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Employment outlook: 1998–2008

Industry output and employment projections to 2008

The services and retail trade industry divisions will account for nearly three-fourths of all new jobs from 1998–2008, a continuation of the 1988–98 pattern of employment growth

Allison Thomson

Total employment in the United States is projected to increase by 20.3 million between 1998 and 2008, from 140.5 million to 160.8 million. The projected average annual growth rate of 1.4 percent is 0.2 percent slower than the rate experienced over the period 1988–98. The majority of growth in total employment is attributed to the projected increase of 19.7 million nonfarm wage and salary jobs, from 124.9 million to 144.5 million. The number of nonfarm self-employed and unpaid family workers also is projected to increase, from 9.0 million to 9.9 million, while the number of private household wage and salary jobs is expected to decline from 962,000 to 758,900. Agricultural employment, including wage and salary and self-employed and unpaid family workers, is expected to decrease by 51,000 jobs. (See table 1.)

Real output is expected to expand by nearly \$4.9 trillion between 1998 and 2008, from \$13.3 trillion to \$18.2 trillion. Its projected average annual growth rate of 3.2 percent is 0.5 percent faster than the rate posted between 1988 and 1998. Real output in the service-producing sector is expected to expand by 3.2 percent annually, somewhat faster than the annual growth rate of 2.9 percent realized over the earlier period. Real output growth in the goods-producing sector is projected to increase 3.4 percent annually, compared with annual growth

of 2.4 percent between 1988 and 1998. Annual output growth of 5.5 percent a year is projected to occur in durable goods manufacturing, for an increase of \$1.6 trillion over the period 1998–2008. Annual output growth in agriculture is expected to slow slightly from the previous 10-year period, to 1.4 percent annually. (See table 2.)

The macroeconomic factors whose combined influence most affects the growth of total employment are increases in the labor force, in productivity, and in the Nation's gross domestic product, or GDP.¹ In the latest round of BLS projections, the labor force grows at an annual rate of 1.2 percent between 1998 and 2008, or at the same rate posted over the 1988–98 period.² Growth of the nonfarm labor productivity index is projected to average 1.4 percent per year from 1998 through 2008, an increase from the 1.2-percent rate observed over the previous 10 years. Annual growth of GDP during the projected period is 2.4 percent, a decline from the 2.6-percent average annual increase between 1988 and 1998. The overall picture is that of an economy in which the rate of growth of the labor force is constant, GDP is slowing, and output continues to outpace labor force growth due to productivity gains.

The service-producing sector remains the dominant source of employment and output growth over the projected period.³ Between 1998 and 2008,

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Table 1. Employment by major industry division, 1988, 1998, and projected 2008

Industry	Thousands of jobs			Change		Percent distribution			Average annual rate of change	
	1988	1998	2008	1988-98	1998-2008	1988	1998	2008	1988-98	1998-2008
Total ¹	120,010	140,514	160,795	20,504	20,281	100.0	100.0	100.0	1.6	1.4
Nonfarm wage and salary ²	104,570	124,887	144,526	20,316	19,640	87.1	88.9	89.9	1.8	1.5
Goods producing	25,125	25,347	25,694	222	347	20.9	18.0	16.0	.1	.1
Mining	713	590	475	-123	-115	.6	.4	.3	-1.9	-2.1
Construction	5,098	5,985	6,535	887	550	4.2	4.3	4.1	1.6	.9
Manufacturing	19,314	18,772	18,684	-542	-89	16.1	13.4	11.6	-3	.0
Durable	11,363	11,170	11,277	-193	107	9.5	7.9	7.0	-2	.1
Nondurable	7,951	7,602	7,406	-349	-196	6.6	5.4	4.6	-4	-3
Service producing	79,445	99,540	118,832	20,094	19,293	66.2	70.8	73.9	2.3	1.8
Transportation, communications, and utilities	5,512	6,600	7,541	1,088	941	4.6	4.7	4.7	1.8	1.3
Wholesale trade	6,030	6,831	7,330	802	499	5.0	4.9	4.6	1.3	.7
Retail trade	19,023	22,296	25,363	3,273	3,067	15.9	15.9	15.8	1.6	1.3
Finance, insurance, and real estate	6,629	7,408	8,367	778	960	5.5	5.3	5.2	1.1	1.2
Services	24,866	36,586	48,543	11,720	11,957	20.7	26.0	30.2	3.9	2.9
Government	17,386	19,819	21,688	2,433	1,869	14.5	14.1	13.5	1.3	.9
Federal Government	2,971	2,686	2,550	-285	-136	2.5	1.9	1.6	-1.0	-5
State and local government	14,415	17,133	19,138	2,718	2,005	12.0	12.2	11.9	1.7	1.1
Agriculture ³	3,355	3,576	3,526	287	-51	2.8	2.5	2.2	.6	-.1
Private household wage and salary	1,153	962	759	-191	-203	1.0	.7	.5	-1.8	-2.3
Nonagricultural self-employed and unpaid family workers ⁴	8,731	9,029	9,925	298	896	7.3	6.4	6.2	.3	1.0
Secondary wage and salary jobs in agri- culture (except agricultural services); forestry, fishing, hunting, and trapping; and private households ⁵	211	163	158	-48	-5	.2	.1	.1	-2.5	-3
Secondary jobs as a self-employed or unpaid family worker ⁶	1,990	1,897	1,901	-94	5	1.7	1.3	1.2	-5	.0

¹ Employment 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.

² Excludes sic 074,5,8 (agricultural services) and 99 (nonclassifiable establishments), and is therefore not directly comparable with data published in the Bureau of Labor Statistics monthly periodical, *Employment and Earnings*.

³ Excludes government wage and salary workers, and includes private sector

for sic 08,09 (forestry, fishing, hunting, and trapping).

⁴ Excludes sic 08,09 (forestry, fishing, hunting, and trapping).

⁵ Workers who hold a secondary wage and salary job in agriculture (except agricultural services); forestry, fishing, hunting and trapping; and private households.

⁶ Wage and salary workers who hold a secondary job as a self-employed or unpaid family worker.

this sector is expected to add an additional 19.3 million jobs, accounting for 3 out of every 4 jobs in the U.S. economy in the latter year. More than 60 percent of the employment within the sector is concentrated in the services and retail trade divisions. Projected employment growth in services (12 million) and in retail trade (3.1 million) accounts for most of the new jobs in the service-producing sector. Similarly, half of the output growth in the service sector is projected to take place in the services (\$1.1 trillion) and retail trade (\$329.0 billion) divisions. Employment in the Government division is projected to increase from 19.8 million to 21.7 million through 2008. Employment growth in Government is concentrated entirely in the State and local government group; employment in Federal Government is expected to decline by 136,400 from its 1998 level of 2.7 million jobs.

The goods-producing sector is projected to experience strong growth of output, but limited employment growth, over the projection period. Output of the sector is projected to ex-

pand by \$1.9 trillion from its 1998 level of \$4.7 trillion. (See table 2.) Large increases in output are projected in the manufacturing (durable: \$1.6 trillion, and nondurable: \$281 billion) and construction (95.1 billion) divisions. Manufacturing accounts for nearly 90 percent of all output of the goods-producing sector in the projections scenario. Overall employment in the sector will increase by 346,800 jobs, as declines in mining (114,700 jobs) and in nondurable manufacturing (196,100 jobs) are offset by growth in construction (550,200 jobs) and in durable manufacturing (107,400 jobs) industries.

Service-producing sector

Services. The robust growth in employment and real output characteristic of the services industry during the previous decade will continue throughout the projected period. The services industry is a subset of the service-producing sector of the economy. It comprises businesses that supply services to

a wide variety of other businesses and to individuals. Of the 19.6-million increase in nonfarm wage and salary employment through 2008, 11.8 million is attributed to this industry. Employment in the services industry is expected to increase from 36.6 million jobs in 1998 to 48.5 million jobs in 2008, for the highest annual growth rate of any industry division—2.9 percent.

Within the services division, nearly three-quarters of the projected job growth is concentrated in three industries—business services (4.6 million jobs), health services (2.8 million jobs), and engineering, management, and other services (1.1 million jobs). The social services industry is another group within the services division projected to experience substantial gains in employment (1.0 million jobs). Most of the employment gain in social services is attributed to the economy's third most rapidly growing industry in terms of employment—residential care. Employment in the residential care industry is expected to expand by 424,000, to 1.2 million jobs by 2008. Correspondingly, output of the industry is expected to experience above-average annual growth of 3.7 percent, or \$9 billion. The driving forces behind the growth in residential care are an aging population and the desire of the elderly to maintain an independent style of living, with varying degrees of assistance.

The increasing costs of health care, prescription drugs, an aging population, and the political decisions of funding social welfare programs are the hard economic realities affecting the health services industry. Because most people con-

sume some form of health care or treatment during their lives, few are immune to trends affecting the availability, costs, and delivery of health services. The annual growth rate in the numbers of persons aged 55 and older is 1.5 percent, nearly twice the annual increase of 0.8 percent for the total population aged 16 and older. Americans are living longer, and their quality of life is improving with the advent of new medical technologies and drugs. However, the testing and implementation of new drugs and life-prolonging procedures used in the diagnosis and treatment of conditions previously found to be incurable is expensive.

