



Occupational Outlook Handbook, 2010-11 Edition

Overview of the 2008-18 Projections

Job openings result from the relationship between the population, labor force, and demand for goods and services. The population restricts the size of the labor force, which consists of working individuals and those looking for work. The size and productivity of the labor force limits the quantity of goods and services that can be produced. In addition, changes in the demand for goods and services influence which industries expand or contract. Industries respond by hiring the workers necessary to produce goods and provide services. However, improvements to technology and productivity, changes in which occupations perform certain tasks, and changes to the supply of workers all affect which occupations will be employed by those industries. Examining past and present changes to these relationships in order to project future shifts is the foundation of the Employment Projections Program. This page presents highlights of population, labor force, and occupational and industry employment projections for 2008-2018. For more information, see the [additional information about the projections](#).

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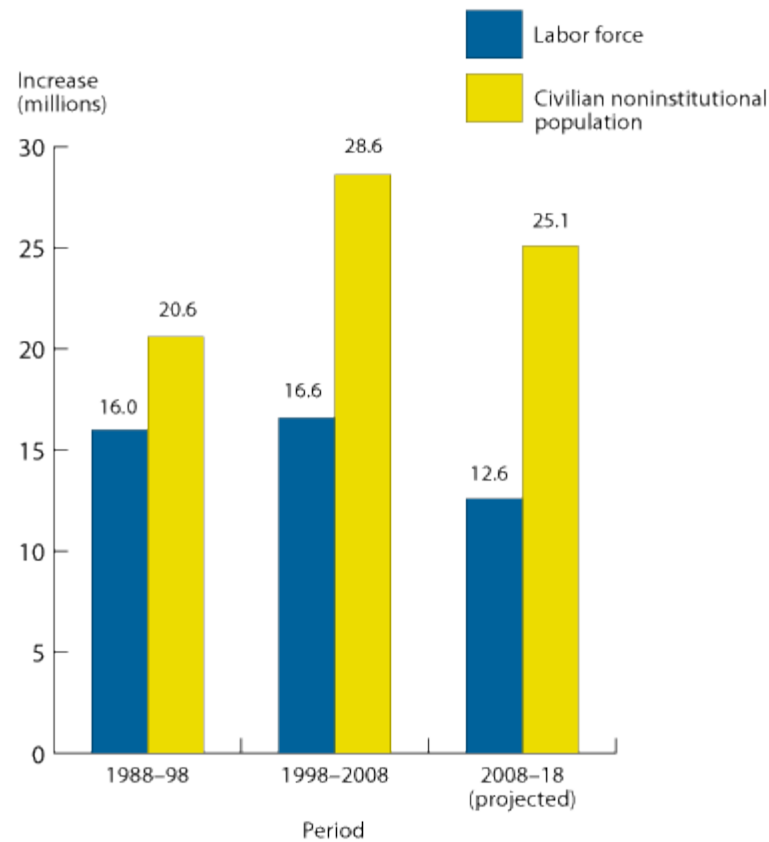
The analysis underlying BLS employment projections uses currently available information to focus on long-term structural changes in the economy. The

2008-18 projections assume a full-employment economy in 2018. The impact of the recent recession, which began in December of 2007, on long-term structural changes in the economy will not be fully known until some point during or after the recovery. Because the 2008 starting point is a recession year, the projected growth to an assumed full-employment economy in 2018 will generally be stronger than if the starting point were not a recession year.

Population

Shifts in the size and composition of the population can create a number of changes to the U.S. economy. Most importantly, population trends produce corresponding changes in the size and composition of the labor force. The U.S. civilian noninstitutional population, including individuals aged 16 and older, is expected to increase by 25.1 million from 2008 to 2018 ([Chart 1](#)). The projected 2008-18 growth rate of 10.7 percent is less than the 11.2-percent growth rate for the 1988-98 period and the 13.9-percent rate for the 1998-2008 period. As in the past few decades, population growth will vary by age group, race, and ethnicity.

Chart 1. **Numeric change in the population and labor force**



Source: BLS Division of Industry Employment Projections

As the baby boomers continue to age, the 55 and older age group is projected to increase by 29.7 percent, more than any other age group. Meanwhile, the 45 to 54 age group is expected to decrease by 4.4 percent, reflecting the slower birth rate following the baby-boom generation. The 35 to 44 age group is anticipated to experience little change, with a growth rate of 0.2 percent, while the population aged 16 to 24 will grow 3.4 percent over the projection period. Minorities and immigrants are expected to constitute a larger share of the U.S. population in 2018. The numbers of Asians and people of Hispanic origin are projected to continue to grow much faster than other racial and ethnic groups.

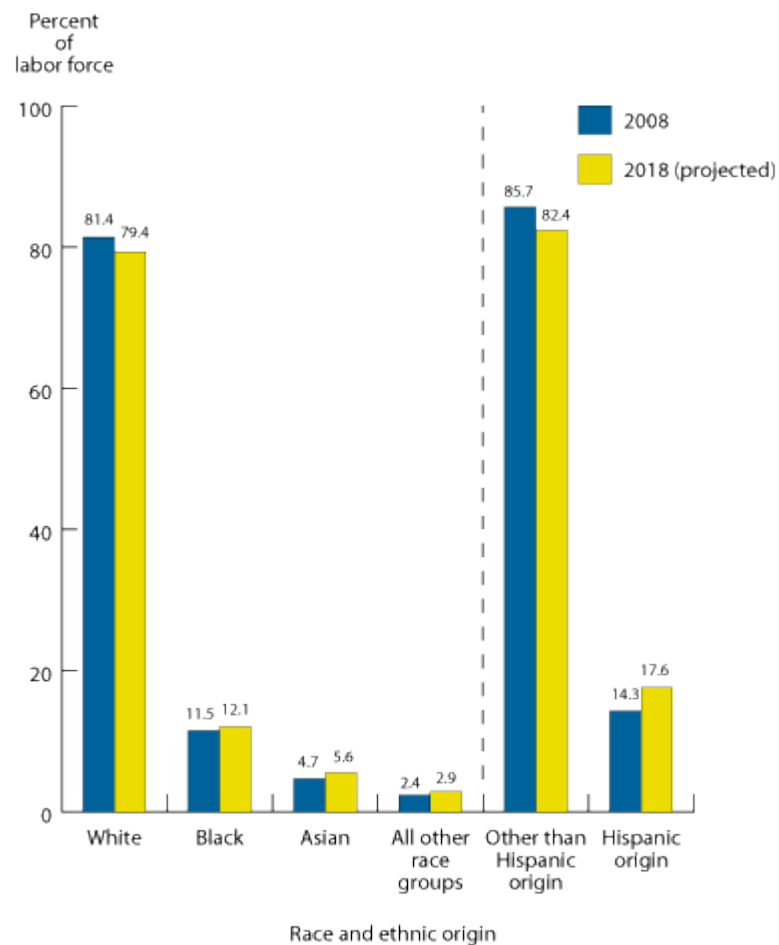
Labor force

Population is the single most important factor in determining the size and composition of the labor force. The civilian labor force is projected to reach 166.9 million by 2018, which

is an increase of 8.2 percent.

