

The 2000-10 job outlook in brief

by Roger Moncarz and Azure Reaser



In the coming decade, the changing economy will draw on a variety of occupations, each requiring a unique set of skills and abilities. Workers who know how to prepare are more likely to succeed in tomorrow's job market.

The \$9.2 trillion economy of 2000 is projected to reach \$12.8 trillion by 2010. Bureau of Labor Statistics (BLS) economists project that by 2010 there will be 168 million jobs, an increase of 22 million, or 15 percent, above the 2000 level. The table on pages 9 to 43 shows how this growth will be distributed among the approximately 270 occupations or occupational groups covered in the 2002-03 *Occupational Outlook Handbook*. The table also gives the current employment and a summary of job prospects projected for the 2000-10 decade.

Employment projections from BLS provide information for long-term career planning. The

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next few pages discuss factors that affect an occupation's employment outlook, some of the assumptions used in making the projections, and general trends.

Why employment changes

The number of workers employed in an occupation depends largely on the demand for the goods or services those workers provide. Over the last decade, for example, increased use of computers has contributed to large employment increases for software engineers, computer support specialists, and systems analysts.



However, even if the demand rises for the goods or services that certain workers provide, employment may not increase or may increase more slowly than demand. This is primarily because of changes in the ways goods are produced and services are provided. In fact, some changes in technology and business practices cause employment to decrease. For example, although the volume of information is expected to increase dramatically, employment of data entry and information processing workers is projected to decline. This projection reflects more widespread use of word-processing software that allows other workers to do their own typing.

BLS economists project changes in labor force participation rates and levels by age, sex, race, and ethnicity; total economic performance based on assumptions about future growth potential; and industry-level employment based on economic performance, advances in technology, and detailed industry trends. The 2000-10 occupational projections presented in this issue of the *Quarterly* are based on these projections, extended to projections of the demand for workers employed in occupations in each industry.

Any projection of employment growth is subject to uncertainty. Unforeseen events or changes in consumer behavior, technology, or the balance of trade could radically alter future employment for individual occupations. For example, these projections were completed prior to September 11, 2001, and therefore do not address how the events of that day may affect individual occupations or industries over the next decade.

Employment through 2010

Between 2000 and 2010, employment is projected increase from 146 million to 168 million. This section gives a brief overview of projected employment change. It focuses on 10

major occupational groups as they are classified in the 2002-03 *Handbook*.

- ◆ Management and business and financial operations
- ◆ Professional and related
- ◆ Service
- ◆ Sales and related
- ◆ Office and administrative support
- ◆ Farming, fishing, and forestry
- ◆ Construction trades and related
- ◆ Installation, maintenance, and repair
- ◆ Production
- ◆ Transportation and material moving.

In addition to these groups, jobs in the U.S. Armed Forces appear in the table on page 43.

A particular occupation may not follow the trend projected for its group; therefore, check the table for information about the outlook for specific occupations. An index of occupations begins on page 44.

Management and business and financial operations occupations. Workers in management and business and financial operations occupations establish policies, make plans, determine staffing requirements, and direct the activities of businesses, government agencies, and other organizations. This group includes occupations such as computer and information systems manager, education administrator, and financial manager. It also includes management support occupations that provide technical assistance to managers. Some examples include accountant and auditor, budget analyst, and insurance underwriter.

Overall, employment growth of management and business and financial operations occupations is expected to be average for all occupations.



However, growth in specific occupations will vary according to the growth of the industries in which they are concentrated. For example, employment of computer and information systems managers is projected to grow much faster than average, whereas the number of farmers is expected to decline.

Because of strong competition for jobs in this group, applicants with previous work experience, specialized training, or graduate study have an advantage. Computer skills will continue to be essential as managers rely on computerized information systems to help their organizations function.

Professional and related occupations. Professional and related workers provide a variety of services and conduct research.

This group includes architects and engineers, artists and designers, and entertainers, performers, athletes, and related workers. It also includes professionals in media and communications-related occupations; education, training, library, and museum occupations; and life, physical, and social science occupations.

