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Occupational employment projections to 2022

Total employment in the U.S. economy is projected to grow by 15.6 million during the 2012–2022 decade to reach 161 million; this represents a 10.8-percent employment increase. Some of the fastest projected growth will occur in the healthcare, healthcare support, construction, and personal care fields. Together, these four occupational groups are expected to account for about one-third—more than 5.3 million—of all new jobs during this period.

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Total employment in the U.S. economy is projected to grow to 161 million, or 10.8 percent, over the 2012–2022 decade and add 15.6 million jobs to the 2012 employment level of 145.4 million. Of the 818 occupations for which the Bureau of Labor Statistics (BLS) produces and publishes projections data, 667 are projected to add jobs and 151 are expected to decline in employment during the 2012–2022 period. Some of the fastest projected growth will occur in the healthcare, healthcare support, construction, and personal care fields. Together, these four occupational groups are expected to account for more than 5.3 million new jobs by 2022, about one-third of the total employment growth.

Occupational projections provide information on how changes in demographics, technology, consumer preferences, and other factors are expected to affect the future labor force. Job seekers and career counselors use this information to see where the strongest or weakest growth is expected to be over the coming decade. Policymakers use the projections for long-term policy planning, and states use the data to prepare state and area projections.

In addition to projecting growth, BLS projects the number of job openings that will stem from the need to replace workers who change occupations or leave the labor force and tracks the typical level of education that is needed for entry-level positions in each occupation. Together, projected growth, replacement needs, and education category assigned by BLS provide data users with a more complete picture of trends in the labor market.

This article provides a broad overview of the 2012–2022 occupational projections. The first section summarizes the data and how the projections are made. Subsequent sections provide more detail of the projections, including information about drivers of occupational growth and decline, employment by education, and growth or decline within each of 22 major occupational groups. The article also discusses the occupations that are projected to grow the fastest, add the most new jobs, decline most rapidly, and lose the most jobs.

Additional information about occupations may be found in the *Occupational Outlook Handbook*.[1] The *Handbook* contains 334 occupational profiles with information on typical job duties, work environment, education, training, licensure requirements, median pay, and the job outlook.

Projections process and data sources

Occupational projections are the final step in the BLS projections process. The projections process begins with high-level labor force and macroeconomic projections, makes use of an input–output framework to convert final demand into industry output, and ends with detailed projections that are released for 818 detailed occupations in 329 detailed industries.[2] The Employment Projections program's methodology page includes a detailed recounting of the entire process, including the final occupational-projections step.[3]

Current projections data cover the decade from 2012 to 2022. The 2012 data are derived from BLS surveys. Industry employment comes from the Current Employment Statistics survey and the Current Population Survey. Industry employment is allocated among occupations on the basis of distributions from the Occupational Employment Statistics (OES) survey.[4]

Projected occupational employment is based on projected industry employment.[5] BLS projections are a measure of how employment in industries and occupations grow if the economy were to operate at its full potential a decade from now. However, not all occupations within an industry grow at the same rate, so BLS analysts make adjustments to occupational distributions within industries before arriving at final occupational projections. How analysts determine an occupation's growth or decline is described in more detail in the "Drivers of occupational growth and decline" section below. The assumptions that BLS used to develop the projections presented in this article reflect the best information available at the time. New projections are developed and released every 2 years to account for changes in factors such as consumer preferences, regulations, and the U.S. economy.

Replacement needs. In addition to projecting occupational growth—that is, the number of new jobs expected—BLS provides estimates of the number of jobs that will need to be filled in each occupation as workers change occupations, retire, or leave the labor force and need to be replaced. These projections of job openings from replacement needs, when combined with projected job openings from occupational growth, provide a more complete picture of the opportunities jobseekers will encounter in the coming decade than is provided by projected employment alone.

Replacement needs exist independently of growth. So if an occupation is projected to gain 1,000 new jobs, and 2,000 people who currently work in the occupation are expected to leave it over the next 10 years, then the total number of positions projected to be available to jobseekers is the sum of the two sources of openings, or 3,000.

Across the economy as a whole, job openings from replacement needs are projected to account for about twice as many openings as those from growth.[6] This means that 2 out of every 3 job openings are expected to be for

replacing workers who leave an occupation. (The replacement needs estimate does not include openings created when a worker changes jobs but remains in the same occupation.)

Education and training. As part of their projections research, BLS analysts assign typical entry-level education and training categories to each occupation. These education and training assignments are based on a review of available data, interviews with occupational experts and people who work in an occupation, and reading of specific job postings.

The education assignments published by BLS are based on the typical education needed to get an entry-level job in an occupation. As a complementary measure to education, an assignment to work experience and training categories also is made for each occupation. The work experience category indicates the number of years of work experience in a related occupation that are commonly considered necessary by employers. The training category indicates the typical on-the-job training needed for a worker to become fully competent performing the duties of an occupation. Together, these three measures—education, work experience, and on-the-job training—present a typical path to entry and competency.

The education and training discussion in this article focuses mainly on the education category assignments for entering an occupation.[7] The education categories BLS assigns to occupations are

- Doctoral or professional degree
- Master's degree
- Bachelor's degree
- Associate's degree
- Postsecondary nondegree award
- Some college, no degree
- High school diploma or equivalent
- Less than high school

Education assignments provide insight on the formal education typical of entry-level jobs in a field and how they compare with other similar occupations.

Wage data. The wage data cited in this article come from the Occupational Employment Statistics program's May 2012 data. These data provide information on typical wages for occupations and provide a way to compare the earnings potential differences between occupations or occupational groups. In May 2012, the median annual wage for all wage and salary workers was $34,750. The median wage is the wage at which half of all workers earned more and half earned less.

Drivers of occupational growth and decline

Occupational growth and decline stem from two different factors: growth or decline of the industries in which occupations are employed, and changes in the mix of occupations employed in those industries.

Changes to industry employment. Occupations are heavily tied to the industries that employ them. When industries grow, the occupations employed in them usually grow as well. An example of this is registered nurses. About half of registered nurses were employed in private general medical and surgical hospitals in 2012. Because employment in these hospitals is projected to grow, nursing employment in this industry is likewise projected to

grow. The projected employment growth rates for these hospitals and the nurses working in them from 2012 to 2022 are 15.2 percent for private general medical and surgical hospitals and 16.6 percent for registered nurses working in those hospitals.

By the same token, when an industry declines, the jobs lost will be in occupations that are within that industry. An example of this is sewing machine operators in textile product mills. The projected employment decline from 2012 to 2022 is 21.5 percent for textile product mills and 21.2 percent for sewing machine operators in textile product mills.

Changes to the mix of occupations employed in an industry. The mix of occupations within an industry changes over time, and these changes are the reason growth rates can differ between occupations in an industry and the industry itself. For example, an occupation that is increasing its share of industry employment will have a higher growth rate than the overall industry. This is the case with paralegals and legal assistants, an occupation that is expected to grow in the legal services industry. Paralegals and legal assistants are projected to handle more job responsibilities that were previously assigned to other legal support staff, causing this occupation to have expected growth that is more than twice as fast as that of the legal services industry. Legal services is projected to grow 7.9 percent, while employment of paralegals and legal assistants is projected to grow 21.1 percent. The faster growth is due in part to the changing job responsibilities that will cause paralegals and legal assistants, who accounted for 17.7 percent of the legal services industry in 2012, to account for 19.9 percent of the industry in 2022.

On the other hand, an occupation that has a decreasing share of industry employment will usually grow more slowly than the overall industry. For example, fallers, who cut down trees, are becoming increasingly productive by using more complex machines instead of hand tools. As a result, the logging industry does not expect to need as many fallers even if the amount of work needed to be performed were to remain constant. Therefore, the rate of decline for fallers in logging is projected to be faster than that occurring from declining industry employment alone. Logging industry employment is projected to decline 9.3 percent over the 2012–2022 period. At the same time, the employment of fallers is expected to decline 46.5 percent. Their employment as a percent of the logging industry will drop from 8.7 percent to 5.2 percent over the same period.

Reasons occupational mixes change. There are several reasons an occupation's share of industry employment can change:

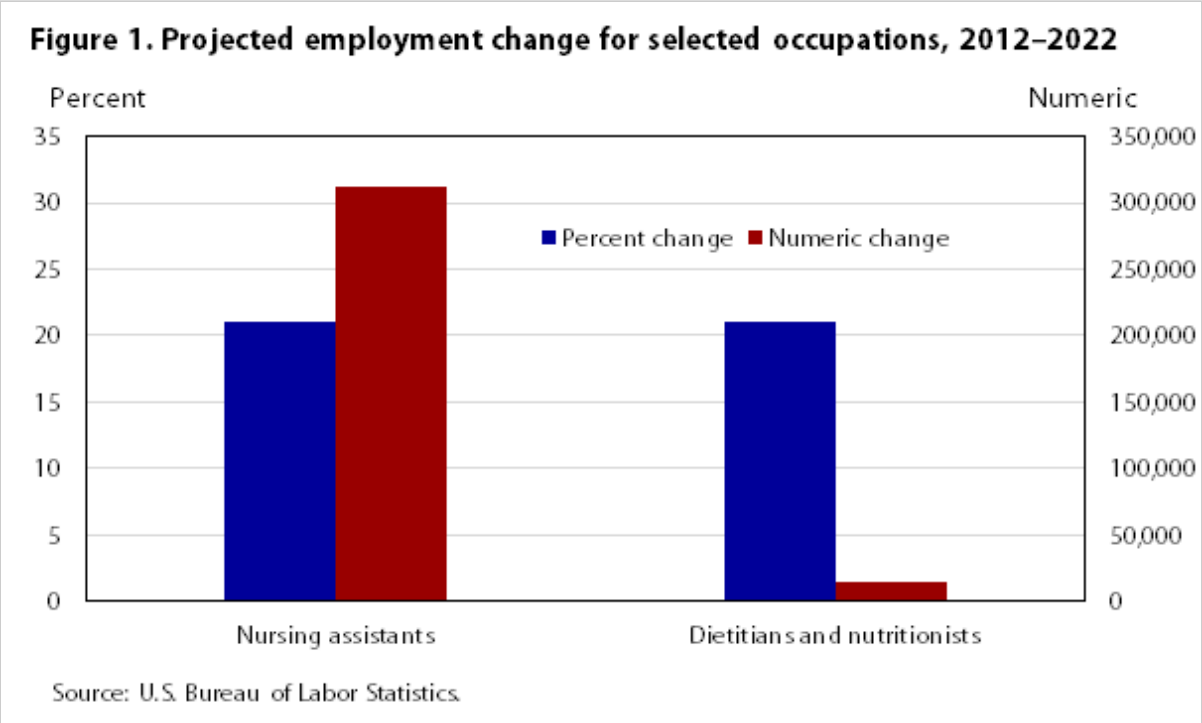
- **Technology.** Changes to tools and technology can make workers, such as fallers, more productive, so that the same amount of work requires fewer workers. Technology can also replace workers altogether. For example, Internet commerce is increasingly replacing brick-and-mortar storefronts, reducing the percentage of retail employment made up by the cashiers in those storefronts.
- **Changes in business practices or production methods.** Changing business practices or production methods can cause occupational mixes to shift. For example, as grocery stores increase the number of self-service checkout lanes, fewer hand packers and packagers are needed to bag groceries.
- **Outsourcing.** When a firm hires contract workers to fill its jobs in a particular occupation instead of employing its own workers (such as how many industries are outsourcing human resources specialists), the proportion of that occupation in the original industry is reduced.