The U.S. workforce is expected to become more diverse by 2018. Among racial groups, Whites are expected to make up a decreasing share of the labor force, while Blacks, Asians, and all other groups will increase their share ([Chart 2](#)). Among ethnic groups, persons of Hispanic origin are projected to increase their share of the labor force from 14.3 percent to 17.6 percent, reflecting 33.1 percent growth.

Chart 2. **Percent of labor force, by race and ethnic origin**



NOTE: The four race groups add to the total labor force. The two ethnic origin groups also add to the total labor force. Hispanics may be of any race.

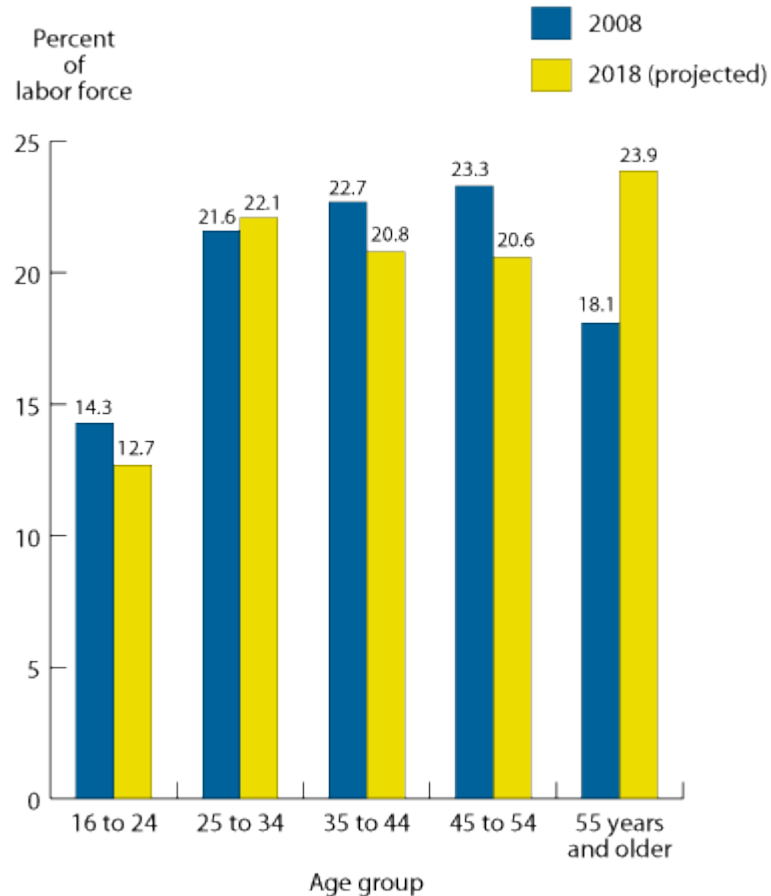
Source: BLS Division of Industry Employment Projections

The number of women in the labor force will grow at a slightly faster rate than the

number of men. The male labor force is projected to grow by 7.5 percent from 2008 to 2018, compared with 9.0 percent for the female labor force.

The share of the youth labor force, workers aged 16 to 24, is expected to decrease from 14.3 percent in 2008 to 12.7 percent by 2018. The primary working-age group, those between 25 and 54 years old, is projected to decline from 67.7 percent of the labor force in 2008 to 63.5 percent by 2018. Workers aged 55 years and older, by contrast, are anticipated to leap from 18.1 percent to 23.9 percent of the labor force during the same period ([Chart 3](#)).

Chart 3. Percent of labor force, by age group



Source: BLS Division of Industry Employment Projections

Employment

Total employment is expected to increase by 10 percent from 2008 to 2018. However,

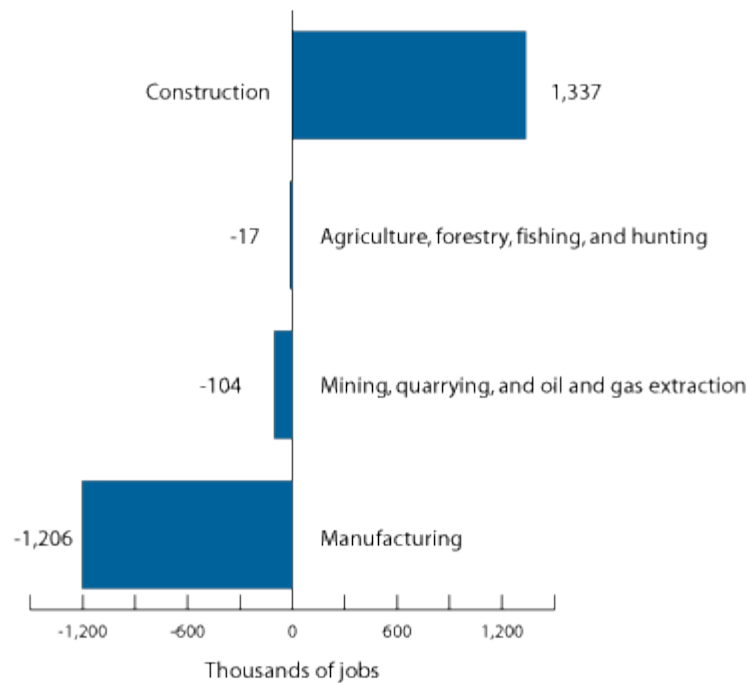
the 15.3 million jobs expected to be added by 2018 will not be evenly distributed across major industry and occupational groups. Changes in consumer demand, improvements in technology, and many other factors will contribute to the continually changing employment structure of the U.S. economy.

The next two sections examine projected employment change within industries and occupations. The industry perspective is discussed in terms of wage and salary employment. The exception is employment in agriculture, which includes the self-employed and unpaid family workers in addition to wage and salary workers. The occupational profile is viewed in terms of total employment—including wage and salary, self-employed, and unpaid family workers.

Employment change by industry

Goods-producing industries. Employment in goods-producing industries has declined since the 1990s. Although overall employment is expected to change little, projected growth among goods-producing industries varies considerably ([Chart 4](#)).

Chart 4. **Numeric change in wage and salary employment in goods-producing industries, 2008–18 (projected)**



Source: BLS National Employment Matrix

Mining, quarrying, and oil and gas extraction. Employment in mining, quarrying, and oil and gas extraction is expected to decrease by 14 percent by 2018. Employment in support activities for mining will be responsible for most of the job loss in this industry with a decline of 23 percent. Other mining industries, such as nonmetallic mineral mining and quarrying and coal mining, are expected to see little or no change or a small increase in employment. Employment stagnation in these industries is attributable mainly to strict environmental regulations and technology gains that boost worker productivity.

