Employment outlook: 2004–2014

A summary of BLS projections to 2014

The U.S. economy is expected to expand at a moderately strong pace over the coming decade, with restrained inflation, continuing strong productivity growth, and a labor force growing at a steady rate with a favorable outlook for a wide array of job opportunities

Norman C. Saunders

The employment outlook to 2014 is the subject of a series of four articles appearing in this issue. The 2014 projections are the 19th in a series of biennial examinations of the aggregate economy; labor force by age, sex, race, and ethnicity; and industry and occupational employment.[1] The following four articles present a detailed picture of U.S. employment trends as they are likely to evolve over the 2004–14 decade under the assumptions used to develop those projections. The articles update the 2002–12 projections published in February 2004. The outlook presentations form the basis for updated Internet and print editions of the *Occupational Outlook Handbook*, *Career Guide to Industries*, and *Occupational Projections and Training Data*. This article presents a synopsis of the conclusions of the four articles, a short statement of methods, a summary of what is new in this round of projections, and some thoughts about those factors which might pose the greatest risks to the accuracy of the projections.

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Summary of articles

Aggregate economy. In the first article of the series, Betty Su examines the overall economic outlook for the coming decade (pages 10–24). Gross domestic product (GDP), which measures the sales of domestically-produced goods and services to final users, is projected to grow by an annual average rate of 3.1 percent between 2004 and 2014. (See table 1.) Consumer spending continues to account for more than 70 percent of GDP and is projected to grow at an annual rate of 2.8 percent in real terms. Gross private domestic investment is expected to grow 4.7 percent annually between 2004 and 2014. As the dollar continues an expected depreciation against the currencies in major trading partner countries, exports are projected to grow more strongly than the growth they have exhibited in the 10 years preceding the projections. Conversely, imports are expected to grow less rapidly than during the past decade. On the Government side, a slow but deliberate increase in Federal defense spending is projected throughout the projection period, offset by like declines in nondefense spending. State and local government is projected to grow at 2 percent annually, slowing a bit from the 1994–2004 period, when it grew by 2.7 percent each year in chained 2000 dollars.

The aggregate projections are based on assumptions of an unemployment rate at 5 percent in 2014, nonfarm business labor productivity growth of 2.7 percent each year, continuing steady devaluation of the dollar vis-à-vis the currencies of our major trading partners, a per capita real disposable income increasing from $27,200 in 2004 to $33,200 in 2014, and a personal savings rate climbing slowly from 1.8 percent in 2004 to 3.4 percent a

Table 1. Summary of results of BLS aggregate economic projections, 1984, 1994, and 2004–14

