In the late 1980s, we projected future employment in scores of occupations for the 1988-2000 period. That future is now the past. See where we scored a hit, landed in the ballpark, and—now and then—swung and missed.

The 1988-2000 EMPLOYMENT

PROJECTIONS: How accurate were they?

by Andrew Alpert and Jill Auyer

They've crunched the final numbers and analyzed each occupation. They've published the latest edition of the *Occupational Outlook Handbook*. Economists in the Bureau of Labor Statistics' (BLS) employment projections program have wrapped up another set of projections; their work is done. Or is it?

The last phase of the projections process is evaluating the projections after actual data are available. And so, when employment data for 2000 became available, it was time to analyze the 1988-2000 employment projections—the basis for the 1990-91 *Handbook*. Evaluating past employment projections serves two purposes. First, projections users—such as career guidance counselors, jobseekers, and students—can assess the reliability of current information based on BLS' track record. Second, identifying

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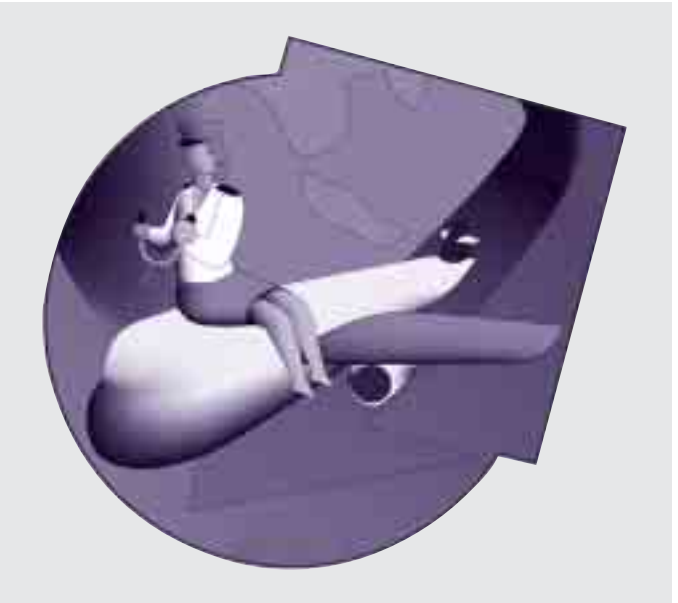
errors and biases in past projections enables BLS economists to improve the accuracy of subsequent projections.

This article compares projected outlook with actual employment for selected occupations, identifies sources of error in developing the projections, and assesses the overall reliability of BLS job outlook information. A box on page 9 explains the employment projections process, including the evaluation stage. The table beginning on page 12 provides a comparison of projected and actual employment data for more than 300 occupations for which projections were developed.



Comparing projected with actual employment

The 1988-2000 occupational employment projections covered 491 occupations. These projections were the basis for job outlook information in the 1990-91 *Occupational Outlook Handbook*, which included about 250 detailed occupations. This evaluation includes information on 338 of the occupations for which projections were developed.

Growth descriptors

Growth descriptors give readers a general impression of the job outlook for each occupation. In most cases, it is not necessary to have an exact match between the projected and actual growth descriptors to get an accurate view of employment growth. For example, employment of accountants and auditors was projected to grow faster than average but actually grew at an average rate. The assumptions about the causes of growth were most likely correct; however, their effects on employment were overestimated.

The following growth descriptors were used to describe ranges of employment growth or decline between 1988 and 2000:

Growth descriptor	Projected employment change, 1988-2000
Much faster than average	Increase 31 percent or more
Faster than average	Increase 20 to 30 percent
About as fast as average	Increase 11 to 19 percent
More slowly than average	Increase 4 to 10 percent
Little or no change	Increase or decrease 3 percent or less
Decline	Decrease 4 percent or more

Because the adjectives describing growth are based on established numerical cutoffs, the descriptors for many occupations would have been different if the numerical projection had been 1 or 2 percentage points higher or lower. This sensitivity sometimes caused projected and actual descriptors to differ when projected and actual employment levels were close.

Analyzing descriptors. The *Handbook* does not include all occupations for which employment is projected. However, all 338 occupations included in this evaluation were analyzed by their growth adjective, regardless of whether they appeared in the *Handbook*. Growth descriptors based on projected employment change were compared with descriptors corresponding to actual growth. Of the 338 occupations in this evaluation, 87 had actual employment changes that matched the projected adjective; another 100 had employment changes that were one category higher or lower. Twelve occupations had employment changes that were five categories away. In these cases, the occupation was either projected to grow much faster than average and actually declined or was projected to decline and actually grew much faster than average.

The 1988-2000 projections, like past projections, are conservative; this is evident in the distribution of projected and actual growth adjectives. Average growth was the most common projection of employment for occupations, but most occupations had employment that actually either grew much faster than the average or declined. About 30 percent of the occupations were projected to have average growth, but about 15 percent actually did. Slightly more than 26 percent of the occupations were

projected to either grow faster than the average or decline; however, 57 percent of the occupations fell into 1 of these 2 categories.

The growth categories of much faster than average and declining were most accurate in terms of the number of occupations that actually fell into their projected categories. More than 65 percent of occupations projected to grow much faster than average, and half of the occupations projected to decline, actually fell into their respective categories. About 21 percent of occupations that were projected to have average growth actually had average growth. The higher degree of accuracy in the extreme growth categories suggests that the accuracy of projections is greatest where there is either a strong growth or a strong decline in occupational trends.

Fastest growing occupations. Greater accuracy in the extreme growth categories is evident in the 20 fastest growing occupations. All of these occupations were projected to have much faster than average growth, and employment in all but five of them actually grew much faster than average. In many cases, the projection was relatively close, within a few thousand workers or a few percentage points. For example, the occupation of paralegals and legal assistants was projected to be the fastest growing between 1988 and 2000, with a projected rate of increase of 75 percent. It actually increased 71 percent. The high degree of accuracy suggests that it was correct to assume that more paralegals would be hired because of an increase in the demand for legal services and because paralegals often do many of the same tasks that lawyers do but for lower fees.

Among the 20 projected fastest growing occupations, 3 of the 5 that did not grow much faster than the average still had positive growth rates. Others that were projected to have slow growth actually increased faster than projected. An analysis of fast growing occupations suggests that the basic growth assumptions were usually accurate, but their effects on employment were either under- or over-estimated.

For example, increased use of computers and other office equipment led to a projection of much faster than average employment growth for data processing equipment repairers. However, that occupation's growth may have been limited because equipment improvements led to fewer breakdowns. It is possible that the use of computer equipment in offices increased less than assumed or that the quality of the technology proved higher than assumed. Either way, the fundamental assumptions of growth for this occupation were correct: employment of data processing equipment repairers grew, but at an average rate.

Among the 20 occupations that actually grew fastest, all had been projected to grow, and 15 were projected to grow either faster or much faster than the average. For each occupation, actual growth rates were significantly higher than projected, again showing the tendency toward conservative projections.

The occupation that had the fastest employment growth between 1988 and 2000 was social and human service assistants. Its employment was projected to grow 45 percent, much faster than the average, but actually grew 141 percent—over 3 times as fast. Even though the growth trend was identified, BLS analysts underestimated the demand for workers who would be needed to administer job training and other programs, including those for the poor, elderly, disabled, or mentally ill. A change in welfare laws in the 1990s, from benefits-based programs to work-based initiatives, required an increase in the number of job-training facilities. That was a main reason for the large underestimate of employment growth.