- **Replacement of one product or service for another.** Consumer preferences for one product or service over another drive industries' choice of which occupations to employ. For example, as popularity of wallpaper wanes, paperhangers are projected to lose industry share to painters, construction and maintenance.

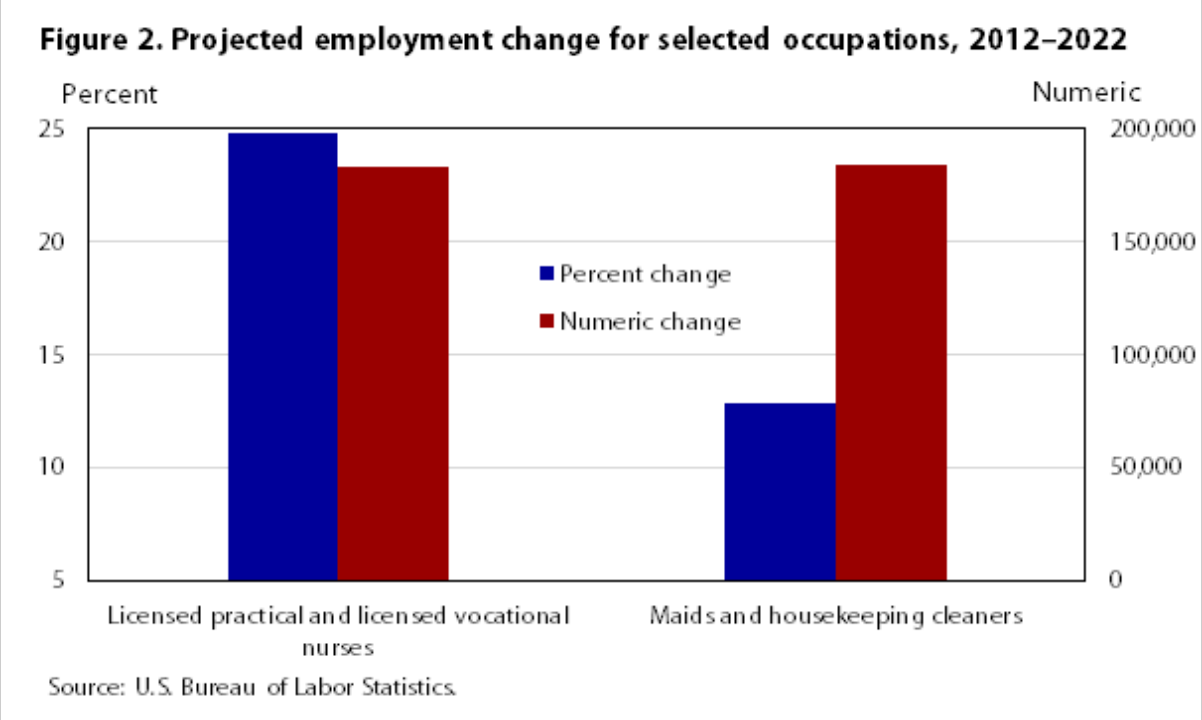
- **Organizational restructuring of work.** Any type of change in occupational duties that produces the same output, such as cleanings and other routine tasks performed by dental hygienists instead of dentists, results in changes to the occupational mix.

Numeric versus percent change

This article shows two ways to measure occupational employment change. The first, numeric change, is the absolute number of jobs projected to be gained or lost and is calculated by subtracting base-year employment from projected employment. The second measure, percent change, is the relative number of jobs projected to be gained or lost and is calculated by dividing the projected numeric change by base-year employment.



Both numeric change and percent change are helpful when comparing the expected number of jobs gained or lost between occupations. For example, the dietitians and nutritionists and nursing assistants occupations are each projected to grow 21.1 percent over the projections decade. (See figure 1.) Given the relatively small size of the dietitians and nutritionists occupation, projected growth is expected to result in the addition of just 14,200 new jobs. In contrast, the nursing assistants occupation is much larger, and the same projected growth rate in that occupation is expected to result in 312,200 new jobs added to the economy by 2022.



Percent change shows how occupations that are projected to add similar numbers of jobs nonetheless may be expected to grow at different rates. For example, the maids and housekeeping cleaners and licensed practical and licensed vocational nurses occupations are projected to add about 183,000 jobs each over the coming decade. (See figure 2.) As these occupations have different numbers of workers, the projected 183,000 increases result in different growth rates for each occupation. With base-year employment of 1.4 million jobs, the maids and housekeeping cleaners occupation is projected to grow 12.8 percent during the 10-year period ending in 2022. Licensed practical and licensed vocational nurses is a smaller occupation, with employment of 738,400 in 2012. It is expected to grow 24.8 percent during the projections decade. Although both occupations are projected to add about the same number of jobs, the rate of projected growth is much faster for the smaller occupation.

Growth adjectives. Throughout this article, growth rates are referenced using a standard set of growth adjectives. These growth adjectives, which describe the projected 10-year change in occupational employment, allow data users to compare growth rates among different occupations. The employment-change descriptions used are

- Much faster than average: 21.5 percent or higher
- Faster than average: at least 14.5 percent but less than 21.5 percent
- As fast as average: at least 7.5 percent but less than 14.5 percent
- Slower than average: at least 2.5 percent but less than 7.5 percent
- Little or no change: at least –2.5 percent but less than 2.5 percent
- Decline: less than –2.5 percent

Occupational employment projections overview

From 2012 to 2022, the number of jobs in the U.S. economy is projected to grow from 145.4 million to 161.0 million. This increase of 15.6 million jobs, or 10.8 percent, is expected to be the result of growth in some

occupations and decline in others. Most of the new jobs being added by 2022 are projected to be in fast-growing fields, such as healthcare, and recovering industries, such as construction.

BLS projections are intended to represent long-term structural changes in the economy. For example, the healthcare field is growing because of the long-term trends of an aging population and improved diagnosing and treatment options.

However, occupations in some fields are growing quickly as they recover from the 2007–2009 recession. These occupations' starting employment levels were unusually low, resulting in higher growth rates than historically seen in these occupations as they return to long-term trends by 2022. Many construction occupations are experiencing this type of growth.

BLS categorizes detailed occupations in 22 major occupational groups using the 2010 Standard Occupational Classification (SOC) system. Occupations in each group share similar duties or goals; for example, legal occupations include lawyers, judges, and support workers in the legal field. Eight of these occupational groups are projected to each add at least 1 million jobs. (See table 1.) Healthcare practitioners and technical occupations are projected to add the most: 1.7 million. Only one group of occupations is projected to decline: farming, fishing, and forestry occupations. With fewer than a million jobs in 2012, this group is already the smallest of the occupational groups and is projected to shrink 3.4 percent, shedding 32,200 jobs.

Table 1. Employment by occupational group, 2012 and projected 2022 (employment in thousands)

Occupational group	2012	Projected change, 2012–2022	
		Number	Percent
Management occupations	8,861.5	636.6	7.2
Business and financial operations occupations	7,167.6	898.1	12.5
Computer and mathematical occupations	3,814.7	685.8	18.0
Architecture and engineering occupations	2,474.5	179.6	7.3
Life, physical, and social science occupations	1,249.1	125.7	10.1
Community and social service occupations	2,374.7	408.8	17.2
Legal occupations	1,247.0	132.9	10.7
Education, training, and library occupations	9,115.9	1,015.8	11.1
Arts, design, entertainment, sports, and media occupations	2,570.9	180.6	7.0
Healthcare practitioners and technical occupations	8,049.7	1,732.9	21.5
Healthcare support occupations	4,110.2	1,155.8	28.1
Protective service occupations	3,325.3	263.0	7.9
Food preparation and serving related occupations	11,780.1	1,101.8	9.4
Building and grounds cleaning and maintenance occupations	5,522.3	691.0	12.5
Personal care and service occupations	5,375.6	1,122.9	20.9
Sales and related occupations	15,105.0	1,095.5	7.3
Office and administrative support occupations	22,470.1	1,534.0	6.8
Farming, fishing, and forestry occupations	947.2	–32.2	–3.4
Construction and extraction occupations	6,092.2	1,301.9	21.4
Installation, maintenance, and repair occupations	5,514.8	531.2	9.6
Production occupations	8,941.9	75.6	0.8
Transportation and material moving occupations	9,245.7	790.6	8.6

See footnotes at end of table.

Source: U.S. Bureau of Labor Statistics.

Education level

Occupations can be classified by the level of education typically needed for entry-level positions. While BLS does not make projections by education level, this article analyzes the educational assignments for each occupation to estimate projected growth by education level. Employment projections for different education levels are built from the occupational projections by adding together the projected employments of occupations that have the same education levels. Looking at growth by education provides insight into opportunities for workers with various levels of educational attainment. (See table 2.)

Table 2. Employment by educational requirement, 2012 and projected 2022 (employment in thousands)

Education level	Employment		Projected change, 2012–2022	
	2012	2022	Number	Percent
Doctoral or professional degree	4,002.4	4,640.8	638.4	16.0
Master's degree	2,432.2	2,880.7	448.5	18.4
Bachelor's degree	26,033.0	29,176.7	3,143.6	12.1
Associate's degree	5,954.9	7,000.9	1,046.0	17.6
Postsecondary nondegree award	8,554.2	9,891.2	1,337.1	15.6
Some college, no degree	1,987.2	2,212.2	225.0	11.3
High school diploma or equivalent	58,264.4	62,895.2	4,630.8	7.9
Less than high school	38,127.6	42,286.0	4,158.4	10.9

Source: U.S. Bureau of Labor Statistics.

Postsecondary education versus high school or less than high school. In 2012, 49.0 million jobs were in occupations that typically require at least some postsecondary education for entry—education beyond a high school diploma or equivalent—compared with 96.4 million that require a high school diploma or less. Although the occupations requiring postsecondary education were a smaller portion of the overall economy in 2012, they are projected to grow 14.0 percent by 2022. Occupations requiring a high school diploma or less are projected to grow 9.1 percent. Although a growing proportion of jobs is projected to require a postsecondary education, occupations that typically require no more than a high school diploma or equivalent are expected to add more jobs, 8.8 million, than the 6.8 million jobs projected for those requiring at least some postsecondary education. Although occupations requiring a high school diploma or less are projected to add more new jobs, the following table for wage and salary workers shows that these occupations usually have lower wages than do postsecondary occupations.

Category	High school or less	At least some college
90 percent of workers made more than…	$17,370	$25,920
50 percent of workers made more than...	27,670	57,770
10 percent of workers made more than...	57,580	123,800

Fastest growing. Occupations that typically require a master's degree for entry are projected to grow the fastest, 18.4 percent, from 2012 to 2022. This growth is largely due to the concentration of these occupations in the fast-growing healthcare and social assistance industry, which is projected to add a combined 255,000 of the 448,500

new jobs in occupations requiring a master's degree. The second fastest growing group of occupations, at 17.6 percent, is those requiring an associate's degree. As with master's degree occupations, part of the reason for rapid growth in associate's degree occupations is because of how common these occupations are in the healthcare and social assistance industry. This industry is expected to account for 846,800 of the 1.0 million new jobs requiring an associate's degree. Registered nurses, an occupation that typically requires an associate's degree, is projected to add 526,800 new jobs and account for much of this growth.