Item	1984	1994	2004	2014	Growth rate 1984–94	Growth rate 1994–04	Growth rate 2004–14
Real gross domestic product (GDP) and components [Billions of chained 2000 dollars]							
Gross domestic product	$5,813.6	$7,835.5	$10,755.7	$14,650.5	3.0	3.2	3.1
Personal consumption expenditures	3,863.4	5,290.7	7,588.6	10,020.4	3.2	3.7	2.8
Gross private domestic investment	857.7	1,099.6	1,809.8	2,863.2	2.5	5.1	4.7
Exports	318.7	706.5	1,117.9	2,145.7	8.3	4.7	6.7
Imports	441.2	786.0	1,719.2	2,525.4	5.9	8.1	3.9
Federal defense consumption expenditures and gross investment	400.6	404.6	481.3	500.7	.1	1.8	.4
Federal nondefense consumption expenditures and gross investment	146.0	191.7	242.2	228.6	2.8	2.4	–.6
State and local consumption expenditures and gross investment	677.9	943.3	1,228.4	1,490.6	3.4	2.7	2.0
					Percent distribution		
					1984	1994	2004	2014
Nominal GDP and percent distribution								
Gross domestic product	3,933.2	7,072.2	11,734.3	19,046.3	100.0	100.0	100.0	100.0
Personal consumption expenditures	2,503.3	4,743.3	8,214.3	13,124.5	63.6	67.1	70.0	68.9
Gross private domestic investment	735.7	1,097.1	1,928.1	3,405.1	18.7	15.5	16.4	17.9
Exports	302.4	720.9	1,173.8	2,614.1	7.7	10.2	10.0	13.7
Imports	405.1	814.5	1,797.8	3,403.9	–10.3	–11.5	–15.3	–17.9
Federal defense consumption expenditures and gross investment	281.6	353.7	552.7	721.7	7.2	5.0	4.7	3.8
Federal nondefense consumption expenditures and gross investment	92.8	165.4	274.9	335.5	2.4	2.3	2.3	1.8
State and local consumption expenditures and gross investment	422.6	806.3	1,388.3	2,249.3	10.7	11.4	11.8	11.8
					Growth rate		
					1984–94	1994–04	2004–14
Personal income							
Disposable personal income	2,912.0	5,151.8	8,664.2	13,975.5	5.9	5.3	4.9
Disposable personal income, chained 2000 dollars	4,494.1	5,746.4	8,004.3	10,669.8	2.5	3.4	2.9
Per capita disposable income	12,319.0	19,555.0	29,475.0	43,542.8	4.7	3.6	4.0
Per capita disposable income, chained 2000 dollars	19,011.0	21,812.0	27,230.0	33,243.3	1.4	1.4	2.0
Savings rate (percent)	10.8	4.8	1.8	3.4	–7.8	–9.3	6.7
Labor supply and productivity							
Total population (millions)	236.1	260.6	294.1	321.0	1.0	.9	.9
Civilian population, aged 16 and older	176.4	196.8	223.4	247.2	1.1	1.3	1.0
Civilian labor force	113.5	131.1	147.4	162.1	1.4	1.2	1.0
Civilian household employment	105.0	123.1	139.2	153.8	1.6	1.2	1.0
Nonfarm payroll employment	94.5	114.3	131.5	149.4	1.9	1.4	1.3
Unemployment rate (percent)	7.5	6.1	5.5	5.0	–2.1	–1.0	–.9
Productivity: private nonfarm business output per hour (billions of chained 2000 dollars)	29.0	34.2	44.6	58.1	1.7	2.7	2.7
Energy and foreign economic activities							
Refiners' acquisition cost of imported oil (nominal dollars per barrel)	28.9	15.4	35.9	33.4	–6.1	8.8	–.7
Domestic share of U.S. crude oil acquisitions (as percentage of total acquisitions)	72.2	48.5	36.1	30.3	–3.9	–2.9	–1.7
Domestic oil product (billions of chained 2000 dollars)	38.5	32.8	29.6	27.9	–1.6	–1.0	–.6
Price of imported oil (dollars per barrel)	28.9	15.4	35.9	33.4	–6.1	8.8	–.7
Real price of imported oil (2000 dollars per barrel)	39.6	16.6	33.5	26.5	–8.3	7.3	–2.3
Broad trade-weighted exchange value of U.S. dollars	60.1	90.9	113.6	87.8	4.2	2.3	–2.5
Addenda							
Federal deficit (National Income and Product Accounts, annual, billions of dollars)	–168.1	–212.3	–406.5	–189.3	2.4	6.7	–7.4
as percent of nominal GDP	–4.3	–3.0	–3.5	–1.0	–3.5	1.4	–11.7
Private housing starts (thousand units)	1,766.3	1,446.0	1,949.8	1,980.7	–2.0	3.0	.2
Federal funds rate	10.2	4.2	1.3	4.5	–8.5	–10.7	12.8

decade later. Improvements in the Federal deficit and the current account deficit are expected as well, though neither item is projected to reach a balance or a surplus position by 2014.

In summary, the U.S. economy is expected to expand at a moderately strong pace over the coming decade, with restrained inflation, continuing strong productivity growth, and a steadily growing labor force with a favorable outlook for a wide array of job opportunities.