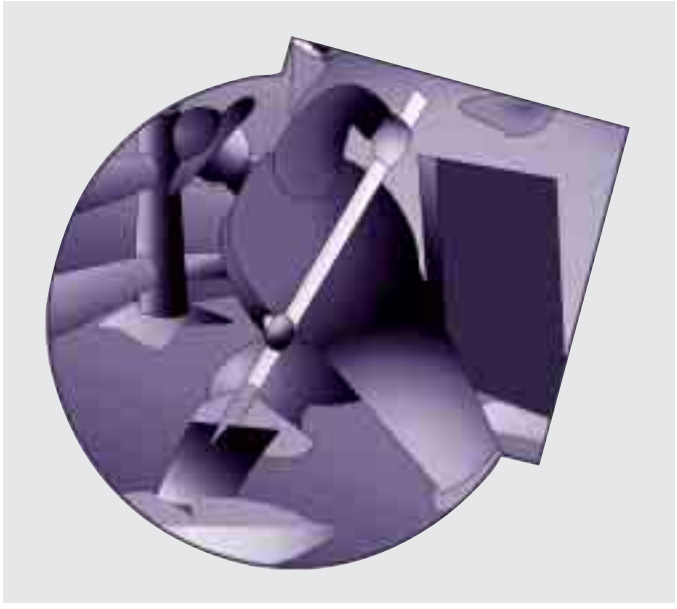
Many of the projected and actual fastest growing occupations were either professional or service occupations. Most of the occupations were in healthcare or social services, reflecting the trend of high growth in these areas because of a growing and aging population. In particular, employment in the occupations of emergency medical technicians and paramedics increased significantly more than projected.

Another area with fast growth rates was amusement

and recreation services. Among the occupations in which employment increased rapidly were actors, directors, and producers; counter and rental clerks; ushers, lobby attendants, and ticket takers; and amusement and recreation attendants. The large increases in these occupations are attributable to the strong growth in leisure activities, reflecting a rise in the population that had growing incomes and leisure time.

A third group of occupations among the 20 projected or actual fastest growing included some administrative support occupations. Employment of bill and account collectors was the fourth fastest growing, due to increasing consumer debt and creditors' desire—especially in healthcare—to collect their payments. Shipping, receiving, and traffic clerks also had rapid employment growth. Slower than average growth was projected due to increased automation in the packaging and shipping processes, but the effects of automation on this occupation either were outpaced by economic growth or were overestimated. Employment of teacher assistants also grew more rapidly than expected because of increasing school enrollments.

Declining occupations. Just as the basic assumptions were accurate for fast-growing occupations, assumptions also were accurate for occupational declines. For example, of the projected 20 fastest declining occupations, more than half actually declined, with 7 of the occupations among the fastest declining. And like those of fast-growing occupations, projections of declining occupations were conservative. Rates of decline in most occupations were much higher than projected.



Unlike the varied reasons for differences between actual and projected fast-growth occupations, however, one reason stands out in comparing actual with projected declines: the underestimated effects of technological advance on employment. The decline in employment of railroad brake, signal, and switch operators, for example, was more rapid than projected because of an increased use of computer-controlled train cars. These cars operate the brakes, doors, alert systems, and signals automatically, thus reducing the number of workers needed to operate a train.

Gains in technology also were responsible for fast employment declines in textile occupations, such as garment sewing machine operators and precision shoe and leather workers and repairers. Other groups of occupations with fast declines in employment because of technology include some administrative support workers—such as word processors and typists—and machinery assemblers, installers, and repairers—such as precision aircraft assemblers.

Unexpected changes in technology affected occupations in ways that could not be anticipated at the time the projections were made. In many cases, new technology caused employment declines in occupations that were projected to grow. During the 1990s, the most significant technological advance was the Internet, from which emerged electronic commerce, or e-commerce. The Internet and e-commerce allow consumers to research and purchase an assortment of goods and services directly from suppliers, thereby reducing the need for buyers and sales agents to act as go-betweens. One group of occupations whose employment was adversely affected by the Internet was sales occupations, specifically wholesale and retail buyers, except farm products; purchasing managers; insurance sales agents; real estate sales agents; and travel agents.

The rise of the Internet had a positive effect on employment growth in some occupations, however. Employment of telephone and cable TV line installers and repairers was projected to be among the top 20 fastest declining occupations but actually grew more than 62 percent between 1988 and 2000. Increased demand for Internet access through telephone and cable TV wires was the main cause for the employment increase in this occupation. But growth also stemmed from telephone and cable TV companies' desire to upgrade their networks quickly in an effort to remain competitive.

Occasionally, the effects of technology on employment were overestimated, as was the case with precision electrical and electronic equipment assemblers and electrical and electronic assemblers. These two occupations were projected to have the first and second fastest rates, respectively, of

employment decline—but both occupations actually grew over the projections period. Technological advances or increases in automation most likely did not occur as fast as anticipated. It is also possible that fewer than expected jobs were lost to workers abroad.

Opportunity descriptors

In addition to providing a growth descriptor to characterize future employment growth, the outlook section of each *Handbook* statement describes opportunities and competition for jobs. Where applicable, information is presented on technological or demographic changes affecting industries in which an occupation is concentrated or on the impact of educational backgrounds on employment prospects.

The following descriptors were used in the 1988-2000 *Handbook* to give readers an idea of how difficult it might be to get a job in a particular occupation:

Opportunity descriptor	Projected job openings compared with jobseekers
Excellent	Much more numerous
Very good	More numerous
Good or favorable	About the same
May face competition	Fewer
May face keen competition	Many fewer

Such statements were perhaps most significant when occupations' expected job competition differed from projected employment growth. For example, employment of private detectives and investigators was projected to grow much faster than average. However, as the opportunity descriptor correctly projected, keen competition existed in 2000 because the challenging work and relatively high salaries attract more jobseekers than there are openings.

Growth versus opportunity

As the *Handbook* discusses in job outlook sections, an occupation's rate of growth is not necessarily the best indicator of job opportunities. Many times, a small, fast-growing occupation yields fewer new jobs than a large, slower growing one that has high job turnover or a high proportion of part-time workers. For example, social and human service assistants, a relatively small occupation, was the fastest growing occupation, growing 141 percent to gain 166,000 new jobs between 1988 and 2000. In that same period, however, the large occupation of cashiers created the most new jobs—979,000—despite its comparatively slower growth rate of 42 percent.

Dominating the list of occupations with the largest job growth were service occupations, especially those in healthcare, education, and food services. Most of the growth in these occupations is attributed to economic and population growth. In addition to cashiers, other occupations with large job growth were truckdrivers, registered nurses, janitors and cleaners, retail salespersons, food preparation workers, waiters and waitresses, secondary school teachers, and teacher assistants.

Similarly, occupations with the fastest declines in employment did not necessarily have the largest numerical declines. Farmworkers, for example, while not among the occupations with the fastest employment declines, were among the occupations with the largest job declines. Technology gains and new laborsaving machinery were the main reasons for the decline, along with increased farm consolidation in recent years. Other occupations with large numerical declines in employment were service station attendants, childcare workers in private households, and secretaries, except legal and medical.