Construction. Employment in construction is expected to rise 19 percent. Demand for commercial construction and an increase in road, bridge, and tunnel construction will account for the bulk of job growth.

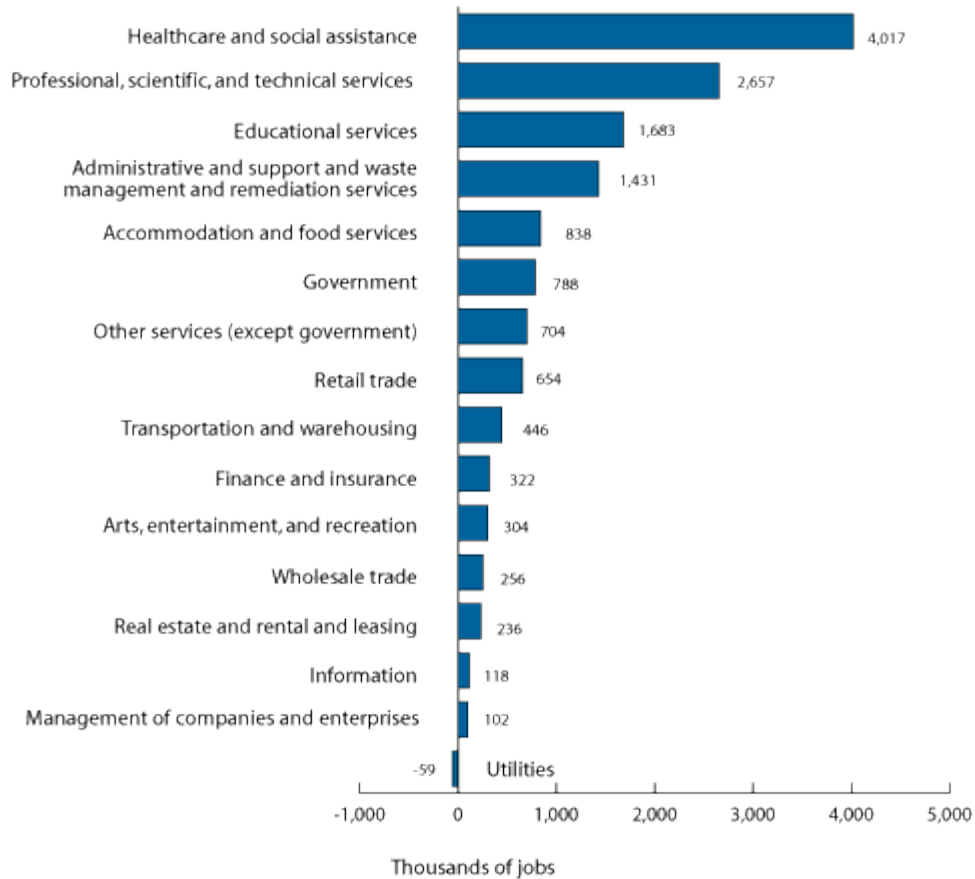
Manufacturing. Overall employment in this sector will decline by 9 percent as productivity gains, automation, and international competition adversely affect employment in most manufacturing industries. Employment in household appliance manufacturing is expected

to decline by 24 percent over the decade. Similarly, employment in machinery manufacturing, apparel manufacturing, and computer and electronic product manufacturing will decline as well. However, employment in a few manufacturing industries will increase. For example, employment in pharmaceutical and medicine manufacturing is expected to grow by 6 percent by 2018; however, this increase is expected to add only 17,600 new jobs.

Agriculture, forestry, fishing, and hunting. Overall employment in agriculture, forestry, fishing, and hunting is expected to decrease by 1 percent. Employment is projected to continue to decline because of rising costs of production, increasing consolidation, and more imports of food and lumber. Within this sector, the only industry that is expected to add jobs is support activities for agriculture and forestry, which includes farm labor contractors and farm management services. This industry is anticipated to grow by 13 percent, but this corresponds to an increase of only 13,800 new jobs.

Service-providing industries. The shift in the U.S. economy away from goods-producing in favor of service-providing is expected to continue. Service-providing industries are anticipated to generate approximately 14.5 million new wage and salary jobs. As with goods-producing industries, growth among service-providing industries will vary ([Chart 5](#)).

Chart 5. Numeric change in wage and salary employment in service-providing industries, 2008–18 (projected)



Source: BLS National Employment Matrix

Utilities. Employment in utilities is projected to decrease by 11 percent through 2018. Despite increased output, employment in electric power generation, transmission, and distribution and in natural gas distribution is expected to decline because of improved technology that will increase worker productivity. However, employment in the water, sewage, and other systems industry is anticipated to increase 13 percent by 2018. As the population continues to grow, more water treatment facilities are being built. Further, changing Federal and State Government water quality regulations may require more workers to ensure that water is safe to drink and to release into the environment.

Wholesale trade. The number of workers in wholesale trade is expected to increase by 4

percent, adding about 255,900 jobs. The consolidation of wholesale trade firms into fewer and larger companies will contribute to slower-than-average employment growth in the industry.

Retail trade. Employment in retail trade is expected to increase by 4 percent. Despite slower-than-average growth, this industry is projected to add about 654,000 new jobs over the 2008-18 period. Slower job growth reflects both continued consolidation and slower growth in personal consumption than in the previous decade.

Transportation and warehousing. Employment in transportation and warehousing is expected to increase by 10 percent, adding about 445,500 jobs to the industry total. Truck transportation is anticipated to grow by 10 percent, and the warehousing and storage sector is projected to grow by 12 percent. Demand for truck transportation and warehousing services will expand as many manufacturers concentrate on their core competencies and contract out their product transportation and storage functions.

Information. Employment in the information sector is expected to increase by 4 percent, adding 118,100 jobs by 2018. The sector contains fast-growing computer-related industries. The data-processing, hosting, and related services industry, which is expected to grow by 53 percent, includes establishments that provide Web and application hosting and streaming services. Internet publishing and broadcasting is expected to grow rapidly as it gains market share from newspapers and other more traditional media. Software publishing is projected to grow by 30 percent as organizations of all types continue to adopt the newest software products.

The information sector also includes the telecommunications industry, whose employment is projected to decline 9 percent. Despite an increase in demand for telecommunications services, more reliable networks along with consolidation among organizations will lead to productivity gains, reducing the need for workers. In addition, employment in the publishing industry is expected to decline by 5 percent, which is the result of increased efficiency in production, declining newspaper revenues, and a trend towards using more freelance workers.