Labor force. In the second article appearing in this issue, Mitra Toossi reviews the factors affecting the growth of the labor force by age, sex, race, and ethnicity (pages 25–44). The civilian labor force is projected to increase annually by 1.0 percent, the same growth rate as that of the population, a considerable slowing in growth from previous decades. (See table 2.)

The labor force is defined as that portion of the population aged 16 and older who are either at work or actively seeking work. The labor force participation rate is the labor force as a proportion of the 16 and older population. Growth of the labor force is the result of simultaneous changes in the civilian noninstitutional population and in labor force participation rates. Participation rates are projected to remain flat or to decrease slightly over the next 10 years, therefore growth of the labor force will be entirely because of population growth. Population growth itself is a product of changes in fertility, mortality, and migration. Because changes in mortality and fertility rates tend to be very gradual, the main component of population change has been and will continue to be immigration.

A closer look at the 2004–14 labor force shows that certain demographic groups are projected to grow more rapidly than others. The labor force will continue to age, with a projected 4.1 percent annual growth of the 55 and older age group, more than four times the rate of growth of the overall labor force. Baby boomers entered the labor market beginning in the late 1960s as a huge wave of workers who swelled the level and growth of the labor force. During the decade of the 1990s, baby boomers were in the prime-age working group of 25- to 54-year-olds, still contributing to a relatively high annual growth of the workforce. They will be concentrated in the 50- to 68-year-old workforce in 2014. Because older workers tend to have significantly lower participation rates, the baby boomer exit from the workforce, as with their entrance, will have significant impacts on the growth of the labor force.

Another interesting fact is that the labor force participation rate of workers older than 55 has been increasing since the mid-1980s. The increase is projected to continue at least to 2014. The willingness of the 55 and older age groups to participate in the future labor force or to retire is a multidimensional decision. This decision may be the result of various factors such as the individual's health status and the status of pensions, savings, and anticipated social security payments. A growing proportion of the retirement-age population appears to be staging their transition from full-time work to full retirement, as well. One of the most important factors in the increase of the labor force participation rate of older workers has been governmental policies and legislation aimed at eliminating mandatory retirement and outlawing age discrimination.

In summary, the labor force is projected to grow steadily into the future, albeit at a slower pace than in the past. BLS assumes that because labor markets clear, slower growth in labor supply will be reflected in slower growth in labor demand. Care should be taken not to compare household-based measures of employment with establishment-based versions discussed at the industry level of detail. Such comparisons could lead to a belief that BLS is predicting shortages when, by assumption, none exist in the projections.

Industry employment. Jay Berman examines the outlook for output and employment growth for detailed industries in the third article of the series (pages 45–69). Nonfarm wage and salary employment is projected to increase by 18.7 million employees between 2004 and 2014, an annual average rate of growth of 1.3 percent. (See table 3.) Goods-producing industries are expected to have no growth in employment as the 1.1 percent annual increase predicted for the construction sector is offset by declines in manufacturing and mining employment. Employment in the service-providing industries, on the other hand, is expected to continue to grow strongly at a projected rate of 1.6 percent annually.

The decline in manufacturing employment does not mean

Table 2. Civilian labor force by sex, age, race, and Hispanic origin, 1984, 1994, 2004, and projected 2014

[Numbers in thousands]

Group	Level				Percent distribution				Annual growth rate (percent)		
	1984	1994	2004	2014	1984	1994	2004	2014	1984–94	1994–2004	2004–14
Total, 16 years and older	113,544	131,056	147,401	162,100	100.0	100.0	100.0	100.0	1.4	1.2	1.0
16–24	23,989	21,612	22,268	22,158	21.1	16.5	15.1	13.7	–1.0	.3	.0
25–54	74,661	93,898	102,122	105,627	65.8	71.6	69.3	65.2	2.3	.8	.3
55 and older	14,894	15,547	23,011	34,316	13.1	11.9	15.6	21.2	.4	4.0	4.1

NOTE: Age of baby boomers is 20–38 in 1984, 30–48 in 1994, 40–58 in 2004, and 50–68 in 2014.