Throughout the 1990s, concern about containing escalating health care costs transformed the health services industry from a predominately fee-for-service system to an increasingly managed care system. Under managed care, plans such as Health Maintenance Organizations (HMO's), Preferred Provider Organizations (PPO's), and Point Of Service (POS) plans may use a variety of cost-cutting measures, such as primary care physicians as gatekeepers for specialized services and negotiating charges directly with health care providers. Many plans offer extensive preventative services, such as unlimited primary care physician visits, support groups, discounts on fitness programs, and low copayments on prescriptions, eyeglasses, and dental care. Competition and mergers within managed care continue to narrow the cost and service differences between existing plans. In addition, the escalating cost of hospital care is encouraging the growth of less expensive methods of delivering care to the elderly, disabled, and sick.⁴ To reduce costs, hospital patients often are sent home or to nurs-

Table 2. Output by major industry division (gross duplicated output), 1988, 1998, and projected 2008

Industry	Billions of chained 1992 dollars			Percent distribution			Average annual rate or change	
	1988	1998	2008	1988	1998	2008	1988-98	1998-2008
Total	10,204.4	13,321.9	18,241.5	100.0	100.0	100.0	2.7	3.2
Goods producing	3,746.5	4,731.1	6,609.6	36.7	35.5	36.2	2.4	3.4
Mining	182.7	175.1	197.0	1.8	1.3	1.1	-.4	1.2
Construction	661.0	696.7	791.8	6.5	5.2	4.3	.5	1.3
Manufacturing	2,904.0	3,861.4	5,650.2	28.5	29.0	31.0	2.9	3.9
Durable	1,506.0	2,240.6	3,813.0	14.8	16.8	20.9	4.1	5.5
Nondurable	1,398.1	1,628.6	1,909.2	13.7	12.2	10.5	1.5	1.6
Service producing	5,797.2	7,690.9	10,526.7	56.8	57.7	57.7	2.9	3.2
Transportation communications, and utilities	836.7	1,115.3	1,502.3	8.2	8.4	8.2	2.9	3.0
Wholesale trade	496.9	820.2	1,178.3	4.9	6.2	6.5	5.1	3.7
Retail trade	793.3	1,064.5	1,393.4	7.8	8.0	7.6	3.0	2.7
Finance, insurance, and real estate	1,079.0	1,306.3	1,787.8	10.6	9.8	9.8	1.9	3.2
Services	1,701.7	2,412.7	3,556.3	16.7	18.1	19.5	3.6	4.0
Government	890.5	978.0	1,109.6	8.7	7.3	6.1	.9	1.3
Federal Government	332.6	305.4	309.0	3.3	2.3	1.7	-.9	.1
State and local government	557.9	672.6	800.5	5.5	5.0	4.4	1.9	1.8
Agriculture	212.5	267.4	308.2	2.1	2.0	1.7	2.3	1.4
Private households	10.2	11.1	10.3	.1	.1	.1	.9	-.8
Special industries ¹	424.3	623.5	780.5	4.2	4.7	4.3	3.9	2.3
Residual ²	13.7	-2.2	6.2	.1	.0	.0	-	-

¹ Consists of nonproducing accounting categories to reconcile input-output system with NIPA accounts.

² Residual is shown for the first level only. Subcategories do not necessarily

add to higher categories as a byproduct of chainweighting.

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

ing care facilities to recuperate. These developments are making home health care, nursing care facilities, and outpatient services integral parts of the U.S. health care system.

Employment in the health services industry is projected to grow by 2.6 percent annually, almost twice as fast as total nonfarm wage and salary jobs. Between 1988 and 1998, employment in health services grew at an annual rate of 3.3 percent, compared with 1.8 percent for the nonfarm wage and salary total. Health services employment is projected to expand by from 9.8 million jobs in 1998 to 12.7 million jobs by 2008.⁵ Hospitals are expected to show the slowest employment growth within the health services industry, 1.0 percent annually, as a result of continuing cost reductions and consolidations. The projected annual employment growth rates for nursing care facilities (2.3 percent) and for offices of health practitioners (3.3 percent) are above average, even though they both are slower than the corresponding rates for 1988–98. The second-fastest annual employment growth rate for all industries, 5.3 percent, is projected for health services, not elsewhere classified. This industry provides a variety of services such as home health care, professional analytic or diagnostic services, outpatient alcohol and drug treatment centers, family planning clinics, blood banks, visiting nurse associations, and kidney dialysis centers.

The engineering, management, and other services industry is the second-fastest growing industry group within the services industry. Overall employment is projected to grow by 1.1 million to a 2008 level of 4.3 million jobs, or at an annual rate of 2.9 percent. The industry's rate of real output growth from 1988 to 1998, 3.6 percent, is expected to continue through 2008 for an increase of \$137 billion. The strongest employment growth within the industry, and among the fastest in the economy, takes place in the management and public relations (3.8 percent annually) and research and testing services (3.4 percent) industries. The projected annual output growth rate of 6.7 percent through 2008 also makes research and testing services one of the fastest growing industries in terms of output. This industry is primarily engaged in physical, biological, sociological, and educational research and development, including testing labs. The outsourcing of formerly in-house research and development divisions by private and public institutions is contributing to employment and output growth in the research and testing services industry.

Employment in business services grew at a 6.3-percent annual rate from 1988 to 1998, rising from 4.6 million to 8.6 million jobs. The projected 2008 level of employment, 13.1 million, reflects annual growth of 4.4 percent. Despite the slowdown in the rate of employment growth, business services are expected to be the fastest growing industry group in the services division. Real output in the business services sector also is projected to grow strongly from \$559 billion in 1998 to \$1.1 trillion in 2008, or at an average annual rate of 6.9 percent.

The fastest growing industry in the entire economy in terms of employment, and the third-fastest growing in terms of output, is the computer and data processing services industry. Real annual output growth of 10.3 percent is projected, for an increase of \$364 billion over the 1998 level of \$219 billion. Similarly, the industry's employment is projected to grow from 1.6 million jobs in 1998 to 3.5 million jobs in 2008, or at an annual growth rate of 8.1 percent. The personnel supply services industry, which comprises mostly temporary help services, is another business services industry among the fastest growing industries in terms of employment. Employees in temporary help services are on the payrolls of temporary help firms but work in the businesses to which they provide services. Their services tend to be for a set period on a contractual or fee basis. Employment opportunities in temporary help services cover a broad range of occupations, from administrative support to increasingly more technical and professional positions. Between 1988 and 1998, employment in personnel supply services grew by 9.1 percent annually, increasing from 1.4 million to 1.9 million. The projected growth rate of 3.7 percent over the 1998–2008 period is slower than the rate posted over the previous decade, but is more than twice as fast as the rate projected for all nonfarm wage and salary jobs. Employment and output growth in the miscellaneous equipment rental and leasing industry also is projected to be robust. This industry engages in the rental and leasing of medical equipment, heavy construction equipment, and other miscellaneous business equipment such as airplanes, industrial trucks, vending machines, and party supplies. Between 1998 and 2008, real output is expected to expand from \$32 billion to \$52 billion, and employment, from 258,000 to 369,000 jobs.

Retail trade. Retail trade, excluding eating and drinking places, is projected to add 1.7 million jobs to its 1998 level of 14.5 million, to reach 16.3 million by 2008. The annual employment growth rate of 1.1 percent is comparable to the industry's annual growth rate over the previous decade. Real output for retail trade, excluding eating and drinking places, is expected to increase by 3.1 percent annually, or at the same rate as the overall economy, through 2008. Parallel increases in the employment and output growth of 1.6 percent annually are projected for eating and drinking places. The projected employment increase of 1.3 million jobs over the industry's 1998 level of 7.8 million represents a slowdown in growth compared the 1988–98 period, during which employment expanded by 1.5 million jobs. Real output of eating and drinking places is projected to increase from \$253 billion to \$297 billion between 1998 and 2008.

Government. Employment in the public sector is expected to increase from 19.8 million jobs in 1998 to 21.7 million jobs in 2008. This reflects an annual growth rate of 0.9 per-

Table 3. Industries with fastest and slowest wage and salary employment growth, 1998–2008

Standard Industrial Classification	Industry description	Thousands of jobs		Change	Average annual rate of change
		1998	2008	1998–2008	1998–2008
Fastest growing					
737	Computer and data processing services	1,599.3	3,471.6	1,872.3	8.1
807–809	Health services, n.e.c.	1,209.1	2,018.3	809.2	5.3
836	Residential care	746.7	1,171.0	424.3	4.6
874	Management and public relations	1,033.9	1,500.0	466.1	3.8
736	Personnel supply services	3,229.7	4,623.1	1,393.4	3.7
735	Miscellaneous equipment rental and leasing	258.3	368.8	110.5	3.6
84	Museums, botanical and zoological gardens	92.6	131.4	38.8	3.6
873	Research and testing services	614.0	861.0	247.0	3.4
473,474,478	Miscellaneous transportation services	235.9	329.4	93.5	3.4
62	Security and commodity brokers	644.7	900.0	255.3	3.4
732,733,738	Miscellaneous business services	2,278.2	3,171.5	893.3	3.4
801–804	Offices of health practitioners	2,948.8	4,098.4	1,149.6	3.3
752-754	Automobile, parking, repair, and services	944.2	1,300.0	355.8	3.2
791,799	Amusement and recreation services, n.e.c.	1,216.7	1,652.8	436.1	3.1
494-497	Water and sanitation	195.6	262.7	67.1	3.0
41	Local and interurban passenger transit	467.9	622.0	154.1	2.9
832,839	Individual and miscellaneous social services	923.3	1,222.9	299.6	2.9
835	Child day care services	604.5	800.0	195.5	2.8
833	Job training and related services	369.4	483.8	114.4	2.7
078	Landscape and horticultural services	460.2	602.6	142.4	2.7
074	Veterinary services	195.6	255.0	59.4	2.7
Most rapidly declining					
131,132	Crude petroleum, natural gas and gas liquids	143.1	77.4	-65.7	-6.0
231–238	Apparel	547.1	350.0	-197.1	-4.4
12	Coal mining	91.6	59.4	-32.2	-4.2
313,314	Footwear, except rubber and plastic	37.5	24.6	-12.9	-4.1
...	Federal electric utilities	29.7	19.5	-10.2	-4.1
341	Metal cans and shipping containers	36.6	24.8	-11.8	-3.8
387	Watches, clocks and parts	6.7	4.6	-2.1	-3.7
21	Tobacco products	40.6	29.5	-11.1	-3.1
10	Metal mining	50.4	37.0	-13.4	-3.0
311,315-317,319	Luggage, handbags, and leather products, n.e.c.	45.4	34.4	-11.0	-2.7
331	Blast furnaces and basic steel products	231.5	176.7	-54.8	-2.7
291	Petroleum refining	96.0	74.7	-21.3	-2.5
221-224,226,228	Weaving, finishing, yarn, and thread mills	320.0	250.7	-69.3	-2.4
88	Private households	962.0	758.9	-203.1	-2.3
08,09	Forestry, fishing, hunting, and trapping	48.0	38.0	-10.0	-2.3
324	Hydraulic cement	17.4	13.8	-3.6	-2.3
362	Electrical industrial apparatus	153.2	121.9	-31.3	-2.3
40	Railroad transportation	230.7	184.9	-45.8	-2.2
225	Knitting mills	159.4	127.8	-31.6	-2.2
333	Primary nonferrous smelting and refining	39.0	31.5	-7.5	-2.1

NOTE: n.e.c. = not elsewhere classified.

cent, compared to the annual rate of 1.3 percent posted over the 1988–98 period. Of those employed by the Government in 1998, 17.1 million worked for State and local governments. Employment in State and local governments is projected to expand by 2.0 million, reaching a level of 19.1 million by 2008. The projected annual growth rate of 1.1 percent is slightly slower than the 1988–98 rate of 1.7 percent. More than half of the 1998 employment in State and local governments, 9.0 million, is concentrated in education. State and local government education is expected to show the fastest employment growth within the public sector—1.3 percent annually through 2008. An increasing school-age population and government initiatives designed to reduce student-teacher ratios by

hiring more teachers is supporting solid growth in this sector.