Finance and insurance. The finance and insurance industry is expected to increase by 5

percent from 2008 to 2018. Employment in the securities, commodity contracts, and other financial investments and related activities industry is projected to expand 12 percent by 2018, which reflects the number of baby boomers in their peak savings years, the growth of tax-favorable retirement plans, and the globalization of securities markets. Employment in the credit intermediation and related activities industry, which includes banks, will grow by about 5 percent, adding 42 percent of all new jobs within the finance and insurance sector. Employment in the insurance carriers and related activities industry is expected to grow by 3 percent, translating into 67,600 new jobs by 2018. The number of jobs in the agencies, brokerages, and other insurance-related activities industry is expected to grow by 14 percent. Growth will stem from both the needs of an increasing population and new insurance products on the market.

Real estate and rental and leasing. The real estate and rental and leasing industry is expected to grow by 11 percent through 2018. Growth will be due, in part, to increased demand for housing as the population expands. The fastest growing industry in the real estate and rental and leasing services sector will be lessors of nonfinancial intangible assets (except copyrighted works), increasing by 34 percent over the projection period.

Professional, scientific, and technical services. Employment in professional, scientific, and technical services is projected to grow by 34 percent, adding about 2.7 million new jobs by 2018. Employment in computer systems design and related services is expected to increase by 45 percent, accounting for nearly one-fourth of all new jobs in this industry sector. Employment growth will be driven by growing demand for the design and integration of sophisticated networks and Internet and intranet sites. Employment in management, scientific, and technical consulting services is anticipated to expand at a staggering 83 percent, making up about 31 percent of job growth in this sector. Demand for these services will be spurred by businesses' continued need for advice on planning and logistics, the implementation of new technologies, and compliance with workplace safety, environmental, and employment regulations.

Management of companies and enterprises. Management of companies and enterprises is projected to grow relatively slowly, by 5 percent, as companies focus on reorganization to increase efficiency.

Administrative and support and waste management and remediation services.

Employment in this sector is expected to grow by 18 percent by 2018. The largest growth will occur in employment services, an industry that is anticipated to account for 42 percent of all new jobs in the administrative and support and waste management and remediation services sector. The employment services industry ranks fifth among industries with the most new employment opportunities in the Nation over the 2008-18 period and is expected to grow faster than the average for all industries. Projected growth stems from the strong need for seasonal and temporary workers and for specialized human resources services.

Educational services. Employment in public and private educational services is anticipated to grow by 12 percent, adding about 1.7 million new jobs through 2018. Rising student enrollments at all levels of education will create demand for educational services.

Healthcare and social assistance. About 26 percent of all new jobs created in the U.S. economy will be in the healthcare and social assistance industry. This industry—which includes public and private hospitals, nursing and residential care facilities, and individual and family services—is expected to grow by 24 percent, or 4 million new jobs. Employment growth will be driven by an aging population and longer life expectancies.

Arts, entertainment, and recreation. The arts, entertainment, and recreation industry is expected to grow by 15 percent by 2018. Most of the growth will be in the amusement, gambling, and recreation sector. Job growth will stem from public participation in arts, entertainment, and recreation activities—reflecting increasing incomes, leisure time, and awareness of the health benefits of physical fitness.

Accommodation and food services. Employment in accommodation and food services is expected to grow by 7 percent, adding about 838,200 new jobs through 2018. Job growth will be concentrated in food services and drinking places, reflecting an increase in the population and the convenience of many new food establishments.

Other services (except government and private households). Employment is expected to grow by 13 percent in other services. Personal care services comprise the fastest growing industry in this sector, at 32 percent. This industry includes barbers, salons, and spas,

which have experienced growing demand as individuals increasingly are seeking to improve their personal appearance.

Government. Between 2008 and 2018, government employment, excluding employment in public education and hospitals, is expected to increase by 7 percent. Growth in government employment will be fueled by expanding demand for public safety services and assistance provided to the elderly, but dampened by budgetary constraints and the outsourcing of government jobs to the private sector. State and local governments, excluding education and hospitals, are anticipated to grow by 8 percent as a result of the continued shift of responsibilities from the Federal Government to State and local governments. Federal Government employment, including the Postal Service, is expected to increase by 3 percent.

**Employment change by
occupation**

Industry growth or decline will affect demand for occupations. However, job growth is projected to vary among major occupational groups ([Chart 6](#)).

Chart 6. Percent change in total employment, by major occupational group, 2008–18 (projected)



Source: BLS National Employment Matrix

Management, business, and financial occupations. Workers in management, business, and financial occupations plan and direct the activities of business, government, and other organizations. Their employment is expected to increase by 11 percent by 2018. These workers will be needed to help organizations navigate the increasingly complex and competitive business environment. A large portion of these jobs will arise in the management, scientific, and technical consulting industry sector. A substantial number, in addition, are expected in several other large or rapidly growing industries, including government, healthcare and social assistance, finance and insurance, and construction.

Employment in management occupations is projected to grow slowly over the projection period, increasing by 5 percent, an addition of 454,300 new jobs. Growth is being affected by declines in several occupations, including farmers and ranchers. Employment of farmers and ranchers is projected to decline as the agricultural industry produces more output with fewer workers.

Employment in business and financial operations occupations is projected to grow by 18 percent, resulting in 1.2 million new jobs. Increasing financial regulations and the need for greater accountability will drive demand for accountants and auditors, adding roughly 279,400 jobs to this occupation from 2008 to 2018. Further, an increasingly competitive business environment will grow demand for management analysts, an occupation that is expected to add 178,300 jobs. Together, these two occupations are anticipated to account for 38 percent of new business and financial operations jobs.

Professional and related occupations. This occupational group, which includes a wide variety of skilled professions, is expected to be the fastest growing major occupational group, at 17 percent, and is projected to add the most new jobs—about 5.2 million.

Employment among healthcare practitioners and technical occupations, a subgroup of the professional and related category, is expected to increase by 21 percent. This growth, resulting in a projected 1.6 million new jobs, will be driven by increasing demand for healthcare services. As the number of older people continues to grow, and as new developments allow for the treatment of more medical conditions, more healthcare professionals will be needed.

Education, training, and library occupations are anticipated to add more than 1.3 million jobs, representing a growth rate of more than 14 percent. As the U.S. population increases, and as a larger share of adults seeks educational services, demand for these workers will increase.

Computer and mathematical science occupations are projected to add almost 785,700 new jobs from 2008 to 2018. As a group, these occupations are expected to grow more than twice as fast as the average for all occupations in the economy. Demand for workers in computer and mathematical occupations will be driven by the continuing need for businesses, government agencies, and other organizations to adopt and utilize the latest technologies.

Employment in community and social services occupations is projected to increase by 16 percent, growing by roughly 448,400 jobs. As health insurance providers increasingly cover mental and behavioral health treatment, and as a growing number of elderly

individuals seek social services, demand for these workers will increase.