Most new jobs. The most new jobs projected for 2022 are expected to be in occupations requiring a high school diploma or equivalent. These occupations are projected to add 4.6 million new jobs. About a quarter of these new jobs will be in healthcare and social assistance. Another major area of projected growth for people with a high school diploma or equivalent is construction, which is expected to add almost 1 million jobs as construction regains jobs lost during the 2007–2009 recession.

The second largest number of new jobs projected for 2022 is expected to be in occupations that do not require a high school diploma. About 4.2 million new jobs are projected for occupations in which a high school diploma is not required. Of these, personal care aides and home health aides are projected to add a combined 1.0 million new jobs.

Occupational groups

This section discusses each of the 22 SOC major occupational groups and includes projected employment change, the factors expected to drive the change, information about the education that is typically needed to enter occupations within the group, and wage data.

Management occupations.

Jobs in 2012: 8,861,500

Projected jobs in 2022: 9,498,000

Numeric change: 636,600

Percent change: 7.2 percent (slower than average)

Job openings: 2,586,700

Large employers in 2012:

- Manufacturing: 681,400
- Education: 661,500

General and operations managers is projected to add 244,100 new jobs over the 2012–2022 period, accounting for more than one-third of new jobs in management occupations. This large occupation is found in all types of companies, and they will be needed to lead and collaborate with staff as new organizations are formed and existing companies expand.

While most occupations within this group are expected to experience employment growth, farmers, ranchers, and other agricultural managers is projected to decline 19.3 percent. The projected decline of 179,900 jobs is expected to stem from increases in productivity that allow the agricultural sector to produce more goods with fewer workers. Fewer managers are expected to be needed to oversee the declining number of agricultural workers.

In 2012, about two-thirds of management jobs were in occupations that typically require a bachelor's degree. (See table 3.) Growth is projected for these occupations, as well as for management occupations requiring an associate's or master's degree. However, the number of management jobs that typically require a high school diploma is expected to decrease over the decade, primarily because of the projected decline in employment of farmers, ranchers, and other agricultural managers.

Table 3. Management occupations employment by educational requirement, 2012 and projected 2022 (employment in thousands)

Education level	Employment		Projected change, 2012–2022	
	2012	2022	Number	Percent
Bachelor's degree	5,828.0	6,513.5	685.4	11.8
High school diploma or equivalent	2,630.7	2,544.1	-86.6	-3.3
Master's degree	393.4	430.0	36.6	9.3
Associate's degree	9.3	10.5	1.2	12.5

Source: U.S. Bureau of Labor Statistics.

The median annual wage for management occupations in May 2012 was $93,910, the highest of any major occupational group. Every management occupation except for legislators earned more than the median annual

wage for all wage and salary workers, which was $34,750. The highest median wage was for chief executives, which at $168,140 per year was nearly five times the median annual wage for all occupations.

Business and financial operations occupations.

Jobs in 2012: 7,167,600

Projected jobs in 2022: 8,065,700

Numeric change: 898,100

Percent change: 12.5 percent (as fast as average)

Job openings: 2,351,500

Large employers in 2012:

- Finance and insurance: 1,374,800
- Government: 1,050,000

The business and financial operations occupations group includes business operations specialists such as human resources specialists, fundraisers, and market research analysts, and financial specialists such as financial analysts, credit counselors, and tax preparers. While both business operations specialists and financial specialists are projected to grow about as fast as average, business operations specialists is much larger and will account for nearly two-thirds of the 898,100 jobs added.

Accountants and auditors is projected to add 166,700 new jobs from 2012 to 2022, the largest projected growth of any business or financial operations occupation. Accountants and auditors will be increasingly needed to prepare and examine financial documents because of a growing number of regulations that have been developed in response to the 2008 financial crisis.

In addition, employment of meeting, convention, and event planners is expected to increase 33.2 percent over the decade, much faster than the average for all occupations. However, because of the occupation's small size, that growth will account for an increase of just 31,300 jobs. Growth will stem from the increasing globalization of business. Meeting, convention, and event planners will be needed to organize events that bring together employees of the same company who work at different physical locations.

In 2012, about 3 in 4 jobs in business and financial operations were in occupations that typically require a bachelor's degree for entry, but the faster growth rate of these occupations requiring a 4-year degree means they are projected to account for 87.6 percent of new business and financial operations jobs. (See table 4.)

Table 4. Business and financial operations occupations employment by educational requirement, 2012 and projected 2022 (employment in thousands)

Education level	Employment		Projected change, 2012–2022	
	2012	2022	Number	Percent
Bachelor's degree	5,344.3	6,131.4	787.1	14.7
High school diploma or equivalent	1,809.7	1,921.4	111.7	6.2
Postsecondary nondegree award	13.5	12.8	–0.7	–5.3

Source: U.S. Bureau of Labor Statistics.

The median annual wage for business and financial operations occupations in May 2012 was $62,500. Of these occupations, only tax preparers earned less than the median annual wage for all wage and salary workers ($34,750)

Computer and mathematical occupations.

Jobs in 2012: 3,814,700

Projected jobs in 2022: 4,500,500

Numeric change: 685,800

Percent change: 18.0 percent (faster than average)

Job openings: 1,308,500

Large employers in 2012:

- Computer systems design and related services: 923,500
- Information: 440,300

By 2022, the computer and mathematical occupations group is expected to yield more than 1.3 million job openings. However, unlike in most occupational groups, more job openings will stem from growth than from the need to replace workers who change occupations or leave the labor force.

Although every occupation within the computer and mathematical occupations group is expected to experience job growth over the next decade, the rate of growth varies by occupation. Employment in computer occupations is expected to grow 17.7 percent by 2012, slower than the math occupations, which are expected to grow 26.1 percent.

Software developers and programmers is expected to add 279,500 jobs by 2022, accounting for about 4 out of 10 new jobs in the computer and math occupations group. Although projected growth for information security analysts, at 27,400 new jobs, is smaller than for software developers and programmers, the rate of growth for information security analysts is expected to be 36.5 percent, making this the fastest growing occupation in this group. Demand for both of these occupations will stem from a number of factors, including an increase in demand for cybersecurity, the implementation of electronic medical records, and an increase in the use of mobile technology.

All of the computer and mathematical occupations typically require at least some college education. Through 2022, more than 3 in 4 new jobs occurring in this group are projected to be in occupations that typically require at least a bachelor’s degree, with the fastest projected growth among occupations that need a master’s degree. (See table 5.)

Table 5. Computer and mathematical occupations employment by educational requirement, 2012 and projected 2022 (employment in thousands)

Education level	Employment		Projected change, 2012–2022	
	2012	2022	Number	Percent
Bachelor's degree	2,893.1	3,415.2	522.1	18.0
Some college, no degree	547.7	658.5	110.8	20.2
Associate's degree	316.1	356.6	40.6	12.8
Master's degree	31.1	39.2	8.2	26.3
Doctoral or professional degree	26.7	30.8	4.1	15.3

Source: U.S. Bureau of Labor Statistics.

The median annual wage for computer and mathematical occupations in May 2012 was $76,270, more than twice the median annual wage for all wage and salary workers of $34,750 and the second highest of any major occupational group. All of the occupations in this group pay above the median wage for all occupations, and two occupations, computer and information research scientists and mathematicians, had median wages of more than $100,000 per year.

Architecture and engineering occupations.

Jobs in 2012: 2,474,500

Projected jobs in 2022: 2,654,000

Numeric change: 179,600

Percent change: 7.3 percent (slower than average)

Job openings: 763,900

Large employers in 2012:

- Manufacturing: 768,100
- Architectural, engineering, and related services: 642,200

Engineering occupations make up about two-thirds of this occupational group, and they are projected to add 136,500 jobs over the next decade. Civil engineers will add 53,700 jobs by 2022, which is the most of any engineering occupation. Demand for infrastructure to provide services like clean drinking water and waste treatment systems will drive job creation for civil engineers.

In addition, architects, surveyors, and cartographers is expected to grow at a faster-than-average rate of 15.5 percent, adding 28,200 jobs by 2022. Most of the job growth will occur among architects, except naval, which is projected to grow 16.8 percent. These architects will be needed to design various construction and renovation projects.

Occupations that typically require a bachelor's degree accounted for about 7 out of 10 jobs in 2012, but they will account for more than 9 out of 10 projected new architectural and engineering jobs. (See table 6.) Occupations that typically require only an associate's degree are projected to grow just 1.2 percent.

Table 6. Architecture and engineering occupations employment by educational requirement, 2012 and projected 2022 (employment in thousands)

Education level	Employment		Projected change, 2012–2022	
	2012	2022	Number	Percent
Bachelor's degree	1,771.6	1,936.4	164.7	9.3
Associate's degree	648.8	656.4	7.5	1.2
High school diploma or equivalent	54.0	61.3	7.3	13.5

Source: U.S. Bureau of Labor Statistics.

In May 2012, the four highest paying occupations in this group were all engineering jobs that typically require a bachelor's degree: petroleum engineers ($130,280), nuclear engineers ($104,270), aerospace engineers ($103,720), and computer hardware engineers ($100,920).

Life, physical, and social science occupations.

Jobs in 2012: 1,249,100

Projected jobs in 2022: 1,374,800

Numeric change: 125,700

Percent change: 10.1 percent (as fast as average)

Job openings: 488,200

Large employers in 2012:

- Government: 317,800
- Education: 208,900

All three scientist groups—life scientists, physical scientists, and social scientists and related workers—are expected to grow at an about-average rate over the 2012–2022 period. Industrial-organizational psychologists, with projected growth of 53.4 percent, is expected to grow much faster than the average for all occupations. However, because of its small size, the occupation is projected to add just 900 jobs over the decade. Industrial-organizational psychologists will be increasingly needed to help organizations select and keep employees, increase productivity, and improve office morale.

Nearly 4 in 5 new jobs created among the life, physical, and social services occupations group will be in occupations that typically require a bachelor's degree or higher, and more than 2 in 5 will be at the graduate degree level. (See table 7.) Faster growth is expected for the occupations that typically require graduate-level degrees.

Table 7. Life, physical, and social science occupations employment by educational requirement, 2012 and projected 2022 (employment in thousands)

Education level	Employment		Projected change, 2012–2022	
	2012	2022	Number	Percent
Bachelor's degree	550.8	595.6	44.9	8.1
Doctoral or professional degree	303.4	341.6	38.1	12.6
Associate's degree	273.7	299.9	26.2	9.6
Master's degree	121.2	137.8	16.5	13.6

Source: U.S. Bureau of Labor Statistics.

The median annual wage for life, physical, and social services occupations in May 2012 was $60,100. The highest median wage was for physicists ($106,840 per year), and the lowest was for forest and conservation technicians ($33,920).

Community and social services occupations.