Sources of error

Many errors in projections for detailed occupations are linked to faulty assumptions about changes in total industry employment or erroneous analytical judgments about the mix of occupations that industries would use. The first kind of error is called an industry assumption error. The second kind of error is known as a staffing

pattern assumption error.

As past evaluations have indicated, good occupational projections depend on good industry projections. And as discussed previously, the impact of some factors, such as technological change, often is underestimated when projections are developed. For more information about developing the projections and, subsequently, choosing occupations for evaluation, see the box on page 9.

Industry assumption errors

Errors in employment projections for the educational services, textiles, and legal services industries affected the employment projections for occupations in those industries. In the educational services and textile industries, employment change was underestimated; in legal services, employment change was overestimated.

Between 1988 and 2000, the educational services industry grew almost 3 times as fast as projected. The main reason for the rapid growth was a faster than expected increase in school enrollments. The industry projection affected estimated employment for occupations concentrated in education, and employment of teachers at all levels was underestimated. In addition to teachers, other occupations in educational services for which employment was underestimated include counselors, education administrators, and school busdrivers.

The largest underestimate of employment was for special education teachers, whose numbers grew almost 4 times faster than projected. Learning disabilities were identified and diagnosed at earlier ages, more legislation was passed emphasizing training and employment for persons with disabilities, and educational reforms required stricter graduation standards for students. All of these trends contributed to the rapid employment growth of special education teachers.

Employment change in textile industries, such as apparel and knitting mills, also was underestimated. Employment in these industries was projected to decline, but actual rates of decline were about 3 times faster than projected. The main assumptions behind the projected decline in employment were the effects of laborsaving machinery and the shift of textile jobs from the United States to countries with lower labor costs—and both were underestimated. As a result, employment declines in occupations such as garment sewing machine operators and textile machine setters and setup operators were significantly underestimated: employment of garment sewing machine operators, for example, declined almost 4 times as fast as projected.

An overestimate of the legal services industry, which grew half as fast as projected, led to an overestimate of employment in legal occupations such as lawyers, legal secretaries, and, to a lesser extent, paralegals and legal assistants. A growing number of businesses, such as accounting and management consulting firms, began offering legal advice on topics such as tax law and employee benefits, contributing to a slower than projected employment growth in legal services. And to reduce legal fees, clients found legal advice by hiring lawyers on a short-term contract through personnel staffing firms.

Staffing pattern assumption errors

In addition to incorrect assumptions about total industry employment, incorrect judgments about the mix of occupations each industry would use contributed to errors in employment projections. These errors—such as under- or over-estimating the effects of technological change or of trends such as the use of contract workers—are most observable in healthcare occupations. The errors were related: employment grew more slowly than projected in health diagnosing occupations while increasing more quickly than projected for health technicians and technologists, health assessment and treating occupations, and health service occupations.

Health diagnosing occupations include physicians, optometrists, and dentists. Examples of health technicians and technologists, health assessment and treating occupations, and health service occupations are physician assistants, dental hygienists, occupational therapists, and emergency medical technicians and paramedics. It was assumed that the relative number of physicians, optometrists, and dentists working in offices of health practitioners would

Projections framework and selecting occupations to evaluate

Employment projections are developed using the Bureau of Labor Statistics (BLS) projections model. In addition to estimating future employment, the model also projects the size and composition of the labor force, the level of gross national product, and the total output of goods and services by industry. The projections reflect specific assumptions concerning, and targets for, major economic variables—such as the unemployment rate and defense expenditures—along with the knowledge and judgment of BLS economists who analyze factors that affect employment growth.

Occupational employment projections for the 1988-2000 period were developed within the framework of an industry-occupation matrix. The matrix described how employment in each occupation was distributed across industries, and vice versa. It contained data for 258 detailed industries, 9 major occupational groups, and nearly 500 detailed occupations.

Where the data came from

Data used to derive the 1988 and projected 2000 matrices came from a variety of sources. For every set of projections created, the predominant source of information about occupational employment within industries is the Occupational Employment Statistics (OES) survey. Each OES survey takes 3 years to complete. For the 1988-2000 projections, OES data from 1985, 1986, and 1987were used to estimate the distribution of occupational employment in each industry covered by the survey. These occupational distributions, called staffing patterns, were applied to total industry employment figures from the BLS 1988 Current Employment Statistics (CES) survey.

In part because the OES and CES surveys are of establishments, neither survey includes workers who are self-employed, unemployed, or in certain industries. To develop the occupational distribution patterns for these workers, data from the 1988 Current Population Survey (CPS) were used. The CPS, a survey of households, provides estimates of self-employed and unpaid family workers by occupation and also gives data on workers in agriculture; forestry; fishing, hunting, and trapping; and private households—industries not covered by the OES survey. Occupational distribution patterns for the Federal Government, which are also excluded by the OES survey, were derived from data provided by the U.S. Office of Personnel Management. For some occupations, data from other sources were used—such as data on teachers from the U.S. Department of Education's National Center for Education Statistics.

How occupations were selected for evaluation

BLS evaluated projections only for occupations for which OES data from the "base year" of 1988 and "target year" of 2000 could be compared. One of the difficulties in evaluating the 1988-2000 employment projections was the 2000 revision of the Standard Occupational Classification System (SOC), the Federal Government's primary catalog of occupations. With the revision, the titles and content of the major occupational groups and many detailed occupations in the 2000 SOC are substantially different from those in the previous SOC. Some major groups were renamed, combined, or reorganized. Some individual occupations were renamed or reclassified into different major groups; many new occupations were added. Some occupations were combined; others were separated into more detail.

Because of these changes, the occupations and major groups reflected in the 2000-10 national employment matrix are not comparable with those in the 1988-2000 employment matrix. SOC revisions caused comparability problems across occupations and major groups between 1988 and 2000. These incompatibility problems had to be addressed to evaluate the projections. For this evaluation, 1998 staffing patterns, developed before the SOC revisions, were applied to industry employment totals for 2000 to create comparable 2000 data. As a final step, the original 1988 employment figures were reconfigured to the 1998 occupational structure, adjusting for any occupations that had been added to the matrix over time.

After the data were prepared, occupations that met certain criteria were selected for evaluation. The projections were analyzed for all 9 major groups and 338 of 491 detailed occupations. Eliminated from the evaluation were occupations that had definitions that were not consistent between 1988 and 1998, employed fewer than 25,000 workers in 1988, or were in a residual, catchall category, such as "all other computer specialists." The numerical cutoff was the same as that used to produce the list of occupations published in the November 1989 *Monthly Labor Review* article about the 1988-2000 employment projections.

decline because of an increase in group medical practices that rely more heavily on health support staff such as nurses, technicians, and clerical support. Often, these health support workers perform, at a lower cost, some of the routine tasks usually performed by physicians. A growing number of outpatient health service facilities also rely on these lower skilled healthcare workers. The trend was correctly assumed, but its effects were underestimated.

Employment growth was slower than expected among the highly skilled health diagnosing occupations and faster than expected among the lower skilled health technician and assessment and treating occupations. For example, dentists, dental hygienists, and dental assistants all were projected to have average employment growth. However, employment of dentists declined slightly while that of both dental hygienists and dental assistants grew much faster than average. Employment in the health diagnosing occupations was overestimated, and the growing reliance on lower skilled healthcare workers to carry out more routine tasks appears to have been underestimated because of the overly conservative growth projections for these occupations.