Federal Government employment is projected to decline by 136,000 from 2.7 million jobs in 1998, as downsizing continues at the Federal level. The annual rate of decline is expected to slow from the 1 percent posted between 1988 and 1998 to 0.5 percent annually through 2008. The only Federal Government sector projected to increase employment is the United States Postal Service. The number of postal service jobs is projected to grow by 0.3 percent annually, reaching 895,000 by 2008.

Finance, insurance, and real estate. Overall, employment and real output of finance, insurance, and real estate is pro-

jected to grow at the same rate as corresponding estimates for the economy as a whole. This group of industries is expected to add 960,000 jobs to its 1998 level of 7.4 million by 2008. Real output is projected to increase from \$1.3 trillion in 1998

to \$1.8 trillion in 2008. The security and commodity brokers industry is among the top 10 fastest growing industries in the entire U.S. economy in terms of both employment and output growth. (See tables 3 and 5.) Even though employment and

Table 4. Employment and output by industry, 1988, 1998, and projected 2008

Standard Industrial Classification	Industry	Employment							Output				
		Thousands of jobs			Change		Average annual rate of growth (percent)		Billions of chained 1992 dollars			Average annual rate of growth (percent)	
		1988	1998	2008	1988-98	1998-2008	1988-98	1998-2008	1988	1998	2008	1988-98	1998-2008
...	Nonfarm wage and salary ¹ ..	104,570	124,887	144,526	20,316	19,640	1.8	1.5	9,558	12,420	17,145	2.7	3.3
10-14	Mining	713	590	475	-123	-115	-1.9	-2.1	183	175	197	-.4	1.2
10	Metal mining	50	50	37	1	-13	.1	-3.0	9	11	15	2.3	3.7
12	Coal mining	151	92	59	-59	-32	-4.9	-4.2	26	29	31	1.2	.7
131,132	Crude petroleum, natural and gas liquids	201	143	77	-58	-66	-3.4	-6.0	117	99	109	-1.6	.9
138	Oil and gas field services ...	199	196	205	-3	9	-2	.5	18	19	21	.7	1.2
14	Nonmetallic minerals, except fuels	112	109	96	-3	-13	-.3	-1.2	15	17	20	1.3	1.5
15,16,17	Construction	5,098	5,985	6,535	887	550	1.6	.9	661	697	792	.5	1.3
20-39	Manufacturing	19,314	18,772	18,684	-542	-89	-.3	.0	2,904	3,861	5,650	2.9	3.9
24,25,32-39	Durable manufacturing	11,363	11,170	11,277	-193	107	-.2	.1	1,506	2,241	3,813	4.1	5.5
24	Lumber and wood products	767	813	811	46	-2	.6	.0	94	100	104	.7	.4
241	Logging	88	79	82	-9	2	-1.0	.3	22	18	20	-2.1	1.2
242	Sawmills and planing mills	204	183	162	-21	-21	-1.1	-1.2	24	27	25	1.1	-.7
243	Millwork, plywood, and structural members	273	308	315	34	7	1.2	.2	28	30	30	.7	-.1
244,9	Wood containers and miscellaneous wood products	134	144	147	10	4	.7	.3	13	16	18	2.2	1.3
245	Wood buildings and mobile homes	68	99	105	31	6	3.8	.6	7	10	11	3.4	1.4
25	Furniture and fixtures	527	530	546	4	15	.1	.3	46	63	71	3.3	1.2
251	Household furniture	308	283	266	-25	-16	-.8	-.6	22	29	28	2.7	-.4
254	Partitions and fixtures	79	93	109	13	16	1.6	1.6	7	9	11	2.7	2.6
252,253,259	Office and miscellaneous furniture and fixtures	140	155	170	15	15	1.0	.9	17	25	32	4.2	2.3
321-323	Glass and glass products	157	151	140	-6	-11	-.4	-.8	18	22	26	2.1	1.7
324	Hydraulic cement	20	17	14	-2	-4	-1.1	-2.3	4	5	4	.9	-1.2
325,326,328,329	Stone, clay, and miscellaneous mineral products	176	166	147	-11	-18	-.6	-1.2	19	20	22	.6	.8
327	Concrete, gypsum, and plaster products	214	229	230	15	1	.7	.0	26	29	33	1.3	1.1
33	Primary metal industries ..	770	712	643	-59	-69	-.8	-1.0	145	162	216	1.1	3.0
331	Blast furnaces and basic steel products	278	232	177	-47	-55	-1.8	-2.7	64	69	91	.8	2.7
332	Iron and steel foundries ...	136	131	134	-5	3	-.4	.2	13	15	21	1.4	3.4
333	Primary nonferrous smelting refining	44	39	32	-5	-8	-1.2	-2.1	12	12	15	-.3	2.1
334,339	All other primary metals ..	45	47	46	3	-2	.6	-.4	9	11	17	2.4	3.9
335	Nonferrous rolling and drawing	179	170	157	-9	-13	-.5	-.8	39	44	60	1.1	3.2
336	Nonferrous foundries	88	93	98	5	6	.5	.6	8	10	14	3.1	2.8
34	Fabricated metal products	1,428	1,501	1,519	72	18	.5	.1	172	217	260	2.4	1.8
341	Metal cans and shipping containers	53	37	25	-16	-12	-3.6	-3.8	13	14	16	.7	.8
342	Cutlery, handtools and hardware	139	126	108	-13	-18	-.9	-1.5	16	20	23	2.4	1.3
343	Plumbing and nonelectric heating equipment	62	58	57	-5	-1	-.8	-.1	7	8	8	1.1	.1

See notes at end of table.

Table 4. Continued—Employment and output by industry, 1988, 1998, and projected 2008

Standard Industrial Classification	Industry	Employment							Output				
		Thousands of jobs			Change		Average annual rate of growth (percent)		Billions of chained 1992 dollars			Average annual rate of growth (percent)	
		1988	1998	2008	1988-98	1998-2008	1988-98	1998-2008	1988	1998	2008	1988-98	1998-2008
344	Fabricated structural metal products	423	464	500	41	36	0.9	0.8	46	56	60	2.1	0.7
345	Screw machine products, rivets, etc.	99	107	105	7	-2	.7	-2	10	14	14	3.5	.63
46	Metal forgings and stampings	227	257	250	30	-7	1.2	-3	32	44	51	3.1	1.4
347	Metal coating, engraving services	119	144	165	25	21	1.9	1.3	10	16	27	4.8	5.3
348	Ordnance and ammunition	77	41	34	-36	-7	-6.1	-1.8	9	5	6	-6.3	2.9
349	Miscellaneous fabricated products	230	268	275	38	7	1.6	.3	30	41	55	3.2	3.1
35	Industrial machinery and equipment	2,089	2,203	2,197	114	-6	.5	.0	238	574	1,541	9.2	10.4
351	Engines and turbines	92	84	69	-9	-15	-1.0	-1.9	19	24	29	2.2	1.8
352	Farm and garden machinery	102	104	95	2	-9	.2	-9	15	22	28	3.9	2.5
353	Construction and related machinery	222	253	270	31	17	1.3	.6	30	41	52	3.2	2.5
354	Metal working machinery equipment	327	352	324	25	-28	.7	-8	26	33	40	2.4	2.0
355	Special industry machinery	159	179	187	20	8	1.2	.4	21	33	51	4.8	4.3
356	General industrial machinery and equipment ..	232	269	273	37	4	1.5	.1	30	38	53	2.5	3.4
357	Computer and office equipment	459	379	369	-80	-11	-1.9	-3	50	446	1,723	24.6	14.5
358	Refrigeration and service industry machinery	186	200	216	14	16	.7	.8	28	40	49	3.3	2.1
359	Industrial machinery, n.e.c. ..	309	382	393	73	11	2.2	.3	24	41	58	5.7	3.6
36	Electronic and other electronic equipment	1,764	1,704	1,773	-60	69	-.3	.4	193	401	870	7.6	8.1
361	Electric distribution equipment	101	82	70	-18	-13	-2.0	-1.7	11	13	17	1.5	2.7
362	Electrical industrial apparatus	178	153	122	-25	-31	-1.5	-2.3	19	27	37	3.6	3.2
363	Household appliances	137	117	96	-21	-20	-1.6	-1.9	17	19	21	1.6	.8
364	Electric lighting and wiring equipment	198	183	157	-15	-26	-.8	-1.5	21	24	28	1.2	1.6
365	Household audio and video equipment	84	82	67	-2	-14	-.2	-1.9	9	16	20	6.3	2.4
366	Communication equipment ..	275	282	302	7	21	.3	.7	38	78	169	7.6	8.1
367	Electronic components and accessories	622	660	820	38	160	.6	2.2	55	203	571	13.9	10.9
369	Miscellaneous electrical equipment	170	146	139	-24	-7	-1.5	-.5	25	27	31	1.0	1.3
37	Transportation equipment	2,036	1,884	1,988	-152	104	-.8	.5	392	480	603	2.1	2.3
371	Motor vehicles and equipment	856	990	940	133	-50	1.5	-.5	238	324	375	3.2	1.5
372,376	Aerospace	892	615	750	-276	135	-3.6	2.0	126	120	179	-.5	4.1
373	Ship and boat building and repairing	196	166	160	-30	-6	-1.6	-.4	17	16	18	-.7	1.0
374	Railroad equipment	31	37	42	6	5	1.8	1.3	4	8	10	6.8	3.1
375,379	Miscellaneous transportation equipment	62	76	96	14	20	2.1	2.3	7	13	21	6.2	5.2
38	Instruments and related products	1,031	868	887	-164	19	-1.7	.2	123	154	222	2.2	3.7
381	Search and navigation equipment	316	162	143	-155	-19	-6.5	-1.2	41	33	41	-2.1	2.1
382	Measuring and controlling devices	324	304	300	-20	-4	-.6	-.1	31	45	73	3.9	4.8
384	Medical equipment, instruments, and supplies	231	279	335	48	56	1.9	1.8	28	51	80	6.3	4.5
385	Ophthalmic goods	39	35	36	-4	1	-1.1	.3	2	3	5	5.6	5.1

See notes at end of table.