Many of these workers program and operate technical equipment and assist engineers, scientists, physicians, and other professionals. They include paralegals and legal assistants, dental hygienists, and engineering and science technicians.

Employment of professional and related occupations is expected to grow faster than average and gain more new jobs than any other occupational group. However, projected growth rates for individual occupations are as diverse as the jobs themselves, reflecting changes in demographics, business practices, and technology, among other factors. For example, population trends and rising student enrollments are projected to fuel the addition of more than 1 million new teaching jobs. Increased demand for health and social services stemming from a growing and aging population is expected to spur rapid



growth for physical therapists, occupational therapists, and social and human services assistants. Physician assistant is expected to be one of the fastest growing occupations in this group as these workers are

tapped to improve efficiency and help control the cost of medical services. Employment of computer software engineers is expected to almost double between 2000 and 2010 as organizations become more dependent on advancing technologies and the workers who design them.

Service occupations. This group includes workers in five subgroups: building, grounds cleaning, and maintenance; food preparation and serving; healthcare support; personal care; and protective services. Included among these workers are building and grounds and pest control workers; chefs, cooks, and all other food preparation and beverage service workers; health service workers, such as dental and medical assistants, nursing and psychiatric aides, and physical and occupational therapy assistants and aides; personal service workers, such as cosmetologists, flight attendants, and childcare and personal and home care workers; and protective service workers, including correctional officers, firefighters, and police officers.

Average employment growth is expected for building, grounds cleaning, and maintenance occupations. The faster-

than-average employment growth projected for ground maintenance workers and pest controllers will result from the public's greater use of the services these workers provide.

Full- and part-time jobs are expected to be plentiful for food preparation and serving workers because of the group's large size and a need to replace the large number of workers who leave the occupations permanently. Overall, employment growth is projected to be average for these occupations.



Population and economic growth and changes in healthcare delivery will drive employment growth among service occupations as a whole over the next decade. Health services occupations—

including medical assistant, dental assistant, and physical therapist assistant and aide, which are among the fastest growing occupations in the economy—are expected to grow much faster than average overall. Such rapid growth reflects an increasing and aging population, technological advances in medicine, and the greater use of cost-effective healthcare support personnel.

Growth in personal care and service occupations will vary widely. Employment of personal and home care aides should grow much faster than average because of the increase in the elderly population and advances in in-home treatment. But average growth is expected for employment of cosmetologists, barbers, and other personal grooming workers, keeping pace with population growth and consumer taste.

Employment of correctional officers is expected to grow faster than average as correctional facilities expand. The public's rising concern for security also is projected to lead to faster than average growth for guards, police officers, and private detectives. However, firefighters should experience slow growth because of limited funding for public service providers.

Sales and related occupations. Workers in this group sell goods and services, purchase commodities and property for resale, and stimulate consumer interest. This group includes cashiers, sales engineers, and real estate brokers and sales agents.

Overall employment growth in this group is expected to be average because of the increased demand for financial, travel, and other services. However, the rate of growth should be slower from 2000-10 than during the previous decade because these workers are concentrated in wholesale and retail trade, industries that are expected to grow more slowly than in the past.

Nonetheless, some occupations should experience rapid growth. Employment of securities, commodities, and financial services sales agents should be faster than average as investment increases and diversifies and financial institutions offer more complex services. Faster than average employment growth among demonstrators, product promoters, and models should be driven by increases in the number and size of trade shows and greater use of demonstrators and product promoters in department stores and various retail shops for in-store promotions.

There is greater competition for jobs in higher paying sales and related occupations, such as sales engineers, than in lower paying ones, such as retail salesperson. Keen competition is expected for modeling jobs because this field is considered glamorous and attracts many jobseekers. Opportunities in sales will be best for well-trained, personable, and ambitious people who enjoy selling.

Office and administrative support occupations. Workers in this group prepare and record memos, letters, and reports; collect accounts; gather and distribute information; operate office machines; and handle other administrative tasks. The group includes occupations such as information and record clerk, desktop publisher, and secretary and administrative assistant.