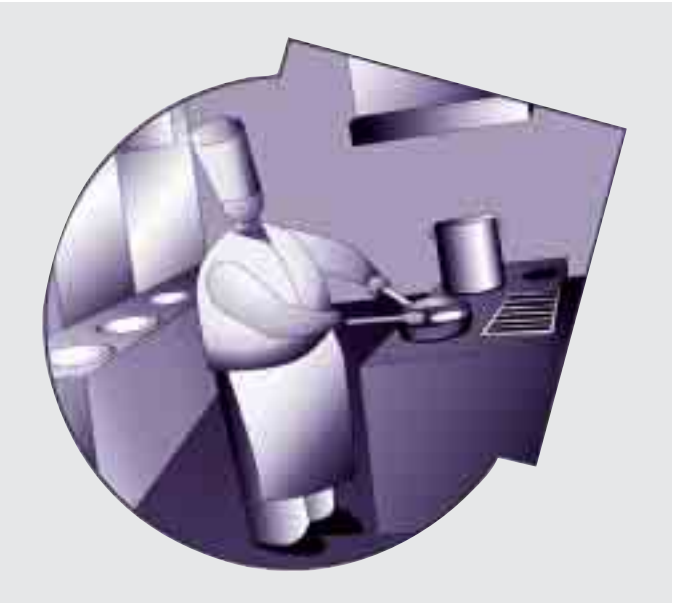
Industry and staffing pattern assumption errors

For some groups of occupations, inaccuracy in the projections resulted from both faulty assumptions about industry employment and mistakes in analytical judgment about the use of occupations. Projections in employment of protective service occupations and engineers illustrate this point.

Most protective service occupations—including firefighters, police patrol officers, detectives and criminal investigators, and correctional officers—are in State and local governments. Employment of these workers grew faster than projected between 1988 and 2000 because of population growth and increasing crime rates. State and local government employment also grew faster than projected, an example of industry assumption error, and governments employed more protective service workers than expected, an example of staffing pattern assumption error.

Workers in other protective service occupations, such as guards and private detectives and investigators, are employed by both government agencies and private businesses such as department stores.

Errors for these protective service occupations are mainly attributable to errors in staffing patterns because of higher than anticipated growth in employment of



contract workers. Many businesses and government agencies that previously employed security guards or private detectives directly began to hire them instead through security staffing service firms to reduce costs. As a result, there was a shift in employment away from traditional employers, such as retail establishments and government, and toward business service firms specializing in security services. Because this shift was not anticipated, projections were underestimated.

Employment growth of engineers was projected to be average or faster than average from 1988 to 2000, but engineers actually showed little employment growth or declined. In an example of industry assumption error, research and development expenditures declined faster than expected during the 1990s as the end of the Cold War led to declines in defense spending and the high-technology industries related to defense, such as communications equipment and electronics. The decline of the U.S. defense industry also opened the door to increasing competition from abroad, particularly in aerospace manufacturing, leading to further employment declines—especially for aerospace engineers. Declines in research and development expenditures and growing international competition also forced companies to cut costs.

One cost-cutting measure was to contract with engineering consulting firms. As a result, employment of engineers shifted away from manufacturing industries, such as chemicals and electronic components, and toward business services firms. Also, increased use of technology such as computer-aided design allowed

workers in lower-skilled occupations, such as electrical and electronic technicians and technologists, to perform some of the tasks of engineers. This changed the mix of occupations that industries used.

Another reason for errors in staffing patterns for engineers was a change in the classification system of occupations that added new engineering occupations after the projections were completed in 1988. For example, computer engineers were classified as electrical and electronics engineers for the 1988-2000 projections cycle. But in 1989, computer engineers became a separate occupation, taking some of its employment from electrical and electronic engineers. This accounts for some of the sharp decline in employment among electrical and electronic engineers.

Final analysis

As past evaluations have shown, BLS occupational projections tend toward conservatism. Projected employment for the largest number of occupations was concentrated in the average growth range, whereas most actually grew faster or declined. Employment in occupations projected to have the most rapid employment growth was underestimated, and occupations projected to experience little growth or to decline experienced greater declines than anticipated.

The BLS tendency toward conservatism does not mean that the 1990-91 *Handbook*'s information on job outlook was of no value. In fact, assumptions made about factors affecting employment growth were often correct, even if their impact was not fully anticipated. The direction of employment change was projected correctly for roughly 70 percent of the occupations in this evaluation, and an increase was projected for all but 31 of the 234 occupations for which employment actually grew between 1988 and 2000. However, the effects that technological change and other factors had on future employment within industries—such as the organizational structure of businesses and shifts in the demand for specific goods and services—generally were underestimated.

This evaluation also reconfirms that good occupational projections depend on good industry projections. Analysis of the outlook for detailed occupations is directly tied to the outlook for the industries in which they are concentrated. As a result, incorrect projections for industries, such as educational services, led to incorrect occupational projections.

Since the 1940s, BLS has prepared job outlook information for career guidance counselors, education planners, students, and others. Over time, BLS has taken steps to resolve the causes of error in, and increase the reliability of, occupational projections. Adjustments have led to changes in the way assumptions are incorporated, to eliminate some of the bias toward conservatism and to improve the industry projections.

Regardless of how carefully the assumptions are prepared, however, some events—such as the reduction in defense spending over the 1990s—remain impossible to foresee. And the rapid advance of technology makes its future impact on occupations—for example, the effect of Internet technology on emerging occupations—increasingly difficult to predict.

Still, in the 1990-91 *Handbook,* the growth descriptors for 189 occupations—55 percent of those evaluated—were either on target or one category away. And the direction of employment change was correctly projected for 70 percent of the occupations. Thus, users of BLS employment projections should continue to have confidence in the value of BLS job outlook information.

A note about the table

The accompanying table lists projected and actual employment totals, percent changes, and growth descriptors for all 338 occupations included in this evaluation. The table compares growth descriptors projected for 1988-2000, the basis for the 1990-91 *Occupational Outlook Handbook*, with descriptors based on the actual change in employment.

The first three columns show employment in each occupation in 1988, projected for 2000, and actually attained in 2000. Data for actual 1988 and projected 2000 employment are from the 1988-2000 National Employment Matrix, published in 1989; however, they have been reconfigured to the 1998 occupational structure. The actual 2000 employment numbers were derived for purposes of this evaluation by applying the 1998 staffing patterns to the 2000 industry totals.

The next two columns list the percent change in each occupation as projected and as actually occurred.

The final two columns compare the growth descriptor of the original projection with the descriptor for actual change.