Table 4. Continued—Employment and output by industry, 1988, 1998, and projected 2008

Standard Industrial Classification	Industry	Employment							Output				
		Thousands of jobs			Change		Average annual rate of growth (percent)		Billions of chained 1992 dollars			Average annual rate of growth (percent)	
		1988	1998	2008	1988-98	1998-2008	1988-98	1998-2008	1988	1998	2008	1988-98	1998-2008
386	Photographic equipment and supplies	109	81	69	-28	-12	-2.9	-1.6	21	20	24	-0.1	1.6
387	Watches, clocks and parts .	12	7	5	-5	-2	-5.4	-3.7	2	1	0	-3.2	-11.7
39	Miscellaneous manufacturing industries	383	393	382	10	-10	.3	-3	38	50	61	2.8	2.0
391	Jewelry, silverware, and plated ware	53	50	42	-3	-8	-.6	-1.8	6	8	8	1.9	.0
394	Toys and sporting goods	103	106	95	2	-11	.2	-1.1	11	15	17	3.3	1.6
393,395,396,3999	Manufactured products, n.e.c	226	237	246	11	9	.5	.4	21	28	36	2.8	2.7
20-23,26-31	Nondurable manufacturing	7,951	7,602	7,406	-349	-196	-.4	-.3	1,398	1,633	1,909	1.6	1.6
20	Food and kindred products ...	1,626	1,686	1,721	60	35	.4	.2	373	442	497	1.7	1.2
201	Meat products	399	494	570	95	76	2.2	1.4	84	102	121	2.0	1.7
202	Dairy products	158	140	124	-18	-16	-1.2	-1.2	50	54	57	.7	.6
203	Preserved fruits and vegetables	236	229	217	-7	-13	-.3	-.6	42	49	54	1.5	.9
204,207	Grain mill products, fats and oils	156	158	159	3	1	.2	.1	54	61	71	1.2	1.5
205	Bakery products	212	206	197	-5	-10	-.3	-.5	27	29	29	.8	-.1
206	Sugar and confectionery products	100	97	93	-3	-4	-.3	-.4	21	26	28	2.0	.6
208	Beverages	199	182	165	-17	-18	-.9	-1.0	63	80	93	2.4	1.5
209	Miscellaneous foods and kindred products	166	178	197	11	19	.7	1.0	32	41	45	2.6	.9
21	Tobacco products	54	41	30	-14	-11	-2.9	-3.1	41	41	45	.1	1.0
22	Textile mill products	728	598	501	-130	-97	-1.9	-1.7	68	85	95	2.2	1.2
221-224,226,228	Weaving, finishing, yarn, and thread mills	400	320	251	-80	-69	-2.2	-2.4	36	40	42	1.2	.4
225	Knitting mills	215	159	128	-55	-32	-2.9	-2.2	14	21	26	4.4	2.1
227	Carpets and rugs	61	64	74	3	10	.5	1.4	12	14	17	1.5	2.0
229	Miscellaneous textile goods	53	55	49	2	-6	.4	-1.1	7	10	12	3.2	1.4
23	Apparel and other textile products	1,085	763	586	-322	-177	-3.5	-2.6	67	76	78	1.2	.3
231-238	Apparel	888	547	350	-341	-197	-4.7	-4.4	52	55	52	.6	-.6
239	Miscellaneous fabricated products	197	216	236	19	20	.9	.9	16	21	26	2.8	2.2
26	Paper and allied products	689	675	674	-14	0	-.2	.0	128	146	172	1.3	1.7
261-263	Pulp, paper, and paper-board mills	244	215	187	-29	-28	-1.3	-1.4	54	55	64	.3	1.4
265	Paperboard containers boxes	206	219	236	13	17	.6	.7	29	36	44	1.9	2.1
267	Converted paper products except containers	239	241	252	2	11	.1	.4	44	55	64	2.1	1.6
27	Printing and publishing	1,543	1,565	1,545	22	-20	.1	-.1	170	181	197	.7	.8
271	Newspapers	473	443	401	-30	-42	-.7	-1.0	42	32	28	-2.7	-1.4
272	Periodicals	127	138	150	12	12	.9	.8	23	25	27	.7	.7
273	Books	115	127	139	12	12	1.0	.9	21	24	28	1.5	1.7
274	Miscellaneous publishing ..	79	91	97	13	6	1.5	.7	10	12	16	2.5	2.6
275,276	Commercial printing and business forms	589	623	624	34	1	.6	.0	61	72	83	1.7	1.5
277	Greeting cards	24	29	32	5	3	1.9	.9	3	4	4	3.1	.1
278	Blankbooks and book-binding	75	64	62	-11	-2	-1.6	-.3	5	6	5	2.6	-1.9
279	Service industries for the printing trade	62	50	41	-12	-9	-2.1	-2.0	5	6	5	1.3	-.7
28	Chemicals and allied products	1,057	1,043	1,043	-15	0	-.1	.0	284	332	415	1.6	2.2
281,286	Industrial chemicals	279	253	236	-25	-17	-1.0	-.7	88	78	83	-1.2	.6
282	Plastic materials and synthetics	177	157	141	-20	-16	-1.2	-1.1	47	56	78	1.8	3.4
283	Drugs	228	279	309	51	30	2.1	1.0	54	84	117	4.6	3.3
284	Soap, cleaners, and toilet goods	159	156	165	-4	10	-.2	.6	43	56	64	2.6	1.3
285	Paints and allied products .	63	52	45	-11	-7	-1.9	-1.5	16	18	19	1.2	.7

See notes at end of table.

Table 4. Continued—Employment and output by industry, 1988, 1998, and projected 2008

Standard Industrial Classification	Industry	Employment							Output				
		Thousands of jobs			Change		Average annual rate of growth (percent)		Billions of chained 1992 dollars			Average annual rate of growth (percent)	
		1988	1998	2008	1988-98	1998-2008	1988-98	1998-2008	1988	1998	2008	1988-98	1998-2008
287	Agricultural chemicals	52	52	49	0	-3	0.0	-0.6	16	19	23	1.9	1.8
289	Miscellaneous chemical products	100	94	98	-6	4	-7	.4	20	23	32	1.3	3.5
29	Petroleum and coal products	160	140	117	-20	-23	-1.3	-1.8	158	169	183	.6	.8
291	Petroleum refining	121	96	75	-25	-21	-2.3	-2.5	145	153	165	.5	.8
295,299	Miscellaneous petroleum and coal products	39	44	42	5	-2	1.2	-5	14	16	19	1.6	1.4
30	Rubber and miscellaneous plastic products	866	1,009	1,130	143	121	1.5	1.1	100	151	221	4.2	3.9
301	Tires and inner tubes	84	79	66	-5	-13	-6	-1.8	12	14	17	2.0	1.9
302,5,6	Rubber products, plastic hose and footwear	76	189	199	13	9	.7	.5	17	22	33	2.9	3.9
308	Miscellaneous plastic products, n.e.c.	606	740	865	135	125	2.0	1.6	72	114	171	4.8	4.1
31	Leather and leather products	143	83	59	-60	-24	-5.3	-3.3	10	9	8	-2.0	-1.2
313,4	Footwear except rubber plastic	89	38	25	-51	-13	-8.3	-4.1	5	3	3	-4.8	.4
311,315-317,319	Luggage, handbags, and products, n.e.c.	54	45	34	-8	-11	-1.6	-2.7	5	5	4	.1	-2.2
40-42,44-49	Transportation, communications, and utilities	5,512	6,600	7,541	1,088	941	1.8	1.3	837	1,115	1,502	2.9	3.0
40-42,44-47	Transportation	3,301	4,276	4,951	975	675	2.6	1.5	339	493	729	3.8	4.0
40	Railroad transportation	298	231	185	-67	-46	-2.5	-2.2	35	44	53	2.5	1.8
41	Local and interurban passenger transit	309	468	622	159	154	4.2	2.9	17	21	27	2.1	2.7
42	Trucking and warehousing	1,351	1,745	1,944	394	199	2.6	1.1	142	230	353	4.9	4.4
421,423	Trucking and courier services, except air	1,240	1,579	1,744	338	166	2.4	1.0	134	216	331	4.9	4.4
422	Warehousing and storage	111	166	200	55	34	4.1	1.9	8	14	22	5.1	4.5
44	Water transportation	171	180	190	9	10	.5	.5	32	30	36	-8	1.9
45	Air transportation	850	1,183	1,400	333	217	3.4	1.7	80	128	203	4.8	4.7
46	Pipelines, except natural gas	19	14	13	-5	-1	-2.8	-1.0	8	7	9	-6	1.5
47	Transportation services	302	455	597	153	142	4.2	2.7	25	33	48	2.8	3.9
472	Passenger transportation arrangement	171	219	268	48	48	2.5	2.0	10	16	22	4.8	3.2
473,474,478	Miscellaneous transportation services	131	236	329	105	94	6.0	3.4	15	17	26	1.2	4.5
48	Communications	1,280	1,470	1,768	190	299	1.4	1.9	218	329	519	4.2	4.6
481,482,489	Telephone and telegraph communications and communication service	942	1,042	1,285	100	244	1.0	2.1	166	264	434	4.7	5.1
484	Cable and pay television services	111	181	230	70	49	5.0	2.4	23	32	48	3.6	4.1
483	Radio and television broadcasting	227	247	253	20	6	.8	.2	29	34	39	1.4	1.5
49	Utilities	931	855	822	-76	-33	-9	-4	280	292	268	.4	-9
491	Electric utilities	452	364	311	-87	-53	-2.1	-1.6	164	191	209	1.6	.9
492	Gas utilities	164	136	117	-28	-20	-1.8	-1.5	67	52	52	-2.5	-1
493	Combined utilities	194	159	131	-36	-27	-2.0	-1.9	30	28	31	-8	.9
494-497	Water and sanitation	121	196	263	74	67	4.9	3.0	19	21	24	1.0	1.2
50,51	Wholesale trade	6,030	6,831	7,330	802	499	1.3	.7	497	820	1,178	5.1	3.7
52-59	Retail trade	19,023	22,296	25,363	3,273	3,067	1.6	1.3	793	1,065	1,393	3.0	2.7
52-57,59	Retail trade, excluding eating drinking places	12,765	14,536	16,281	1,771	1,745	1.3	1.1	578	813	1,098	3.5	3.1
58	Eating and drinking places	6,258	7,760	9,082	1,502	1,321	2.2	1.6	215	253	297	1.6	1.6
60-67	Finance, insurance and real estate	6,629	7,408	8,367	778	960	1.1	1.2	1,079	1,330	1,788	2.1	3.0
60	Depository institutions	2,255	2,042	2,100	-213	58	-1.0	.3	275	273	382	-1	3.4
61,67	Nondepository institutions, and holding and investment offices	573	906	1,141	334	235	4.7	2.3	63	86	146	3.1	5.4
62	Security and commodity brokers	447	645	900	198	255	3.7	3.4	57	176	361	12.0	7.5
63	Insurance carriers	1,435	1,597	1,751	162	154	1.1	.9	158	180	207	1.3	1.4

See notes at end of table.