Jobs in 2012: 2,374,700

Projected jobs in 2022: 2,783,400

Numeric change: 408,800

Percent change: 17.2 percent (faster than average)

Job openings: 962,900

Large employers in 2012:

- Health care and social assistance: 982,800
- Religious, grantmaking, civic, professional, and similar organizations: 496,500

Community and social services occupations consist of two groups: (1) counselors, social workers, and other community and social service specialists and (2) religious workers. The counselors group is expected to add 368,500 jobs over the coming decade, a growth rate of 19.0 percent, which is faster than the average for all occupations. Strong growth will be led by substance abuse and behavioral disorder counselors at 31.4 percent, marriage and family therapists at 30.6 percent, and mental health counselors at 28.5 percent. Growing demand is expected for all three occupations as a variety of counseling services are increasingly covered by insurance policies.

Although there are more jobs in occupations that typically require a bachelor's degree, faster growth and more new jobs are projected for occupations that typically require a master's degree. (See table 8.)

Table 8. Community and social services occupations employment by educational requirement, 2012 and projected 2022 (employment in thousands)

Education level	Employment		Projected change, 2012–2022	
	2012	2022	Number	Percent
Bachelor's degree	1,044.1	1,169.5	125.4	12.0
Master's degree	827.8	991.6	163.8	19.8
High school diploma or equivalent	502.8	622.3	119.6	23.8

Source: U.S. Bureau of Labor Statistics.

The median annual wage for community and social services occupations in May 2012 was $40,400. Of the 18 occupations in this group, 14 earned more than the median annual wage for all wage and salary workers ($34,750).

Legal occupations.

Jobs in 2012: 1,247,000

Projected jobs in 2022: 1,379,900

Numeric change: 132,900

Percent change: 10.7 percent (as fast as average)

Job openings: 333,800

Large employers in 2012:

- Legal services: 608,300
- Government: 271,000

Lawyers and paralegals and legal assistants will account for more than 9 out of 10 of the projected new jobs among legal occupations. These occupations are expected to add 74,800 and 46,200 jobs, respectively, by 2022. Employment of lawyers is projected to grow 9.8 percent, whereas employment of paralegals and legal assistants is expected to grow 16.7 percent between 2012 and 2022. This faster growth is expected among paralegals and legal assistants as many law firms are shifting some duties that were traditionally performed by lawyers to these workers in an effort to reduce costs.

Nearly two-thirds of jobs in legal occupations in 2022 are projected to be in occupations that require a doctoral or professional degree, including lawyers. (See table 9.) However, legal occupations—like paralegals and legal assistants—that typically need an associate's degree are projected to grow the fastest over the coming decade.

Table 9. Legal occupations employment by educational requirement, 2012 and projected 2022 (employment in thousands)

Education level	Employment		Projected change, 2012–2022	
	2012	2022	Number	Percent
Doctoral or professional degree	815.2	890.9	75.8	9.3
Associate's degree	277.0	323.3	46.2	16.7
High school diploma or equivalent	125.2	133.2	8.0	6.4
Postsecondary nondegree award	21.2	23.2	2.0	9.6
Bachelor's degree	8.4	9.3	0.9	10.4

Source: U.S. Bureau of Labor Statistics.

The median annual wage for legal occupations in May 2012 was $75,270, with every occupation in this group earning more than the median annual wage for all wage and salary workers ($34,750). The highest median wages were earned by judges, magistrate judges, and magistrates ($115,760) and lawyers ($113,530). Both of these occupations require a doctoral or professional degree.

Education, training, and library occupations.

Jobs in 2012: 9,115,900

Projected jobs in 2022: 10,131,700

Numeric change: 1,015,800

Percent change: 11.1 percent (as fast as average)

Job openings: 2,896,900

Large employers in 2012:

- Education: 7,811,900
- Health care and social assistance: 484,700

Over the next decade, employment of postsecondary teachers is expected to increase 16.6 percent, while employment of preschool, primary, secondary, and special education school teachers is projected to increase 10.4 percent.

Among these teaching occupations, the fastest growing specialty is projected to be postsecondary health specialties teachers, with an expected employment increase of 36.1 percent. Growth among health teachers will stem in large part from increasing enrollment in postsecondary institutions, such as colleges and universities, and the need to teach a variety of healthcare students, such as pharmacists and dentists. Education, training, and library occupations tend to have high education requirements. Nearly half of the new education, training, and library jobs created will be in occupations that typically require a bachelor's degree, and 95.7 percent of new jobs are projected to be in occupations that require some form of postsecondary education. (See table 10.)

Table 10. Education, training, and library occupations employment by educational requirement, 2012 and projected 2022 (employment in thousands)

Education level	Employment		Projected change, 2012–2022	
	2012	2022	Number	Percent
Bachelor's degree	5,159.6	5,635.9	476.2	9.2
Doctoral or professional degree	1,356.6	1,585.8	229.1	16.9
Some college, no degree	1,223.4	1,328.5	105.0	8.6
Master's degree	515.5	591.6	76.1	14.8
Associate's degree	438.2	514.6	76.4	17.4
High school diploma or equivalent	316.2	360.1	43.9	13.9
Postsecondary nondegree award	106.2	115.2	9.0	8.4

Source: U.S. Bureau of Labor Statistics.

The median annual wage for education, training, and library occupations in May 2012 was $46,020. Fifty-eight of the 63 occupations in this group earned more than the $34,750 median annual wage for all wage and salary workers. The occupation with the highest median wage was postsecondary law teachers ($99,950 per year), and the occupation with the lowest was teacher assistants ($23,640).

Arts, design, entertainment, sports, and media occupations.

Jobs in 2012: 2,570,900

Projected jobs in 2022: 2,751,600

Numeric change: 180,600

Percent change: 7.0 percent (slower than average)

Job openings: 799,500

Large employers in 2012:

- Information: 451,400
- Education: 274,800

Arts, design, entertainment, sports, and media occupations are projected to grow 7.0 percent from 2012 to 2022, slower than the average for all occupations. Employment of reporters and correspondents is expected to decline 13.8 percent as the occupation sheds 7,100 jobs. As newspapers, radio, and television increasingly publish content online, news organizations may have more difficulty selling ads based on traditional forms of advertising. Declining revenue is expected to cause news organizations to downsize and employ fewer journalists.

Conversely, interpreters and translators is expected to be the fifth-fastest-growing occupation through 2022. Employment of interpreters and translators is projected to grow 46.1 percent as the occupation adds 29,300 jobs. As the U.S. population continues to become more diverse and as companies become more globalized, more interpretation and translation services will be needed.

About 3 out of 4 new jobs created among arts, design, entertainment, sports, and media occupations are projected to be in occupations that typically require a bachelor's degree. (See table 11.) While there is some variation in the education requirements of occupations in this group, most—37 out of 41—of these occupations require either a high school diploma or a bachelor's degree.

Table 11. Arts, design, entertainment, sports, and media occupations employment by educational requirement, 2012 and projected 2022 (employment in thousands)

Education level	Employment		Projected change, 2012–2022	
	2012	2022	Number	Percent
Bachelor's degree	1,701.1	1,836.5	135.4	8.0
High school diploma or equivalent	668.7	700.1	31.4	4.7
Postsecondary nondegree award	84.6	94.0	9.4	11.1
Some college, no degree	79.8	83.0	3.3	4.1
Associate's degree	36.7	37.9	1.2	3.2

Source: U.S. Bureau of Labor Statistics.

The median annual wage for arts, design, entertainment, sports, and media occupations in May 2012 was $43,930. Sixteen of the top 20 earning occupations in this group typically require a bachelor's degree. Among the occupations that require a bachelor's degree, art directors earned the highest median salary of $80,880.

Healthcare practitioners and technical occupations.

Jobs in 2012: 8,049,700

Projected jobs in 2022: 9,782,600

Numeric change: 1,732,900

Percent change: 21.5 percent (much faster than average)

Job openings: 3,378,300

Large employers in 2012:

- Hospitals: 3,109,400
- Ambulatory health care services: 2,340,900

Healthcare practitioners and technical occupations are projected to add more than 1.7 million new jobs from 2012 to 2022, the most of any major occupational group. Unlike most occupational groups, more than half of new job openings for healthcare practitioners will be new jobs, rather than jobs arising from the need to replace workers who change occupations or leave the labor force.

The much-faster-than-average growth rate of 21.5 percent will be driven by a number of factors. The growing elderly population is expected to demand more healthcare services as they age. Increasing rates of chronic conditions such as diabetes and obesity will also add to the growing need for healthcare services. In addition, federal health insurance reform could increase access to medical care for millions of people; however, the full effects of this legislation remain unknown.

Registered nurses is projected to add 526,800 jobs, more than any other healthcare occupation. Although registered nurses is projected to grow 19.4 percent, nearly double the 10.8-percent rate of growth projected for total employment, this large occupation is expected to grow at a slower rate than the other, smaller and often specialized nursing occupations.

Education requirements vary by occupation within this group, with 20 occupations typically requiring a doctoral or professional degree and 5 typically requiring a high school diploma. (See table 12.) While all education categories are expected to experience employment growth, about 45.8 percent of new jobs in the group over the 2012–2022 decade will be found in occupations that typically require an associate's degree. Of the remaining positions, the vast majority will be in occupations that require some form of postsecondary education, ranging from a postsecondary nondegree award to a doctoral or professional degree.

Table 12. Healthcare practitioners employment by educational requirement, 2012 and projected 2022 (employment in thousands)

Education level	Employment		Projected change, 2012–2022	
	2012	2022	Number	Percent
Associate's degree	3,688.2	4,481.8	793.6	21.5
Doctoral or professional degree	1,500.4	1,791.7	291.3	19.4

See footnotes at end of table.

Table 12. Healthcare practitioners employment by educational requirement, 2012 and projected 2022 (employment in thousands)

Education level	Employment		Projected change, 2012–2022	
	2012	2022	Number	Percent
Postsecondary nondegree award	1,362.9	1,683.2	320.3	23.5
Master's degree	543.2	690.5	147.3	27.1
High school diploma or equivalent	531.2	644.7	113.4	21.4
Bachelor's degree	423.7	490.8	67.1	15.8

Source: U.S. Bureau of Labor Statistics.

The median annual wage for healthcare practitioners and technical occupations in May 2012 was $60,200. Nearly 9 in 10 occupations in this group earned more than the median annual wage for all wage and salary workers of $34,750.

Healthcare support occupations.

Jobs in 2012: 4,110,200

Projected jobs in 2022: 5,266,000

Numeric change: 1,155,800

Percent change: 28.1 percent (much faster than average)

Job openings: 1,938,300

Large employers in 2012:

- Ambulatory health care services: 1,378,300
- Nursing and residential care facilities: 1,195,100

Employment of healthcare support occupations is projected to increase 28.1 percent from 2012 to 2022, the fastest growth of any major occupational group. Much like the healthcare practitioners group, more than half of job openings in healthcare support occupations are expected to be a result of new jobs rather than of openings resulting from replacement needs.