Table 3. Output and nonfarm wage and salary employment by major industry division, 2004 and 2014

Industry sector	2004 levels		2014 levels		Average annual rate of change	
	Output	Employment	Output	Employment	Output	Employment
Total	$19,278.0	132,191.7	$27,418.1	150,876.9	3.6	1.3
Goods-producing, excluding agriculture	5,214.4	21,817.3	7,115.8	21,787.3	3.2	.0
Mining	224.4	523.2	229.6	477.4	.2	–.9
Construction	841.0	6,964.5	1,043.8	7,756.9	2.2	1.1
Manufacturing	4,154.7	14,329.6	5,871.3	13,553.0	3.5	–.6
Service-providing	12,926.6	110,374.4	18,810.1	129,089.6	3.8	1.6
Utilities	322.8	570.1	351.1	562.6	.8	–.1
Wholesale trade	971.0	5,654.9	1,812.5	6,130.8	6.4	.8
Retail trade	1,125.3	15,034.5	1,757.5	16,683.2	4.6	1.0
Transportation and warehousing	619.3	4,250.0	886.7	4,755.9	3.7	1.1
Information	946.8	3,138.3	1,570.9	3,502.1	5.2	1.1
Financial activities	2,476.6	8,051.9	3,543.9	8,901.3	3.6	1.0
Professional and business services	1,947.9	16,413.7	3,136.9	20,979.9	4.9	2.5
Educational services	144.6	2,766.4	188.2	3,664.5	2.7	2.9
Healthcare and social assistance	1,147.2	14,187.2	1,638.6	18,482.1	3.6	2.7
Leisure and hospitality	685.8	12,479.1	881.3	14,693.8	2.5	1.6
Other services	430.2	6,209.9	565.0	6,943.4	2.8	1.1
Federal government	705.7	2,727.5	736.8	2,770.9	.4	.2
State and local government	1,402.5	18,890.9	1,798.5	21,019.1	2.5	1.1

that the manufacturing sector is disappearing from the U.S. economy. Output of manufacturing industries (sales of produced goods to final users and also to other industries) is expected to grow at a healthy 3.5-percent annual rate over the projection period, with the declines in employment explained by the offsetting high growth in manufacturing labor productivity.

Among the service-providing sectors, the most rapidly growing industries are in the healthcare and social assistance and the educational services sectors. These two sectors are predicted to account for a little more than 22 million jobs in 2014 and to grow at an annual average rate of 2.8 percent from 2004 to 2014. The largest nongovernment sector is professional and business services, comprising almost 21 million jobs in 2014 and projected to grow at a rate of 2.5 percent annually.

Occupational employment. Dan Hecker's article on the demand for occupations rounds out the set of four articles (pages 70–99). Among the 10 major occupational groups, employment in the 2 largest in 2004—professional and related occupations and service occupations—will increase the fastest and add the most jobs from 2004 to 2014. (See table 4.) These major groups, which are on opposite ends of the educational attainment and earnings spectrum, are expected to provide almost 60 percent of the total job growth from 2004 to 2014. Employment is projected to grow a bit faster than overall employment in management, business, and financial occupations. Employment in construction and extraction; installation, maintenance, and repair; transportation and material moving; and sales and related occupations will grow somewhat more slowly. Office and administrative support occupations are projected to grow at only half the rate for the total, while farming, fishing, and forestry occupations and production occupations are projected to decline slightly.

As a result of the different growth rates among the major occupational groups, the occupational distribution of total employment will change somewhat by the year 2014, but the relative ranking of the groups by employment size is not expected to change much. Professional and related occupations will continue to rank first, while farming, fishing, and forestry occupations will continue to rank last. Professional and related occupations and service occupations will significantly increase their relative share of employment—by 1.4 and 1.0 percentage points, respectively. However, office and administrative support occupations and production occupations should decrease significantly—by 1.0 and 0.9 points, respectively.

