

Employment outlook: 1994–2005

Industry output and employment projections to 2005

Total employment is expected to grow at a much slower pace than the 1983–94 rate, however, the service-producing sector is projected to lead employment growth among virtually all nonfarm wage and salary jobs

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Total employment is projected to grow by 17.7 million over the 1994–2005 period, from 127 million in 1994 to the projected 2005 level of 144.7 million. Based on the moderate alternative of the Bureau of Labor Statistics employment projections, this absolute growth translates into an average annual growth rate of 1.2 percent—a much slower pace of growth than the 2.0-percent rate of growth over the 1983–94 period. The growth in total employment is mostly accounted for by the 16.9 million projected growth in nonfarm wage and salary jobs (from 113.3 million to 130.2 million). The number of nonfarm self-employed and unpaid family workers are projected to increase from 9.1 million to 10.3 million, while private household workers are projected to decline from 1.0 million to 0.8 million. The combined number of agricultural self-employed and wage and salary workers is also projected to decline by 0.2 million from the 1994 level of 3.6 million. (See table 1.)

Development of these projections begins with a macro economic projection of the U.S. economy. The factors that characterize the macro level projections, by necessity, affect the industry level projections of output and employment. All industries are generally affected by such factors as the overall growth in gross domestic product (GDP), but more specific results of the macro projections, such as a slower growth in the labor

force, an improved balance of foreign trade, and a gradually improving Federal budget balance, affect individual industries to varying degrees.¹

Most importantly, all of the projected growth in nonfarm wage and salary employment at the major industry division level occurs in the service-producing sector, with the exception of employment gains in construction on the goods-producing side of the economy. The level of nonfarm wage and salary employment in the service-producing sector is projected to increase by 17.8 million, from 89.4 million in 1994 to 107.3 million in 2005. Although employment in the goods-producing sector is expected to decrease by 1.0 million, from 23.9 million in 1994 to 22.9 million in 2005, nonfarm wage and salary jobs are left with a projected increase of 16.8 million. Over the historical 1983–94 period, the service-producing sector dominated (23 million) over the goods-producing sector (.6 million) for net growth in nonfarm wage and salary jobs.

Even within the service-producing sector, employment growth is highly concentrated. Slightly more than two-thirds (12.0 million) of the 17.8 million-job increase for the service-producing sector is in the services division. The addition of job growth for retail trade (2.7 million), and government (1.9 million) to the services division accounts for 93 percent of the job gains in the service-producing sector. Just two industry groups

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—business services and health services—account for more than one-half of the growth within the services division.

In the goods-producing sector at the major industry division level, all of the projected net wage and salary job growth is in construction with a projected gain of 490,000 jobs. Mining is expected to decline by 162,000 jobs. This decline is less than half the decline over the 1983–94 period. Manufacturing overall is expected to decline by 1.3 million wage and salary jobs from the 1994 level of 18.3 million to the 2005 projected level of 17.0 million. The projected employment decline for manufacturing seems contradictory to manufacturing's employment decline of 126,000 over the 1983–94 period. The decline between 1983 and 1994, however, was deceptively modest for two reasons. First, the 1983 level of employment was the result of 4 straight years of declines from the 1979 level of 21.0 million. Second, when measured from the 1989 peak of 19.4 million just prior to the 1990 recession, employment in manufacturing declined 1.1 million by 1994. The total decline in manufacturing employment over the 1979–1994 period was 2.7 million—nearly twice the projected 1.4-million job loss over the 1994–2005 period.

Three alternative projections were prepared for 2005, each representing a different set of economic and demographic assumptions. These alternative assumptions were designed to create three different growth scenarios: low, moderate, and high growth scenarios. This article focuses primarily on the moderate, or base case scenario, with the other alternatives discussed at the end of the article.

Goods-producing industries

Mining. Wage and salary employment in the mining division is expected to decline from 601,000 in 1994 to a level of 439,000 in 2005. Crude petroleum and oil and gas services industries accounted for more than half of mining employment in 1994. Together, these industries will also account for more than half of the decline (95,000) for all mining employment as domestic production declines and reliance on foreign oil continues to increase. The number of jobs in the coal mining industry is expected to decline by 42,000.

While employment had been declining, coal mining output has been flat since 1990 and is expected to remain flat throughout the projections period. Projected productivity gains in the coal mining industry, coupled with the flat growth in output, should result in continued employment declines.²

The combined wage and salary employment for the metal and nonmetallic mining industries is projected to decline by 23,000 jobs. Productivity gains, however, result in annual average output growth rates of 1.4 percent for metal mining and 0.9 percent for nonmetallic minerals mining.

Construction. The construction industry is projected to gain

490,000 jobs over the 1994–2005 period with an annual average growth rate of 0.9 percent. Since the late 1980's, wage and salary employment in construction has hovered around 5 million, except during the recession in the early 1990's when employment fell to 4.5 million. By 1994, construction employment had regained the losses and stood at 5.0 million. Some productivity gains are expected as a result of growth in such areas as modular construction and manufactured buildings so that output is expected to grow faster than employment. Demand growth for both residential and nonresidential construction will drive the output growth. Growth in nonresidential investment will be the stronger influence as it increases its share of GDP, while the growth of residential investment will slow with household formations. Output for construction is expected to grow at an annual average rate of 1.5 percent.

Manufacturing. Real output for manufacturing is projected to increase at an annual average rate of 2.0 percent over the 1994–2005 projection period. These output gains are a result of the mix of gradual improvements in the foreign trade balance and strong demand for durables by both consumers and business, offsetting further declines in defense procurement. Productivity gains are expected to result in a projected loss of 1.3 million jobs in manufacturing, declining in wage and salary employment at a rate of 0.7 percent. During the previous 11-year period (1983–94), on an annual basis, output grew by 3.0 percent, and employment declined by 0.1 percent. Manufacturing output is expected to maintain its share of total output while manufacturing employment is expected to decline as a share of the total. In 1983, manufacturing output was 29.7 percent of total output, 30.3 percent in 1994, and has a projected share of 29.6 percent for the year 2005. (See table 2.) Nonfarm wage and salary employment in manufacturing as a share of total nonfarm employment declined from 20.5 percent in 1983, to 16.1 percent in 1994, and is projected to fall to 13.0 percent in 2005.

As discussed earlier, the absolute decline of 126,000 in manufacturing employment from 1983 to 1994 is deceptive when compared with the projected decline of 1.3 million, making it appear that the decline in manufacturing employment is accelerating. The year 1983 marked the nadir for employment during the recession of the early 1980's, while 1994 was the first year of an upward turn in manufacturing employment following the 1990–91 recession. From the peak of 21.0 million in 1979 to the peak of 19.4 million in 1989, manufacturing lost 1.6 million jobs. When measured between the lowest points, which occurred during 1983 and 1993, the job loss was 354,000. Between the 1984 and 1994 levels, the first years with employment gains after the trough, the job loss was 1.1 million. Clearly, manufacturing employment has been on a downward trend since its peak just before the early

Table 1. Employment by major industry division, 1983, 1994, and projected to 2005

[Numbers in thousands]

