population results in slow growth for the labor force. Expectations for the overall economy are higher for the 2016–26 decade than they were the previous 10 years. However, economic growth levels are not expected to reach those of the 1970s, 1980s, and 1990s.

Most job growth between 2016 and 2026 will come from service-providing sectors, and by 2026, 81 percent of jobs are projected to be in these sectors. In addition, growth of real output from service-providing sectors will be slightly faster than that of the overall economy. Those occupations related to healthcare will have the fastest employment growth from 2016 to 2026. Rapid industry growth, because of the needs of the aging baby-boom generation and of an increasing number of people with chronic conditions, will cause growth in healthcare occupations to be much faster than the average for all occupations.

SUGGESTED CITATION

T. Alan Lacey, Mitra Toossi, Kevin S. Dubina, and Andrea B. Gensler, "Projections overview and highlights, 2016–26," *Monthly Labor Review,* U.S. Bureau of Labor Statistics, October 2017, https://doi.org/10.21916/mlr.2017.29.

NOTES

1 BLS develops macroeconomic projections with the Macroeconomic Advisers (MA) model, a structural econometric model of the U.S. economy. The model, licensed from MA, LLC, comprises more than 1,000 variables, behavioral equations, and identities. Central characteristics of MA 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 into MA, 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, 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 the MA website, http://www.macroadvisers.com/.

2 The labor force consists of persons who are either employed or actively seeking employment.

3 The resident population projections of the U.S. Census Bureau have to be converted to a civilian noninstitutional population concept to be used in the BLS labor force projections. The U.S. Census Bureau uses a cohort-component method and assumptions regarding demographic components of change to project the resident population, which includes members of the armed forces residing in the United States as well as individuals residing in institutional group quarters. Methods and data are available at https://www.census.gov/programs-surveys/popproj.html. The conversion from the resident population concept of the Census Bureau to the civilian noninstitutional population concept of the BLS Current Population Survey (CPS) occurs in three steps. First, the population of children under 16 years is taken from the total resident population. Then, the population of the Armed Forces, broken down into different age, gender, race, and ethnic categories, is subtracted. Finally, the institutional population is subtracted from the civilian population for all the different categories. Thus, the civilian noninstitutional population comprises all nonmilitary people 16 years and older who are not inmates of penal or mental institutions, sanitariums, or homes for the aged.

4 The BLS projection for the U.S. labor force participation rate for the 2016−26 period is similar to the projection published by the Congressional Budget Office, www.cbo.gov/publication/52801.

5 The Bureau of Economic Analysis publishes historical data that come from the National Income and Product Accounts (as of June 2017). Data are available online at https://www.bea.gov/. Unless otherwise noted, levels cited are measured in chain-weighted 2009 dollars. All references to growth rates refer to compound average annual growth, unless otherwise noted.

6 BLS weighs information from a number of sources, including Blue Chip Economic Indicators, the Congressional Budget Office, the U.S. Energy Information Administration, the Federal Reserve, the Office of Management and Budget, and the U.S. Department of Agriculture as well as the model licensed from Macroeconomic Advisors, to determine the NAIRU assumption.

7 See press release (Board of Governors of the Federal Reserve, May 3, 2017), https://www.federalreserve.gov/newsevents/pressreleases/monetary20170503a.htm.

8 For more information see *Annual energy outlook 2015* (U.S. Energy Information Administration, April 2015), https://www.eia.gov/outlooks/archive/aeo15/.

9 Throughout this article, output refers to real output in chain-weighted 2009 dollars.

10 The rate is a compounded annual rate of growth.

11 Total employment is the summation of the employment of nonagricultural wage and salary workers; agricultural, forestry, fishing, and hunting workers; and self-employed workers. Nonagricultural wage and salary employment data are from the BLS Current Employment Survey (CES), except for private household employment data, which are provided by the CPS. The CPS also provides the data for self-employed, and agricultural, forestry, fishing, and hunting workers.

12 Nonagricultural wage and salary employment data are from the CES) except for private household employment data, which are from the CPS. Logging workers are excluded.

13 For historical data, see https://www.bls.gov/emp/data/industry-out-and-emp.htm.

14 Ibid.

15 David Schimmelpfennig, *Farm profits and adoption of precision agriculture* (U.S. Department of Agriculture: Economic Research Service), October 2016.

16 Growth rates used to describe occupational employment change appear much higher than the annual average rates presented for other projected data in the article, such as the labor force or industry output. Because of methodological differences, occupational projections present the percent growth over the entire 10-year projection period.

17 See Emily Richards Rolen, “Healthcare jobs you can get without a bachelor’s degree,” *Beyond the Numbers,* November 2016, https://www.bls.gov/opub/btn/volume-5/pdf/healthcare-jobs-you-can-get-no-bachelors-degree.pdf.

18 Ibid.

19 Daron Acemoglu and Pascual Restrepo, "Robots and jobs: evidence from U.S. labor markets," NBER Working Paper no. 23285 (Cambridge, MA: National Bureau of Economic Research), March 2017, http://www.nber.org/papers/w23285.pdf.

20 Michael Barthel, "Newspapers: fact sheet," Pew Research Centers, June 1, 2017, http://www.journalism.org/fact-sheet/newspapers/.

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