Employment in arts, design, entertainment, sports, and media occupations is expected to grow by 12 percent from 2008 to 2018, resulting in almost 332,600 new jobs. Growth will be spread broadly across different occupations within the group. Media and communications occupations will add a substantial number of jobs, led by rapid growth among public relations specialists, who will be needed in greater numbers as firms place a greater emphasis on managing their public image. Employment among entertainers and performers and those in sports and related occupations also will increase, partly as a result of increasing demand for coaches and scouts. Furthermore, art and design occupations will see substantial growth, with demand increasing for graphic and interior designers. As more advertising is conducted over the Internet, a medium that generally includes many graphics, and as businesses and households increasingly seek professional design services, a greater number of these workers will be needed.

Employment in life, physical, and social science occupations is projected to increase by nearly 277,200 jobs over the 2008-18 projection period. This increase represents a growth rate of 19 percent, almost twice the average for all occupations across the economy. About 116,700 of these jobs are expected to be created among social science and related occupations, led by strong growth among market and survey researchers, as businesses increase their marketing efforts in order to remain competitive and as public policy firms and government agencies utilize more public opinion research. Employment in life science occupations, in addition, will increase rapidly as developments from biotechnology research continue to be used to create new medical technologies, treatments, and pharmaceuticals.

Architecture and engineering occupations are projected to add roughly 270,600 jobs, representing a growth rate of 10 percent. Much of this growth will occur among engineering occupations, especially civil engineers. As greater emphasis is placed on improving the Nation's infrastructure, these specialists will be needed to design, implement, or upgrade municipal transportation, water supply, and pollution control systems.

Legal occupations will add the fewest new jobs among all professional and related subgroups, increasing by about 188,400. However, with a growth rate of 15 percent, this group will grow faster than the average for all occupations in the economy. Of the new jobs created, lawyers will account for 98,500 while paralegals and legal assistants will account for 74,100. Paralegals and legal assistants are expected to grow by 28 percent as legal establishments begin to expand the role of these workers and assign them more tasks once performed by lawyers.

Service occupations. The duties of service workers range from fighting fires to cooking meals. Employment in service occupations is projected to increase by 4.1 million, or 14 percent, which is both the second-largest numerical gain and the second-largest growth rate among the major occupational groups.

Among service occupation subgroups, the largest number of new jobs will occur in healthcare support occupations. With more than 1.1 million new jobs, employment in this subgroup is expected to increase by 29 percent. Much of the growth will be the result of increased demand for healthcare services as the expanding elderly population requires more care.

Employment in personal care and service occupations is anticipated to grow by 20 percent over the projection period, adding more than 1 million jobs. As consumers become more concerned with health, beauty, and fitness, the number of cosmetic and health spas will increase, causing an increase in demand for workers in this group. However, the personal care and service group contains a wide variety of occupations, and two of them—personal and home care aides, and child care workers—will account for most of this group's new jobs. Personal and home care aides will experience increased demand as a growing number of elderly individuals require assistance with daily tasks. Child care workers, in addition, will add jobs as formal preschool programs, which employ child care workers alongside preschool teachers, become more prevalent.

Employment in food preparation and serving and related occupations is projected to increase by roughly 1 million jobs from 2008 to 2018, representing a growth rate of 9 percent. Growth will stem from time-conscious consumers patronizing fast-food

establishments and full-service restaurants.

Employment in building and grounds cleaning and maintenance occupations is expected to grow by almost 483,900 jobs over the projection period, representing a growth rate of 8 percent. As businesses place a larger emphasis on grounds aesthetics, and as households increasingly rely on contract workers to maintain their yards, grounds maintenance workers will see rapid growth. In addition, more building cleaning workers will be needed to maintain an increasing number of residential and commercial structures.

Protective service occupations are expected to gain the fewest new jobs among all service subgroups: about 400,100, or 12-percent growth. These workers protect businesses and other organizations from crime and vandalism. In addition, there will be increased demand for law enforcement officers to support the growing U.S. population.

Sales and related occupations. Sales and related workers solicit goods and services for businesses and consumers. Sales and related occupations are expected to add 980,400 new jobs by 2018, growing by 6 percent. As organizations offer a wider array of products and devote an increasing share of their resources to customer service, many new retail salesworkers will be needed. Job growth in this group will be spread across a wide variety of industries, but almost half will occur in retail sales establishments.

Office and administrative support occupations. Office and administrative support workers perform the day-to-day activities of the office, such as preparing and filing documents, dealing with the public, and distributing information. Employment in these occupations is expected to grow by 8 percent, adding 1.8 million new jobs by 2018. Customer service representatives are anticipated to add the most new jobs, 399,500, as businesses put an increased emphasis on building customer relationships. Other office and administrative support occupations will experience declines as advanced technology improves productivity, decreasing the number of workers necessary to perform some duties.

Farming, fishing, and forestry occupations. Farming, fishing, and forestry workers cultivate plants, breed and raise livestock, and catch animals. These occupations are projected to decline by about 1 percent, losing 9,100 jobs, by 2018. Productivity

increases in agriculture will lead to declining employment among agricultural workers, offsetting small gains among forest, conservation, and logging workers.

Construction and extraction occupations. Construction and extraction workers build new residential and commercial buildings and also work in mines, quarries, and oil and gas fields. Employment of these workers is expected to grow 13 percent, adding about 1 million new jobs. Construction trades and related workers will account for about 808,400 of these jobs. Growth will result from increased construction of homes, office buildings, and infrastructure projects. Declines in extraction occupations will reflect overall employment stagnation in the mining and oil and gas extraction industries.

Installation, maintenance, and repair occupations. Workers in installation, maintenance, and repair occupations install new equipment and maintain and repair older equipment. These occupations are projected to add 440,200 jobs by 2018, growing by 8 percent. More than 1 in 3 new jobs in this group will occur in the construction industry, because these workers are integral to the development of buildings, communication structures, transportation systems, and other types of infrastructure. As construction on these types of projects increases over the projection period, installation, maintenance and repair workers will be needed in greater numbers.

Production occupations. Production workers are employed mainly in manufacturing, where they assemble goods and operate plants. Production occupations are expected to decline by 3 percent, losing 349,200 jobs by 2018. As productivity improvements reduce the need for workers, and as a growing number of these jobs are offshored, demand for production workers will decline. Some jobs will be created in production occupations, mostly in food processing and woodworking.

Transportation and material moving occupations. Transportation and material moving workers transport people and materials by land, sea, or air. Employment of these workers is anticipated to increase by 4 percent, accounting for 391,100 new jobs. As the economy grows over the projection period, and the demand for goods increases, truck drivers will be needed to transport those goods to businesses, consumers, and other entities. In addition, a substantial number of jobs will arise among bus drivers, as well as taxi drivers

and chauffeurs, as a growing number of people utilize public transportation.