Projections methods

BLS employment projections are carried out as a staged set of methodologies which move from the determination of labor supply and aggregate economic activity to the determination

Table 4. Employment by major occupational group, 2004 and projected to 2014

Occupational group	Level		Change	Percent distribution		Percent change
	2004	2014		2004	2014	
Total, all occupations	145,612,629	164,576,100	18,963,471	100.0	100.0	13.0
Management, business, and financial	14,987,489	17,158,477	2,170,988	10.3	10.4	14.5
Professional and related	28,544,239	34,585,086	6,040,847	19.6	21.0	21.2
Service	27,672,604	32,920,106	5,247,502	19.0	20.0	19.0
Sales	15,330,148	16,762,664	1,432,516	10.5	10.2	9.3
Office and administrative support	23,907,023	25,390,641	1,483,618	16.4	15.4	6.2
Farming, fishing, and forestry	1,025,916	1,012,330	–13,586	.7	.6	–1.3
Construction and extraction	7,738,483	8,663,643	925,161	5.3	5.3	12.0
Installation, maintenance, and repair	5,747,493	6,396,486	648,993	3.9	3.9	11.3
Production	10,561,667	10,470,382	–91,285	7.3	6.4	–.9
Transportation and material moving	10,097,568	11,216,286	1,118,718	6.9	6.8	11.1

of jobs at a detailed industry level, and the demand for specific occupations within each of the detailed industries. Following is a general discussion of the methods used, while greater detail on the projection techniques is presented in the BLS *Handbook of Methods*.[2]

The labor force projections are a function of two components—projections of the population and projections of labor force participation rates. Population projections are provided by the U.S. Bureau of the Census for detailed age, sex, race, and ethnicity groupings.[3] BLS extrapolates participation rates for these same categories using well-specified smoothing and time-series techniques applied to historical time-series of the detailed participation rates.[4]

The extrapolation results are multiplied by the projected population to arrive at initial estimates of the labor force categories. Both the participation rate and the labor force projections are carefully examined by senior staff to ensure that relationships among the various categories do not change in unexplained ways over the forecast horizon. The total of all categories of the labor force is used as one of the critical demographic assumptions in the next stage of the projections, the determination of aggregate economic activity.

The aggregate economic projections are carried out using the Macroeconomic Advisers, LLC (MA) quarterly model of the U.S. economy. MA is a team of economists based in St. Louis, MO, who provide monthly short-term forecasts of the U.S. economy as well as quarterly long-term projections.[5] The MA macroeconomic model comprises 609 variables descriptive of the aggregate U.S. economy. Of these variables, 160 are determined by stochastic behavioral relationships, 280 are identities, and 169 are exogenous variables determined outside the model. In order to use the MA model, quarterly estimates of the exogenous variables must be provided to the model over the forecast horizon. The model then is solved for the 440 behavioral and identity variables, and the results are evaluated for meaningfulness and acceptability.

The industry projections involve two primary tasks. The first is to translate the GDP categories from the aggregate economic model into a detailed commodity-by-category matrix. This redistribution of GDP, carried out using an eclectic grouping of models, techniques, and expert judgments, provides the demand component of an interindustry model of the U.S. economy. Approximately 200 commodities and 160 categories of demand are identified for this exercise. The second task is to derive input-output tables for the projection year that, when combined with the final demand matrix, yield estimates of both commodity and industry total output necessary to produce that level of GDP.[6] Industry total output, also referred to as gross duplicated output, combines industry sales to final users with sales to intermediate users—other industries—in the economy and is the primary determinant of the factors of production (labor and capital) necessary to produce that total output.

The determination of detailed employment estimates begins with the specification of a production function for each of the 200 industries for which employment estimates are carried out. The production function is solved for the labor input component, and the resulting set of equations determines total hours paid as a function of industry output, sector wage rates, the unemployment rate, and a trend variable standing as a proxy for technological change. A separate set of trend equations is estimated for industry-specific measures of average annual hours. Dividing hours paid by average hours yields a count of jobs by industry.[7] The final stage of the industry employment projections process is to extrapolate from the 200 industries to a full 4-digit North American Industry Classification System (NAICS) level of detail, about 310 industries, for input to occupational demand.