Table 4. Continued—Employment and output by industry, 1988, 1998, and projected 2008

Standard Industrial Classification	Industry	Employment							Output				
		Thousands of jobs			Change		Average annual rate of growth (percent)		Billions of chained 1992 dollars			Average annual rate of growth (percent)	
		1988	1998	2008	1988-98	1998-2008	1988-98	1998-2008	1988	1998	2008	1988-2008	1998-2008
64	Insurance agents, brokers and service	640	746	825	107	79	1.6	1.0	73	46	41	-4.6	-1.0
65	Real estate	1,280	1,471	1,650	190	179	1.4	1.2	458	569	707	2.2	2.2
	Royalties	-	-	-	-	-	-	-	43	81	150	6.6	6.3
...	Owner-occupied dwellings ..	-	-	-	-	-	-	-	420	528	633	2.3	1.8
70-87, 89	Services ¹	24,866	36,586	48,543	11,720	11,957	3.9	2.9	1,702	2,413	3,556	3.6	4.0
701	Hotels	1,494	1,719	2,030	225	311	1.4	1.7	87	85	93	-3	1.0
702-704	Other lodging places	46	57	58	11	1	2.2	.2	5	5	6	.9	1.5
72	Personal services	1,056	1,195	1,317	139	122	1.2	1.0	66	77	96	1.6	2.2
721,725	Laundry, cleaning, and shoe repair	420	440	467	20	27	.5	.6	20	23	28	1.2	2.0
722,729	Personal services, n.e.c.	175	234	266	59	32	2.9	1.3	20	25	34	2.1	3.1
723,724	Beauty and barber shops ..	381	421	474	40	53	1.0	1.2	19	22	25	1.5	1.4
726	Funeral service and crematoriums	79	99	110	20	11	2.3	1.0	7	8	10	1.9	1.9
73	Business services	4,638	8,584	13,146	3,946	4,562	6.3	4.4	273	559	1,093	7.4	6.9
731	Advertising	229	268	323	39	55	1.6	1.9	23	34	47	4.0	3.2
734	Service to buildings	780	950	1,187	170	237	2.0	2.3	24	37	50	4.4	3.0
735	Miscellaneous equipment rental and leasing	180	258	369	79	111	3.7	3.6	23	32	52	3.2	5.0
736	Personnel supply services ..	1,350	3,230	4,623	1,879	1,393	9.1	3.7	30	78	129	10.2	5.1
737	Computer and data processing services	673	1,599	3,472	926	1,872	9.0	8.1	77	219	584	11.1	10.3
732,733,738	Miscellaneous business services	1,426	2,278	3,172	853	893	4.8	3.4	95	158	229	5.2	3.8
75	Auto repair, services and garages	834	1,144	1,550	311	406	3.2	3.1	90	140	240	4.4	5.6
751	Automotive rentals, without drivers	161	200	250	39	50	2.2	2.3	16	50	122	12.4	9.3
752-754	Automobile parking, repair, and services	672	944	1,300	272	356	3.5	3.2	75	89	116	1.7	2.7
76	Miscellaneous repair shops ..	350	382	406	32	24	.9	0.6	38	37	38	-2	.2
762	Electrical repair shops	108	113	127	5	13	.5	1.1	12	14	16	1.2	1.7
763,764	Watch, jewelry, and furniture repair	29	29	26	0	-3	.0	-1.1	2	2	2	1.1	-1
769	Miscellaneous repair shops and related services	213	240	253	27	13	1.2	.5	24	21	20	-1.1	-5
78	Motion pictures	341	573	636	233	62	5.3	1.0	37	42	68	1.5	4.9
781-783	Motion pictures	238	408	451	171	43	5.6	1.0	33	35	58	.7	5.1
784	Video tape rental	103	165	185	62	20	4.8	1.1	4	7	10	6.8	3.2
79	Amusement and recreation services	977	1,601	2,108	624	507	5.1	2.8	63	102	150	4.9	3.9
792	Producers, orchestras, and entertainers	122	176	225	54	49	3.7	2.5	14	22	33	4.5	4.2
793	Bowling centers	92	82	70	-10	-12	-1.2	-1.5	4	3	2	-2.7	-2.2
794	Commercial sports	91	127	160	35	34	3.3	2.4	12	13	13	.5	.6
791,9	Amusement and recreation services, n.e.c.	671	1,217	1,653	545	436	6.1	3.1	33	65	102	6.8	4.7
80	Health services	7,106	9,846	12,667	2,741	2,821	3.3	2.6	503	637	795	2.4	2.2
801-804	Offices of health practitioners	1,937	2,949	4,098	1,012	1,150	4.3	3.3	211	249	313	1.7	2.3
805	Nursing and personal care facilities	1,311	1,762	2,213	451	451	3.0	2.3	41	62	74	4.3	1.8
806	Hospitals	3,294	3,926	4,337	632	411	1.8	1.0	210	254	312	1.9	2.1
807-809	Health services, n.e.c.	564	1,209	2,018	645	809	7.9	5.3	42	72	96	5.7	2.8
81	Legal services	845	973	1,200	128	228	1.4	2.1	112	126	154	1.2	2.1
82	Educational services	1,567	2,177	2,690	610	513	3.3	2.1	72	100	136	3.4	3.1
83	Social services	1,552	2,644	3,678	1,092	1,034	5.5	3.4	60	95	137	4.7	3.7
832,839	Individual and miscellaneous social services	565	923	1,223	358	300	5.0	2.9	25	42	63	5.4	4.2
833	Job training and related services	241	369	484	129	114	4.4	2.7	7	11	16	4.6	3.8
835	Child day care services	356	605	800	248	196	5.4	2.8	16	21	27	2.9	2.5

See notes at end of table.

Table 4. Continued—Employment and output by industry, 1988, 1998, and projected 2008

Standard Industrial Classification	Industry	Employment							Output				
		Thousands of jobs			Change		Average annual rate of growth (percent)		Billions of chained 1992 dollars			Average annual rate of growth (percent)	
		1988	1998	2008	1988-98	1998-2008	1988-98	1998-2008	1988	1998	2008	1988-98	1998-2008
836	Residential care	389	747	1,171	357	424	6.7	4.6	13	21	30	5.4	3.7
84	Museums, botanical and zoological gardens	58	93	131	35	39	4.8	3.6	3	5	7	5.2	3.7
86	Membership organizations	1,740	2,361	2,600	621	239	3.1	1.0	67	87	104	2.6	1.9
87,89	Engineering, management, and other services	2,263	3,237	4,328	975	1,091	3.6	2.9	230	326	464	3.6	3.6
871	Engineering and architectural services	730	905	1,140	175	235	2.2	2.3	81	100	142	2.1	3.6
873	Research and testing services	492	614	861	122	247	2.2	3.4	30	53	101	5.9	6.7
874	Management and public relations	508	1,034	1,500	526	466	7.4	3.8	63	114	157	6.0	3.3
872,89	Accounting, auditing, and other services	532	684	827	153	143	2.6	1.9	56	61	69	1.0	1.2
...	Government	17,386	19,819	21,688	2,433	1,869	1.3	.9	891	979	1,111	1.0	1.3
...	Federal Government	2,971	2,686	2,550	-285	-136	-1.0	-.5	333	307	310	-.8	0.1
...	Federal enterprises	1,024	987	993	-37	6	-.4	.1	59	74	91	2.4	2.0
...	U.S. Postal Service	831	867	895	36	28	.4	.3	46	58	72	2.3	2.2
...	Federal electric utilities	38	30	20	-8	-10	-2.3	-4.1	6	7	8	2.0	1.7
...	Federal Government enterprises, n.e.c.	156	90	78	-66	-12	-5.3	-1.4	7	10	11	3.0	.7
...	Federal general government	1,947	1,699	1,557	-248	-142	-1.4	-.9	216	172	162	-2.3	-.6
...	Federal Government capital services	-	-	-	-	-	-	-	58	61	58	.5	-.5
...	State and local government ..	14,415	17,133	19,138	2,718	2,005	1.7	1.1	558	673	801	1.9	1.8
...	State and local enterprises ..	880	910	958	30	48	.3	.5	91	110	131	1.9	1.8
...	Local government passenger transit	201	212	214	11	2	.5	.1	6	6	7	.2	2.1
...	State and local electric utilities	82	86	90	4	4	.4	.4	19	23	26	1.8	1.4
...	State and local government enterprises, n.e.c.	597	612	654	15	42	.2	.7	66	82	98	2.1	1.8
...	State and local general government	13,535	16,223	18,181	2,688	1,958	1.8	1.1	467	563	670	1.9	1.8
...	State and local government hospitals	1,065	983	948	-82	-35	-.8	-.4	34	40	47	1.7	1.5
...	State and local government education	7,343	8,998	10,195	1,655	1,197	2.1	1.3	222	263	305	1.7	1.5
...	State and local general government, n.e.c.	5,127	6,242	7,038	1,115	796	2.0	1.2	171	203	236	1.7	1.5
...	State and local government capitol services	-	-	-	-	-	-	-	40	57	83	3.6	3.8
01,02,07,08,09	Agriculture ²	3,355	3,576	3,526	221	-51	.6	-.1	212	267	308	2.3	1.4
01,02	Agricultural production	2,292	2,106	1,729	-186	-377	-.8	-2.0	170	219	255	2.6	1.5
07	Agricultural services	960	1,385	1,724	425	340	3.7	2.2	34	36	42	.4	1.5
074	Veterinary services	126	217	282	91	65	5.6	2.7	8	9	11	1.8	1.5
078	Landscape and horticultural services	506	768	993	262	224	4.3	2.6	17	17	19	-.1	1.5
071,072,075,076	Agricultural services, n.e.c. .	328	400	450	72	51	2.0	1.2	10	10	12	.2	1.7
08,09	Forestry, fishing, hunting and trapping	103	86	73	-17	-13	-1.8	-1.6	9	12	12	2.7	-.7
88	Private household wage and salary	1,153	962	759	-191	-203	-1.8	-2.3	10	11	10	.9	-.8
...	Nonagricultural self-employed and unpaid family ^{3,4}	8,731	9,029	9,925	298	896	.3	1.0	-	-	-	-	-

See notes at end of table.