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Comparison of employment growth descriptors for the 1988-2000 occupational projections used in the 1990-91 *Occupational Outlook Handbook*

Occupation	Employment (in thousands)			Percent change, 1988-2000		Growth descriptor[1]	
	1988, actual	2000, projected	2000, actual	Projected	Actual	Projected	Actual
Total, all occupations	**118,104**	**136,211**	**143,786**	**15**	**22**		
Social and human service assistants	118	171	284	45	141	Much faster	Much faster
Management analysts	130	176	313	35	140	Much faster	Much faster
Personal care and home health aides	327	535	765	63	134	Much faster	Much faster
Bill and account collectors	149	195	330	31	122	Much faster[2]	Much faster
Occupational therapists	33	48	72	49	121	Much faster	Much faster
Correctional officers	186	262	398	41	114	Much faster	Much faster
Physical therapy assistants and aides	39	60	82	52	110	Much faster	Much faster
Medical records and health information technicians	47	75	95	60	103	Much faster	Much faster
Medical assistants	149	253	263	70	77	Much faster	Much faster
Physical therapists	68	107	117	57	71	Much faster	Much faster
Paralegals and legal assistants	83	145	141	75	71	Much faster	Much faster
Hosts and hostesses, restaurant, lounge, or coffee shop	183	239	310	31	69	Much faster	Much faster
Receptionists and information clerks	833	1,164	1,370	40	64	Much faster	Much faster
Systems analysts	403	617	653	53	62	Much faster	Much faster
Securities, commodities, and financial services sales agents	200	309	315	55	58	Much faster	Much faster
Respiratory therapists	56	79	87	41	56	Much faster	Much faster
Surgical technologists	35	55	55	56	55	Much faster	Much faster
Operations research analysts	55	85	83	55	51	Much faster	Much faster
Opticians, dispensing	49	65	72	31	46	Much faster	Much faster
Recreational therapists	26	35	37	37	43	Much faster	Much faster
Computer programmers	519	769	731	48	41	Much faster	Much faster
Bakers, bread and pastry	124	167	172	35	39	Much faster	Much faster
Registered nurses	1,577	2,190	2,120	39	34	Much faster	Much faster
Engineering, natural science, and computer and information systems managers	258	341	344	32	33	Much faster	Much faster
Guards	795	1,050	1,044	32	31	Much faster	Much faster
Radiologic technologists and technicians	132	218	166	66	26	Much faster	Faster
Aircraft pilots and flight engineers	83	108	100	31	21	Much faster	Faster
Flight attendants	88	123	106	39	21	Much faster	Faster
Waiters and waitresses	1,786	2,337	2,115	31	18	Much faster	Average
Nursing aides, orderlies, and attendants	1,184	1,562	1,393	32	18	Much faster	Average
Lawyers	582	763	676	31	16	Much faster	Average
Private detectives and investigators	47	61	54	31	16	Much faster	Average
Data processing equipment repairers	71	115	81	61	14	Much faster	Average
Licensed practical and licensed vocational nurses	626	855	713	37	14	Much faster	Average
Medical secretaries	207	327	227	58	10	Much faster	Slower

One descriptor **faster** than projected
As projected
One descriptor **slower** than projected

Comparison of employment growth descriptors for the 1988-2000 occupational projections used in the 1990-91 *Occupational Outlook Handbook*—continued

Occupation	Employment (in thousands) 1988, actual	2000, projected	2000, actual	Percent change, 1988-2000 Projected	Actual	Growth descriptor[1] Projected	Actual
Electrical and electronic technicians and technologists	341	471	351	38	3	Much faster	No change
Travel agents	142	219	133	54	-6	Much faster	Decline
Electrical and electronics engineers	439	615	369	40	-16	Much faster	Decline
Adjustment clerks	231	278	505	20	118	Faster[2]	Much faster
Amusement and recreation attendants	175	217	360	24	105	Faster	Much faster
Counter and rental clerks	241	308	486	28	101	Faster	Much faster
Speech-language pathologists and audiologists	53	68	106	28	99	Faster	Much faster
Economists and marketing research analysts	36	45	71	27	99	Faster	Much faster
Actors, directors, and producers	80	104	158	30	97	Faster	Much faster
Teacher assistants	682	827	1,269	21	86	Faster	Much faster
Manicurists	26	33	48	26	85	Faster	Much faster
Administrative services managers	217	274	381	26	75	Faster	Much faster
Reservation and transportation ticket agents and travel clerks	133	170	230	28	73	Faster	Much faster
Claims examiners, property and casualty insurance	30	37	49	23	64	Faster	Much faster
Teachers, preschool	238	309	389	30	64	Faster	Much faster
Social workers	385	495	629	29	63	Faster	Much faster
Counselors	124	157	191	27	54	Faster	Much faster
Construction managers	187	236	287	26	53	Faster	Much faster
Carpet installers	56	68	85	21	52	Faster	Much faster
Human resources, training, and labor relations specialists	252	305	381	21	51	Faster	Much faster
Hotel, motel, and resort desk clerks	113	142	170	26	51	Faster	Much faster
Biological scientists	57	72	85	26	49	Faster	Much faster
Laborers, landscaping and groundskeeping	806	998	1,166	24	45	Faster	Much faster
Physician assistants	48	62	69	28	44	Faster	Much faster
Cooks, restaurant	572	728	816	27	43	Faster	Much faster
Human resources managers	171	208	239	22	40	Faster	Much faster
Psychologists	104	132	145	27	40	Faster	Much faster
Dietitians and nutritionists	40	51	55	28	38	Faster	Much faster
Childcare workers	670	856	915	28	37	Faster	Much faster
Veterinarians	46	57	61	26	34	Faster	Much faster
Artists and commercial artists	216	274	287	27	33	Faster	Much faster
Baggage porters and bellhops	32	40	43	26	33	Faster	Much faster
Designers, except interior designers	236	301	311	27	31	Faster	Much faster
Busdrivers, school	349	418	458	20	31	Faster	Much faster
Loan counselors and officers	172	209	225	22	31	Faster	Much faster
Food preparation workers	1,027	1,260	1,310	23	28	Faster	Faster
Court clerks	42	51	53	21	26	Faster	Faster
Credit checkers	35	44	44	26	26	Faster	Faster

Comparison of employment growth descriptors for the 1988-2000 occupational projections used in the 1990-91 *Occupational Outlook Handbook*—continued

Occupation	Employment (in thousands) 1988, actual	2000, projected	2000, actual	Percent change, 1988-2000 Projected	Actual	Growth descriptor[1] Projected	Actual
Advertising, marketing, promotions, public relations, and sales managers	406	511	508	26	25	Faster	Faster
Insurance adjusters, examiners, and investigators	145	175	180	20	24	Faster	Faster
Architects, except landscape and naval	86	107	105	25	22	Faster	Faster
Loan and credit clerks	151	192	180	27	19	Faster	Average
Taxidrivers and chauffeurs	109	137	130	26	19	Faster	Average
Plastic molding machine setters, setup operators, operators, and tenders	144	176	172	22	19	Faster	Average
Farm managers	131	160	154	22	18	Faster	Average
Pharmacists	162	206	191	27	17	Faster	Average
Real estate appraisers	41	49	47	20	16	Faster	Average
Hard tile setters	26	32	30	22	14	Faster	Average
Accountants and auditors	963	1,174	1,089	22	13	Faster	Average
Legal secretaries	263	329	296	25	13	Faster	Average
Physicians	535	684	591	28	10	Faster	Slower
Automotive body and related repairers	214	270	235	26	10	Faster	Slower
Food service and lodging managers	560	721	587	29	5	Faster	Slower
Bartenders	414	506	419	22	1	Faster	No change
Mechanical engineers	225	269	223	20	-1	Faster[2]	No change
Laundry and dry-cleaning machine operators and tenders, except pressing	169	208	168	23	-1	Faster	No change
Dining room and cafeteria attendants and bar helpers	448	578	425	29	-5	Faster	Decline
Insurance underwriters	103	134	97	29	-6	Faster	Decline
Pharmacy aides	70	89	63	27	-10	Faster	Decline
Correspondence clerks	29	37	26	27	-10	Faster	Decline
Switchboard operators	254	316	225	24	-11	Faster	Decline
Computer operators, except peripheral equipment	275	354	241	29	-12	Faster	Decline
Ophthalmic laboratory technicians	26	33	23	28	-12	Faster	Decline
Agricultural and food scientists	25	30	22	21	-14	Faster	Decline
Psychiatric aides	114	141	96	24	-16	Faster	Decline
Brokers, real estate	70	84	58	20	-17	Faster	Decline
Peripheral equipment operators	42	54	30	29	-28	Faster	Decline
Offset lithographic press operators	91	114	62	25	-32	Faster	Decline
Parking lot attendants	47	54	95	14	101	Average	Much faster
Emergency medical technicians and paramedics	76	86	152	13	99	Average	Much faster
Judges, magistrates, and other judicial workers	40	47	74	18	84	Average	Much faster
Dental hygienists	91	107	152	18	68	Average	Much faster
Insurance claims clerks	103	115	162	11	56	Average	Much faster
Teachers, special education	275	317	429	16	56	Average	Much faster

