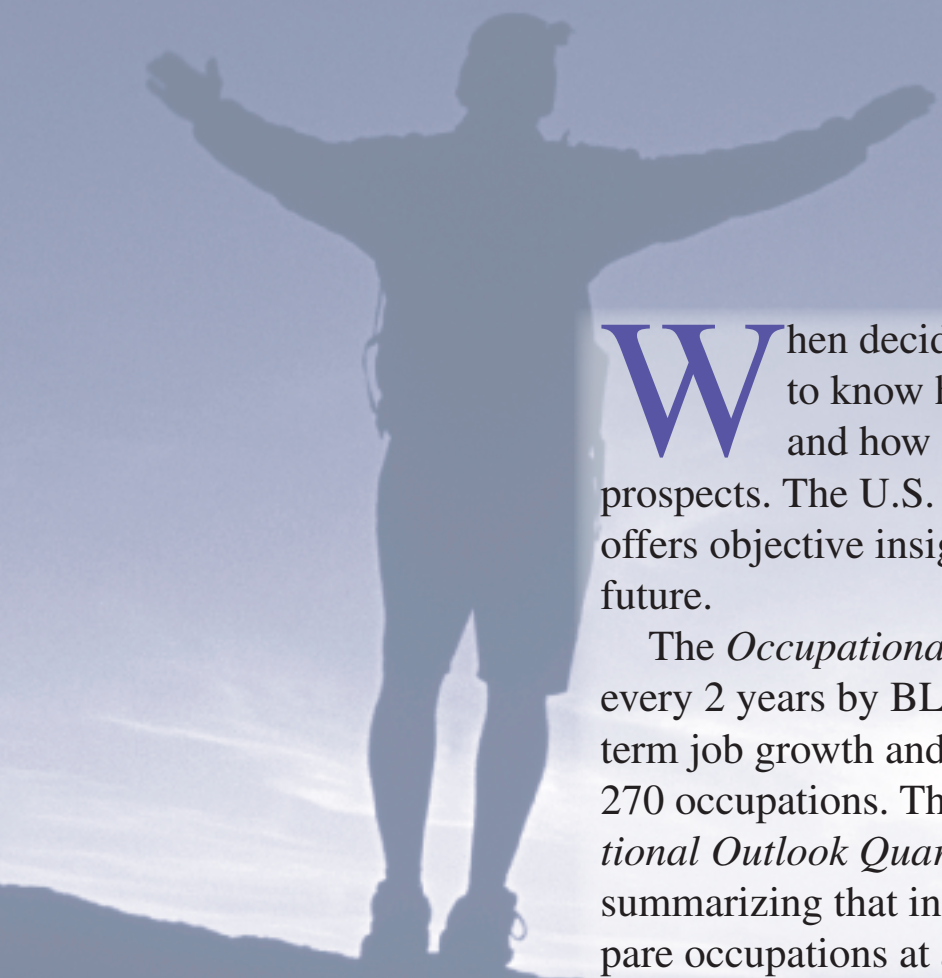
The 2004-14 job outlook in brief



When deciding on a potential career, it helps to know how the economy is changing and how those changes could affect job prospects. The U.S. Bureau of Labor Statistics (BLS) offers objective insights into the job market of the future.

The *Occupational Outlook Handbook*—published every 2 years by BLS—features projections of long-term job growth and employment prospects for about 270 occupations. This special issue of the *Occupational Outlook Quarterly* (*OOQ*) includes a table summarizing that information so readers can compare occupations at a glance.

The next few pages will help you get the most out of that table. Read on to learn what BLS projections mean, why employment is changing, and how BLS makes its projections.

Understanding employment projections

BLS projections give a broad overview of future employment conditions: They show total growth over the entire 2004–14 decade; they do not account for variation from one year to another. Also, the projections are for the entire country. But because conditions vary significantly by location, jobseekers should supplement this general information with more specific information from State employment agencies and career counselors.

BLS projections show expected job growth and decline in various occupations. Usually, occupations that are growing offer better opportunities for jobseekers. That's because each job that is added to a growing occupation equals another opening for a worker who is trying to enter that occupation.

But job growth tells only part of the story. Opportunities in any occupation are also shaped by how many of today's workers will need to be replaced because they retire or leave for other reasons. Job prospects also depend on how much competition there is for jobs.

Understanding job growth. In the table, projected job growth or decline is shown in two ways: as a number and as a percent. The number shows the actual number of jobs projected to be added or lost in an occupation. For example, between 2004 and 2014, employment of engineers is expected to grow by more than 194,600 jobs, each one an opening for a new worker.

In contrast, percent change shows the rate of job growth or decline over the projections decade. It illustrates trends in employment. Registered nurses are growing by 29 percent, much faster than the average for all occupations, reflecting increases in the number of people who need healthcare.

But a high growth rate does not always translate into lots of jobs. Employment of nuclear medicine technologists, for example, is expected to grow by 21 percent—faster than the average. But because the occupation is small, that growth rate reflects relatively few (about 4,000) new jobs.

Similarly, an occupation with a slow rate of growth can gain many jobs. Employment of general office clerks, for example, is projected to grow by only 8 percent, more slowly than the average for all occupations, over the 2004–14 decade. But because the occupation is so large, that slow growth translates into more than 263,500 new jobs.