Table 4. Continued—Employment and output by industry, 1988, 1998, and projected 2008

Standard Industrial Classification	Industry	Employment							Output				
		Thousands of jobs			Change		Average annual rate of growth (percent)		Billions of chained 1992 dollars			Average annual rate of growth (percent)	
		1988	1998	2008	1988–98	1998–2008	1988–98	1998–2008	1988	1998	2008	1988–98	1998–2008
...	Secondary wage and salary jobs in agriculture (except agricultural services); forestry, fishing, hunting, and trapping; private households ⁵	211	163	158	-48	-5	-2.5	-3	-	-	-	-	-
...	Secondary job as a self-employed worker or unpaid family worker ⁶	1,990	1,897	1,901	-94	5	-5	.0	-	-	-	-	-
...	Total ^{7,8,9}	120,010	140,514	160,795	20,503	20,281	1.6	1.4	10,204	13,322	18,241	2.7	3.2

¹Excludes sic 074,5,8 (agricultural services) and 99 (nonclassifiable establishments). The data therefore are not exactly comparable with data published in *Employment and Earnings*.
²Excludes government wage and salary workers, and includes private sector for sic 08,09 (forestry, fishing, hunting, and trapping).
³Excludes sic 08,09 (forestry, fishing, hunting, and trapping).
⁴Comparable estimate of output growth is not available.
⁵Workers who hold a secondary wage and salary job in agriculture (except agricultural services); forestry, fishing, hunting, and trapping; and private households.
⁶Wage and salary workers who hold a secondary wage and salary job as a self-employed or unpaid family worker.
⁷Wage and salary data are from the Current Establishment Statistics (payroll) survey, which counts jobs, whereas self-employed, unpaid family workers,

agricultural, forestry, fishing, hunting, and trapping, and private household data are from the Current Population Survey (household survey), which counts workers.
⁸Subcategories do not necessarily add to higher categories as a by product of chainweighting.
⁹This is the first time the *Total* category includes second jobs:wage and salary and second jobs: self-employed and unpaid family.
 NOTE: Dash indicates data not available.
 n.e.c. = not elsewhere classified.
 Sources: Historical output data are from the Bureau of Economic Analysis, U.S. Department of Commerce.

output growth are slightly slower than during the 1988–98 period, the industry is projected to add 255,000 jobs to the 1998 level of 645,000, reflecting annual average growth of 3.4 percent. Similarly, a \$185 billion increase in real output from the 1998 level of \$176 billion is expected to materialize through 2008. Increasing trading volumes attributed to investments by individuals, institutions, and retirement plans underlies the strong output growth in the securities and commodity brokers industry. Integrated computer networks designed to keep orders flowing on the exchanges and in brokerage firms, combined with ongoing developments in software and internet technology, are facilitating transactions and supporting the increases in volume.

Employment in nondepository institutions and in holding and investment offices is expected to increase from 906,000 jobs in 1998 to 1.1 million jobs in 2008—an annual growth rate of 2.3 percent. This is a significant slowing of employment growth compared to the 1988–98 period, during which employment grew by 4.7 percent a year. Real output is projected to expand from \$86 billion in 1998 to \$146 billion in 2008. The 5.4-percent annual increase in real output growth between 1998 and 2008 places nondepository institutions and holding and investment offices among the fastest growing industries.

The negative trend noted in employment and output growth for depository institutions between 1988 and 1998 is projected to reverse over the 1998–2008 period. Employment is expected

to increase from 2 million jobs in 1998 to 2.1 million jobs in 2008, or at an annual rate of 0.3 percent. Similarly, an increase in real output of \$109 billion on top of the 1998 level of \$273 billion is projected to occur by 2008. The rapid pace of mergers, acquisitions, and consolidations that characterized the industry over the past decade appears to be abating, and the traditional boundaries between banking and other financial services are becoming obscured. Productivity gains will result from consolidations and from increased use of technology and automated services. There is still some uncertainty about the direction of future overall growth of finance, insurance, and real estate as depository institutions introduce new investment products and more nonfinancial firms begin to offer traditional banking products.

Employment in the real estate industry is projected to increase at a 1.2-percent annual rate, from 1.5 million jobs in 1998 to 1.7 million jobs in 2008. This is a slight slowdown from the 1988–98 period, during which employment grew by 1.4 percent annually. Output is expected to expand by 2.2 percent annually, a continuation of the rate experienced over the previous decade. Computer software and Internet technology allowing clients to prescreen properties will contribute to productivity increases in this industry.

Transportation, communications, and utilities. Employment in the transportation, communications, and utilities division is

Table 5. Industries with fastest and slowest output growth, 1998–2008

Standard Industrial Classification	Industry description	Billions of chained (1992) dollars		Change	Average annual rate of change
		1988	2008	1998–2008	1998–2008
Fastest growing					
357	Computer and office equipment	446.5	1,723.4	1,276.9	14.5
367	Electronic components and accessories	203.1	570.9	367.8	10.9
737	Computer and data processing services	219.3	583.8	364.5	10.3
751	Automotive rentals, without drivers	50.0	121.6	71.6	9.3
366	Communication equipment	78.1	169.5	91.4	8.1
62	Security and commodity brokers	175.8	360.8	185.0	7.5
873	Research and testing services	52.6	101.0	48.3	6.7
...	Royalties	81.2	149.7	68.5	6.3
61,67	Nondepository institutions and holding and investment offices	86.3	146.1	59.8	5.4
347	Metal coating, engraving, and allied services	16.1	26.9	10.9	5.3
375,379	Miscellaneous transportation services	12.8	21.2	8.4	5.2
736	Personnel supply services	78.5	129.3	50.8	5.1
781–783	Motion pictures	35.3	58.0	22.7	5.1
481,482,489	Telephone and telegraph communications and communications and communication services	263.9	433.7	169.8	5.1
385	Ophthalmic goods	2.9	4.7	1.8	5.1
735	Miscellaneous equipment and leasing	32.1	52.4	20.4	5.0
382	Measuring and controlling devices	45.2	72.5	27.3	4.8
45	Air transportation	127.7	202.9	75.3	4.7
791,799	Amusement and recreation services, n.e.c.	64.6	101.9	37.3	4.7
384	Medical equipment, instruments, and supplies	51.0	79.6	28.6	4.5
422	Warehousing and storage	13.8	21.6	7.7	4.5
473,474,478	Miscellaneous transportation services	16.7	26.0	9.3	4.5
Most rapidly declining					
387	Watches, clocks and parts	1.1	.3	–.8	–11.7
311,315–317,319	Luggage, handbags, and leather products, n.e.c.	5.5	4.4	–1.1	–2.2
793	Bowling centers	2.9	2.3	–.6	–2.2
278	Blankbooks and bookbinding	6.4	5.3	–1.1	–1.9
271	Newspapers	32.4	28.2	–4.2	–1.4
324	Hydraulic cement	4.9	4.3	–.5	–1.2
64	Insurance agents, brokers, and service	45.6	41.3	–4.2	–1.0
88	Private households	11.1	10.3	–.8	–.8
08,09	Forestry, fishing, hunting, and trapping	12.4	11.5	–.9	–.7
242	Sawmills and planing mills	26.6	24.8	–1.8	–.7
279	Service industries for the printing trade	5.5	5.2	–.3	–.7
231–238	Apparel	54.8	51.7	–3.1	–.6
...	Federal general government	171.5	161.9	–9.6	–.6
...	Federal Government capital services	60.7	57.8	–2.9	–.5
769	Miscellaneous repair shops and related service	21.1	20.1	–1.0	–.5
251	Household furniture	28.9	27.6	–1.3	–.4
492	Gas utilities	52.1	51.5	–.6	–.1
243	Millwork, plywood, and structural members	30.1	29.8	–.4	–.1
205	Bakery products	29.0	28.8	–.3	–.1
763,764	Watch, jewelry, and furniture repair	2.3	2.3	.0	–.1

NOTE: n.e.c. = not elsewhere classified.

projected to increase by 941,000, from 6.6 million to 7.5 million. The projected annual rate of job growth, 1.3 percent, is slightly slower than the 1.8-percent rate posted from 1988 to 1998. The division's real output is expected to increase by \$387 billion, or at an annual growth rate 3.0 percent. The projected rate of output growth is slightly faster than the 2.9-percent annual rate experienced between 1988 and 1998.

The transportation industry is expected to add 675,000 jobs through 2008. Its projected average annual rate of growth, 1.5 percent, is about the same as the average for all industries in the economy, but is slower than the average annual rate of 2.6

percent experienced by the industry over the 1988–98 period. Real output is expected to increase by \$236 billion, or at an average annual rate of 4.0 percent. Nearly 80 percent of the projected employment and output growth in the transportation sector is attributed to air transportation, local and interurban passenger transcript, and trucking and courier services, except air. Through 2008, employment in the air transportation industry is projected to increase by 217,000 jobs, from 1.18 million in 1998, while that of the local and interurban passenger transit industry rises to 622,000. Employment in the trucking and courier services, except air, industry is expected

to increase by 166,000 jobs from the 1998 total of 1.74 million. Similarly, a combined increase of \$196 billion in real output is projected for the three industries over the 1998–2008 period.⁶ Productivity gains in these industries will occur because of larger load and freight capacities, tiered fare structures, increased use of intermodal services, and greater fuel efficiency.

Employment declines among the railroad transportation and the pipelines, except natural gas, industries are expected to continue, but at slower rates than during the previous 10 years. Declines of 46,000 jobs in railroad transportation and of 1,000 jobs in pipelines, except natural gas, are expected to materialize through 2008. However, over the same period, real output is projected to increase by over \$11 billion. The adoption of new

technologies and investment in infrastructure and capital equipment, such as high speed passenger trains in the northeast corridor, are spurring increases in productivity.

Above-average annual rates of employment growth (1.9 percent) and real output growth (4.6 percent) are projected for the communications industry through 2008. These rates are faster than the corresponding annual growth rates of 1.4 percent and 4.2 percent experienced by the industry between 1988 and 1998. Overall, employment in the communications industry is expected to increase by 299,000 jobs, and real output by \$189 billion, from 1998 to 2008. Almost three-quarters of the employment in this sector is in the telephone and telegraph communications and communication service industry. This industry alone is projected

Table 6. Industries with the largest wage and salary employment growth and declines, 1998–2008