Employment change by detailed occupation

Occupational growth can be considered in two ways: by the rate of growth and by the number of new jobs created by growth. Some occupations both have a fast growth rate and create a large number of new jobs. However, an occupation that employs few workers may experience rapid growth, although the resulting number of new jobs may be small. For example, a small occupation that employs just 1,000 workers and is projected to grow 50 percent over a 10-year period will add only 500 jobs. By contrast, a large occupation that employs 1.5 million workers may experience only 10 percent growth, but will add 150,000 jobs. As a result, in order to get a complete picture of employment growth, both measures must be considered.

Occupations with the fastest growth. Of the 20 fastest growing occupations in the economy (table 1), half are related to healthcare. Healthcare is experiencing rapid growth, due in large part to the aging of the baby-boom generation, which will require more medical care. In addition, some healthcare occupations will be in greater demand for other reasons. As healthcare costs continue to rise, work is increasingly being delegated to lower paid workers in order to cut costs. For example, tasks that were previously performed by doctors, nurses, dentists, or other healthcare professionals increasingly are being performed by physician assistants, medical assistants, dental hygienists, and physical therapist aides. In addition, patients increasingly are seeking home care as an alternative to costly stays in hospitals or residential care facilities, causing a significant increase in demand for home health aides. Although not classified as healthcare workers, personal and home care aides are being affected by this demand for home care as well.

Table 1. Occupations with the fastest growth

Occupations	Percent change	Number of new jobs (in thousands)	Wages (May 2008 median)	Education/training category
Biomedical engineers	72	11.6	\$ 77,400	Bachelor's degree
Network systems and data communications analysts	53	155.8	71,100	Bachelor's degree
Home health aides	50	460.9	20,460	Short-term on-the-job training
Personal and home care aides	46	375.8	19,180	Short-term on-the-job training
Financial examiners	41	11.1	70,930	Bachelor's degree
Medical scientists, except epidemiologists	40	44.2	72,590	Doctoral degree
Physician assistants	39	29.2	81,230	Master's degree
Skin care specialists	38	14.7	28,730	Postsecondary vocational award
Biochemists and biophysicists	37	8.7	82,840	Doctoral degree
Athletic trainers	37	6.0	39,640	Bachelor's degree
Physical therapist aides	36	16.7	23,760	Short-term on-the-job training
Dental hygienists	36	62.9	66,570	Associate degree
Veterinary technologists and technicians	36	28.5	28,900	Associate degree
Dental assistants	36	105.6	32,380	Moderate-term on-the-job training
Computer software engineers, applications	34	175.1	85,430	Bachelor's degree
Medical assistants	34	163.9	28,300	Moderate-term on-the-job training
Physical therapist assistants	33	21.2	46,140	Associate degree
Veterinarians	33	19.7	79,050	First professional degree
Self-enrichment education teachers	32	81.3	35,720	Work experience in a related occupation
Compliance officers, except agriculture, construction, health and safety, and transportation	31	80.8	48,890	Long-term on-the-job training
SOURCE: BLS Occupational Employment Statistics and Division of Occupational Outlook				

Two of the fastest growing detailed occupations are in the computer specialist occupational group. Network systems and data communications analysts are projected to be the second-fastest-growing occupation in the economy. Demand for these workers will

increase as organizations continue to upgrade their information technology capacity and incorporate the newest technologies. The growing reliance on wireless networks will result in a need for more network systems and data communications analysts as well. Computer applications software engineers also are expected to grow rapidly from 2008 to 2018. Expanding Internet technologies have spurred demand for these workers, who can develop Internet, intranet, and Web applications.

Developments from biotechnology research will continue to be used to create new medical technologies, treatments, and pharmaceuticals. As a result, demand for medical scientists and for biochemists and biophysicists will increase. However, although employment of biochemists and biophysicists is projected to grow rapidly, this corresponds to only 8,700 new jobs over the projection period. Increased medical research and demand for new medical technologies also will affect biomedical engineers. The aging of the population and a growing focus on health issues will drive demand for better medical devices and equipment designed by these workers. In fact, biomedical engineers are projected to be the fastest growing occupation in the economy. However, because of its small size, the occupation is projected to add only about 11,600 jobs.

Increasing financial regulations will spur employment growth both of financial examiners and of compliance officers, except agriculture, construction, health and safety, and transportation.

Self-enrichment teachers and skin care specialists will experience growth as consumers become more concerned with self-improvement. Self-enrichment teachers are growing rapidly as more individuals seek additional training to make themselves more appealing to prospective employers. Skin care specialists will experience growth as consumers increasingly care about their personal appearance.

Of the 20 fastest growing occupations, 12 are in the associate degree or higher category. Of the remaining 8, 6 are in an on-the-job training category, 1 is in the work experience in a related occupation category, and 1 is in the postsecondary vocational degree category. Eleven of these occupations earn at least \$10,000 more than the National annual median wage, which was \$32,390 as of May 2008. In fact, 9 of the occupations

earned at least twice the National median in May 2008.

Occupations with the largest numerical growth. The 20 occupations listed in table 2 are projected to account for more than one-third of all new jobs—5.8 million combined—over the 2008-18 period. The occupations with the largest numerical increases cover a wider range of occupational categories than do those occupations with the fastest growth rates. Health occupations will account for some of these increases in employment, as will occupations in education, sales, and food service. Office and administrative support services occupations are expected to grow by 1.3 million jobs, accounting for about one-fifth of the job growth among the 20 occupations with the largest growth. Many of the occupations listed in the table are very large and will create more new jobs than occupations with high growth rates. Only 3 out of the 20 fastest growing occupations—home health aides, personal and home care aides, and computer software application engineers—also are projected to be among the 20 occupations with the largest numerical increases in employment.