The occupational projections also involve two basic tasks. The first is to extrapolate the latest historical industry-by-occupation staffing pattern matrix to the projection year. A staffing pattern matrix presents the proportional distribution of detailed occupations within each of the 310 four-digit NAICS industries. Analysts must determine whether each occupa-

tional ratio should remain unchanged, increase, or decrease, relative to all the other ratios within a given industry. Straightforward balancing procedures are applied to ensure that the changed ratios still account for exactly 100 percent of industry employment. The projected industry employments from the previous step are then applied to the projected staffing pattern matrix and result in estimates of new job growth for about 700 detailed occupations. Estimates of job growth for the self-employed are carried out as a separate step.

In addition to the job growth estimates, analysts must also carry out estimates of replacement demand for individuals who have died, retired, or moved on to other occupations in the intervening decade. These estimates are based on relationships derived from the Current Population Survey, a survey based on household employment behavior. In terms of occupational job opportunities, replacement demand often exceeds new job growth; thus, basing the analysis on measurements of new jobs alone could seriously underestimate job opportunities for many occupations.

A detailed review process is carried out during this entire set of steps. Review feedback can affect occupational ratios, industry outputs and/or employment, or even impose changes at the aggregate level of detail. The purpose of the detailed review process is to derive a set of estimates which are consistent at all levels of detail, from the aggregate to the most detailed occupations. The ultimate review, of course, is when historical data finally overtakes the projected years. The Bureau has been carrying out and publishing these types of reviews since the 1970 projections. They have pointed the way to improvements in the process and allow the users of the projections to determine for themselves where weak points might impact their use of the projections.[8]

Developing enhancements

Two innovative projects were part of the 2004–14 round of projections: 1) a scoring algorithm allowing occupational analysts to more precisely identify occupations at significant risk of job movement offshore; and 2) a measurement of the actual educational attainment of individuals in occupations as a way of identifying alternative paths to success in specific occupations.

Offshoring. In this context, the term "offshoring" refers specifically to white-collar service-providing jobs formerly carried out in the United States but now being contracted to service-providing firms in other countries. In the 2012 projections, BLS occupational analysts knew that certain occupations, most notably those in the information technology sector, were at significant risk of offshoring, and the growth in occupational coefficients for these jobs was curtailed. However, the desire still remained to develop a more formalized approach that could be used by the entire occupational staff in the process of determining whether or not specific occupations were at risk of offshoring.

The purpose of the offshore scoring exercise was to identify the characteristics of occupations that made them more likely to be at risk to offshoring, and then to have the occupation analysts rate the incidence of those characteristics for all of the service-providing occupations in order to assign a potential risk level, although there was no quantitative use of the score as part of the projections presented in this issue. Where a risk of offshoring was identified, appropriate external information documented such activity, and no other mitigating circumstances were identified, additions were made to the Job Outlook section of the affected detailed occupational statements in the forthcoming *Occupational Outlook Handbook*. This addition alerts users interested in those occupations of the potential for offshoring as a factor affecting job growth in the future.

Full details regarding the approach and the resulting lists of occupations believed to be at risk are not presented in the article on occupational projections due to space constraints. However, a detailed explanation of the methodology and the results will be presented in the forthcoming 2006–07 edition of *Occupational Projections and Training Data*. This is the first time this formalized approach to identifying occupations potentially at risk of offshore outsourcing has been attempted, and the process will continue to undergo evaluation and refinement for future rounds of projections.

Educational attainment of occupations. In prior rounds of projections, each occupation was assigned to 1 of 11 training or education categories based on the occupation's most significant source of education and training. The assigned category was judged to represent the best avenue for entrance into and for ultimate success in the occupation. While this approach was useful for guidance purposes, further examination found some disparity between the actual educational attainment of individuals in specific occupations and BLS judgment as to the best avenue to success in the occupation. In short, the analysis pointed out that there were many different ways to attain success in an occupation. For example, higher educational attainments often were seen as an alternative to extensive on-the-job-training. In other cases, it became apparent that a high school education allowed certain chances of success in occupations formerly believed to be bachelor's degree or higher jobs.