One descriptor **faster** than projected
As projected
One descriptor **slower** than projected

Comparison of employment growth descriptors for the 1988-2000 occupational projections used in the 1990-91 *Occupational Outlook Handbook*—continued

Occupation	Employment (in thousands)			Percent change, 1988-2000		Growth descriptor[1]	
	1988, actual	2000, projected	2000, actual	Projected	Actual	Projected	Actual
Animal caretakers, except farm	92	106	138	16	51	Average	Much faster
Dental assistants	166	197	243	19	47	Average	Much faster
Education administrators	320	382	469	19	47	Average	Much faster
Cashiers	2,310	2,614	3,289	13	42	Average	Much faster
Office and administrative support supervisors and managers	1,183	1,319	1,683	12	42	Average	Much faster
Bindery machine operators and setup operators	63	71	90	11	42	Average	Much faster
Public relations specialists	91	105	128	15	40	Average	Much faster
Inspectors and compliance officers, except construction	130	148	181	14	39	Average	Much faster
Recreation workers	186	221	252	19	36	Average	Much faster
Water and liquid waste treatment plant and system operators	76	87	103	14	35	Average	Much faster
Photographers	94	111	128	18	35	Average	Much faster
Clinical laboratory technologists and technicians	242	288	324	19	34	Average	Much faster
Busdrivers, transit and intercity	157	175	210	12	34	Average	Much faster
Heating, air conditioning, and refrigeration mechanics and installers	225	263	298	17	32	Average	Much faster
Meat, poultry, and fish cutters and trimmers, hand	110	129	145	17	32	Average	Much faster
Electricians	542	638	712	18	31	Average	Much faster
Food counter, fountain, and related workers	1,626	1,866	2,108	15	30	Average	Faster
Teachers, secondary school	1,164	1,388	1,506	19	29	Average	Faster
Truckdrivers, light and heavy	2,399	2,768	3,072	15	28	Average	Faster
Weighers, measurers, checkers, and samplers, recordkeeping	40	45	52	12	28	Average	Faster
Cement masons, concrete finishers, and terrazzo workers	114	134	146	17	28	Average	Faster
Police patrol officers	367	421	467	15	27	Average	Faster
Roofers	123	147	156	19	27	Average	Faster
Office clerks, general	2,519	2,974	3,192	18	27	Average	Faster
Construction and building inspectors	56	64	70	14	26	Average	Faster
Communication, transportation, and utilities operations managers	167	194	209	16	25	Average	Faster
Welfare eligibility workers and interviewers	91	102	113	12	24	Average	Faster
Dispatchers, except police, fire, and ambulance	137	160	170	16	24	Average	Faster
Chemists	80	93	99	17	24	Average	Faster
Title examiners, abstractors, and searchers	27	31	32	17	19	Average	Average
Property, real estate, and community association managers	225	267	267	19	19	Average	Average
Maintenance repairers, general utility	1,080	1,282	1,269	19	18	Average	Average

Comparison of employment growth descriptors for the 1988-2000 occupational projections used in the 1990-91 *Occupational Outlook Handbook*—continued

Occupation	Employment (in thousands)			Percent change, 1988-2000		Growth descriptor[1]	
	1988, actual	2000, projected	2000, actual	Projected	Actual	Projected	Actual
Air traffic controllers	27	31	31	15	17	Average	Average
General managers and top executives	3,030	3,509	3,539	16	17	Average	Average
Drywall installers and finishers	152	178	176	17	15	Average	Average
Insulation workers	64	77	74	19	15	Average	Average
Helpers, construction trades	555	633	640	14	15	Average	Average
Announcers	49	59	56	19	14	Average	Average
Plumbers, pipefitters, and steamfitters	396	469	451	18	14	Average	Average
Structural and reinforcing metalworkers	78	92	88	18	14	Average	Average
Janitors and cleaners, including maids and housekeeping cleaners	2,895	3,450	3,300	19	14	Average	Average
Industrial machinery mechanics	463	538	526	16	14	Average	Average
Stock clerks and order fillers	2,152	2,406	2,426	12	13	Average	Average
Aircraft mechanics and service technicians	124	144	140	16	12	Average	Average
Painters and paperhangers	431	501	484	16	12	Average	Average
Surveyors, cartographers, and photogrammetrists	40	45	45	11	12	Average	Average
Purchasing agents, except wholesale, retail, and farm products	206	236	231	15	12	Average	Average
Pipelayers and pipelaying fitters	52	59	59	13	12	Average	Average
Cooks, short order and fast food	630	719	705	14	12	Average	Average
Paving, surfacing, and tamping equipment operators	70	82	78	17	11	Average	Average
Civil engineers	186	219	206	17	10	Average	Slower
Pest control workers	48	56	53	16	10	Average	Slower
Retail salespersons	3,834	4,564	4,223	19	10	Average[2]	Slower
Cooks, institution or cafeteria	403	467	440	16	9	Average	Slower
Millwrights	77	90	84	17	9	Average	Slower
Financial managers	673	802	724	19	8	Average	Slower
Carpenters	1,081	1,257	1,120	16	4	Average	Slower
Automotive mechanics and service technicians	771	898	798	16	3	Average	No change
Interviewing clerks, except personnel and social welfare	129	152	133	18	3	Average	No change
Geologists, geophysicists, and oceanographers	42	49	44	16	3	Average	No change
New accounts clerks, banking	108	129	111	19	2	Average	No change
Optometrists	37	43	37	16	1	Average	No change
Couriers and messengers	123	147	124	19	1	Average	No change
Science and mathematics technicians	232	275	233	19	1	Average	No change
Mobile heavy equipment mechanics	108	124	108	14	0	Average	No change
Budget analysts	62	72	61	17	-1	Average	No change
Bricklayers, blockmasons, and stonemasons	167	193	166	16	-1	Average	No change
Chemical engineers	49	57	48	16	-2	Average	No change
Bus and truck mechanics and diesel engine specialists	269	312	264	16	-2	Average	No change

One descriptor **faster** than projected
As projected
One descriptor **slower** than projected

Comparison of employment growth descriptors for the 1988-2000 occupational projections used in the 1990-91 *Occupational Outlook Handbook*—continued