Although this occupational group is expected to gain 5 million jobs, employment is projected to grow more slowly than average. Despite the tremendous increase expected in the volume of clerical tasks, increased automation is expected to cause an employment decline in some occupations, including computer operator, teller, and communications equipment operator. In contrast, employment of customer service



representatives should grow faster than average as organizations strive to provide more customer service, including via the Internet.

Rapid expansion of the services industries in which information clerks and receptionists work will drive faster than average growth in employment in these occupations. Similarly, the increasing population, economy, and credit availability are expected to spur employment growth of bill and account collectors. Because many administrative support occupations are large and have relatively high replacement needs, opportunities should be plentiful for full- and part-time jobs, even in slowly growing occupations.

Farming, fishing, and forestry occupations. These workers plant and cultivate agricultural products, catch and trap

various types of marine life, and perform a variety of tasks to reforest, harvest, and conserve timberlands and maintain forest facilities. This group comprises agricultural workers, fishers and fishing vessel operators, and forest, conservation, and logging workers.



Conservation regulations and increasing productivity are projected to hinder employment opportunities, resulting in slower than average growth overall. Employment of agricultural workers is expected

to grow more slowly than average while that of fishers and fishing vessel operators and forest, conservation, and logging workers is expected to decline.

Construction trades and related workers. Workers in this group construct, alter, and maintain buildings and other structures. Occupations include carpenter, electrician, and construction equipment operator.

A significant number of new jobs will result from an increase in the number of homes and industrial plants, the desire to alter or modernize existing structures, and the need to maintain and repair the Nation's highways, dams, and bridges. Overall employment growth is expected to be average as increases in construction activity offset productivity gains. Employment of hazardous materials removal workers is projected to grow the fastest and that of boiler-makers the slowest.

Because the construction industry is sensitive to fluctuations in the Nation's economy, however, employment in construction occupations varies from one year to another. Many construction workers become unemployed during downturns in construction activity.

Installation, maintenance, and repair occupations. These workers adjust, maintain, and repair automobiles, industrial equipment, computers, and many other types of machinery. Occupations include radio and telecommunications equipment installer and repairer, aircraft and avionics equipment mechanic and service technician, and industrial machinery installation, repair, and maintenance worker.

Average employment growth is expected overall because of the continued importance of mechanical and electronic equipment throughout the economy, but projections vary by occupation. Heating, air-conditioning, and refrigeration mechanic and installer is expected to be the fastest growing occupation in this group, reflecting the growing demand for

these services. In contrast, employment of electronic home entertainment equipment installers and repairers is expected to decline because of laborsaving devices and improvements in equipment reliability.

Production occupations. These workers set up, adjust, operate, and tend machinery and use handtools and hand-held power tools to make goods and assemble products. Occupations include prepress technician and worker, machinist, and stationary engineer and boiler operator.

Increases in imports, changing business practices, and automation—including robotics and advanced computer techniques—should result in slower than average growth in overall employment, but growth will vary by occupation. For example, prepress technicians and workers are projected to decline in employment because of increased use of desktop publishing. However, semiconductor processors should experience faster than average employment growth with the discovery of new uses for microchips and increased U.S. production.

Many production occupations—in textile, apparel, and furnishings, for example—are sensitive to the business cycle and competition from imports. When factory orders decline, workers may face shortened workweeks, layoffs, and plant closings.

Transportation and material moving occupations. Operating the equipment used for moving people and materials is the principal activity of workers in this group. Occupations include busdriver, water transportation worker, and air traffic controller. Overall employment growth is expected to be average, but prospects vary by occupation. The fastest growing occupations are taxi driver and chauffeur and truckdriver and driver/sales worker.

Employment of busdrivers also is expected to increase to meet the transportation needs of a growing school-age population and increased use of public transportation. An employment decline is expected for rail transportation occupations, reflecting improved efficiency and technological advances.

Information in the “Brief”

“The job outlook in brief” provides thumbnail sketches of employment data for each occupation in the 2002-03 *Occupational Outlook Handbook*, on which it is based. Nearly all employment estimates are from the BLS industry-occupation matrix. Throughout this article, employment growth rates are

compared with the average for all occupations. The box, “Key phrases in the Brief,” explains the terms and phrases used to describe the projected employment change and competition that jobseekers are likely to encounter.