Industry	Employment level					Change			
	1983	1994	2005			1983-94	1994-2005		
			Low	Moderate	High		Low	Moderate	High
Nonfarm wage and salary ¹	89,734	113,340	125,631	130,185	135,729	23,605	12,291	16,846	22,390
Goods producing	23,328	23,914	21,860	22,930	24,475	587	-2,054	-985	561
Mining	952	601	450	439	509	-351	-150	-162	-91
Construction	3,946	5,010	5,193	5,500	5,966	1,064	183	490	956
Manufacturing	18,430	18,304	16,218	16,991	18,000	-126	-2,086	-1,313	-304
Durable	10,707	10,431	8,803	9,290	10,045	-275	-1,628	-1,141	-386
Nondurable	7,723	7,873	7,415	7,700	7,955	149	-458	-172	82
Service producing	66,407	89,425	103,771	107,256	111,254	23,019	14,345	17,830	21,829
Transportation, communications, utilities	4,958	6,006	6,145	6,431	6,723	1,048	139	425	717
Wholesale trade	5,283	6,140	6,389	6,559	6,765	857	249	419	626
Retail trade	15,587	20,438	22,781	23,094	23,417	4,850	2,343	2,657	2,979
Finance, insurance, and real estate	5,466	6,933	7,076	7,373	7,721	1,468	143	439	788
Services ¹	19,242	30,792	42,072	42,810	43,678	11,550	11,280	12,018	12,886
Government	15,870	19,117	19,307	20,990	22,951	3,247	190	1,873	3,834
Agriculture ²	3,508	3,623	3,431	3,399	3,361	115	-192	-224	-263
Private household wage and salary Nonagricultural self-employed and unpaid family workers ³	1,247	966	818	800	779	-281	-149	-166	-187
Total ⁴	102,404	127,014	140,261	144,708	150,212	24,611	13,247	17,694	23,198
	Percent distribution of wage and salary employment					Annual rate of change			
	1983	1994	2005			1983-94	1994-2005		
			Low	Moderate	High		Low	Moderate	High
Nonfarm wage and salary ¹	100.0	100.0	100.0	100.0	100.0	2.1	0.9	1.3	1.7
Goods producing	26.0	21.1	17.4	17.6	18.0	.2	-.8	-.4	.2
Mining	1.1	.5	.4	.3	.4	-4.1	-2.6	-2.8	-1.5
Construction	4.4	4.4	4.1	4.2	4.4	2.2	.3	.9	1.6
Manufacturing	2.5	16.1	12.9	13.1	13.3	-.1	-1.1	-.7	-.2
Durable	11.9	9.2	7.0	7.1	7.4	-.2	-1.5	-1.0	-.3
Nondurable	8.6	6.9	5.9	5.9	5.9	.2	-.5	-.2	.1
Service producing	74.0	78.9	82.6	82.4	82.0	2.7	1.4	1.7	2.0
Transportation, communications, utilities	5.5	5.3	4.9	4.9	5.0	1.8	.2	.6	1.0
Wholesale trade	5.9	5.4	5.1	5.0	5.0	1.4	.4	.6	.9
Retail trade	17.4	18.0	18.1	17.7	17.3	2.5	1.0	1.1	1.2
Finance, insurance, and real estate	6.1	6.1	5.6	5.7	5.7	2.2	.2	.6	1.0
Services ¹	21.4	27.2	33.5	32.9	32.2	4.4	2.9	3.0	3.2
Government	17.7	16.9	15.4	16.1	16.9	1.7	.1	.9	1.7
Agriculture ²	—	—	—	—	—	.3	-.5	-.6	-.7
Private households	—	—	—	—	—	-2.3	-1.5	-1.7	-1.9
Nonagricultural self-employed and unpaid family workers ³	—	—	—	—	—	1.3	1.2	1.2	1.2
Total ⁴	—	—	—	—	—	2.0	.9	1.2	1.5

¹Excludes SIC 074,5,8 (agricultural services) and 99 (nonclassifiable establishments), and is therefore not directly comparable with data published in *Employment and Earnings*.

²Excludes government wage and salary workers, and includes private sector SIC 08, 09 (forestry and fisheries).

³Excludes SIC 08, 09 (forestry and fisheries).

⁴Employment data for wage and salary workers are from the BLS Current Employment Statistics (payroll) survey, which counts jobs, whereas self-employed, unpaid family worker, agricultural, and private household data are from the Current Population Survey (household survey), which counts workers.

NOTE: Dash indicates data not available.

1980's recession. Yet, because of productivity gains, manufacturing output has experienced growth consistent with overall economic growth and so has maintained its share of total output. The circumstances of growing output being offset by increasing productivity resulting in declining employment is expected to continue.

The output of *durable manufacturing* is driven by consumer, business, and foreign purchases of durable equipment. At the macro level, personal consumption of durables is projected to grow at an annual rate of 3.1 percent from 1994 to 2005, and investment in producer's durable equipment is projected to grow at an even faster rate of 3.8 percent. In comparison, GDP is projected to grow at 2.3 percent, and gross duplicated output of the total economy is projected to grow at 2.2 percent. The high rates of growth for personal consumption of durables and producer's durable equipment, however, will have the greatest affect on a few specific industries. As a result, the projected average annual growth of 2.2 percent for durable manufacturing output matches, rather than exceeds, the growth for total output in the economy.

Although real output for durable manufacturing is expected to increase, the number of jobs is projected to decline as a result of productivity gains. Of the 1.3 million decline in manufacturing jobs, a very large proportion (1.1 million) is accounted for by the employment decline in durable manufacturing. (See table 1.)

The industry groups within durable manufacturing with the strongest rates of output growth are: industrial machinery and equipment (3.9 percent); electronic and other electric equipment (3.5 percent); and instruments and related products (2.9 percent). These are the industry groups that benefit directly from the strong demand growth in either personal consumption of durables or producer's durable equipment. All of these industry groups are projected to experience declining employment.

The industrial machinery and equipment industry group includes the computer manufacturing industry. Businesses will put much of their equipment investments into purchases for computers, and consumers are expected to maintain strong demand for computer equipment. With a projected growth rate of 7.3 percent, the computer manufacturing industry has the fastest growing real output of the detailed industries for which BLS prepares projections. Historically, computer manufacturing has experienced phenomenal rates of growth and has increased its output share of both total manufacturing and durable manufacturing. In 1983, the computer manufacturing industry accounted for 1.1 percent of total manufacturing output and 2.2 percent of durable output. By 1994, the computer industry had increased its shares to 4.2 percent of total manufacturing output and 7.7 percent of durable output. With the projected growth rate of 7.3 percent over the 1994–2005 period, the computer manufacturing industry is expected to

account for 7.2 percent of all of manufacturing output, and 13.0 percent of durables output.³ However, because of rapid productivity increases, projected employment in the computer manufacturing industry is expected to decline from its 1994 level of 351,000 to the projected 2005 level, 263,000.

Development of projections in the face of rapidly changing technology is inherently difficult and must incorporate subjective analysis. This is especially true for the computer manufacturing industry, both in regards to the growth of the industry itself and to its impact on economic growth for all other industries collectively and separately. Undeniably, the computer manufacturing industry has shown tremendous growth in output and computers have brought about radical changes in the way many businesses function and the way many industrial processes are performed. It is not always clear, however, that these changes have resulted in increased productivity, or enhanced quality. If increased productivity and quality can be agreed upon, it is not always certain that the changes can be measured reliably.⁴ These issues have been topics of debate formally by researchers in academia, government and business, and informally in the public media. They, no doubt, will continue to be topics of debate for some time yet. For the purpose of these projections, the Bureau has to establish a working premise regarding these issues. That premise is: strong investment demand for computers will continue and will have a positive impact on productivity, but the assimilation must occur over time and, to the extent that computer technologies continue to change, the assimilation will be a continuing process. The projections for the computer manufacturing industry should be viewed as a general indicator of the industry's future growth with the understanding that a great deal of uncertainty must necessarily exist regarding these projections.

Within the industry group, electronic and other electric equipment, the communications equipment industry (3.8 percent) and the electronic components and accessories industry (5.5 percent) have the highest output growth rates. Output for the remaining industries have projected growth rates ranging from 1.9 to 0.1 percent — all less than the average 2.2 percent growth rate for total output. The average rate of output growth for this industry group is 3.5 percent. Although the projected output growth for this industry group is strong, continued growth in productivity is expected to result in a decline of 163,000 in wage and salary jobs from 1994 to 2005. Employment is projected to increase slightly by 9,000 for electronic components and accessories, but the remaining industries within this industry group are expected to have declining employment.

Technological change is the engine propelling output for both the communications equipment industry and the electronic components and accessories industry. The anticipation of regulatory change and of new markets made possible by

Table 2. Output by major industry division (gross duplicated output), 1983, 1994, and projected to 2005

[Billions of 1987 dollars]

Industry	Gross duplicated output					Percent distribution					Annual rate of change			
	1983	1994	2005			1983	1994	2005			1983-94	1992-2005		
			Low	Moderate	High			Low	Moderate	High		Low	Moderate	High
Total	6885.0	9443.9	11187.4	13099.9	13141.0	100.0	100.0	100.0	100.0	100.0	2.9	1.6	2.2	3.0
Goods producing	2675.5	3544.1	3998.8	4348.0	4809.6	38.6	37.5	35.7	36.1	36.7	2.6	1.1	1.9	2.8
Mining	147.6	130.7	126.2	125.8	139.1	2.1	1.4	1.1	1.0	1.1	-1.1	-.3	-.4	.6
Construction	471.1	554.6	611.5	654.1	717.5	6.8	5.9	5.5	5.4	5.5	1.5	.9	1.5	2.4
Manufacturing	2056.8	2858.8	3261.1	3568.2	3953.0	29.7	30.3	29.1	29.6	30.2	3.0	1.2	2.0	3.0
Durable	1036.3	1550.3	1808.5	1979.5	2246.1	15.0	16.4	16.1	16.4	17.1	3.7	1.4	2.2	3.4
Nondurable	1020.5	1308.5	1452.6	1588.7	1706.9	14.7	13.9	13.0	13.2	13.0	2.3	1.0	1.8	2.5
Service producing	4030.2	5664.2	6945.6	7452.9	8022.2	58.8	60.0	62.2	61.7	61.2	3.1	1.9	2.5	3.2
Transportation, communications, utilities	605.7	822.8	1078.1	1186.2	1273.1	8.7	8.7	9.8	9.7	9.7	2.8	2.5	3.2	4.0
Wholesale trade	341.8	578.3	666.3	731.2	815.7	4.9	6.1	5.9	6.1	6.2	4.9	1.3	2.2	3.2
Retail trade	542.5	762.9	913.2	985.7	1062.4	7.8	8.1	8.1	8.2	8.1	3.1	1.6	2.4	3.1
Finance, insurance, and real estate	998.7	1317.5	1601.6	1692.8	1797.4	15.1	14.0	14.3	14.1	13.7	2.6	1.8	2.3	2.9
Services	1008.9	1562.2	2044.2	2162.4	2319.6	14.5	16.5	18.2	18.0	17.7	4.1	2.5	3.0	3.7
Government	532.6	620.5	642.5	694.7	754.0	7.7	6.8	5.7	5.8	5.8	1.4	.3	1.0	1.8
Agriculture	172.5	226.5	234.1	251.5	258.2	2.5	2.4	2.1	2.1	2.0	2.5	.3	1.0	1.2
Private households	6.6	9.1	8.9	9.5	9.8	.1	.1	.1	.1	.1	2.9	-.1	.4	.8