Standard Industrial Classification	Industry description	Thousand of jobs		Change	Average annual rate of change
		1998	2008	1998–2008	1998–2008
Largest growth					
737	Computer and data processing services	1,599.3	3,471.6	1,872.3	8.1
52–57,59	Retail trade, excluding eating and drinking places	14,536.0	16,281.4	1,745.4	1.1
736	Personnel supply services	3,229.7	4,623.1	1,393.4	3.7
58	Eating and drinking places	7,760.1	9,081.5	1,321.4	1.6
...	State and local government education	8,997.8	10,194.7	1,196.9	1.3
801–804	Offices of health practitioners	2,948.8	4,098.4	1,149.6	3.3
732,733,738	Miscellaneous business services	2,278.2	3,171.5	893.3	3.4
801–804	Health services, n.e.c.	1,209.1	2,018.3	809.2	5.3
...	State and local government, n.e.c.	6,242.1	7,038.2	796.1	1.2
15,16,17	Construction	5,984.8	6,535.0	550.2	.9
82	Educational services	2,177.1	2,689.7	512.6	2.1
50,51	Wholesale trade	6,831.4	7,330.3	498.9	.7
874	Management and public relations	1,033.9	1,500.0	466.1	3.8
805	Nursing and personal care facilities	1,762.0	2,212.9	450.9	2.3
791,9	Amusement and recreation facilities, n.e.c.	1,216.7	1,652.8	436.1	3.1
836	Residential care	746.7	1,171.0	424.3	4.6
806	Hospitals	3,926.1	4,336.9	410.8	1.0
752–754	Automobile parking, repair, and services	944.2	1,300.0	355.8	3.2
701	Hotels and other lodging places	1,718.6	2,030.0	311.4	1.7
832,839	Individual and miscellaneous social services	923.3	1,222.9	299.6	2.9
Largest declines					
88	Private households	962.0	758.9	–203.1	–2.3
231–238	Apparel	547.1	350.0	–197.1	–4.4
...	Federal general government	1,699.0	1,556.8	–142.2	–.9
01,02	Agricultural production	1,106.0	968.2	–137.8	–1.3
221–224,226,228	Weaving, finishing, yarn, and thread mills	320.0	250.7	–69.3	–2.4
131,132	Crude petroleum, natural gas, and gas liquids	143.1	77.4	–65.7	–6.0
331	Blast furnaces and basic steel products	231.5	176.7	–54.8	–2.7
491	Electric utilities	364.2	311.4	–52.8	–1.6
371	Motor vehicles and equipment	989.8	940.3	–49.5	–.5
40	Railroad transportation	230.7	184.9	–45.8	–2.2
271	Newspapers	442.5	401.0	–41.5	–1.0
...	State and local government hospitals	983.1	948.0	–35.1	–.4
12	Coal mining	91.6	59.4	–32.2	–4.2
225	Knitting mills	159.4	127.8	–31.6	–2.2
362	Electrical industrial apparatus	153.2	121.9	–31.3	–2.3
261–263	Pulp, paper, and paperboard mills	214.9	186.8	–28.1	–1.4
354	Metal working machinery and equipment	352.4	324.4	–28.0	–.8
493	Combined utilities	158.6	131.4	–27.2	–1.9
364	Electrical lighting and wiring equipment	182.8	157.3	–25.5	–1.5
291	Petroleum refining	96.0	74.7	–21.3	–2.5

NOTE: n.e.c. = not elsewhere classified.

to produce 244,000 new jobs and to generate the fastest output growth in the communications division (5.1 percent annually, or \$170 billion total) through 2008. In contrast to the communications division as a whole, employment growth for the cable and pay television services industry is projected to slow to 2.4 percent from the annual rate of 5.0 percent posted over the 1988–98 period. Nevertheless, the projected increase is still above the average for all industries, with employment increasing by 49,000 from 181,000 in 1998 to 230,000 in 2008. Annual real output growth of the industry is expected to exceed historical rates, adding an additional \$16 billion to the 1998 real output level of \$32 billion. Major advances in technology, combined with strong demand for a variety of communications products and services, will contribute to the projected output growth through 2008. The rapid increase in output that takes place even as employment growth slows indicates that productivity gains will continue among industries in the communications division.

The phenomenal pace of technological innovation, combined with recent deregulation, makes projecting employment and output in the communications division challenging. Boundaries between industries are increasingly blurred as developing technologies involving similar products and services are adopted and applied by traditionally separate industries. The Telecommunication Act of 1996 was enacted to lift domestic impediments to competition by opening local phone business to long-distance companies and allowing local phone companies to offer long-distance services. Increased competition due to deregulation is likely to affect pricing and revenue growth, but its timing and its impact on the various market segments is uncertain.

Wholesale trade. Jobs in wholesale trade are projected to increase by 499,000 from the 1998 level of 6.8 million to 7.3 million by 2008. The projected job growth is substantially less than the 802,000 increase recorded over the 1988–98 period. Merger and acquisition activity is expected to constrain employment growth in the wholesale trade industry, as is customer consolidation, a practice by which smaller wholesaler-distributors band together in alliances to bid for multiregional or national contracts. Real output for wholesale trade is projected to grow at an average annual rate of 3.7 percent, or more slowly than the 5.1-percent rate posted between 1988 and 1998.

Goods-producing sector

Construction. Construction is the only goods-producing division projected to experience an increase in employment between 1998 and 2008. However, the projected 0.9-percent average annual rate of growth, which yields 550,000 new jobs, is slower than the 1.6-percent rate posted over the previous 10-year period. Real output is projected to increase \$95 billion, or by 1.3 percent a year, from 1998 to 2008. This rate is significantly faster than the annual growth rate of 0.5 percent realized between 1988 and 1998.

Fixed residential investment is projected to grow by 1.0 percent annually through 2008. This trend is relatively unchanged from the 1988–98 period. The demand for housing and educational facilities, which together make up most of fixed residential investment, is limited by demographic factors. Through 2008, the demand for single-family housing will be restrained as fewer adults enter the 25-to-44 age group than did so between 1988 and 1998. However, as more adults enter the 55-and-older group, the demand for apartment, multifamily, and assisted living housing is likely to increase.

Nonresidential investment grew by only a modest 0.3-percent annual rate between 1988 and 1998. Overbuilding during the 1980s had created excess capacity in the marketplace despite vibrant growth in the U.S. economy. However, most of the excess capacity has now been soaked up, so that an annual growth rate of 1.5 percent is projected for nonresidential investment through 2008. The demand for highway infrastructure, bridges, schools, and modernized manufacturing facilities is contributing to the resurgence in nonresidential investment growth. Additionally, the Transportation Equity Act for the 21st Century, passed by the U.S. Congress in June 1998, allocates an additional \$218 billion in Federal expenditures for highway and mass transit projects through 2003. An aging population and emphasis on reducing health care costs also are likely to boost demand for the construction of health care facilities and hospitals.

Manufacturing. The historic decline in manufacturing employment is expected to moderate over the 1998–2008 period, amid sustained gains in productivity and real output growth. In 1978, manufacturing wage and salary employment accounted for 20.9 percent of all jobs in the economy, but by 1998, the industry division accounted for only 13.4 percent. The decline has slowed in recent years, and it is projected that 11.6 percent of the labor force will be employed in the manufacturing division by 2008. Manufacturing employment is projected to shrink from 18.8 million to 18.7 million jobs. The decline is borne extensively by industries in the nondurable manufacturing group, in which employment is projected to decline by 196,100 jobs to 7.4 million by 2008. Real output growth among nondurable manufacturing industries is projected to remain fairly steady, increasing at annual rate of 1.6 percent. Conversely, the durable manufacturing division is expected to expand by 107,400 jobs from a 1998 level of 11.2 million, and to achieve a high annual output growth rate of 5.5 percent. Real output is projected to increase by \$1.6 trillion from its 1998 level of \$2.2 trillion.

Projected output growth among durable manufacturing industries is exceptionally robust through 2008. Investment in modernization of manufacturing sites and equipment, combined with updates and additions to computer equipment and software, are boosting productivity levels among durable manufacturing industries. Projected employment gains, however, are concen-

Table 7. Industries with the largest output growth and declines, 1998–2008

Standard Industrial Classification	Industry description	Billions of chained 1992 dollars		Change	Average annual rate of change
		1998	2008	1998–2008	1998–2008
Largest growth					
357	Computer and office equipment	446.5	1,723.4	1,276.9	14.5
367	Electronic components and accessories	203.1	570.9	367.8	10.9
737	Computer and data processing services	219.3	583.8	364.5	10.3
50,51	Wholesale trade	820.2	1,178.3	358.0	3.7
52,57,59	Retail trade, excluding eating and drinking places	812.8	1,098.4	285.6	3.1
62	Security and commodity brokers	175.8	360.8	185.0	7.5
481,482,489	Telephone and telegraph communications and communication service	263.9	433.7	169.8	5.1
65	Real estate	569.4	707.1	137.6	2.2
421,423	Trucking and courier services, except air	215.9	331.0	115.1	4.4
60	Depository institutions	272.9	382.0	109.1	3.4
...	Owner-occupied dwellings	527.7	632.7	105.0	1.8
15,16,17	Construction	696.7	791.8	95.2	1.3
366	Communication equipment	78.1	169.5	91.4	8.1
45	Air transportation	127.7	202.9	75.3	4.7
751	Automotive rentals, without drivers	50.0	121.6	71.6	9.3
732,733,738	Miscellaneous business services	157.8	228.6	70.8	3.8
...	Royalties	81.2	149.7	68.5	6.3
801–804	Offices of health practitioners	248.6	312.5	63.9	2.3
61,67	Nondepository; holding and investment offices	86.3	146.1	59.8	5.4
372,376	Aerospace	119.8	178.6	58.8	4.1
Largest declines					
...	Federal general government	171.5	161.9	–9.6	–.6
271	Newspapers	32.4	28.2	–4.2	–1.4
64	Insurance agents, brokers and services	45.6	41.3	–4.2	–1.0
491	Electric utilities	147.4	143.8	–3.6	–.2
231–238	Apparel	54.8	51.7	–3.1	–.6
...	Federal government capital services	60.7	57.8	–2.9	–.5
242	Sawmills and planing mills	26.6	24.8	–1.8	–.7
251	Household furniture	28.9	27.6	–1.3	–.4
278	Blankbooks and bookbinding	6.4	5.3	–1.1	–1.9
311,315,–317,319	Luggage, handbags, and leather products, n.e.c.	5.5	4.4	–1.1	–2.2
769	Miscellaneous repair shops and related services	21.1	20.1	–1.0	–.5
08,09	Forestry, fishing, hunting, and trapping	12.4	11.5	–.9	–.7
88	Private households	11.1	10.3	–.8	–.8
387	Watches, clocks and parts	1.1	0.3	–.8	–11.7
492	Gas utilities	52.1	51.5	–.6	–.1
793	Bowling centers	2.9	2.3	–.6	–2.2
324	Hydraulic cement	4.9	4.3	–.5	–1.2
243	Millwork, plywood, and structural members	30.1	29.8	–.4	–.1
279	Service industries for the printing trade	5.5	5.2	–.3	–.7
205	Bakery products	29.0	28.8	–.3	–.1

NOTE: n.e.c. = not elsewhere classified.

trated among a handful of high-tech and medically related industries. Only four industries are expected to experience above-average annual growth rates in employment: medical equipment, instruments, and supplies (1.8 percent), aerospace (2 percent), electronic components and accessories (2.2 percent), and miscellaneous transportation equipment (2.3 percent). The largest employer among durable manufacturing industries, motor vehicles and equipment, is projected to suffer a slight decline in employment, 50,000, from 990,000 jobs in 1998 to 940,000 in 2008. The decline is a consequence of moderate output growth combined with productivity increases stemming from technological advancements and further automation of assembly processes. Despite limited employment growth in durable manufacturing, productivity increases and investment by other industries in new plants and equipment will continue

to support strong gains in output. Indeed, productivity gains will allow many industries in this sector to prosper in competitive domestic and international markets.