Home health aides is a major driver of this fast growth, as the occupation is projected to grow 48.5 percent and account for more than one-third of the jobs added within this occupational group between 2012 and 2022. The growing elderly population will continue to require more care as they age because they are more likely to develop health issues and mobility problems. Moreover, many people are choosing to remain in their homes as they age, as aging in one's home may be more convenient and less expensive than alternatives such as moving to a nursing home or healthcare facility. Home health aides will be needed to help these people with a variety of daily tasks.

Healthcare support occupations tend to have lower education requirements than the healthcare practitioners discussed in the prior section. About half of the jobs that are projected to be created among healthcare support

occupations will be in occupations that typically require a postsecondary nondegree award; most of the remainder will be in occupations that usually require a high school diploma or less. (See table 13.)

Table 13. Healthcare support occupations employment by educational requirement, 2012 and projected 2022 (employment in thousands)

Education level	Employment		Projected change, 2012–2022	
	2012	2022	Number	Percent
Postsecondary nondegree award	2,662.0	3,274.9	612.9	23.0
Less than high school	875.1	1,299.3	424.2	48.5
High school diploma or equivalent	471.4	547.9	76.5	16.2
Associate's degree	101.7	143.8	42.2	41.5

Source: U.S. Bureau of Labor Statistics.

These relatively low education requirements are reflected in the below-average median annual wage for healthcare support occupations in 2012 of $25,550. Home health aides, the only occupation in this group that typically required less than a high school diploma, earned $20,820, the lowest median wage of any healthcare support occupation. Of the 17 occupations in this group, the two highest earners were in occupations that typically require an associate's degree: occupational therapy assistants had a median wage of $53,240, and physical therapist assistants had a median wage of $52,160.

Protective service occupations.

Jobs in 2012: 3,325,300

Projected jobs in 2022: 3,588,300

Numeric change: 263,000

Percent change: 7.9 percent (as fast as average)

Job openings: 1,146,800

Large employers in 2012:

- Local government: 1,402,000
- Investigation and security service: 647,800

All but one protective service occupation, parking enforcement workers, are projected to grow from 2012 to 2022. Growth will result from concerns over security and public safety. Additional jobs will be added as the demand increases for emergency responders who respond to the needs of an aging population when they seek emergency services.

Security guards is projected to grow the fastest—12.1 percent—and its increase of 129,600 is one of the largest among protective services, adding nearly half the new jobs in this occupation group. Most new protective service

jobs will be created in local government and investigation and security services, which are the two largest employers and are projected to account for 65.2 percent of new security guard jobs.

About 9 out of 10 jobs created in protective services will be found in occupations that typically require a high school diploma or equivalent. (See table 14.) Only two protective service occupations require a postsecondary education, firefighters and first-line supervisors of fire fighting and prevention workers.

Table 14. Protective service occupations employment by educational requirement, 2012 and projected 2022 (employment in thousands)

Education level	Employment		Projected change, 2012–2022	
	2012	2022	Number	Percent
High school diploma or equivalent	2,955.9	3,194.8	238.8	8.1
Postsecondary nondegree award	369.3	393.5	24.2	6.6

Source: U.S. Bureau of Labor Statistics.

Among protective services occupations, 16 of 22 had median wages above the median annual wage for all wage and salary workers of $34,750 in May 2012. The highest median wage was for first-line supervisors of police and detectives ($78,270), while the lowest was for lifeguards, ski patrol, and other recreational protective service workers ($18,950).

Food preparation and serving related occupations.

Jobs in 2012: 11,780,100

Projected jobs in 2022: 12,882,000

Numeric change: 1,101,800

Percent change: 9.4 percent (as fast as average)

Job openings: 5,514,500

Large employers in 2012:

- Food services and drinking places: 9,027,900
- Health care and social assistance: 534,700

Food preparation and serving related occupations will create more than 1 million new jobs; of these jobs, 421,900 are for the occupation of combined food preparation and serving workers, including fast food, which is expected to add the fifth most jobs of any occupation. Population growth and preferences for dining out will spur demand for food preparation and serving related occupations.

Many food preparation and serving related occupations are entry-level occupations, and workers often leave to find more permanent work in different fields. As a result, this group will have 4 times as many job openings that are

due to the need to replace workers as will arise from growth. Of the over 1 million jobs being created in these occupations, about 3 in 4 new jobs are projected to be in food services and drinking places.

About 9 out of 10 new jobs in these occupations will be in occupations that typically require less than a high school diploma. (See table 15.) Food preparation and serving, with its nearly 1 million new jobs, is the occupational group with the largest number of jobs being created for people without a high school diploma.

Table 15. Food preparation and serving-related occupations employment by educational requirement, 2012 and projected 2022 (employment in thousands)

Education level	Employment		Projected change, 2012–2022	
	2012	2022	Employment	Percent
Less than high school	10,809.2	11,795.8	986.5	9.1
High school diploma or equivalent	963.9	1,079.3	115.4	12.0
Postsecondary nondegree award	7.0	6.9	–0.1	–0.8

Source: U.S. Bureau of Labor Statistics.

Wages are low, as is common in occupations with few formal education requirements. Chefs and head cooks is the only occupation of the 18 in food preparation and serving that made more than the median annual wage for all wage and salary workers of $34,750 in May 2012.

Building and grounds cleaning and maintenance occupations.

Jobs in 2012: 5,522,300

Projected jobs in 2022: 6,213,300

Numeric change: 691,000

Percent change: 12.5 percent (as fast as average)

Job openings: 1,825,500

Large employers in 2012:

- Services to buildings and dwellings: 1,548,400
- Self-employed workers: 718,400

Building and grounds cleaning and maintenance occupations includes janitors and cleaners as well as maids and housekeeping cleaners, both of which are expected to be in the top 20 occupations in terms of the number of jobs created.

While most people employed in these occupations receive wages or a salary, 7.6 percent of the jobs were held by people who are self-employed. The number of self-employed building and grounds cleaning and maintenance workers is expected to grow 12.4 percent, slightly slower than the 15.4 percent for wage and salary workers in services to buildings and dwellings.

Building and grounds cleaning and maintenance jobs tend to have few educational requirements. In 2012, 89 percent of these jobs were in occupations that typically require less than a high school diploma. (See table 16.)

Table 16. Building and grounds cleaning and maintenance occupations employment by educational requirement, 2012 and projected 2022 (employment in thousands)

Education level	Employment		Projected change, 2012–2022	
	2012	2022	Number	Percent
Less than high school	4,917.3	5,523.9	606.7	12.3
High school diploma or equivalent	605.0	689.4	84.3	13.9

Source: U.S. Bureau of Labor Statistics.

Wages tend to be relatively low; only the supervisory occupations in building and grounds cleaning and maintenance made more than the median annual wage for all wage and salary workers, which was $34,750 in May 2012.

Personal care and service occupations.

Jobs in 2012: 5,375,600

Projected jobs in 2022: 6,498,500

Numeric change: 1,122,900

Percent change: 20.9 percent (faster than average)

Job openings: 2,289,400

Large employers in 2012:

- Healthcare and social assistance: 1,539,200
- Self-employed workers: 1,038,600

Personal care and service occupations include personal care aides, which is expected to add the most new jobs of any occupation, 580,800 by 2022. Personal care aides account for more than half of the new jobs in personal care and service occupations. Personal care aides, with an increase of 48.8 percent, is also expected to grow the second fastest of any occupation. This rapid growth is largely due to the need to care for an aging population.

The largest number of personal care and service jobs created will be those which require less than a high school diploma; 90.8 percent of those jobs will be as personal care aides. (See table 17.)

Table 17. Personal care and service occupations employment by educational requirement, 2012 and projected 2022 (employment in thousands)

Education level	Employment		Projected change, 2012–2022	
	2012	2022	Number	Percent
High school diploma or equivalent	2,420.5	2,737.9	317.4	13.1
Less than high school	1,783.9	2,423.8	639.8	35.9
Postsecondary nondegree award	802.3	916.2	113.8	14.2
Bachelor's degree	345.4	394.4	49.0	14.2
Associate's degree	23.5	26.3	2.8	12.1

Source: U.S. Bureau of Labor Statistics.

Among personal care and services occupations, 6 out of 33 made more than the median annual wage for all wage and salary workers of $34,750 in May 2012. Personal care aides had a median wage of $19,910 per year.

Sales and related occupations.

Jobs in 2012: 15,105,000

Projected jobs in 2022: 16,200,500

Numeric change: 1,095,500

Percent change: 7.3 percent (slower than average)

Job openings: 5,626,900

Large employers in 2012:

- Retail trade: 8,290,700
- Wholesale trade: 1,521,800

Sales and related workers, the second largest occupational group, are found in nearly every industry, although almost two-thirds are employed in the retail and wholesale trade industries. Despite growing slower than the economy as a whole, these occupations are expected to add over a million new jobs by 2022, the seventh largest increase of any occupational group. Most employment opportunities will arise from the 4.5 million jobs that will open as workers change occupations or leave the labor force.

Sales and related occupations included 4 of the 20 largest occupations in 2012, including the 2 largest, retail salespersons, with 4.4 million workers, and cashiers, with 3.3 million workers. The other sales occupations among the 20 largest occupations are first-line supervisors of retail sales workers (1.6 million) and sales representatives, wholesale and manufacturing, except technical and scientific products (1.5 million).

These four occupations are expected to account for two-thirds of jobs added by sales and related occupations over the 2012–2022 period. Retail salespersons is projected to add 434,700 jobs, the third most new jobs of any occupation.

The largest number of jobs being added for sales and related occupations will be in occupations that typically require less than a high school diploma. (See table 18.) However, the sales occupations requiring less formal education are expected to grow more slowly than those needing more.

Table 18. Sales and related occupations employment by educational requirement, 2012 and projected 2022 (employment in thousands)

Education level	Employment		Projected change, 2012–2022	
	2012	2022	Number	Percent
Less than high school	8,699.9	9,303.1	603.2	6.9
High school diploma or equivalent	5,602.3	6,011.8	409.5	7.3
Bachelor's degree	802.8	885.6	82.8	10.3

Source: U.S. Bureau of Labor Statistics.

Half of sales and related occupations made more than the median annual wage for all wage and salary workers, which was $34,750 in May 2012. The three highest median wages in sales occupations were for the three sales occupations that typically require a bachelor's degree: sales engineers ($91,830); sales representatives, wholesale and manufacturing, technical and scientific products ($74,970); and securities, commodities, and financial services sales agents ($71,720).

Office and administrative support occupations.

Jobs in 2012: 22,470,100

Projected jobs in 2022: 24,004,100

Numeric change: 1,534,000

Percent change: 6.8 percent (slower than average)

Job openings: 6,765,100

Large employers in 2012:

- Health care and social assistance: 2,749,500
- Finance and insurance: 2,664,300

Office and administrative support occupations was the largest group of occupations, with workers holding more than 22 million jobs; these accounted for 15.5 percent of all jobs in 2012. This group of occupations is expected to grow slower than average, at 6.8 percent, but will still add 1.5 million new jobs by 2022, the second most behind healthcare practitioners and technical occupations.