SOURCE: Historical data from the Bureau of Economic Analysis, U.S. Department of Commerce; projections by the Bureau of Labor Statistics.

new technologies are also contributing to the projected growth of the communications equipment industry. The changes that are envisioned for the communications industry—broadcasting, cable, satellite and telephone communications—involve a blurring and blending of the traditional industries as regulatory reform is debated and as the businesses in these industries work to develop interactive communications products for consumers and businesses: movies on demand, on-line shopping, on-line information services, and the ability to stay on line to receive and make calls anywhere and anytime. This is truly a blue sky vista where it seems the possibilities are only limited by the imagination. The only certain thing is that the communications industry will continue to change in the future as the fallout of computer and information technology works its way through the economy. Consequently, the Bureau expects strong growth in investment of communications equipment as both consumers and the businesses in the communications industry position themselves to take advantage of the changing world of communications. Output for the electronic components and accessories industry (the provider of the semiconductor chips and the other electronic components for both the communications equipment industry and the computer and office equipment industry) will also grow as a consequence of the growth in output for these industries.

The growth in the instruments and related products industry group will be driven mostly by investment purchases and intermediate demand for medical equipment, instruments and

supplies, and for consumer demand for the products of the ophthalmic goods industry. The underlying demographic factor is the aging of the population and its greater requirements for health care and corrective lenses. Over the 1983-94 period, real output for this industry group grew at an annual rate of 3.7 percent. Employment, however, declined at an annual rate of 1.2 percent, for a loss of 127,000 jobs. The projected output growth rate for instruments and related products is 2.9 percent annually. The medical equipment, instruments and supplies industry has a projected output growth rate of 5.7 percent. It was the only industry within this industry group which had employment gains over the 1983-94 period (66,400 jobs) and is the only one projected to have an employment gain between 1994 and 2005: 41,000 jobs at a 1.3-percent annual growth rate. Employment for ophthalmic goods is projected to stay flat, as it has since the early 1980's, while output is projected to grow at a 3.9-percent annual rate. Overall, the industry group of instruments and related products is highly productive, and employment is expected to decline from the 1994 level of 863,000 to 798,000 in 2005.

Employment in the transportation equipment industry group has fluctuated between 1.7 million and slightly more than 2 million, rising during periods of general economic expansion (reaching the peak level in the late 1960's), and declining during economic contractions (up to the early 1990's). After the 1990-91 recession, however, employment continued to decline, in large part due to the impact of defense cut-

backs on the aerospace industry. Output growth since the late 1960's has also contracted during the recessions, but the long-term trend has been consistently growing at a rate slightly slower than the rate of growth for the total economy. The motor vehicles industry and the aerospace industry together make up about 90 percent of the output and a little more than 80 percent of the employment for the transportation equipment industry group.

Employment in the motor vehicles industry peaked in the late 1970's at 1 million. For most of the later part of the 1980's, employment has fluctuated around 860,000. During the 1990-91 recession, motor vehicle employment fell to 789,000, but subsequently climbed back up to 899,000 in 1994. Over the projections period, employment in the motor vehicles industry is projected to decline to 775,000 as a consequence of the combination of productivity increases and modest output growth. Two factors that will contribute towards the modest output growth are slow growth in the driving age population and a trend towards keeping and maintaining older cars.

The aerospace industry experienced steady increases in employment from the late 1970's to a peak of 905,000 in 1989. Largely because of defense cutbacks, employment fell to the 1994 level of 587,000 for a loss of 318,000 jobs, or a third of its workers. The impact of defense cutbacks on employment is expected to continue throughout the projections period. However, growth in air travel and the resultant demand for airplanes and parts is expected to offset most of the effect of the defense cutbacks so that employment is projected to decline slightly—to 552,000 by the year 2005.

The projected growth rate for *nondurable manufacturing* real output, at 1.8 percent annually, is slower than the projected 2.0-percent annual growth rate for all of manufacturing. Employment in nondurable manufacturing is expected to decline by 172,000, compared with the 1.1-million decline in jobs within the durable manufacturing industry. The nondurable industry groups that are expected to be the fastest growing, in terms of real output, are: paper and allied products at 2.5 percent growth rate; printing and publishing at 2.5 percent; chemicals and allied products at 2.0 percent; and rubber and miscellaneous plastics products at 2.9 percent.

The industry group, paper and allied products, supplies finished goods to consumers and industry as well as the raw pulp and paper to make finished paper products. The demand for this industry group's output depends upon the growth of the printing and publishing industry, and upon the demand for packaging of the products from other manufacturing industries. Productivity gains of the past are expected to continue, but the pace of productivity growth combined with the rate of output growth is expected to lead employment to grow slightly from the 1994 level of 691,000 to 708,000 in 2005.

Real output for the printing and publishing industry group

is projected to grow at an annual average rate of 2.5 percent. Employment is projected to increase by 85,000 from 1.5 million to 1.6 million. Most of the printing and publishing output and employment is in newspapers and commercial printing and business forms. Newspapers accounted for 450,000 of the group's employment while commercial printing and business forms accounted for 597,000. Newspapers are projected to stay relatively flat in both output and employment, with a projected output growth rate of -0.4 percent and employment loss of 37,000. Output for commercial printing and business forms has a projected growth rate of 3.3 percent, and a projected employment gain of 78,000 over the 1994-2005 period.

Productivity growth for the chemicals and allied products industry group as a whole is expected to result in employment remaining essentially flat with an increase of only 6,000 in an industry group that employed just over 1 million in 1994. Real output has a projected average annual growth rate of 2.0 percent over the 1994-2005 period. At the detailed level, the drugs⁵ industry has a projected annual growth rate for real output of 4.0 percent, with employment adding 62,000 jobs at a 1.9-percent rate of growth.

The rubber and miscellaneous plastics products industry group has a projected real output growth rate of 2.9 percent. Employment is expected to rise 78,000 from 952,000 to just over 1 million. The detailed industry miscellaneous plastics products has a projected increase of 110,000 in employment, more than offsetting the job losses in the remainder of the industry group. In rising from the 690,000 level of 1994, the job gains for miscellaneous plastics results in an annual growth rate of 1.4 percent. Output for this industry is projected to grow at the faster rate of 3.4 percent because of productivity growth.

Both of the major industry groups, textile mill products and apparel and other textile products,⁶ are expected to have declines in employment over the 1994-2005 period, continuing the 1983-94 declines. Employment in textile mill products declined from the 1983 level of 742,000 to 673,000 in 1994, and is projected to decline to 568,000 in 2005. For the apparel and other textile products industry, the employment levels were 1.2 million in 1983, 969,000 in 1994, and the 2005 level is projected at 772,000. For this industry group, all of the projected employment decline is in the apparel industry. In 1983, apparel employment was 990,000, but by 1994, it declined by 235,000 jobs to a level of 755,000. The projected decline over the 1994-2005 period is 208,000, resulting in an employment level of 547,000 in 2005. Although employment levels are projected to decline in these two industry groups, expected productivity gains result in slightly positive growth rates in output for both over the 1994-2005 periods: 0.2 for textile products and 0.5 for apparel and other textile products. The very slow growth in output also reflects

the fact that imports are projected to supply an increasing share of these goods.