Table 2. Occupations with the largest numerical growth

Occupations	Number of new jobs (in thousands)	Percent change	Wages (May 2008 median)	Education/training category
Registered nurses	581.5	22	\$ 62,450	Associate degree
Home health aides	460.9	50	20,460	Short-term on-the-job training
Customer service representatives	399.5	18	29,860	Moderate-term on-the-job training
Combined food preparation and serving workers, including fast food	394.3	15	16,430	Short-term on-the-job training
Personal and home care aides	375.8	46	19,180	Short-term on-the-job training
Retail salespersons	374.7	8	20,510	Short-term on-the-job training
Office clerks, general	358.7	12	25,320	Short-term on-the-job training
Accountants and auditors	279.4	22	59,430	Bachelor's degree

Nursing aides, orderlies, and attendants	276.0	19	23,850	Postsecondary vocational award
Postsecondary teachers	256.9	15	58,830	Doctoral degree
Construction laborers	255.9	20	28,520	Moderate-term on-the-job training
Elementary school teachers, except special education	244.2	16	49,330	Bachelor's degree
Truck drivers, heavy and tractor-trailer	232.9	13	37,270	Short-term on-the-job training
Landscaping and groundskeeping workers	217.1	18	23,150	Short-term on-the-job training
Bookkeeping, accounting, and auditing clerks	212.4	10	32,510	Moderate-term on-the-job training
Executive secretaries and administrative assistants	204.4	13	40,030	Work experience in a related occupation
Management analysts	178.3	24	73,570	Bachelor's or higher degree, plus work experience
Computer software engineers, applications	175.1	34	85,430	Bachelor's degree
Receptionists and information clerks	172.9	15	24,550	Short-term on-the-job training
Carpenters	165.4	13	38,940	Long-term on-the-job training
SOURCE: BLS Occupational Employment Statistics and Division of Occupational Outlook				

The education or training categories and wages of the occupations with the largest numbers of new jobs are significantly different than those of the fastest growing occupations. Twelve of these occupations are in an on-the-job training category, and just 7 are in a category that indicates any postsecondary education. Ten of the 20 occupations with the largest numbers of new jobs earned less than the National median wage in May 2008.

Occupations with the fastest decline. Declining occupational employment stems from falling industry employment, technological advances, changes in business practices, and other factors. For example, technological developments and the continued movement of textile production abroad are expected to contribute to a decline of 71,500 sewing machine operators over the projection period (table 3). Fifteen of the 20 occupations with the largest numerical decreases are either production occupations or office and administrative support occupations, both of which are adversely affected by increasing

plant and factory automation or the implementation of office technology, reducing the need for workers in those occupations. The difference between the office and administrative support occupations that are expected to experience the largest declines and those which are expected to see the largest increases is the extent to which job functions can be easily automated or performed by other workers. For instance, the duties of executive secretaries and administrative assistants involve a great deal of personal interaction that cannot be automated, whereas the duties of file clerks—adding, locating, and removing business records—can be automated or performed by other workers.

Table 3. Occupations with the fastest decline

Occupation	Percent change	Number of jobs lost (<i>In thousands</i>)	Wages (May 2008 median)	Education/training category
Textile bleaching and dyeing machine operators and tenders	-45	-7.2	\$ 23,680	Moderate-term on-the-job training
Textile winding, twisting, and drawing out machine setters, operators, and tenders	-41	-14.2	23,970	Moderate-term on-the-job training
Textile knitting and weaving machine setters, operators, and tenders	-39	-11.5	25,400	Long-term on-the-job training
Shoe machine operators and tenders	-35	-1.7	25,090	Moderate-term on-the-job training
Extruding and forming machine setters, operators, and tenders, synthetic and glass fibers	-34	-4.8	31,160	Moderate-term on-the-job training
Sewing machine operators	-34	-71.5	19,870	Moderate-term on-the-job training
Semiconductor processors	-32	-10.0	32,230	Postsecondary vocational award
Textile cutting machine setters, operators, and tenders	-31	-6.0	22,620	Moderate-term on-the-job training
Postal Service mail sorters, processors, and processing machine operators	-30	-54.5	50,020	Short-term on-the-job training
Fabric menders, except garment	-30	-0.3	28,470	Moderate-term on-the-job training
Wellhead pumpers	-28	-5.2	27,860	Moderate-term on-the-

				job training
Fabric and apparel patternmakers	-27	-2.2	37,760	Long-term on-the-job training
Drilling and boring machine tool setters, operators, and tenders, metal and plastic	-27	-8.9	30,850	Moderate-term on-the-job training
Lathe and turning machine tool setters, operators, and tenders, metal and plastic	-27	-14.9	32,940	Moderate-term on-the-job training
Order clerks	-26	-64.2	27,990	Short-term on-the-job training
Coil winders, tapers, and finishers	-25	-5.6	27,730	Short-term on-the-job training
Photographic processing machine operators	-24	-12.5	20,360	Short-term on-the-job training
File clerks	-23	-49.6	23,800	Short-term on-the-job training
Derrick operators, oil and gas	-23	-5.8	41,920	Moderate-term on-the-job training
Desktop publishers	-23	-5.9	36,600	Postsecondary vocational award
SOURCE: BLS Occupational Employment Statistics and Division of Occupational Outlook				

Only 2 of the occupations with the fastest percent decline are in a category that indicates workers have any postsecondary education, while the rest are in an on-the-job training category. Eleven of these occupations earned less than \$30,000 in May 2008, below the National median wage of \$32,390.

Employment change by education and training category

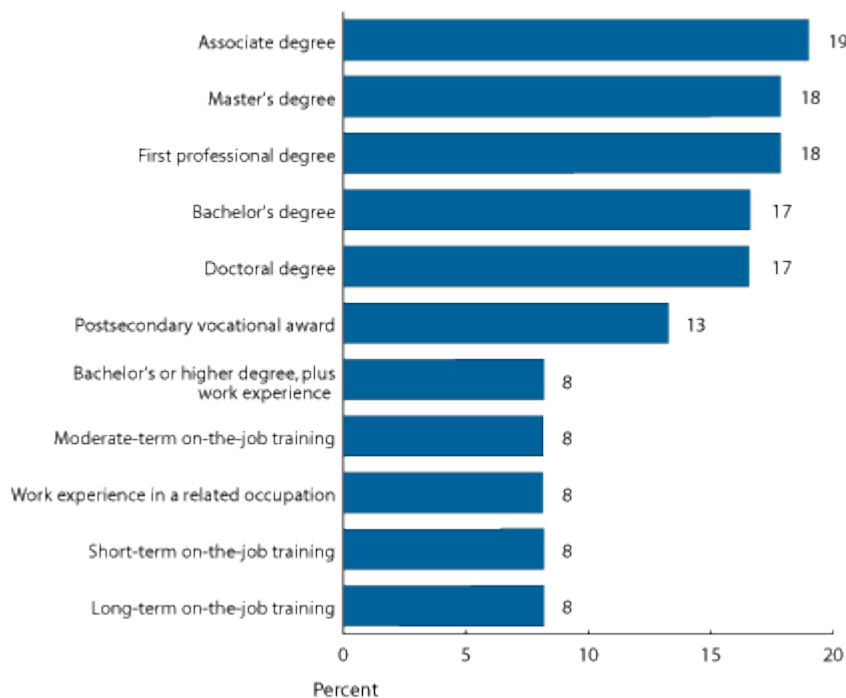
[Education and training categories](#) for each occupation are determined by the most significant source of education and training obtained by workers in that occupation. Growth for each education and training category is calculated by adding the growth across all occupations in the category. As a result, there is some variation in the growth rates between categories.