For this round of projections, both the training and education assignments appear in this issue and the educational attainment of occupations will be compared, contrasted, and discussed in the *Occupational Outlook Handbook* and in *Occupational Projections and Training Data*, both forthcoming shortly following this edition of the *Review*.

Risks to the projections

Projections are normally accompanied with a standard disclaimer assuming no major wars, no natural catastrophes, nor any other unanticipated factors which could upset the behavior of the various models used in the projections process. These standard disclaimers may not be completely appropriate at this point.

In addition to the financing of the two military engagements underway in Afganistan and Iraq, the potential exists for even higher military spending than assumed in these projections. Thus, military spending may well have greater impacts than anticipated in these projections. Hurricanes Katrina and Rita have hit Mississippi and Louisiana with catastrophic effects, especially on the city of New Orleans, and Hurricane Wilma has devastated South Florida. It remains to be seen what the longer-term impact on GDP growth will be in response to lost production as well as potential rebuilding efforts.

All of these factors and more may serve to modify to some extent the path of the projections from 2004. Overall, however, the U.S. economy is healthy and resilient. It has demonstrated a number of times in the past decade its ability to shrug off serious dislocations and continue to grow apace. Even though the factors mentioned above are worrying, we believe that the 2014 projections of growth are reasonable and attainable and that the occupational demand estimates provide excellent guidance to students and others making critical career and educational decisions. □

NOTES

[1] The 19 projection groups span projections to 1970, published in 1966, to the current projections to 2014 and represent the unified aggregate, labor force, industry, and occupational demand estimates presented as a linked set of outlook estimates. The occupational demand projections predate these unified sets of projections by 17 years, as the first *Occupational Outlook Handbook* was published in 1949. See the series of articles in the May 1999 issue of the *Monthly Labor Review*, on the Internet at **www.bls.gov/opub/mlr/1999/05/contents.htm**, for a comprehensive look at the history of the occupational projections program in BLS.

[2] The latest version of the *BLS Handbook of Methods* is available online as a series of chapters in pdf format. The projections program is described in Chapter 13 of the *Handbook* and is on the Internet at **http://stats.bls.gov/opub/hom/pdf/homch13.pdf**.

[3] BLS labor force projections are classified by 136 different groups including gender, 17 age groups, and 4 race and ethnicity categories. The race categories include White-only, Black-only, Asian-only and "all other." The "all other" group includes all those who claim multiracial backgrounds in addition to the race categories of American Indian, Alaska Natives, Native Hawaiian and other Pacific Islanders. In addition, projections are also made of the Hispanic ethnic category and White non-Hispanics.

[4] For a detailed description of the smoothing and time-series extrapolation techniques, see Mitra Toossi, "Labor force projection methodology" (unpublished documentation memorandum, Bureau of Labor Statistics). For updates, contact **Toossi.Mitra@bls.gov**.

[5] Full information on the structure of Macroeconomic Advisers, LLC and details on the products and services they offer is on the Internet at **http://www.macroadvisers.com**.

[6] For a complete reference to the Interindustry Accounts developed and published by the Bureau of Economic Analysis, refer to the "Industry" section on the BEA website at **http://www.bea.doc.gov/**. Methodological statements can be found on the Internet at **http://www.bea.doc.gov/bea/mp.htm** under "Benchmark Input-Output Accounts."

[7] The complete structure and specification of the industry employment model is included in Jay Berman, "A model of detailed industry labor demand" (unpublished documentation memorandum, Bureau of Labor Statistics). For updates, contact **Berman.Jay@bls.gov**.

[8] The latest in the series of BLS evaluations of projections are Howard N Fullerton Jr., "Evaluating the BLS labor force projections to 2000," *Monthly Labor Review*, October 2003, pp. 3–12, and Andrew Alpert and Jill Auyer, "Evaluating the BLS 1988–2000 employment projections," *Monthly Labor Review*, October 2003, pp. 13–37.