Service-producing industries

Transportation. The transportation division is expected to add 476,000 jobs over the 1994–2005 period. Job gains over the 1983–94 period were slightly more than 1 million. The trucking and warehousing industry accounted for more than half (575,000) of those jobs. During the projections period, trucking and warehousing is expected to increase by another 203,000 jobs, rising from 1.8 million in 1994 to 2 million in 2005, at an average annual rate of 1.0 percent. Over the 1983–94 historical period, employment for trucking and warehousing grew at an average annual rate of 3.6 percent, while output grew at an annual rate of 5.4 percent, indicating strong gains in productivity. With increased use of such technologies as the global positioning systems, high rates of productivity growth are expected to continue. The projected annual average growth rate for trucking and warehousing output is 5.0 percent through 2005.

High productivity growth also is expected in the air transportation industry as air carriers adopt strategies to lower employment costs and increase plane load factors. Over the 1983–94 period, air transportation gained 293,000 jobs at an average annual rate of 4.6 percent. Over the 1994–2005 period, employment in air transportation is expected to grow from 748,000 to 870,000 for a gain of 122,000. The projected growth translates to an annual growth rate of 1.4 percent, much slower than the growth during the 1983–94 historical period.

Communications. Employment for communications⁷ reached a 1.4 million-peak in 1982. Most of this employment (1.1 million) was in telecommunications. Since 1982, employment for all of communications has stayed flat at around 1.3 million. The telecommunications share has gradually declined from 1.1 million in 1982 to the 1994 level of 903,000. Real output for communications has increased at an annual rate of 4.0 percent over the 1982–94 period. The high growth in output with employment remaining essentially flat indicates that communications is a high productivity industry. High productivity growth is expected to continue in the future.

The future shape of the communications industry is highly uncertain. In a fundamental sense, the communications infrastructure is analogous to the highway system or the railroad system: it is a conduit for information, entertainment, and communications just as the interstate highway or railroad systems are conduits for physical goods. The communications infrastructure is built on rapidly changing computing technology. Having been highly regulated in the past, the com-

munications industry seems to have a future of more deregulation, but the extent of which is yet unknown. Both the evolving technology and the unsettled regulatory issues make projecting output and employment problematic. But demand for information and communications will continue to be vital to our economic interests no matter how the issues of regulatory reform are decided. With the new technologies that are sure to come along, there will be many new information, entertainment, and communication services provided. Many will fail the test of the market, but many will find strong demand. In that context, these projections predicate a strong annual average growth of 3.1 percent in the output of the communications industry over the 1994–2005 projections period. With the expectation of productivity growth, employment is projected to decline slightly by 70,000 from the 1994 level of 1.3 million.

Wholesale and retail trade. Both wholesale trade and retail trade — with the *exception of eating and drinking places* — are expected to have healthy productivity gains. The productivity increases come from applications of inventory control and computerized order systems, and from restructuring of sales work forces. Wholesale trade is projected to gain 419,000 jobs from the 1994 level of slightly more than 6.1 million to reach slightly less than 6.6 million, the projected level in 2005. During the 1983–94 period, wholesale trade gained 857,000 jobs. The real output for wholesale trade is projected to grow at annual average rate of 2.2 percent, pacing the growth of the economy as a whole. By contrast, employment is projected to gain at an annual rate of 0.6 percent. Jobs in retail trade, excluding eating and drinking places, are projected to increase by 1.6 million from the 1994 level of 13.4 million to the 2005 level of 15.0 million. The projected job growth is significantly less than the growth of 2.8 million during the 1983–94 period. On an annual average basis, the projected employment growth rate is 1.1 percent. Output for retail trade is projected to grow at an annual average rate of 2.7 percent.

Real output for eating and drinking places is projected to grow at an annual rate of 1.1 percent between 1994 and 2005. Productivity is expected to remain flat, while employment growth is projected to pace output growth for a job gain of 1.0 million over the 1994–2005 projection period. This represents a slowing of employment growth for eating and drinking places, as compared with the 1983–94 period when employment grew by 2.0 million jobs.

Finance, insurance, and real estate. Depository institutions (banks, credit unions, savings and loans) are expected to have high rates of productivity growth through the projection period. It is expected that the mergers and consolidations in the industry will continue, resulting in employment loss as un-

profitable branches are closed and operations are combined and centralized. Additionally, banks will continue to extend the use of automatic tellers and other computerized means of providing services to customers, instead of hiring additional employees. The real output of depository institutions has a projected annual growth rate of 2.0 percent, while employment is projected to decline at an annual rate of 0.9 percent. The number of jobs declining in depository institutions is projected at 190,000, falling from slightly less than 2.1 million in 1994 to just under 1.9 million in 2005.

The security and commodity brokers industry has higher than average projected rates of growth for both output and employment. The projected annual growth rate for employment is 2.8 percent, and for real output, 7.0 percent. This makes the securities industry one of the fastest growing industries in terms of real output—second only to computer manufacturing. The projected rate of growth, however, represents a slowing of the 10-percent rate of growth over the 1983–94 period. Similarly, the projected 2.8-percent rate of employment growth is a decline from the 4.8-percent rate during the 1983–94 period. The gain in jobs for the security and commodity brokers industry is an expected 182,000, rising to 700,000 from the 1994 level of 518,000.

Employment for insurance carriers is expected to increase by 82,000 to slightly more than 1.6 million in 2005. Output is expected to increase at an annual rate of 1.9 percent, slightly slower than the 2.2 percent rate for total output. Productivity gains are expected to mirror the average gain in the economy as a whole. Employment in the industry of insurance agents, brokers and service is projected to increase only slightly from 686,000 to 702,000 for a gain of only 16,000. Output is projected to grow at a rate of 2.6 percent.

Employment in the real estate industry is projected to increase from 1.3 million in 1994 to 1.5 million in 2005—an annual rate of 0.7 percent. This is a significant slowing of employment growth in comparison to the 1983–94 period when employment grew at a 2.9-percent annual rate. Output is projected to grow at an annual rate of 2.2 percent, only slightly slower than the 2.6 percent rate of growth during the 1983–94 period. Computer applications such as on-line multiple listing services will contribute greatly to this industry's productivity increases.

Services division. Employment growth in the services division is overwhelmingly the most important result of these projections. The services division is a subset of the service-producing part of the economy, consisting of businesses that supply services (excluding transportation; finance, insurance, real estate; and retail and wholesale trade) to individuals and businesses. Of the 16.8-million increase in total nonfarm wage and salary jobs in the projection period, the services division

is expected to account for 12.0 million. Employment in the services division has a projected annual growth rate of 3.0 percent—more than twice the rate of growth for all nonfarm wage and salary jobs. As a share of total nonfarm wage and salary employment, the services division jobs accounted for 21.4 percent in 1983, 27.2 percent in 1994, and is projected to have a 32.9-percent share in 2005.

Within the services division, most of the projected job growth is in just two industry groups: business services, with a job gain of 3.8 million, and health services with a gain of 3.1 million. Together, these industry groups account for 57 percent of the job growth in the services division and 41 percent of the total nonfarm wage and salary growth. The industry group with the third largest projected job gains within the services division is social services at 1.4 million. Together, these three industry groups account for 69 percent of the job growth in the services division and almost half, 49 percent, of the total nonfarm wage and salary job growth.

The *health services* industry is undergoing changes even in the absence of legislated restructuring.⁸ The industry is becoming more cost conscious as it tries to deal with both political and economic realities. The increase in the 85-and-older-age group and the aging of the massive baby boom-generation will continue to strain health resources as these groups put pressure on demand for health services; the political realities demand cost containment in medicaid and medicare; new technologies, while lowering the costs of treatment and diagnosis, also enables identification and treatment of conditions not previously treatable. Also, rarely does a new medical technology fully displace an existing technology, as it often happens in the industrial world. As medical care becomes more intensive, the costs go up rather than down.

As a result of these pressures, certain overlapping trends have developed. One trend is the consolidation of health care institutions, especially those that create integrated delivery systems providing primary, hospital, and specialty care tied to an insurance mechanism. An emphasis on preventative health measures, keeping clients healthy and out of hospitals, is another trend that is exemplified by health maintenance organizations. An emphasis on greater use of outpatient treatment is another trend, pushed by the higher overhead costs of hospital stays and facilitated by technological developments. Hospitals themselves are placing a greater focus on outpatient treatment as a part of their business than they have in the past. In addition, nursing homes have become intermediate points for delivering care to patients discharged from hospitals but not yet able to go home. All of these trends are expected to ameliorate the growth of the health care industry, especially that of hospitals, but overall, strong growth is still expected into the future because of demand pressures.

The projected growth rate for employment in health services is 2.7 percent, slightly more than twice as fast as total

(text continues on page 57.)