Of the 20 occupations expected to add the most new jobs, 5 are office and administrative support occupations:

Secretaries and administrative assistants, except legal, medical, and executive	307,800
Customer service representatives	298,700
Bookkeeping, accounting, and auditing clerks	204,600
Medical secretaries	189,200
Office clerks, general	184,100

Because this occupational group is growing slowly, the large majority of job openings, about 4.9 million, will result from employers replacing workers who change occupations or leave the labor force.

In 2012, nearly all jobs in office and administrative support were in occupations that did not typically require more than a high school diploma. (See table 19.) While occupations that typically require less than a high school education accounted for 1.8 million jobs, they are expected to show little change over the next decade. In contrast, those occupations where a high school diploma was the typical educational requirement are projected to grow 7.5 percent.

Table 19. Office and administrative support occupations employment by educational requirement, 2012 and projected 2022 (employment in thousands)

Education level	Employment		Projected change, 2012–2022	
	2012	2022	Number	Percent
High school diploma or equivalent	20,616.1	22,155.6	1,539.5	7.5
Less than high school	1,807.2	1,801.2	–6.0	–0.3
Bachelor's degree	30.4	31.8	1.4	4.6
Associate's degree	16.4	15.5	–0.9	–5.5

Source: U.S. Bureau of Labor Statistics.

In May 2012, half of all office and administrative support occupations had a median annual wage higher than $34,750, which was the median wage for all wage and salary workers. The three office and administrative support occupations with the highest median wages were postal service workers: postal service mail carriers ($56,490), postal service clerks ($53,090), and postal service mail sorters, processors, and processing machine operators ($53,090). These same 3 occupations are also among the top 10 fastest declining occupations.

Farming, fishing, and forestry occupations.

Jobs in 2012: 947,200

Projected jobs in 2022: 915,000

Numeric change: –32,200

Percent change: –3.4 percent (decline)

Job openings: 271,000

Large employers in 2012:

- Crop production: 368,600
- Animal production and aquaculture: 281,300

Farming, fishing, and forestry occupations is the only occupational group projected to lose jobs, declining 3.4 percent between 2012 and 2022. The decline projected for these occupations is due in part to increased foreign competition, stock preservation efforts, and productivity improvements. Farming, fishing, and forestry occupations include fallers (workers who fell trees), the fastest declining occupation, which is expected to decline 43.3 percent over the 10-year period.

About 8 out of 9 jobs in farming, fishing, and forestry in 2012 were in occupations that did not typically require a high school education, while most of the rest require a high school diploma or equivalent. (See table 20.) All education levels are projected to have declining employment.

Table 20. Farming, fishing, and forestry occupations employment by educational requirement, 2012 and projected 2022 (employment in thousands)

Education level	Employment		Projected change, 2012–2022	
	2012	2022	Number	Percent
Less than high school	828.7	801.4	–27.3	–3.3
High school diploma or equivalent	101.6	96.8	–4.8	–4.7
Bachelor's degree	17.0	16.8	–0.2	–1.0

Source: U.S. Bureau of Labor Statistics.

Construction and extraction occupations.

Jobs in 2012: 6,092,200

Projected jobs in 2022: 7,394,100

Numeric change: 1,301,900

Percent change: 21.4 percent (faster than average)

Job openings: 2,353,000

Large employers in 2012:

- Construction: 3,511,500
- Self-employed workers: 1,056,500

Employment in most construction occupations declined more sharply than among other occupations following the 2007–2009 recession and the housing bubble that had preceded it. Over the 2012–2022 decade, many of these hardest hit occupations are projected to recover from their recent lows. As a result, most construction occupations have growth rates that are higher than the 10.8-percent average for all occupations. Two of the 10 fastest growing occupations are projected to be in construction. These are insulation workers, mechanical, with a 46.7 percent increase, and helpers—brickmasons, blockmasons, stonemasons, and tile and marble setters, with a 43.0 percent increase.

Construction occupations typically do not require postsecondary education, with nearly 2 out of 3 jobs requiring a high school diploma. (See table 21.) However, many construction workers receive training through apprenticeship programs, which include structured classroom training and supervised practical experience on the job. Despite the few formal education requirements, 43 out of the 60 construction occupations earned more in May 2012 than the median annual wage for all wage and salary workers, $34,750.

Table 21. Construction and extraction occupations employment by educational requirement, 2012 and projected 2022 (employment in thousands)

Education level	Employment		Projected change, 2012–2022	
	2012	2022	Number	Percent
High school diploma or equivalent	3,846.9	4,654.1	807.2	21.0
Less than high school	2,245.3	2,740.0	494.7	22.0

Source: U.S. Bureau of Labor Statistics.

Installation, maintenance, and repair occupations.

Jobs in 2012: 5,514,800

Projected jobs in 2022: 6,046,000

Numeric change: 531,200

Percent change: 9.6 percent (as fast as average)

Job openings: 1,813,700

Large employers in 2012:

- Retail trade: 697,300
- Manufacturing: 596,400

Installation, maintenance, and repair occupations are found in almost every industry and are projected to grow about as fast as the average for the whole economy. In spite of the 531,200 additional jobs projected, opportunities in installation, maintenance, and repair largely will result from the need to replace workers who change occupations or leave the labor force.

Four out of five projected new installation, maintenance, and repair jobs will be in occupations that typically require a high school diploma. (See table 22.) The fastest growing occupation within installation, maintenance, and repair is medical equipment repairers, which will add 12,800 jobs that typically require an associate's degree.

Table 22. Installation, maintenance, and repair occupations employment by educational requirement, 2012 and projected 2022 (employment in thousands)

Education level	Employment		Projected change, 2012–2022	
	2012	2022	Employment change	Percent change
High school diploma or equivalent	4,512.5	4,953.7	441.2	9.8
Postsecondary nondegree award	786.1	855.8	69.7	8.9
Some college, no degree	136.3	142.2	5.9	4.3
Associate's degree	78.9	93.4	14.5	18.4
Less than high school	1.0	0.9	–0.1	–10.4

Source: U.S. Bureau of Labor Statistics.

Of the 52 occupations in installation, maintenance, and repair, 40 had a higher median annual wage than the median wage for all wage and salary workers of $34,750. The two highest paid occupations were electrical and electronics repairers, powerhouse, substation, and relay workers, with a median wage of $68,810 and electrical power-line installers and repairers, with a median wage of $63,250.

Production occupations.

Jobs in 2012: 8,941,900

Projected jobs in 2022: 9,017,500

Numeric change: 75,600

Percent change: 0.8 percent (little or no change)

Job openings: 2,150,600

Large employers in 2012:

- Manufacturing: 6,081,600
- Employment services: 671,700

Production occupations are projected to have little or no growth. Employment for their largest employer, manufacturing, is projected to decline 4.6 percent by 2022. The decline in manufacturing employment is due in part to foreign competition and to improvements in efficiency. Despite few new jobs, there will still be over 1.8

million job opportunities in production occupations because of the need to replace workers who change occupations or leave the labor force.

Team assemblers are expected to account for 2 out of 3 new production jobs, with 49,500 new positions expected by 2022. This occupation is projected to grow as team-based production techniques are increasingly used in manufacturing. These techniques are credited with improved productivity and higher quality products.

A large majority of production jobs typically require a high school degree or less. (See table 23.) The three occupations requiring a postsecondary education—semiconductor processors, first-line supervisors of production and operating workers, and prepress technicians and workers—are all projected to have declining employment.

Table 23. Production occupations employment by educational requirement, 2012 and projected 2022 (employment in thousands)

Education level	Employment		Projected change, 2012–2022	
	2012	2022	Number	Percent
High school diploma or equivalent	6,689.2	6,755.3	66.1	1.0
Less than high school	1,594.0	1,625.3	31.3	2.0
Postsecondary nondegree award	637.4	621.4	–16.0	–2.5
Associate's degree	21.3	15.5	–5.8	–27.1

Source: U.S. Bureau of Labor Statistics.

Only 36 out of 108 production occupations had a higher median annual wage than the median annual wage for all wage and salary workers of $34,750 in May 2012. The three highest paying jobs were in power production: nuclear power reactor operators ($74,990), power distributors and dispatchers ($71,690), and power plant operators ($66,130).

Transportation and material moving occupations.

Jobs in 2012: 9,245,700

Projected jobs in 2022: 10,036,400

Numeric change: 790,600

Percent change: 8.6 percent (as fast as average)

Job openings: 2,992,100

Large employers in 2012:

- Transportation and warehousing: 2,777,200
- Wholesale trade: 1,130,900

Employment in transportation and material moving occupations is projected to grow about as fast as the overall economy between 2012 and 2022. Most of the job opportunities in these occupations will result from workers leaving their occupation or the labor force and needing to be replaced.

Over half of new transportation and material moving jobs are projected to be in the occupations laborers and freight, stock, and material movers, hand and heavy and tractor-trailer truck drivers. Laborers and freight, stock, and materials movers is projected to add 241,900 jobs because of its role in warehousing, which is expected to grow as consumer spending increases. Heavy and tractor-trailer truck drivers will add 192,600 new positions as they help to move goods between producers and consumers.

Most new jobs for transportation and material moving workers will be in occupations that typically require no postsecondary education. (See table 24.) The main exception is heavy and tractor-trailer truck drivers, which typically requires a postsecondary nondegree award.

Table 24. Transportation and material moving occupations employment by educational requirement, 2012 and projected 2022 (employment in thousands)

Education level	Employment		Projected change, 2012–2022	
	2012	2022	Number	Percent
Less than high school	4,566.0	4,971.4	405.3	8.9
High school diploma or equivalent	2,840.6	3,031.6	191.0	6.7
Postsecondary nondegree award	1,701.5	1,894.1	192.6	11.3
Bachelor's degree	112.6	114.0	1.4	1.2
Associate's degree	25.0	25.4	0.4	1.4

Source: U.S. Bureau of Labor Statistics.

Among the 52 occupations in transportation and warehousing, 35 had median annual wages above the median annual wage for all wage and salary workers of $34,750 in May 2012. Two occupations, both requiring a postsecondary education, had a median wage over $100,000 per year; these were air traffic controllers ($122,530) and airline pilots, copilots, and flight engineers ($114,200).

Detailed occupations

The 30 detailed occupations that are projected to add the most new jobs by 2022 (see table 25) are expected to account for almost half of all new jobs. Personal care aides is projected to add the most new jobs (580,800) of any occupation, corresponding to a fast growth rate of 48.8 percent.