Occupation	Employment (in thousands)			Percent change, 1988-2000		Growth descriptor[1]	
	1988, actual	2000, projected	2000, actual	Projected	Actual	Projected	Actual
Secretaries, except legal and medical	2,903	3,288	2,845	13	-2	Average	No change
Glaziers	49	58	48	18	-2	Average	No change
Hairdressers, hairstylists, and cosmetologists	609	683	594	12	-3	Average	No change
Tire repairers and changers	88	100	85	14	-3	Average	No change
Electrical powerline installers and repairers	104	122	101	17	-3	Average	No change
Photographic processing machine operators and tenders	49	57	47	18	-3	Average	No change
Cost estimators	169	195	163	15	-3	Average	No change
Dentists	167	189	161	13	-4	Average	Decline
Industrial engineers, except safety engineers	132	155	126	18	-4	Average	Decline
Industrial production managers	215	254	206	18	-4	Average	Decline
Power generating and reactor plant operators	33	37	31	11	-7	Average	Decline
Drafters	319	358	296	12	-7	Average	Decline
Upholsterers	73	81	67	11	-8	Average	Decline
Electronics repairers, commercial and industrial equipment	79	92	72	17	-9	Average	Decline
Insurance sales agents	423	481	378	14	-11	Average	Decline
Small engine mechanics	43	50	36	18	-15	Average	Decline
Sales agents, real estate	311	361	263	16	-16	Average	Decline
Operating engineers	158	179	132	13	-16	Average	Decline
Crane and tower operators	60	67	50	11	-17	Average	Decline
Forest and conservation workers	40	44	32	11	-19	Average	Decline
Electronic home entertainment equipment repairers	44	49	35	13	-21	Average	Decline
Jewelers and precious stone and metal workers	36	42	28	16	-21	Average	Decline
Purchasing managers	252	289	182	14	-28	Average	Decline
Instructors, adult (nonvocational) education	227	268	163	18	-28	Average	Decline
Aerospace engineers	78	88	52	13	-33	Average	Decline
Custom tailors and sewers	130	146	68	12	-48	Average	Decline
Typesetting and composing machine operators and tenders	39	45	13	14	-66	Average	Decline
Directors, religious activities and education	56	62	121	10	117	Slower	Much faster
Ushers, lobby attendants, and ticket takers	44	48	89	8	100	Slower	Much faster
Shipping, receiving, and traffic clerks	535	591	1,025	10	92	Slower	Much faster
Teachers and instructors, vocational education and training	239	255	405	7	69	Slower	Much faster
Plasterers and stucco masons	26	29	44	8	67	Slower	Much faster
Conservation scientists and foresters	27	30	40	8	48	Slower	Much faster
Excavation and loading machine operators	76	84	111	10	46	Slower	Much faster
Procurement clerks	42	47	59	10	40	Slower	Much faster
Library technicians	54	59	76	9	40	Slower	Much faster

Comparison of employment growth descriptors for the 1988-2000 occupational projections used in the 1990-91 *Occupational Outlook Handbook*—continued

Occupation	Employment (in thousands)			Percent change, 1988-2000		Growth descriptor[1]	
	1988, actual	2000, projected	2000, actual	Projected	Actual	Projected	Actual
Cleaners, vehicles and equipment	215	230	299	7	39	Slower	Much faster
Dispatchers, police, fire, and ambulance	64	71	89	10	39	Slower	Much faster
Detectives and criminal investigators	61	66	83	9	37	Slower	Much faster
Fire fighting and prevention supervisors	47	51	63	9	35	Slower	Much faster
Numerical control machine tool operators and tenders, metal and plastic	64	70	86	9	34	Slower	Much faster
Police and detective supervisors	88	97	116	10	32	Slower	Much faster
Printing press machine setters, operators, and tenders	108	119	141	9	30	Slower	Faster
Driver/sales workers	242	255	308	5	27	Slower	Faster
Library assistants and bookmobile drivers	105	111	133	6	27	Slower	Faster
Extruding and forming machine setters, operators, and tenders	100	106	125	6	26	Slower	Faster
Duplicating, mail, and other office machine operators	164	181	205	10	25	Slower	Faster
Blue-collar worker supervisors	1,797	1,930	2,237	7	24	Slower	Faster
Combination machine tool setters, setup operators, operators, and tenders, metal and plastic	89	97	107	9	20	Slower	Faster
Supervisors, farming, forestry, and agricultural-related occupations	76	80	89	6	18	Slower	Average
Human resources assistants, except payroll and timekeeping	129	141	150	9	16	Slower	Average
Postal mail carriers	285	310	329	9	16	Slower	Average
Woodworking machine operators and tenders, setters, and setup operators	69	75	80	8	15	Slower	Average
Coating, painting, and spraying machine operators, tenders, setters, and setup operators	113	123	129	9	14	Slower	Average
Librarians	143	157	160	10	12	Slower	Average
Paper goods machine setters and setup operators	54	56	60	5	12	Slower	Average
Production, planning, and expediting clerks	229	250	254	9	11	Slower	Average
File clerks	263	290	290	10	10	Slower	Slower
Firefighters	233	257	251	10	8	Slower	Slower
Musicians, singers, and related workers	229	251	245	9	7	Slower	Slower
Bank tellers	522	546	555	5	6	Slower	Slower
Machinists	397	433	418	9	5	Slower	Slower
Crossing guards	57	61	57	7	1	Slower	No change
Sheetmetal workers and duct installers	246	257	245	4	-1	Slower	No change
Insurance policy processing clerks	171	186	170	9	-1	Slower	No change
Highway maintenance workers	175	190	163	9	-7	Slower	Decline
Tool and die makers	152	159	135	4	-12	Slower	Decline
Clergy	185	199	162	7	-13	Slower	Decline

One descriptor **faster** than projected
As projected
One descriptor **slower** than projected

Comparison of employment growth descriptors for the 1988-2000 occupational projections used in the 1990-91 *Occupational Outlook Handbook*—continued

Occupation	Employment (in thousands)			Percent change, 1988-2000		Growth descriptor[1]	
	1988, actual	2000, projected	2000, actual	Projected	Actual	Projected	Actual
Butchers and meatcutters	258	269	219	4	-15	Slower	Decline
Dental laboratory technicians, precision	51	56	42	10	-16	Slower	Decline
Head sawyers and sawing machine operators and tenders, setters, and setup operators	80	86	66	7	-17	Slower	Decline
Fishers	46	50	36	9	-22	Slower	Decline
Pressing machine operators and tenders, textile, garment, and related materials	87	95	66	9	-24	Slower	Decline
Boilermakers	25	27	18	9	-26	Slower	Decline
Precision instrument repairers	46	50	31	8	-34	Slower	Decline
Wholesale and retail buyers, except farm products	207	220	120	6	-42	Slower	Decline
Service station attendants	308	331	140	7	-55	Slower	Decline
Sheriffs and deputy sheriffs	63	63	96	0	51	No change	Much faster
Brokerage clerks	64	66	86	3	35	No change	Much faster
Bakers, manufacturing	41	40	53	-3	30	No change	Faster
Order clerks	293	289	377	-2	29	No change	Faster
Metal fabricators, structural metal products	40	39	48	-2	22	No change	Faster
Government chief executives and legislators	69	71	84	3	21	No change	Faster
Coin, vending, and amusement machine servicers and repairers	27	27	30	1	10	No change	Slower
Billing, cost, and rate clerks	323	333	355	3	10	No change	Slower
College and university faculty	846	869	913	3	8	No change	Slower
Office machine and cash register servicers	56	57	61	1	8	No change	Slower
Cleaners and servants, private household	477	464	509	-3	7	No change	Slower
Payroll and timekeeping clerks	176	172	180	-2	2	No change	No change
Mail clerks, except mail machine operators and postal service	136	137	137	1	1	No change	No change
Grinding, lapping, and buffing machine tool setters and setup operators, metal and plastic	72	70	72	-2	0	No change	No change
Statistical clerks	77	76	75	-2	-3	No change	No change
Freight, stock, and material movers, hand	884	905	858	2	-3	No change	No change
Bookkeeping, accounting, and auditing clerks	2,252	2,272	2,125	1	-6	No change	Decline
Punching machine setters and setup operators, metal and plastic	51	50	47	-2	-7	No change	Decline
Farm equipment mechanics	54	55	49	1	-9	No change	Decline
Stationary engineers	36	36	31	-1	-14	No change	Decline
Refuse and recyclable material collectors	126	126	105	0	-16	No change	Decline
Lathe and turning machine tool setters and setup operators, metal and plastic	89	86	71	-3	-20	No change	Decline
Drilling and boring machine tool setters and setup operators, metal and plastic	56	54	41	-3	-26	No change	Decline
Roustabouts, oil and gas	39	39	27	1	-29	No change	Decline