Table 3. Employment by Industry, 1983, 1994, and projected 2005

Standard Industrial Classification	Industry title	Employment (in thousands)					Annual rate of growth ¹	
		1983	1994	2005			Employment 1994-2005	Output 1994-2005
				Low	Moderate	High		
	Nonfarm wage and salary ²	89,734	113,340	125,631	130,185	135,729	1.3	-
10-14	Mining	952	601	450	439	509	-2.8	-4
10	Metal mining	56	49	38	42	44	-1.5	1.4
12	Coal mining	194	112	63	70	77	-4.3	.2
131, 132	Crude petroleum, natural gas, and gas liquids	265	168	138	105	124	-4.2	-1.9
138	Oil and gas field services	333	168	127	136	173	-1.9	3.2
14	Nonmetallic minerals, except fuels	104	104	85	88	91	-1.5	.9
15, 16, 17	Construction	3,946	5,010	5,193	5,500	5,966	.9	1.5
20-39	Manufacturing	18,430	18,304	16,218	16,991	18,000	-.7	2.0
24, 25, 32-39	Durable manufacturing	10,707	10,431	8,803	9,290	10,045	-1.0	2.2
24	Lumber and wood products	670	752	649	685	729	-.9	.9
241	Logging	83	82	73	74	75	-.9	.6
242	Sawmills and planing mills	193	189	140	150	161	-2.1	.1
243	Millwork, plywood, and structural members	207	271	236	250	269	-.7	1.3
244, 9	Wood containers and miscellaneous wood products	119	138	133	139	147	.0	2.2
245	Wood buildings and mobile homes	69	73	67	72	78	-.1	.0
25	Furniture and fixtures	448	502	486	515	581	-.2	1.3
251	Household furniture	279	284	264	280	327	-.1	1.0
254	Partitions and fixtures	59	80	83	88	95	.9	1.2
252, 3, 9	Office and miscellaneous furniture and fixtures	110	138	138	146	159	.5	1.6
32	Stone, clay, and glass products	541	533	413	434	463	-1.8	.5
102403.5	Glass and glass products	165	153	118	125	24,611	-1.8	.4
324	Hydraulic cement	25	18	14	14	14	-2.2	.2
325, 6, 8, 9	Stone, clay, and misc mineral products .	167	164	115	124	136	-2.5	.2
327	Concrete, gypsum, and plaster products	184	198	166	172	180	-1.3	.9
33	Primary metal industries	832	699	508	532	565	-2.5	.1
331	Blast furnaces and basic steel products	341	239	150	155	163	-3.9	-.5
332	Iron and steel foundries	139	125	88	92	99	-2.7	-1.2
333	Primary nonferrous smelting and refining	50	41	32	36	39	-1.2	2.3
334, 9	All other primary metals	41	44	40	40	40	-.8	1.8
335	Nonferrous rolling and drawing	184	167	130	135	141	-1.9	.0
336	Nonferrous foundries	78	84	68	74	82	-1.2	-.2
34	Fabricated metal products	1,368	1,387	1,114	1,181	1,271	-1.5	.5
341	Metal cans and shipping containers	60	42	27	27	27	-3.9	.9
342	Cutlery, hand tools, and hardware	138	129	85	90	97	-3.2	-.2
343	Plumbing and nonelectric heating equipment	62	60	46	48	52	-1.9	-.3
344	Fabricated structural metal products	416	409	299	315	339	-2.3	.4
345	Screw machine products, bolts, rivets, etc.	86	96	73	78	84	-1.8	.5
346	Metal forgings and stampings	224	234	183	194	211	-1.7	.2
347	Metal coating, engraving, and allied services	96	124	134	140	150	1.1	2.5
348	Ordnance and ammunition	67	54	49	51	51	-.5	-.8
349	Miscellaneous fabricated metal products	219	241	218	238	260	-.1	.9
35	Industrial machinery and equipment	2,052	1,985	1,687	1,789	1,904	-1.0	3.9
351	Engines and turbines	104	90	69	70	73	-2.2	.2
352	Farm and garden machinery and equipment	107	105	84	87	91	-1.7	1.6
353	Construction and related machinery	245	210	182	188	204	-1.0	1.6
354	Metalworking machinery and equipment	298	322	283	291	304	-.9	-.4
355	Special industry machinery	151	155	149	150	151	-.3	1.8
356	General industrial machinery and equipment	234	243	228	235	250	-.3	-.4
357	Computer and office equipment	474	351	240	263	293	-2.6	7.3
358	Refrigeration and service industry machinery	158	190	181	192	210	.1	1.1
359	Industrial machinery, n.e.c.	282	319	273	292	329	-.8	1.7
36	Electronic and other electric equipment ..	1,704	1,571	1,347	1,408	1,524	-1.0	3.5

Table 3. Continued—Employment by industry, 1983, 1994, and projected 2005

Standard Industrial Classification	Industry title	Employment (in thousands)					Annual rate of growth ¹	
		1983	1994	2005			Employment 1994-2005	Output 1994-2005
				Low	Moderate	High		
361	Electric distribution equipment	103	82	69	70	71	-1.5	.1
362	Electrical industrial apparatus	190	156	115	116	118	-2.7	.3
363	Household appliances	138	123	92	98	109	-2.1	1.5
364	Electric lighting and wiring equipment ..	187	176	148	155	167	-1.2	1.3
365	Household audio and video equipment ..	87	89	55	55	54	-4.2	1.2
366	Communications equipment	279	244	200	210	225	-1.3	3.8
367	Electronic components and accessories ..	563	544	522	553	620	.1	5.5
369	Miscellaneous electrical equipment	157	156	146	151	159	-.3	1.9
37	Transportation equipment	1,731	1,749	1,455	1,567	1,744	-1.0	1.8
371	Motor vehicles and equipment	754	899	715	775	883	-1.3	1.6
372, 6	Aerospace	702	587	517	552	605	-.6	2.2
373	Ship and boat building and repairing	183	159	120	131	140	-1.8	-1.0
374	Railroad equipment	30	35	34	35	36	-.1	3.6
375, 9	Miscellaneous transportation equipment ..	62	69	69	75	81	.8	3.5
38	Instruments and related product	990	863	771	798	836	-.7	2.9
381	Search and navigation equipment	311	180	126	132	141	-2.8	.5
382	Measuring and controlling devices	300	284	234	248	273	-1.2	1.9
384	Medical equipment, instruments, and supplies	198	265	305	306	307	1.3	5.7
385	Ophthalmic goods	38	37	36	37	38	-.1	3.9
386	Photographic equipment and supplies ..	128	89	66	70	72	-2.2	2.1
387	Watches, clocks, and parts	16	8	4	5	5	-5.3	-.5
39	Miscellaneous manufacturing industries ..	370	391	374	404	428	.3	1.8
391	Jewelry, silverware, and plated ware	54	51	43	44	44	-1.5	-1.0
394	Toys and sporting goods	106	115	120	135	143	1.4	2.8
393, 5, 6, 9	Manufactured products, n.e.c.	211	224	211	225	240	.0	1.9
2023, 2631	Nondurable manufacturing	7,723	7,873	7,415	7,700	7,955	-.2	1.8
20	Food and kindred products	1,612	1,680	1,693	1,696	1,696	.1	1.3
201	Meat products	346	451	514	515	513	1.2	1.2
202	Dairy products	164	149	132	133	133	-1.0	1.9
203	Preserved fruits and vegetables	220	245	252	260	264	.5	1.4
204, 7	Grain mill products and fats and oils	170	160	166	161	158	.0	1.4
205	Bakery products	220	213	196	195	194	-.8	.4
206	Sugar and confectionery products	103	99	89	90	90	-.9	.4
208	Beverages	222	178	130	132	134	-2.7	.8
209	Miscellaneous food and kindred products ..	165	185	213	211	210	1.2	2.3
21	Tobacco products	68	42	28	26	26	-4.2	-.4
22	Textile mill products	742	673	521	568	608	-1.5	.2
2214, 6, 8	Weaving, finishing, yarn, and thread mills ..	432	358	253	281	303	-2.2	-.2
225	Knitting mills	207	199	157	173	187	-1.2	.0
227	Carpets and rugs	49	64	64	65	68	.1	1.0
229	Miscellaneous textile goods	55	52	47	49	51	-.6	1.3
23	Apparel and other textile products	1,163	969	723	772	815	-2.1	.5
2318	Apparel	990	755	512	547	577	-2.9	-.4
239	Miscellaneous fabricated textile products ..	173	215	211	225	238	.4	2.6
26	Paper and allied products	654	691	674	708	730	.2	2.5
261-3	Pulp, paper, and paperboard mills	249	232	211	218	222	.6	2.7
265	Paperboard containers and boxes	191	213	216	230	240	.7	1.8
267	Converted paper products except containers	214	246	247	260	267	.5	2.9
27	Printing and publishing	1,298	1,542	1,576	1,627	1,676	.5	2.5
271	Newspapers	426	450	400	413	424	.8	-.4
272	Periodicals	100	135	156	163	169	1.7	2.1
273	Books	98	120	125	130	134	.8	2.7
274	Miscellaneous publishing	56	84	84	85	86	.1	3.6
275, 6	Commercial printing and business forms ..	480	597	653	675	699	1.1	3.3
277	Greeting cards	23	29	33	32	32	1.0	4.7
278	Blankbooks and bookbinding	65	70	75	77	80	.8	2.6
279	Service industries for the printing trade ..	49	57	51	53	54	-.7	2.6
28	Chemicals and allied products	1,043	1,061	1,032	1,067	1,089	.1	2.0
281, 6	Industrial chemicals	314	277	253	259	260	-.6	.9
282	Plastics materials and synthetics	177	162	138	143	145	-1.1	1.4
283	Drugs	201	263	309	325	337	1.9	4.0
284	Soap, cleaners, and toilet goods	142	153	164	165	166	.7	2.5
285	Paints and allied products	60	58	46	48	51	-1.6	1.4