In general, occupations in a category with some postsecondary education are expected to experience higher rates of growth than those in an on-the-job training category.

Occupations in the associate degree category are projected to grow the fastest, at about

19 percent. In addition, occupations in the master's and first professional degree categories are anticipated to grow by about 18 percent each, and occupations in the bachelor's and doctoral degree categories are expected to grow by about 17 percent each. However, occupations in the on-the-job training categories are expected to grow by 8 percent each ([Chart 7](#)).

Chart 7. Percent change in employment, by education or training category, 2008–18 (projected)

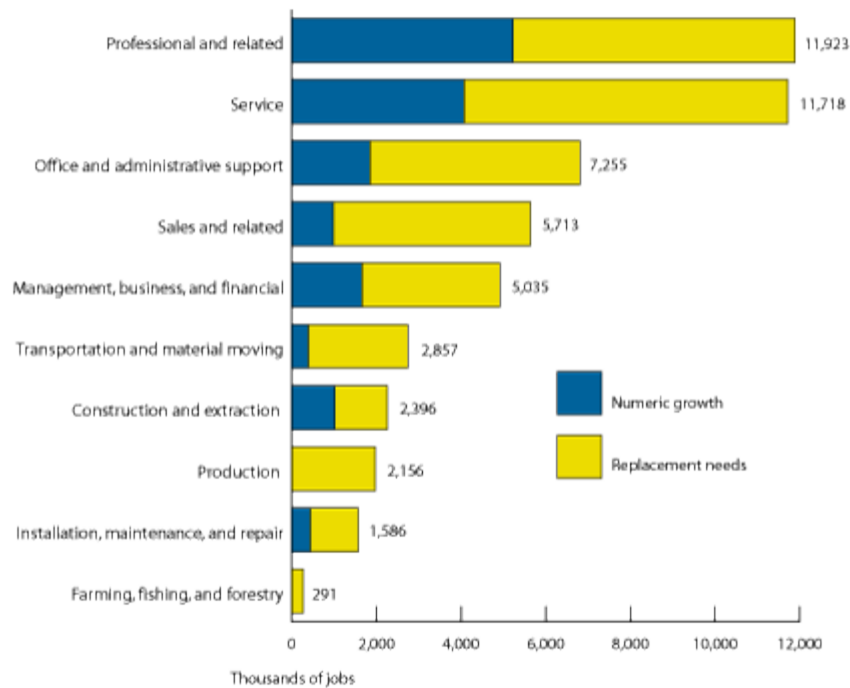


Source: BLS Division of Occupational Outlook

Total job openings

Job openings stem from both employment growth and replacement needs ([Chart 8](#)). Replacement needs arise as workers leave occupations. Some transfer to other occupations, while others retire, return to school, or quit to assume household responsibilities. Replacement needs are projected to account for 67 percent of the approximately 50.9 million job openings between 2008 and 2018. Thus, even occupations that are projected to experience slower-than-average growth or to decline in employment still may offer many job openings.

Chart 8. **Number of jobs due to growth and replacement needs, by major occupational group, 2008–18 (projected)**



Source: BLS Division of Occupational Outlook

Professional and related occupations are projected to have the largest number of total job openings, 11.9 million, and 56 percent of those will be due to replacement needs.

Replacement needs generally are greatest in the largest occupations and in those with relatively low pay or limited training requirements. As a result, service occupations are projected to have the greatest number of job openings due to replacements, about 7.6 million.

Office automation will significantly affect many individual office and administrative support occupations. Although these occupations are projected to grow about as fast as average, some are projected to decline rapidly. Office and administrative support occupations are expected to create 7.3 million total job openings from 2008 to 2018, ranking third behind professional and related occupations and service occupations.

Farming, fishing, and forestry occupations and production occupations should offer job opportunities despite overall declines in employment. These occupations will lose 9,100 and 349,200 jobs, respectively, but are expected to provide more than 2.4 million total

job openings. Job openings will be due solely to the replacement needs of a workforce characterized by high levels of retirement and job turnover.

Classification of occupations by most significant source of education or training

Postsecondary awards

First professional degree. Completion of the degree usually requires at least 3 years of full-time academic study beyond a bachelor's degree. Examples are lawyers; and physicians and surgeons.

Doctoral degree. Completion of a Ph.D. or other doctoral degree usually requires at least 3 years of full-time academic study beyond a bachelor's degree. Examples are postsecondary teachers; and medical scientists, except epidemiologists.

Master's degree. Completion of the degree usually requires 1 or 2 years of full-time academic study beyond a bachelor's degree. Examples are educational, vocational, and school counselors; and clergy.

Bachelor's or higher degree, plus work experience. Most occupations in this category are management occupations. All require experience in a related nonmanagement position for which a bachelor's or higher degree is usually required. Examples are general and operations managers; and judges, magistrate judges, and magistrates.

Bachelor's degree. Completion of the degree generally requires at least 4 years, but not more than 5 years, of full-time academic study. Examples are accountants and auditors; and elementary school teachers, except special education.

Associate degree. Completion of the degree usually requires at least 2 years of full-time academic study. Examples are paralegals and legal assistants;

and medical records and health information technicians.

Postsecondary vocational award. Some programs last only a few weeks, others more than a year. Programs lead to a certificate or other award, but not a degree. Examples are nursing aides, orderlies, and attendants; and hairdressers, hairstylists, and cosmetologists.

Work-related training

Work experience in a related occupation. Most of the occupations in this category are first-line supervisors or managers of service, sales and related, production, or other occupations; or are management occupations.

Long-term on-the-job training. Occupations in this category generally require more than 12 months of on-the-job training or combined work experience and formal classroom instruction for workers to develop the skills necessary to be fully qualified in the occupation. These occupations include formal and informal apprenticeships that may last up to 5 years. Long-term on-the-job training also includes intensive occupation-specific, employer-sponsored programs that workers must complete. Among such programs are those conducted by fire and police academies and by schools for air traffic controllers and flight attendants. In other occupations—insurance sales and securities sales, for example—trainees take formal courses, often provided on the jobsite, to prepare for the required licensing exams. Individuals undergoing training generally are considered to be employed in the occupation. Also included in this category is the development of a natural ability—such as that possessed by musicians, athletes, actors, and other entertainers—that must be cultivated over several years, frequently in a non-work setting.

Moderate-term on-the-job training. In this category of occupations, the skills needed to be fully qualified in the occupation can be acquired during 1 to 12 months of combined on-the-job experience and informal training. Examples

are truckdrivers, heavy and tractor-trailer; and secretaries, except legal, medical, and executive.

Short-term on-the-job training. In occupations in this category, the skills needed to be fully qualified in the occupation can be acquired during a short demonstration of job duties or during 1 month or less of on-the-job experience or instruction. Examples of these occupations are retail salespersons; and waiters and waitresses.

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