Comparison of employment growth descriptors for the 1988-2000 occupational projections used in the 1990-91 *Occupational Outlook Handbook*—continued

Occupation	Employment (in thousands)			Percent change, 1988-2000		Growth descriptor[1]	
	1988, actual	2000, projected	2000, actual	Projected	Actual	Projected	Actual
Barbers	76	76	52	0	-32	No change	Decline
Cannery workers	71	70	48	-2	-32	No change	Decline
Home appliance and power tool repairers	76	76	51	0	-33	No change	Decline
Shoe and leather workers and repairers, precision	32	32	20	0	-36	No change	Decline
Cutters and trimmers, hand	63	65	39	3	-37	No change	Decline
Statement clerks	32	33	16	3	-51	No change	Decline
Aircraft assemblers, precision	31	31	15	-2	-53	No change	Decline
Housekeepers and butlers	34	33	13	-3	-60	No change	Decline
Electronic semiconductor processors	38	34	65	-11	73	Decline	Much faster
Telephone and cable TV line installers and repairers	127	100	206	-21	63	Decline	Much faster
Hand packers and packagers	635	560	1,019	-12	60	Decline	Much faster
Machine assemblers	47	41	66	-12	43	Decline	Much faster
Broadcast and sound technicians	27	19	39	-31	41	Decline	Much faster
Chemical equipment controllers, operators and tenders	70	59	97	-15	38	Decline	Much faster
Packaging and filling machine operators and tenders	286	254	385	-11	34	Decline	Much faster
Solderers and brazers	29	27	38	-6	33	Decline	Much faster
Machine builders and other precision machine assemblers	55	47	73	-15	32	Decline	Much faster
Proofreaders and copy markers	33	31	44	-7	32	Decline	Much faster
Electrical and electronic equipment assemblers, precision	161	91	197	-44	22	Decline	Faster
Chemical plant and system operators	35	28	40	-20	16	Decline	Average
Logging equipment operators	46	44	53	-5	15	Decline	Average
Gas and petroleum plant and system occupations	30	22	34	-24	15	Decline	Average
Welders and cutters	325	309	371	-5	14	Decline	Average
Welding machine setters, operators, and tenders	99	86	110	-14	11	Decline	Average
Billing and posting clerks and machine operators	99	89	109	-10	11	Decline	Average
Crushing, grinding, mixing, and blending machine operators and tenders	136	117	149	-14	10	Decline	Slower
Data entry keyers	452	426	471	-6	4	Decline	Slower
Meter readers, utilities	49	45	51	-9	4	Decline	Slower
Electrical and electronic assemblers	237	134	246	-44	4	Decline	Slower
Electrolytic plating machine setters, setup operators, operators, and tenders, metal and plastic	44	41	46	-8	3	Decline	No change
Industrial truck and tractor operators	421	400	433	-5	3	Decline	No change
Cutting and slicing machine setters, operators, and tenders	91	80	93	-12	3	Decline	No change
Inspectors, testers, and graders, precision	676	634	693	-6	3	Decline	No change

One descriptor **faster** than projected
As projected
One descriptor **slower** than projected

Comparison of employment growth descriptors for the 1988-2000 occupational projections used in the 1990-91 *Occupational Outlook Handbook*—continued

Occupation	Employment (in thousands)			Percent change, 1988-2000		Growth descriptor[1]	
	1988, actual	2000, projected	2000, actual	Projected	Actual	Projected	Actual
Railroad conductors and yardmasters	27	21	26	-20	-2	Decline	No change
Grinders and polishers, hand	84	74	80	-13	-5	Decline	Decline
Painters, transportation equipment	46	45	43	-4	-7	Decline	Decline
Sewing machine operators, nongarment	143	135	131	-6	-8	Decline	Decline
Machine forming operators and tenders, metal and plastic	184	166	169	-10	-8	Decline	Decline
Painting, coating, and decorating workers, hand	45	43	39	-4	-14	Decline	Decline
Machine feeders and offbearers	249	218	213	-13	-14	Decline	Decline
Electromechanical equipment assemblers, precision	59	53	49	-10	-17	Decline	Decline
Farmworkers	938	785	781	-16	-17	Decline	Decline
Textile bleaching and dyeing machine operators and tenders	26	23	22	-13	-18	Decline	Decline
Cement and gluing machine operators and tenders	40	36	32	-11	-19	Decline	Decline
Directory assistance operators	33	26	26	-21	-20	Decline	Decline
Textile draw-out and winding machine operators and tenders	227	197	172	-13	-24	Decline	Decline
Machine tool cutting operators and tenders, metal and plastic	148	133	108	-10	-27	Decline	Decline
Textile machine setters and setup operators	37	33	26	-9	-30	Decline	Decline
Child care workers, private household	375	347	257	-8	-31	Decline	Decline
Central office and PBX installers and repairers	75	59	50	-21	-34	Decline	Decline
Court reporters, medical transcriptionists, and stenographers	159	122	104	-23	-34	Decline	Decline
Central office operators	43	36	26	-15	-39	Decline	Decline
Compositors and typesetters, precision	26	25	13	-5	-49	Decline	Decline
Word processors and typists	985	924	482	-6	-51	Decline	Decline
Fallers and buckers	36	30	18	-17	-51	Decline	Decline
Sewing machine operators, garment	620	531	297	-14	-52	Decline	Decline
Station installers and repairers, telephone	58	47	27	-20	-53	Decline	Decline
Furnace, kiln, oven, drier, or kettle operators and tenders	62	52	25	-17	-61	Decline	Decline
Railroad brake, signal, and switch operators	37	29	14	-23	-62	Decline	Decline

[1] Much faster: Much faster than average growth (31 percent or more)
Faster: Faster than average growth (20 to 30 percent)
Average: Average growth (11 to 19 percent)
Slower: Slower than average growth (4 to 10 percent)
No change: Little or no change in employment (3 to –3 percent)
Decline: Decrease in employment (–4 percent or more)

[2] The simulated projected growth rate for this occupation varied slightly from the original projected growth rate. As a result, the growth adjective published in the 1990-91 *Occupational Outlook Handbook* differs from the one published in this table.