Drastic cutbacks in defense spending between 1988 and 1998 negatively affected growth in the aerospace industry. During this period, real output shrank from \$126 billion to \$120 billion and employment declined from 892,000 to 615,000 jobs, or at an annual rate of –3.6 percent. However, renewed growth in air travel and the resulting demand for airplanes and parts is expected to revive growth over the projected period. Employment in the aerospace industry is projected to increase by 135,000, to 750,000 jobs by 2008. Similarly, real output growth is projected to expand by \$59 billion to \$179 billion. The aerospace industry is expected to meet output demand by improving and modifying existing aircraft designs rather than developing new models. The

emphasis on existing designs results from high research and development costs in an increasingly competitive market, and a general plateau in jetliner technology. Reduced government funding for civilian aircraft programs and pressure by aircraft industry investors for a timely return on investment also make it more attractive for aircraft manufacturers to rework existing aircraft designs.⁷

Three durable manufacturing industries are among the top 10 fastest growing industries in terms of annual output growth—computer and office equipment (14.5 percent), electronics components and accessories (10.9 percent), and communications equipment (8.1 percent). Between 1998 and 2008, real output in the computer and office equipment industry is expected to more than triple, from \$446 billion to \$1.7 trillion. In 1988, the largest share of durable manufacturing output, 15.8 percent, was produced by the motor vehicle and equipment industry. By the year 2008, 45.2 percent of durable manufacturing output will come from the computer and office equipment industry. This industry manufactures mainframe, micro-, mini-, laptop, and personal computers, as well as related peripheral equipment (such as disk drives and printers) and a variety of other office machines. Its output usually is purchased as a capital investment by a wide variety of industries, especially retail trade, finance, insurance, and business services. Real output of the electronics components and accessories industry is expected to grow from \$203 billion in 1998 to \$571 billion by 2008. The industry is the second-largest employer in the durable manufacturing sector behind motor vehicles and equipment. Its end products are used as components in communication equipment, computers, semiconductors, telephone apparatus, and other high-tech instruments. A substantial proportion of the domestic output of this industry is exported. Formidable output growth among industries using electronic components and accessories as inputs to production will support robust output growth in the industry throughout the projected period. Real output of the communications equipment industry thus is projected to expand from \$78 billion in 1998 to \$169 billion by 2008. This industry is primarily engaged in manufacturing a variety of products, including telephone and telegraph apparatus, modems, facsimile equipment, switching equipment, radio and television broadcasting equipment, cable television equipment, signaling and detecting equipment, cellular radio telephones, traffic signaling equipment, and fire and burglar alarm apparatus.

Growth in the output of computer and office equipment, electronic components and accessories, and communication equipment is driven by technology. Over the past decade, use of the Internet and of wireless technologies has exploded, creating phenomenal growth and new challenges for manufacturers of such equipment. Deregulation of the communications industry and the evolution of interactive communication products are eroding traditional industry boundaries and shaping new markets. Rapid growth and acceptance of the Internet already is laying the framework for additional technologies, such as Internet telephony—

the transmission of voice communications over the Internet. Filling the demand for high quality services delivered with cutting-edge technologies will require the cooperation of ISP's (Internet Service Providers) and local and long-distance telephone companies. This means that equipment and services will need to be compatible between traditionally different industries and between different service providers for technological advancements to be widely adopted. Given all of these factors, forecasting output and employment growth over the next decade for industries manufacturing computers, electronics, and communications equipment obviously is problematic. The challenge for these industries will be to sustain growth and to improve services and transfer speeds as increasingly large volumes of voice communications and data are transferred over existing cable, fiber, and wireless networks.

In the nondurable manufacturing group, projected real annual output growth, 1.6 percent, is significantly lower than the 3.9 percent projected for all of manufacturing. The nondurable manufacturing industries projected to be the fastest growing in terms of real output are: drugs (3.3 percent annually), plastic materials and synthetics (3.4 percent), miscellaneous chemical products (3.5 percent), rubber products, plastic hose, and footwear (3.9 percent), and miscellaneous plastic products (4.1 percent). Employment in the drug industry is expected to increase, by 30,000, to 309,000 jobs by 2008, while real output expands by \$33 billion, to \$117 billion. Growth in the drug industry is driven by rising standards of living in developing countries, the development of new products aimed at increasing quality of life, and longer life expectancies of the industry's largest group of customers—the elderly. Pharmaceutical use tends to moderate costs for other health-related industries by reducing the length and number of patient stays in hospitals, as well as the number of visits to the doctor.

In the miscellaneous plastic products industry, employment is projected to grow by 125,000, to 865,000 jobs, and real output rises by \$57 billion, to \$171 billion, through 2008. The projected rates of employment and output growth, 1.6 percent and 4.1 percent, are slower than those of the previous decade, but are faster than the corresponding average for all nonfarm wage and salary industries. The miscellaneous plastic products industry primarily molds plastics for manufacturing industries and produces a variety of finished products, including pipes, bottles, plumbing fixtures, and so forth. Many of the most rapidly growing industries in the economy, including construction and industries manufacturing electronics, computers, and communications equipment, use plastic products as an intermediate input in production. Demand by these industries will sustain employment and output growth in the miscellaneous plastic products industry throughout the projected period.

Three of the most rapidly declining industries in terms of employment over the 1998–2008 period are found in the nondurable manufacturing sector. These industries include apparel (–4.4 percent annually), footwear, except rubber and plastic (–4.1 percent) and luggage, handbags, and leather products (–2.7 per-

cent). Declines in the apparel and footwear industries are slower than the annual decreases of 4.7 percent and 8.3 percent experienced by these industries between 1988 and 1998. Although the footwear, except rubber and plastic, industry is expected to suffer continued declines in employment, annual output is projected to grow by 0.4 percent through 2008. The very slow output growth rate of footwear, and the declining output growth rates for the apparel and the luggage, handbags, and leather products industries reflect the fact that imports are projected to supply an increasing share of these goods. Other textile mill product industries, such as weaving, finishing, yarn, and thread mills and knitting mills, also will experience continuing declines in employment amid increasing levels of real output. In 1988, these two industries were responsible for more than 615,000 jobs. By 2008, however, their combined projected level of employment falls by nearly half, to 379,000 jobs. Conversely, their real level of output rose from \$50 billion in 1988 to \$61 billion in 1998, and is projected to reach \$68 billion by 2008. Increases in productivity arising from industry consolidation, capital expenditures on modern plant equipment, and computerization continue to support growth in real output despite declines in employment. For example, computerization is allowing more textile mill industries to adopt just-in-time inventory management, which reduces the time between the placement of orders and the delivery of goods to stores, and thereby smoothes the flow of production and boosts inventory turnover ratios.⁸

Mining. Wage and salary employment in the mining industry is expected to continue declining from 590,000 jobs in 1998 to 475,000 jobs in 2008. As a whole, the mining industry will experience the largest annual decline in employment projected for any major industrial division, 2.1 percent. Three industries comprising nearly half of the employment in the mining division—metal mining, coal mining, and crude petroleum, natural gas, and gas liquids—account for about 90 percent of the decline in mining employment, 111,000 jobs through 2008. In particular, the crude petroleum, natural gas, and gas liquids industry, with a net decrease of 66,000, is projected to suffer the largest annual employment decrease among

all industries, 6 percent. Oil and gas field services is the only mining industry projected to experience even minimal employment growth, from 196,000 jobs in 1998 to 205,000 in 2008.

While employment declines are projected for the mining industry as a whole through 2008, increases in productivity (1.6 percent annually) will result in overall output growth of \$22.2 billion. This increase translates into an annual growth rate of 1.2 percent, reversing the annual 0.4-percent decrease posted between 1988 and 1998. The metal mining industry is expected to enjoy the greatest percentage change in annual output growth, 3.7 percent, of the all the mining industries, boosting production from \$11 billion in 1998 to \$15 billion in 2008. Domestic production, rather than imports, will meet an increasing percentage of domestic demand for metals through 2008. Coal mining is expected to show only minimal output growth of 0.7 percent annually, for an increase from \$29 billion to \$31 billion.⁹

Multiple factors affect employment and output in the mining division. These include advances in technology, access to public lands for extraction, location and profitability of reserves, and the regulatory environment. One probable source of output growth in mining through 2008 will be a decline in import penetration, coupled with an increase in domestic production. Advances in technology will continue to boost productivity of the mining industries. Remote-controlled mining and drilling equipment permit faster extraction and access to previously inaccessible deposits. Because petroleum and gas reserves tend to be wide rather than deep, new horizontal drilling techniques allow for more than one reservoir to be accessed by a single well. Also, three-dimensional seismic imaging assists in delineating obscured reserves beneath the earth's surface.

SLOWING GROWTH IN TOTAL EMPLOYMENT amid stable population and labor force growth characterizes this set of employment projections. The service-producing sector of the economy is the dominant source of employment growth, as has been the case for the last 20 years and in the last several sets of BLS projections. The majority of the growth within the service-producing sector is found among industries in the services and retail trade divisions. □

Notes

¹ For further discussion of the macro economic influences, see Norman C. Saunders and Betty Su, "The U.S. economy to 2008: a decade of continued growth," *Monthly Labor Review*, November 1999, pp. 5–18.

² For further discussion of the labor force, see Howard N Fullerton, Jr., "Labor force projections to 2008: steady growth and changing composition," *Monthly Labor Review*, November 1999, pp. 19–32.

³ For more indepth reading, see Joseph Meisenheimer II, "The services industry in the 'good' versus 'bad' jobs debate," *Monthly Labor Review*, February 1998, pp. 22–47.

⁴ Additional analysis of hospital costs are covered by James Moore, Jr., "Hospital Room and Board," *Compensation and Working Conditions*, Summer 1998, pp. 23–30.

⁵ For further reading, see Cynthia Engel, "Health services industry: still a job machine?" *Monthly Labor Review*, March 1999, pp. 3–14.

⁶ For further reading, see Cynthia Engel, "Competition drives the trucking industry," *Monthly Labor Review*, April 1998, pp. 34–41.

⁷ For further reading, see "Aerospace," *U.S. Industry & Trade Outlook '99* (New York, McGraw Hill); and the U.S. Department of Commerce, "Outlook and Specification Tables," *Aviation Week & Space Technology*, Jan. 11, 1999.

⁸ For further information on the textile industries, see Mark Mittlehauser, "Employment trends in textiles and apparel, 1973–2005," *Monthly Labor Review*, August 1997, pp. 24–35. For a regional focus, see "The Southeast Is Maintaining Its Share of Textile Plant Employment," *Issues in Labor Statistics* (Bureau of Labor Statistics, February 1999).

⁹ For additional analysis, see David McDermott, "Coal mining in the U.S. West: price and employment trends," *Monthly Labor Review*, August 1997, pp. 18–23.