Table 25. Employment and wages of occupations with the largest numeric projected growth in jobs, 2012 and projected 2022 (numbers in thousands)

Rank	SOC code	2012 National Employment Matrix title	Employment		Projected change, 2012–2022		Median annual wage, May 2012[1]	Typical education needed for entry
			2012	2022	Number	Percent		
—	00-0000	Total, all occupations	145,355.8	160,983.7	15,628.0	10.8%	$34,750	—
1	39-9021	Personal care aides	1,190.6	1,771.4	580.8	48.8	19,910	Less than high school
2	29-1141	Registered nurses	2,711.5	3,238.4	526.8	19.4	65,470	Associate's degree
3	41-2031	Retail salespersons	4,447.0	4,881.7	434.7	9.8	21,110	Less than high school
4	31-1011	Home health aides	875.1	1,299.3	424.2	48.5	20,820	Less than high school
5	35-3021	Combined food preparation and serving workers, including fast food	2,969.3	3,391.2	421.9	14.2	18,260	Less than high school
6	31-1014	Nursing assistants	1,479.8	1,792.0	312.2	21.1	24,420	Postsecondary nondegree award
7	43-6014	Secretaries and administrative assistants, except legal, medical, and executive	2,324.4	2,632.3	307.8	13.2	32,410	High school diploma or equivalent
8	43-4051	Customer service representatives	2,362.8	2,661.4	298.7	12.6	30,580	High school diploma or equivalent
9	37-2011	Janitors and cleaners, except maids and housekeeping cleaners	2,324.0	2,604.0	280.0	12.1	22,320	Less than high school
10	47-2061	Construction laborers	1,071.1	1,331.0	259.8	24.3	29,990	Less than high school
11	11-1021	General and operations managers	1,972.7	2,216.8	244.1	12.4	95,440	Bachelor's degree
12	53-7062	Laborers and freight, stock, and material movers, hand	2,197.3	2,439.2	241.9	11.0	23,890	Less than high school
13	47-2031	Carpenters	901.2	1,119.4	218.2	24.2	39,940	High school diploma or equivalent
14	43-3031	Bookkeeping, accounting, and auditing clerks	1,799.8	2,004.5	204.6	11.4	35,170	High school diploma or equivalent
15	53-3032	Heavy and tractor-trailer truck drivers	1,701.5	1,894.1	192.6	11.3	38,200	Postsecondary nondegree award
16	43-6013	Medical secretaries	525.6	714.9	189.2	36.0	31,350	High school diploma or equivalent
17	39-9011	Childcare workers	1,312.7	1,496.8	184.1	14.0	19,510	High school diploma or equivalent
18	43-9061	Office clerks, general	2,983.5	3,167.6	184.1	6.2	27,470	High school diploma or equivalent
19	37-2012	Maids and housekeeping cleaners	1,434.6	1,618.0	183.4	12.8	19,570	Less than high school

See footnotes at end of table.

Table 25. Employment and wages of occupations with the largest numeric projected growth in jobs, 2012 and projected 2022 (numbers in thousands)

Rank	SOC code	2012 National Employment Matrix title	Employment		Projected change, 2012–2022		Median annual wage, May 2012[1]	Typical education needed for entry
			2012	2022	Number	Percent		
20	29-2061	Licensed practical and licensed vocational nurses	738.4	921.3	182.9	24.8	41,540	Postsecondary nondegree award
21	43-1011	First-line supervisors of office and administrative support workers	1,418.1	1,589.6	171.5	12.1	49,330	High school diploma or equivalent
22	25-2021	Elementary school teachers, except special education	1,361.2	1,529.1	167.9	12.3	53,400	Bachelor's degree
23	13-2011	Accountants and auditors	1,275.4	1,442.2	166.7	13.1	63,550	Bachelor's degree
24	31-9092	Medical assistants	560.8	723.7	162.9	29.0	29,370	Postsecondary nondegree award
25	35-2014	Cooks, restaurant	1,024.1	1,174.2	150.1	14.7	22,030	Less than high school
26	15-1132	Software developers, applications	613.0	752.9	139.9	22.8	90,060	Bachelor's degree
27	37-3011	Landscaping and groundskeeping workers	1,124.9	1,264.0	139.2	12.4	23,570	Less than high school
28	43-4171	Receptionists and information clerks	1,006.7	1,142.6	135.9	13.5	25,990	High school diploma or equivalent
29	13-1111	Management analysts	718.7	852.5	133.8	18.6	78,600	Bachelor's degree
30	41-4012	Sales representatives, wholesale and manufacturing, except technical and scientific products	1,480.7	1,612.8	132.0	8.9	54,230	High school diploma or equivalent

Notes:
[1] For wage and salary workers, from the Occupational Employment Statistics survey.

Source: U.S. Bureau of Labor Statistics.

Of the 30 occupations projected to experience the largest employment increases, 5 are in healthcare. Combined, these 5 occupations are projected to add 1.6 million jobs over the 2012–2022 decade. More healthcare workers, such as registered nurses and home health aides, are expected to be needed to care for both the aging population and a growing number of patients who have access to medical insurance. Personal care aides differ from home health aides in that home health aides may provide some basic medical services, while personal care aides cannot provide any medical services.

The seven office and administrative support occupations listed in the table are projected to account for 1.5 million new jobs. This large numeric growth reflects the large size of most of these occupations. Medical secretaries is the only office and administrative support occupation that is projected to grow much faster than the average for all occupations.

Two-thirds of the occupations projected to add the most new jobs typically require a high school diploma or less, while only five typically require a bachelor's degree. Workers in 12 of these occupations earned more than the

median annual wage for all occupations ($34,750); of these high-earning occupations, 8 typically require some postsecondary education.

The strong demand for healthcare workers is also apparent among the projected fastest growing occupations. The 30 occupations projected to grow the fastest (see table 26) include 14 in healthcare and healthcare support fields; 9 of these occupations are healthcare practitioners and technical support occupations, an occupational group that typically has higher education requirements than the healthcare support occupations.

Table 26. Employment and wages of occupations with the largest projected percentage growth in jobs, 2012 and projected 2012 (numbers in thousands)

Rank	SOC code	2012 National Employment Matrix title	Employment		Projected change, 2012–2022		Median annual wage, 2012[1]	Typical education needed for entry
			2012	2022	Number	Percent		
—	00-0000	Total, all occupations	145,355.8	160,983.7	15,628.0	10.8%	$34,750	—
1	19-3032	Industrial–organizational psychologists	1.6	2.5	0.9	53.4	83,580	Master's degree
2	39-9021	Personal care aides	1,190.6	1,771.4	580.8	48.8	19,910	Less than high school
3	31-1011	Home health aides	875.1	1,299.3	424.2	48.5	20,820	Less than high school
4	47-2132	Insulation workers, mechanical	28.9	42.4	13.5	46.7	39,170	High school diploma or equivalent
5	27-3091	Interpreters and translators	63.6	92.9	29.3	46.1	45,430	Bachelor's degree
6	29-2032	Diagnostic medical sonographers	58.8	85.9	27.0	46.0	65,860	Associate's degree
7	47-3011	Helpers—brickmasons, blockmasons, stonemasons, and tile and marble setters	24.4	34.9	10.5	43.0	28,220	Less than high school
8	31-2011	Occupational therapy assistants	30.3	43.2	12.9	42.6	53,240	Associate's degree
9	29-9092	Genetic counselors	2.1	3.0	0.9	41.2	56,800	Master's degree
10	31-2021	Physical therapist assistants	71.4	100.7	29.3	41.0	52,160	Associate's degree
11	31-2022	Physical therapist aides	50.0	70.1	20.1	40.1	23,880	High school diploma or equivalent
12	39-5094	Skincare specialists	44.4	62.0	17.7	39.8	28,640	Postsecondary nondegree award
13	29-1071	Physician assistants	86.7	120.0	33.3	38.4	90,930	Master's degree
14	47-4091	Segmental pavers	1.8	2.4	0.7	38.1	33,720	High school diploma or equivalent
15	47-3013	Helpers—electricians	60.8	83.3	22.4	36.9	27,670	High school diploma or equivalent
16	15-1122	Information security analysts	75.1	102.5	27.4	36.5	86,170	Bachelor's degree
17	31-2012	Occupational therapy aides	8.4	11.4	3.0	36.2	26,850	High school diploma or equivalent
18	25-1071	Health specialties teachers, postsecondary	190.0	258.6	68.6	36.1	81,140	Doctoral or professional degree
19	43-6013	Medical secretaries	525.6	714.9	189.2	36.0	31,350	High school diploma or equivalent
20	29-1123	Physical therapists	204.2	277.7	73.5	36.0	79,860	Doctoral or professional degree

See footnotes at end of table.

Table 26. Employment and wages of occupations with the largest projected percentage growth in jobs, 2012 and projected 2012 (numbers in thousands)

Rank	SOC code	2012 National Employment Matrix title	Employment		Projected change, 2012–2022		Median annual wage, 2012[1]	Typical education needed for entry
			2012	2022	Number	Percent		
21	29-2091	Orthotists and prosthetists	8.5	11.5	3.0	35.5	62,670	Master's degree
22	47-2021	Brickmasons and blockmasons	71.0	96.2	25.2	35.5	46,440	High school diploma or equivalent
23	25-1072	Nursing instructors and teachers, postsecondary	67.8	91.8	24.0	35.4	64,850	Master's degree
24	29-1171	Nurse practitioners	110.2	147.3	37.1	33.7	89,960	Master's degree
25	29-1181	Audiologists	13.0	17.3	4.3	33.6	69,720	Doctoral or professional degree
26	29-2021	Dental hygienists	192.8	256.9	64.2	33.3	70,210	Associate's degree
27	13-1121	Meeting, convention, and event planners	94.2	125.4	31.3	33.2	45,810	Bachelor's degree
28	29-1129	Therapists, all other	28.8	37.9	9.1	31.7	53,210	Bachelor's degree
29	13-1161	Market research analysts and marketing specialists	415.7	547.2	131.5	31.6	60,300	Bachelor's degree
30	21-1011	Substance abuse and behavioral disorder counselors	89.6	117.7	28.2	31.4	38,520	High school diploma or equivalent

Notes:
[1] For wage and salary workers, from the Occupational Employment Statistics survey.

Source: U.S. Bureau of Labor Statistics.

The fastest growing occupations usually have relatively high educational requirements: 19 of them require postsecondary education, and 14 require at least a 4-year college degree. An associate's or higher degree is required for 18 of the 21 occupations in which workers make more than $34,750, the median annual wage across all occupations.

Among the occupations that do not require postsecondary education are five construction occupations. Because projections for many of the construction occupations include recovery from lower employment levels resulting from the 2007–2009 recession, several of these occupations are expected to grow much faster than average from 2012 to 2022. Despite this rapid growth, the five construction occupations are relatively small, and are expected to add a total of 72,300 jobs over the decade.

As shown in tables 27 and 28, the occupations with the largest and fastest projected declines are dominated by two groups: office and administrative support occupations and production occupations. Of the ten occupations projected to experience the largest employment declines, three are Postal Service-related occupations. The projected loss of 139,100 postal jobs is due to more reliance on email and online bill pay services and to technological advances that allow for automatic mail sorting.