Table 3. Continued—Employment by industry, 1983, 1994, and projected 2005

Standard Industrial Classification	Industry title	Employment (in thousands)					Annual rate of growth ¹	
		1983	1994	2005			Employment 1994-2005	Output 1994-2005
				Low	Moderate	High		
287	Agricultural chemicals	61	55	39	43	44	-2.3	1.2
289	Miscellaneous chemical products	89	93	83	85	87	-.9	.9
29	Petroleum and coal products	196	149	142	140	137	-5	2.1
291	Petroleum refining	158	109	105	103	98	-5	2.2
295, 9	Miscellaneous petroleum and coal products	37	40	37	38	39	-.5	.9
30	Rubber and miscellaneous plastics products	743	952	972	1,030	1,100	.7	2.9
301	Tires and inner tubes	94	80	59	60	63	-2.5	.2
302, 5, 6	Rubber products and plastic hose and footwear	171	182	158	170	185	-.6	1.9
308	Miscellaneous plastics products, n.e.c. .	478	690	755	800	853	1.4	3.4
31	Leather and leather products	205	114	54	65	79	-4.9	-1.9
313, 4	Footwear, except rubber and plastic	136	61	20	29	40	-6.7	-5.0
311, 57, 9	Luggage, handbags, and leather products, n.e.c.	69	53	34	37	39	-3.3	-.3
4042, 4449	Transportation, communications, utilities	4,958	6,006	6,145	6,431	6,723	.6	3.2
4042, 4447	Transportation	2,748	3,775	4,060	4,251	4,436	1.1	4.0
40	Railroad transportation	376	241	172	186	199	-2.3	1.3
41	Local and inter-urban passenger transit ..	257	410	474	490	499	1.6	.0
42	Trucking and warehousing	1,222	1,797	1,903	2,000	2,099	1.0	5.0
44	Water transportation	189	169	158	165	175	-.2	2.0
45	Air transportation	455	748	830	870	910	1.4	3.7
46	Pipelines, except natural gas	20	18	14	15	16	-1.6	-.2
47	Transportation services	229	393	509	525	541	2.7	6.5
472	Passenger transportation arrangement .	120	197	237	255	272	2.4	6.2
473, 4, 8	Miscellaneous transportation services ..	109	195	272	270	269	3.0	6.7
48	Communications	1,324	1,305	1,190	1,235	1,279	-.5	3.1
49	Electric, gas, and sanitary services	887	927	895	945	1,007	.2	2.0
491, pt. 493	Electric utilities	560	516	465	485	517	-.6	2.2
492, pt. 493	Gas utilities	224	197	159	160	164	-1.9	1.5
4947, pt. 493	Water and sanitation	102	213	272	300	327	3.2	2.7
50, 51	Wholesale trade	5,283	6,140	6,389	6,559	6,765	.6	2.2
5259	Retail trade	15,587	20,438	22,781	23,094	23,417	1.1	2.4
5257, 59	Retail trade except eating and drinking places	10,549	13,369	14,523	15,005	15,495	1.1	2.7
58	Eating and drinking places	5,038	7,069	8,258	8,089	7,922	1.2	1.1
6067	Finance, insurance, and real estate	5,466	6,933	7,076	7,373	7,721	.6	2.3
60	Depository institutions	2,048	2,076	1,812	1,886	1,961	-.9	2.0
61, 67	Nondepository; holding and investment offices	385	730	968	970	973	2.6	3.0
62	Security and commodity brokers	308	518	679	700	719	2.8	7.0
63	Insurance carriers	1,229	1,551	1,597	1,633	1,668	.5	1.9
64	Insurance agents, brokers, and services ..	499	686	696	702	709	.2	2.6
65	Real estate	997	1,373	1,324	1,482	1,691	.7	2.2
NA	Royalties	-	-	-	-	-	.0	2.6
NA	Owner-occupied dwellings	-	-	-	-	-	.0	.7
70-87, 89	Services ²	19,242	30,792	42,072	42,810	43,678	3.0	3.0
70	Hotels and other lodging places	1,172	1,618	1,875	1,899	1,928	1.5	1.5
72	Personal services	869	1,139	1,372	1,374	1,373	1.7	1.0
721, 5	Laundry, cleaning, and shoe repair	356	428	487	500	510	1.4	.5
722, 9	Personal services, n.e.c.	118	225	331	314	299	3.1	2.3
723, 4	Beauty and barber shops	323	397	455	460	462	1.3	.6
726	Funeral service and crematories	72	89	98	100	102	1.1	-1.0
73	Business services	2,948	6,239	9,796	10,032	10,313	4.4	4.5
731	Advertising	171	224	250	250	250	1.0	1.4
734	Services to buildings	559	855	1,325	1,350	1,379	4.2	3.6
735	Miscellaneous equipment rental and leasing	111	216	319	325	332	3.8	.3
736	Personnel supply services	619	2,254	3,507	3,564	3,635	4.3	6.0
737	Computer and data processing services .	416	950	1,516	1,611	1,725	4.9	4.9
732, 3, 8	Miscellaneous business services	1,074	1,741	2,880	2,932	2,992	4.9	4.7
75	Auto repair, services, and garages	619	971	1,304	1,345	1,368	3.0	2.3
751	Automotive rentals, without drivers	126	174	222	227	231	2.4	2.6
752-4	Automobile parking, repair, and services	493	796	1,082	1,119	1,137	3.1	2.0
76	Miscellaneous repair shops	287	334	393	400	407	1.7	2.2
762	Electrical repair shops	91	105	123	125	127	1.6	1.8