For occupations with lengthy training and strict entry requirements, such as lawyer or physician, the degree of competition can be projected with some accuracy. For others, descriptions of job opportunities or competition are based on information from interviews with occupational experts, historical data, technical journals and other relevant literature, and the analysis of the economist who studied the occupation. But many occupations include no assessment of likely job opportunities or competition because they have several routes of entry and flexible requirements, so the potential supply of workers cannot be projected. Many occupations, therefore, have no description of job opportunities or competition. Descriptions are based on information obtained from technical journals and other relevant literature, interviews with occupational experts, historical data, and the judgment of the analyst who studied the occupation.

Employment growth is only one source of job openings; another source is openings that result from the need to replace existing workers who transfer to other occupations or permanently leave the labor force. In fact, BLS projects that 3 out of 5 job openings over the 2000-10 period will arise from replacement needs. As a result, even occupations with slower than average growth may offer many jobs for new workers. This is especially true of large occupations.



Beyond the “Brief”

“The job outlook in brief” is only a starting point for exploring economic projections or careers. BLS produces the projections as part of its employment projections program, which develops new sets of projections every 2 years. Besides occupational employment, BLS also projects industry output and employment, detailed labor force activity, and diverse measures of overall economic activity. This information is available in a variety of publications designed to meet different needs.

The *Occupational Outlook Handbook* (Bulletin 2540) has been published for more than 50 years. For each of the occupations mentioned in this article, it contains more detailed

information about the outlook, nature of the work, training and personal qualifications required, earnings, and other subjects. The *Handbook* is available online at <http://www.bls.gov/oco>.

In addition to the *Handbook*, the winter 2001-02 issue of the *Quarterly* provides a graphic presentation of highlights of the projections. The November 2001 issue of the *Monthly Labor Review* contains greater detail. As a statistical supplement to the 2002-03 *Handbook*, the 2002-03 *Occupational Projections and Training Data* (Bulletin 2542) contains current and projected employment estimates for almost 700 occupations. It also presents information on occupational characteristics, such as self-employment, earnings, the most significant source of education or training, and awards and degree data by field of study.

The information in those publications also are accessible via the Office of Occupational Statistics and Employment Projections Web site: <http://www.bls.gov/emp>.

“The job outlook in brief” provides information in a format that allows easy comparison of job prospects in different occupations or groups of occupations. But employment prospects are not the only consideration when choosing a career; matching your goals and abilities to the type of work and the education required is another component.

Where you want to live and how much money you want to earn also are important. Additional information on job growth is available from State employment offices. The outlook for many occupations varies considerably among local job markets. For example, sections of the country with slow population growth may have less need for elementary school teachers than do regions with high growth. State employment offices, listed in the State government section of local telephone directories, provide information on local labor market conditions. Also, see the section on “Sources of Career Information” in the *Handbook*.

Ordering information

BLS publications usually are available in libraries, career centers, and the offices of school and employment counselors. They are sold by the Government Printing Office. For price

and ordering information, use the order card inside this issue of the *Quarterly* or make a request on a separate sheet of paper. Online, visit the publications ordering pages of either the Office of Occupation Statistics and Employment Projections, <http://www.bls.gov/emp/emppub2.htm>, or the Government Printing Office, <http://bookstore.gpo.gov/support/index.html>.

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Key phrases in the “Brief”

Changing employment between 2000 and 2010

If the statement about growth reads...	Employment is projected to...
Much faster than average	Increase 36 percent or more
Faster than average	Increase 21 to 35 percent
Average	Increase 10 to 20 percent
More slowly than average	Increase 3 to 9 percent
Little or no change	Increase 0 to 2 percent
Declining	Decrease 1 percent or more

Opportunities and competition for jobs

If the statement about opportunities reads...	Job openings compared to jobseekers may be...
Very good or excellent	More numerous
Good or favorable	In rough balance
May face keen competition	Fewer