Replacement needs. Most of the job openings for people entering an occupation for the first time come not from growth but from the need to replace workers who retire or permanently leave the occupation for other reasons. These replacement needs sometimes provide numer-

ous job openings even in an occupation that is projected to decline. Tool and die maker, which is expected to provide excellent prospects, is an example. Because of the need to replace workers, occupations that are large, have high worker turnover, or have many workers of retirement age usually offer many opportunities no matter what their level of growth.

Competition. If many qualified people are vying for jobs in an occupation, that occupation might be harder to enter. If an occupation has specific entry requirements, economists can sometimes estimate how many people will be qualified for future jobs and compare that number to the number of expected job openings. This estimate of the expected supply of workers is based on historical data about the number of college degrees granted that are related to the occupation, information from technical journals and other relevant literature, interviews with occupational experts, and the judgment of the economists who studied the occupation.

Why employment is changing

Occupations gain or lose jobs because of different, often conflicting, forces. Demand for what workers in an occupation produce drives up the number of jobs in an occupation. At the same time, however, some innovation might make each worker more productive and, thus, reduce the number of jobs. Demand and innovation combine to change employment and affect job prospects—as when the demand for real estate transactions goes up just as technology makes agents more productive.

Similarly, a single change in technology, business practices, population, or some other element can drive growth in some occupations while slowing it in others. Automation, for example, slows growth in some production occupations but speeds growth in occupations in which workers install or repair automation equipment.

This section highlights three of the most prevalent influences on employment gains or losses: changes in the demand for goods and services, productivity, and business practices. Each is discussed frequently in the outlook table.

Demand for goods and services. As the population grows, more people will need goods and services, creating jobs for the workers who produce those goods and provide those services. This will generate employment growth in most occupations.

For example, a rise in the number of college students increases the need for postsecondary teachers. Also, a growing population's demand for more roads increases the need for construction workers, surveyors, and landscape architects.

Beyond population growth, population change is another factor affecting the products and services people need and, thus, affecting employment. For example, as the baby boomers age and the number of older people increases, healthcare is expected to be in greater demand. This is expected to drive job growth in many healthcare-related occupations, including home health aides, which is expected to have faster employment growth than any other occupation.

At the same time, the number of children will grow, albeit more slowly, and those children will need education and supervision, creating many new jobs for teachers and childcare workers.

Another factor affecting the demand for goods and services is economic growth. Rising incomes spur employment of financial planners and restaurant workers, for example. Similarly, the increase in global trade spurs demand for water transportation workers who ship goods and for management analysts who help businesses deal with foreign markets and foreign competition.

Technology also can increase demand for particular goods and services and the occupations related to them. Demand for atmospheric scientists is expected to increase, for example, because advances in weather prediction techniques are making weather forecasts more accurate and useful to businesses. In another example,

telecommunications technology and the Internet are spurring demand for writers, artists, and designers who create content for Web sites and other media.

Changes in the law also affect the goods and services demanded and the jobs created. Environmental protection laws heighten demand for the services of environmental scientists and engineering technicians, for example. And stricter finance laws strengthen demand for accountants and auditors.

In the same way, shifting consumer tastes affect what we buy and, thus, affect employment. One example is the growing desire for more attractive homes, which creates jobs for interior designers and landscape architects.

But if demand for a good or service does not increase, employment in related occupations usually does not grow. For example, the lack of new nuclear power plants means that nuclear engineers are not expected to have much job growth over the 2004–14 decade.

Productivity. Computers, automated machinery, and other laborsaving technology reduce the number of workers needed to produce goods and services, thus lowering employment. This is one reason why jobs for farmers are projected to decline even as the production of food increases.

Rising worker productivity slows the growth of many occupations—from assemblers, who use machines to produce more goods, to drafters, who use software to create better blueprints in less time.

Business practices and production methods. Sometimes, organizations change the way in which they produce goods and provide services. Establishments might begin to use more of one occupation and less of another to reduce costs; for example, libraries are shifting some tasks from librarians to library technicians and assistants, decreasing employment in one occupation and increasing employment in the related ones. Similarly, general office clerks are now able to take on the tasks of other, more specialized clerks.

The BLS projections process

How do BLS economists translate changing conditions, like the ones described above, into specific estimates of job growth? The process involves several steps.

Economists begin by estimating the total number of available workers based on population growth and labor force participation rates. Next, economists estimate the total future demand for goods and services produced in the United States. Then, they project demand for specific goods and services. Based on the estimated levels of demand for these goods and services, economists next project how employment will grow in the industries that provide them.

Finally, BLS economists analyze which occupations those industries use. They estimate how many of an industry's jobs will be in a given occupation. They do this by researching how production methods, business practices, and other factors are changing.

When making projections, economists rely on ongoing trends. But trends can change unexpectedly because of shifts in technology, consumer preferences, or trade patterns and because of natural disasters, wars, and other unpredictable events.

Unforeseen circumstances give projections an element of uncertainty. The pace of actual growth or decline is often faster or slower than projected, but the direction in which an occupation is expected to change is usually on target.

BLS studies the accuracy of its projections by comparing them 10 years later with actual employment data. The most recent article studying the accuracy of past projections is "The 1988–2000 employment projections: How accurate were they?" in the spring 2003 *OOQ*, online at **www.bls.gov/opub/ooq/2003/spring/art01.pdf**.