Table 3. Continued—Employment by industry, 1983, 1994, and projected 2005

Standard Industrial Classification	Industry title	Employment (in thousands)					Annual rate of growth ¹	
		1983	1994	2005			Employment 1994-2005	Output 1994-2005
				Low	Moderate	High		
763, 4	Watch, jewelry, and furniture repair	28	26	25	25	25	-0.5	3.2
769	Miscellaneous repair services	169	202	245	250	255	1.9	2.2
78	Motion pictures	268	471	588	591	596	2.1	3.1
781-3	Motion pictures	214	333	433	426	419	2.2	3.0
784	Video tape rental	54	138	155	165	177	1.7	3.2
79	Amusement and recreation services	853	1,344	1,846	1,844	1,848	2.9	2.4
792	Producers, orchestras, and entertainers ..	94	148	197	200	204	2.8	3.0
793	Bowling centers	97	85	73	73	73	-1.5	-1.8
794	Commercial sports	76	106	147	137	131	2.4	1.1
791, 9	Amusement and recreation services, n.e.c.	586	1,005	1,431	1,434	1,441	3.3	2.6
80	Health services	5,986	9,001	11,985	12,075	12,321	2.7	2.9
801-4	Offices of health practitioner	1,503	2,546	3,560	3,525	3,472	3.0	3.4
805	Nursing and personal care facilities	1,106	1,649	2,377	2,400	2,474	3.5	3.1
806	Hospitals, private	3,037	3,774	4,175	4,250	4,451	1.1	1.6
807-9	Health services, n.e.c.	341	1,032	1,873	1,900	1,925	5.7	6.2
81	Legal services	602	927	1,240	1,270	1,300	2.9	2.9
82	Educational services	1,225	1,822	2,336	2,400	2,437	2.5	2.8
83	Social services	1,188	2,181	3,637	3,639	3,623	4.8	3.3
832, 9	Individual and miscellaneous social services	464	779	1,273	1,314	1,335	4.9	3.8
833	Job training and related services	190	298	443	425	411	3.3	.7
835	Child day care services	284	502	840	800	766	4.3	1.0
836	Residential care	251	602	1,082	1,100	1,111	5.6	5.4
84	Museums, botanical, zoological gardens ..	43	79	112	112	112	3.2	4.7
86	Membership organizations	1,510	2,059	2,156	2,336	2,488	1.2	2.6
87, 89	Engineering, management, and related services	1,673	2,607	3,431	3,494	3,565	2.7	2.5
871	Engineering and architectural services ..	576	775	1,008	1,044	1,086	2.7	2.0
873	Research and testing services	384	563	743	745	747	2.6	5.0
874	Management and public relations	327	716	1,037	1,049	1,062	3.5	1.7
872, 89	Accounting, auditing, and other services Government	387	553	642	656	670	1.6	1.4
	Federal government	15,870	19,117	19,307	20,990	22,951	.9	1.0
	Federal enterprises	2,774	2,870	2,607	2,635	2,667	-8	.2
	US Postal Service	890	1,017	898	935	976	-8	2.3
	Federal electric utilities	685	818	726	760	797	-7	2.8
	Federal government enterprises, n.e.c. ..	43	27	24	25	27	-9	.5
	Federal general government	162	172	148	150	152	-1.2	2.2
	State and local government	1,884	1,853	1,709	1,700	1,691	-8	-7
	State and local enterprises	13,096	16,247	16,701	18,355	20,284	1.1	1.4
	Local government passenger transit	782	941	1,073	1,113	1,146	1.5	2.2
	State and local electric utilities	180	214	249	260	266	1.8	-1
	State and local government enterprises, n.e.c.	73	86	102	100	98	1.3	1.6
	State and local general government	529	641	722	753	782	1.5	2.7
	State and local government hospitals ...	12,314	15,306	15,628	17,242	19,138	1.1	1.2
	State and local government education ..	1,115	1,081	994	1,090	1,202	.1	-2
	State and local general government, n.e.c.	6,589	8,365	9,058	10,000	11,108	1.6	1.8
01, 02, 07, 08, 09	Agriculture ⁴	4,610	5,860	5,576	6,152	6,829	.4	.4
01, 02	Agricultural production	3,508	3,623	3,431	3,399	3,361	-6	1.0
7	Agricultural services	2,727	2,326	1,813	1,799	1,783	-2.3	.9
08, 09	Forestry, fishing, hunting, and trapping ...	699	1,197	1,528	1,514	1,494	2.2	2.2
88	Private households wage and salary	82	100	90	87	84	-1.3	-2.3
	Nonagricultural self-employed and unpaid family ⁵	1,247	966	818	800	779	-1.7	.4
	Total ⁶	7,914	9,085	10,382	10,324	10,343	1.2	-
		102,404	127,014	140,261	144,708	150,212	1.2	2.2

¹ Rates are based on moderate scenario.

² Comparable estimate of output growth is not available.

³ Excludes sic 074,5,8 (agricultural services) and 99 (nonclassifiable establishments). The data, therefore are not exactly comparable with data published in *Employment and Earnings*.

⁴ Excludes government wage and salary workers, and includes private sic 08, 09 (forestry and fisheries).

⁵ Excludes SIC 08, 09 (forestry and fisheries).

⁶ Employment for wage and salary workers are from the Current Employment Statistics (payroll) survey, which counts jobs, whereas self-employed, unpaid family worker, agricultural, and private household data are from the Current Population Survey (household survey), which counts workers. These totals for 1983 and 1994, therefore, differ from the official employment estimates of the Bureau of Labor Statistics.

NOTE: Dash indicates data not available. n.e.c. = not elsewhere classified.
SOURCE: Historical output data are from the Bureau of Economic Analysis, U.S. Department of Commerce.

nonfarm wage and salary job growth. Over the 1983–94 period, health services employment grew at an annual rate of 3.8 percent, compared with 2.1 percent for total nonfarm job growth. Health services employment has grown from 6 million in 1983, to 9 million in 1994, and is projected to increase to 12.1 million. The growth in health services employment accounted for 12.7 percent of total nonfarm job growth during the 1983–94 period, and is expected to account for 17.9 percent of the growth through 2005. Within the health services sector, hospitals are projected to be the slowest growing industry and may, in fact, show little growth in the near future as consolidation and cost-cutting policies take effect. On the other hand, offices of practitioners, nursing and personal care facilities, and miscellaneous health services are all projected to have employment growth rates of 3 percent or more, placing them among the fastest growing industries. (See table 3.)

Employment in the *business services* industry grew at a 7.0-percent annual rate from 2.9 million in 1983 to 6.2 million in 1994. This rate of growth made it the fastest growing industry group during that period. The projected level of employment, 10.0 million, reflects an increase of 3.8 million at a 4.4-percent rate of employment growth through 2005. Although the projected rate of growth for business services employment is slower than the historical period, it will still be the second fastest growing industry group, outpaced only by social services at a projected 4.8-percent rate of growth.

Among the six detailed industries within the business services group, the three which added the most jobs over the historical 1983–94 period accounted for 86 percent of the employment growth in business services. They are personnel supply services (composed mostly of the temporary help services), adding 1.6 million jobs at a 12.5 percent annual growth rate; miscellaneous business services (credit reporting agencies; mailing and commercial art and photography services; detective, guard and security services; news syndicates; photo finishing labs; and all other business services) adding 667,000 at a 4.5-percent rate of

Table 4. Employment change in selected industries, 1994–2005

[Numbers in thousands]

Standard Industrial Classification	Industry description	Wage and salary employment			
		Levels		Change	Annual rate of change
		1994	2005	1994–2005	1994–2005
Fastest growing					
807-9	Health services, n.e.c.	1032.1	1900.0	867.9	5.7
836	Residential care	602.0	1100.0	498.0	5.6
737	Computer and data processing services	950.0	1610.5	660.5	4.9
832, 9	Individual and miscellaneous social services	778.7	1314.3	535.6	4.9
732, 3, 8	Miscellaneous business services	1741.4	2932.0	1190.6	4.9
736	Personnel supply services	2253.6	3564.0	1310.4	4.3
835	Child day care services	501.9	800.0	298.1	4.3
734	Services to buildings	854.5	1350.0	495.5	4.2
735	Miscellaneous equipment rental and leasing	215.5	325.0	109.5	3.8
874	Management and public relations	716.1	1049.3	333.2	3.5
805	Nursing and personal care facilities	1648.8	2400.0	751.2	3.5
791, 9	Amusement and recreation services, n.e.c.	1005.2	1434.1	428.9	3.3
833	Job training and related services	298.1	425.0	126.9	3.3
84	Museums, botanical, zoological gardens	79.0	112.0	33.0	3.2
494-7, pt. 493	Water and sanitation	213.1	300.0	86.9	3.2
752-4	Automobile parking, repair, and services	796.4	1118.5	322.1	3.1
722, 9	Personal services, n.e.c.	225.3	314.0	88.7	3.1
102403.5	Miscellaneous transportation services	195.3	270.4	75.1	3.0
801-804	Offices of health practitioners	2545.5	3500.0	954.5	2.9
81	Legal services	926.8	1270.0	343.2	2.9
Most rapidly declining					
313, 4	Footwear, except rubber and plastic	61.0	28.6	-32.4	-6.7
387	Watches, clocks, and parts	8.4	4.6	-3.8	-5.3
12	Coal mining	112.3	69.5	-42.8	-4.3
365	Household audio and video equipment	88.6	55.0	-33.6	-4.2
21	Tobacco products	42.2	26.3	-15.9	-4.2
131, 2	Crude petroleum, natural gas, and gas liquids	167.6	104.6	-63.0	-4.2
341	Metal cans and shipping containers	41.8	26.9	-14.9	-3.9
331	Blast furnaces and basic steel products	238.8	154.9	-83.9	-3.9
311, 3-7, 319	Luggage, handbags, and leather products, n.e.c.	52.6	36.5	-16.1	-3.3
342	Cutlery, hand tools, and hardware	129.3	89.9	-39.4	-3.2
231-8	Apparel	754.7	546.6	-208.1	-2.9
381	Search and navigation equipment	179.6	132.0	-47.6	-2.8
332	Iron and steel foundries	124.9	92.4	-32.5	-2.7
362	Electrical industrial apparatus	156.0	115.9	-40.1	-2.7
208	Beverages	177.8	132.2	-45.6	-2.7
357	Computer and office equipment	351.0	263.0	-88.0	-2.6
301	Tires and inner tubes	79.6	60.0	-19.6	-2.5
325, 6, 8, 9	Stone, clay, and miscellaneous mineral products	163.9	123.8	-40.1	-2.5
344	Fabricated structural metal products	409.0	315.3	-93.7	-2.3
40	Railroad transportation	240.5	185.9	-54.6	-2.3

n.e.c. = not elsewhere classified.

growth; and computer and data processing services adding 534,000 at an annual growth rate of 7.8 percent. Over the projections period, personnel supply services is projected to increase by 1.3 million jobs at a 4.3-percent annual growth rate. Computer and data processing services, at a 4.9-percent annual rate of growth, is projected to add 661,000 jobs. Miscellaneous business services, at a 4.7-percent annual rate of growth, has a projected gain of 1.2 million jobs. The projected employment growth rate for miscellaneous business services is slightly faster than the 1983–94 growth rate. For computer and data processing services, and for personnel supply services, the projected rates of growth are a slowing of the 1983–94 rates. Even so, all three of these industries, as can be seen in table 3, are among the fastest growing industries in terms of employment.