Table 27. Employment and wages of occupations with the largest projected numeric decline in jobs, 2012 and projected 2020 (numbers in thousands)

Rank	SOC code	2012 National Employment Matrix title	Employment		Projected change, 2012–2022		2012 National Employment Matrix title	2012 National Employment Matrix title
			2012	2022	Number	Percent		
—	00-0000	Total, all occupations	145,355.8	160,983.7	15,628.0	10.8	$34,750	—
1	11-9013	Farmers, ranchers, and other agricultural managers	930.6	750.7	–179.9	–19.3	69,300	High school diploma or equivalent
2	43-5052	Postal service mail carriers	295.1	215.8	–79.2	–26.8	56,490	High school diploma or equivalent
3	43-9021	Data entry keyers	220.3	166.1	–54.2	–24.6	28,010	High school diploma or equivalent
4	51-6031	Sewing machine operators	161.4	119.7	–41.7	–25.8	21,270	Less than high school
5	43-5053	Postal service mail sorters, processors, and processing machine operators	129.6	91.0	–38.6	–29.8	53,090	High school diploma or equivalent
6	45-2092	Farmworkers and laborers, crop, nursery, and greenhouse	596.8	567.6	–29.2	–4.9	18,670	Less than high school
7	43-9022	Word processors and typists	104.4	78.2	–26.2	–25.1	35,270	High school diploma or equivalent
8	43-5051	Postal service clerks	66.9	45.7	–21.3	–31.8	53,090	High school diploma or equivalent
9	43-4181	Reservation and transportation ticket agents and travel clerks	139.1	119.6	–19.5	–14.0	32,400	High school diploma or equivalent
10	51-4072	Molding, coremaking, and casting machine setters, operators, and tenders, metal and plastic	125.0	105.8	–19.2	–15.4	28,630	High school diploma or equivalent
11	43-2011	Switchboard operators, including answering service	131.0	113.7	–17.3	–13.2	25,370	High school diploma or equivalent
12	43-4199	Information and record clerks, all other	188.9	172.2	–16.7	–8.8	37,240	High school diploma or equivalent
13	51-4031	Cutting, punching, and press machine setters, operators, and tenders, metal and plastic	184.7	168.2	–16.4	–8.9	29,690	High school diploma or equivalent
14	41-9091	Door-to-door sales workers, news and street vendors, and related workers	92.7	78.5	–14.2	–15.3	21,470	High school diploma or equivalent
15	53-7051	Industrial truck and tractor operators	508.6	495.0	–13.6	–2.7	30,220	Less than high school
16	51-2022	Electrical and electronic equipment assemblers	198.3	184.9	–13.5	–6.8	28,810	High school diploma or equivalent

See footnotes at end of table.

Table 27. Employment and wages of occupations with the largest projected numeric decline in jobs, 2012 and projected 2020 (numbers in thousands)

Rank	SOC code	2012 National Employment Matrix title	Employment		Projected change, 2012–2022		2012 National Employment Matrix title	2012 National Employment Matrix title
			2012	2022	Number	Percent		
17	43-9011	Computer operators	74.6	62.0	–12.7	–17.0	38,390	High school diploma or equivalent
18	51-4021	Extruding and drawing machine setters, operators, and tenders, metal and plastic	74.9	63.0	–11.9	–15.9	32,330	High school diploma or equivalent
19	51-4081	Multiple machine tool setters, operators, and tenders, metal and plastic	85.9	74.5	–11.4	–13.2	33,960	High school diploma or equivalent
20	43-5021	Couriers and messengers	98.2	87.4	–10.9	–11.1	25,440	High school diploma or equivalent
21	43-6011	Executive secretaries and executive administrative assistants	873.9	863.4	–10.5	–1.2	47,500	High school diploma or equivalent
22	51-1011	First-line supervisors of production and operating workers	594.7	584.2	–10.5	–1.8	54,040	Postsecondary non-degree award
23	43-9051	Mail clerks and mail machine operators, except postal service	108.5	98.9	–9.6	–8.8	26,900	High school diploma or equivalent
24	51-4033	Grinding, lapping, polishing, and buffing machine tool setters, operators, and tenders, metal and plastic	71.5	62.5	–9.0	–12.6	31,620	High school diploma or equivalent
25	41-3041	Travel agents	73.3	64.4	–8.9	–12.1	34,600	High school diploma or equivalent
26	43-5041	Meter readers, utilities	40.2	32.5	–7.7	–19.2	35,940	High school diploma or equivalent
27	51-9196	Paper goods machine setters, operators, and tenders	95.0	87.5	–7.6	–8.0	34,690	High school diploma or equivalent
28	27-3022	Reporters and correspondents	51.7	44.6	–7.1	–13.8	35,870	Bachelor's degree
29	43-9071	Office machine operators, except computer	68.8	61.8	–7.0	–10.2	27,950	High school diploma or equivalent
30	51-5112	Printing press operators	178.4	171.4	–7.0	–3.9	34,690	High school diploma or equivalent

Notes:

(1) For wage and salary workers, from the Occupational Employment Statistics survey.

Source: U.S. Bureau of Labor Statistics.

Table 28. Employment and wages of occupations with the largest projected percentage decline in jobs, 2012 and projected 2022 (numbers in thousands)

Rank	SOC code	2012 National Employment Matrix title	Employment		Projected change, 2012–2022		Median annual wage, May 2012[1]	Typical education needed for entry
			2012	2022	Number	Percent		
—	00-0000	Total, all occupations	145,355.8	160,983.7	15,628.0	10.8	$34,750	—
1	45-4021	Fallers	6.6	3.8	–2.9	–43.3	35,250	High school diploma or equivalent
2	53-4012	Locomotive firers	1.6	0.9	–0.7	–42.0	44,920	High school diploma or equivalent
3	51-6042	Shoe machine operators and tenders	3.5	2.3	–1.2	–35.3	24,310	High school diploma or equivalent
4	43-5051	Postal service clerks	66.9	45.7	–21.3	–31.8	53,090	High school diploma or equivalent
5	45-4023	Log graders and scalers	3.5	2.4	–1.1	–31.6	32,880	High school diploma or equivalent
6	43-5053	Postal service mail sorters, processors, and processing machine operators	129.6	91.0	–38.6	–29.8	53,090	High school diploma or equivalent
8	51-9141	Semiconductor processors	21.3	15.5	–5.8	–27.1	33,020	Associate's degree
7	51-6062	Textile cutting machine setters, operators, and tenders	15.5	11.3	–4.2	–27.1	24,050	High school diploma or equivalent
9	43-5052	Postal service mail carriers	295.1	215.8	–79.2	–26.8	56,490	High school diploma or equivalent
10	39-3021	Motion picture projectionists	8.0	5.8	–2.1	–26.5	19,830	Less than high school
11	51-6031	Sewing machine operators	161.4	119.7	–41.7	–25.8	21,270	Less than high school
12	43-9022	Word processors and typists	104.4	78.2	–26.2	–25.1	35,270	High school diploma or equivalent
13	51-6092	Fabric and apparel patternmakers	6.5	4.9	–1.6	–25.0	38,650	High school diploma or equivalent
14	43-9021	Data entry keyers	220.3	166.1	–54.2	–24.6	28,010	High school diploma or equivalent
15	51-6063	Textile knitting and weaving machine setters, operators, and tenders	21.9	16.5	–5.4	–24.5	26,540	High school diploma or equivalent
16	11-9131	Postmasters and mail superintendents	23.0	17.4	–5.6	–24.2	63,050	High school diploma or equivalent
17	51-6061	Textile bleaching and dyeing machine operators and tenders	11.4	8.6	–2.7	–24.0	24,210	High school diploma or equivalent

See footnotes at end of table.

Table 28. Employment and wages of occupations with the largest projected percentage decline in jobs, 2012 and projected 2022 (numbers in thousands)

Rank	SOC code	2012 National Employment Matrix title	Employment		Projected change, 2012–2022		Median annual wage, May 2012[1]	Typical education needed for entry
			2012	2022	Number	Percent		
18	45-2021	Animal breeders	1.3	1.0	–0.3	–23.4	34,250	High school diploma or equivalent
19	51-4032	Drilling and boring machine tool setters, operators, and tenders, metal and plastic	20.9	16.2	–4.7	–22.5	33,940	High school diploma or equivalent
20	51-6064	Textile winding, twisting, and drawing out machine setters, operators, and tenders	27.5	21.8	–5.6	–20.5	25,850	High school diploma or equivalent
21	11-9013	Farmers, ranchers, and other agricultural managers	930.6	750.7	–179.9	–19.3	69,300	High school diploma or equivalent
22	43-5041	Meter readers, utilities	40.2	32.5	–7.7	–19.2	35,940	High school diploma or equivalent
23	51-4052	Pourers and casters, metal	10.7	8.7	–2.0	–18.7	34,060	High school diploma or equivalent
24	43-9011	Computer operators	74.6	62.0	–12.7	–17.0	38,390	High school diploma or equivalent
25	51-4071	Foundry mold and coremakers	12.4	10.4	–2.0	–16.2	30,540	High school diploma or equivalent
26	51-4021	Extruding and drawing machine setters, operators, and tenders, metal and plastic	74.9	63.0	–11.9	–15.9	32,330	High school diploma or equivalent
27	51-4072	Molding, coremaking, and casting machine setters, operators, and tenders, metal and plastic	125.0	105.8	–19.2	–15.4	28,630	High school diploma or equivalent
28	41-9091	Door-to-door sales workers, news and street vendors, and related workers	92.7	78.5	–14.2	–15.3	21,470	High school diploma or equivalent
29	51-9031	Cutters and trimmers, hand	14.2	12.1	–2.2	–15.3	24,530	Less than high school
30	49-9095	Manufactured building and mobile home installers	5.3	4.5	–0.8	–15.1	28,080	High school diploma or equivalent

Notes:
[1] For wage and salary workers, from the Occupational Employment Statistics survey.

Source: U.S. Bureau of Labor Statistics.

In addition, production-related occupations account for 10 of the 30 occupations projected to have the largest employment declines and for 14 of the 30 occupations projected to decline the fastest. These declines are expected to be driven by the shrinking manufacturing industry, the primary employer of production occupation workers.

The occupation that is expected to lose the most jobs does not, however, fall in either of these occupational groups. Farmers, ranchers, and other agricultural managers is expected to shed 179,900 jobs by 2022, the most of any occupation. Similarly, the fastest declining occupation, fallers, is in agriculture. Employment of fallers is projected to decline 43.3 percent by 2022, although because of its small size, the occupation will shrink by just 2,900 jobs. Increased mechanization of food production and logging operations is expected to limit opportunities in these occupations.

Of the 30 occupations projected to have the largest declines and the 30 occupations that are projected to decline the fastest, the vast majority typically require no more than a high school diploma. More than half of these occupations had median wages that were less than $34,750 in May 2012, the median annual wage for all occupations.

ABOUT 15.6 MILLION NEW JOBS are expected to be added between 2012 and 2022. The strongest job growth is projected in the healthcare, healthcare support, construction, and personal care fields. More than half of new jobs will be in occupations that typically require a high school diploma or less; however, occupations that typically require postsecondary education are projected to grow at a faster rate than occupations that require no more than a high school diploma.

SUGGESTED CITATION

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NOTES

1 The Occupational Outlook Handbook is available at https://www.bls.gov/ooh/.

2 For projections by detailed occupation, see https://www.bls.gov/emp/tables/industry-occupation-matrix-occupation.htm.

3 For employment projections methodology details, see https://www.bls.gov/emp/documentation/projections-methods.htm.

4 For more information on the Occupational Employment Statistics program, see https://www.bls.gov/oes/.

5 For projections by detailed industry, see https://www.bls.gov/emp/tables/industry-occupation-matrix-industry.htm.

6 For information on replacement needs, including detailed methods and data, see https://www.bls.gov/emp/documentation/replacements.htm

7 For more information on the BLS education and training classification system, including definitions and data, see https://www.bls.gov/emp/documentation/education-training-system.htm.

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