Employment for the *social services* industry increased by 1 million at a 5.7-percent annual rate of growth over the 1983–94 period. The projected employment increase through 2005 is 1.5 million, resulting in a total of 3.6 million jobs in social services. Almost a third of the projected job gains (498,000) are in the residential care industry. This industry includes institutions which provide full-time assistance to older persons and others who do not require full-time nursing but do require assisted living arrangements. The projected increase in the older population is a driving factor for the employment growth of this industry. The child care⁹ industry is expected to add 298,000 jobs, while individual and miscellaneous social services has a projected increase of 535,000 jobs. The remaining industry in social services—job training and related services—is projected to add 127,000 jobs. All of the detailed industries in the social services industry group are among the fastest growing industries in terms of employment. (See table 4.)

Government

Employment in the public sector is projected to increase by 1.9 million through 2005 from the 1994 level of 19.1 million. This reflects an annual growth rate of 0.9 percent, slower than the total nonfarm wage and salary growth of 1.3 percent. Federal Government employment is projected to decline by 235,000 as downsizing continues in the federal sector. In 1994, employment in the federal sector was slightly less than 2.9 million, and is projected to decline to slightly more than 2.6 million by 2005.

State and local government is projected to increase from the 1994 level of 16.2 million to 18.4 million jobs in 2005. Of the 2.1 million jobs gained in State and local employment, 1.6 million are in State and local education¹⁰ as a consequence of the growth in the school-age population. As the following tabulation shows, the elementary school population (ages 5 to 13) is expected to rise by 2.2 million between 1994 and

2005. The secondary school population (ages 14 to 17) has a projected increase of 2.6 million, and the post secondary school population (ages 18 to 24) of 3.1 million.¹¹

Year	Population (millions)		
	Age 5–13	Age 14–17	Age 18–24
1970	36.7	15.9	24.5
1975	33.9	17.1	28.0
1980	31.2	16.2	30.0
1985	30.0	14.9	28.9
1990	32.0	13.3	26.8
1994	33.7	14.4	25.3
2005	35.9	17.0	28.4

ALTERNATIVE PROJECTIONS TO THE MODERATE CASE are derived by varying macro-level factors. The low-growth alternative is characterized by a slower growing labor force, slower growth in capital and consumer spending, a higher rate of inflation, and a higher valued dollar on the foreign exchange markets. The result is an economy that is reminiscent of the high inflation, low growth U.S. economy during the 1970's. Labor productivity is slower than in the moderate growth case. The high-growth alternative is driven by higher growth in population estimates and labor force participation rates, lower inflation rates, and lower energy cost increases. These factors result in faster growth in capital and consumer spending. A lower valued dollar on the foreign exchange markets and strong foreign demand for U.S. products results in strong export growth.¹²

The low growth scenario has a gain in nonfarm wage and salary jobs of 12.3 million in contrast to the moderate scenario's 16.8 million gain. The goods-producing sector is projected to have a net decline of 2.1 million jobs, as compared with the moderate growth scenario's decline of 1.0 million. Of the 2.1-million net decline, mining is expected to experience a loss of 150,000 jobs; construction, a gain of 183,000 jobs; and manufacturing, a decline by 2.1 million jobs. The service-producing sector is projected to gain 14.3 million jobs in the low-growth alternative, compared with 17.8 million jobs in the moderate growth scenario. The services division accounts for 79 percent, or 11.3 million, of the service-producing sector's employment growth in the low alternative, compared with 68 percent in the moderate case.

The high-growth alternative projects a much stronger increase in nonfarm wage and salary employment (22.4 million). For this alternative, the goods-producing sector is projected to have a net increase of 561,000 jobs, rather than a decline as in the moderate case. With an increase of 956,000 jobs in the high case, construction has almost twice the em-

ployment growth of the moderate case. In the high scenario, the decline of 91,000 jobs in mining employment is a little more than half the moderate case decline for the industry. Manufacturing is projected to decline by 304,000 jobs or less than one-fourth of the decline in the moderate scenario. Also in the high growth scenario, nondurable manufacturing is projected to increase slightly by 82,000, while durable manufacturing is projected to decline by 386,000—about a third of the decline in the moderate growth scenario. The service-

producing sector is expected to have an employment gain of 21.8 million, with only about 60 percent, or 12.9 million attributed to the services division. Government, as a component of the service producing sector, is expected to have an employment gain of 3.8 million, as compared with the moderate case gain of 1.9 million. In both the high and moderate growth scenarios, State and local employment is projected to account for all public sector employment growth, while federal employment is expected to decline. □

Footnotes

¹ For further discussion of the macro economic influences, see Norman C. Saunders, "The U.S. economy to 2005," *Monthly Labor Review*, November 1995, pp. 10–28.

² This article discusses gross duplicated output, which includes not only GDP, or all final demand purchases of new goods and services, but also all new goods and services produced as intermediate goods for use in further production.

³ The growth in share accounted for by computers is in part a consequence of the deflation methodology used to capture and exclude the price effects related to rapid changes in technology. Base-weighted deflators combined with very large price changes might lead to some overstatement of the share of computers in industrial machinery and overall GDP. For further discussion of this issue see Allen H. Young, "Alternative Measures of Change in Real Output and Prices," pp. 32–48, and Jack E. Triplett, "Economic Theory and BEA's Alternative Quantity and Price Indexes," pp. 49–52, both in *Survey of Current Business* (U.S. Department of Commerce, Bureau of Economic Analysis, April 1992).

⁴ At the heart of the question of computer's impact on productivity is the issue of reliably measuring real output. One facet of that issue is deflation of the current dollar measure of output. For the current Bureau of Economic Analysis efforts to more reliably deflate GDP and their plans to change to an index (rather than level) presentation of GDP, see "Mid-Decade Strategic Review of BEA's Economic Accounts: Maintaining and Improving Their Performance," pp. 36–66 *Survey of Current Business* (U.S. Department of Commerce, Bureau of Economic Analysis, February 1995).

⁵ For more in-depth reading, see Stephen Heffler, "Drugs manufacturing: a prescription for jobs," *Monthly Labor Review*, March 1995, pp. 12–22.

⁶ For more in-depth reading, see Lauren A. Murray, "Unraveling employment trends in textiles and apparel," *Monthly Labor Review*, August 1995, pp. 62–72.

⁷ In the past, the Bureau's projections of the communications division were disaggregated into *telecommunications* and *radio and television broadcasting including cable*. However, because of the ongoing debate about regulatory reform, and the market and technological research efforts of cable, broadcasting, and telecommunications firms to ready themselves to cross industry boundaries once the regulatory reforms are in place, this set of projections has a projection only for communications as a whole.

⁸ For more in-depth reading regarding factors affecting output and employment of the health care industry, see: Laura Freeman, "Home-sweet-home health care," pp. 3–11; Barbara H. Wootton and Laura T. Ross, "Hospital staffing patterns in urban and nonurban areas," pp. 23–33, both in the *Monthly Labor Review*, March 1995.

⁹ For more in-depth reading, see William Goodman, "Boom in day care industry the result of many social changes," *Monthly Labor Review*, August 1995, pp. 3–12.

¹⁰ For further reading, see Teresa L. Morisi, "Employment in public schools: the student-to-employee ratio," *Monthly Labor Review*, July 1994, pp. 40–44.

¹¹ For 1970 and 1975, "Preliminary Estimates of the Population of the United States, by Age, Sex, and Race: 1970 to 1981," *Current Population Reports*, Series P-25, No. 917 (Bureau of the Census, 1982). For 1980 and 1985, "U.S. Population Estimates, by Age, Sex, Race, and Hispanic Origin: 1980 to 1991," *Current Population Reports*, Series P-25, No. 1095 (U.S. Department of Commerce, Bureau of the Census, 1992). For 1990, 1994 and projected 2005, "Population Projections of the United States, by Age, Sex, Race, and Hispanic Origin, 1995 to 2050," *Current Population Reports*, Series P-25, No. 1130 (U.S. Department of Commerce, Bureau of the Census, 1995).

¹² See Norman C. Saunders, "The U.S. economy to 2005," for a more complete discussion of the macro economic alternatives.