

*Employment outlook: 1996–2006*

# Industry output and employment projections to 2006

*The service-producing sector continues to lead projected employment growth; the 10 industries with the largest projected job growth are all service producers and account for 60 percent of the net increase in nonfarm wage and salary employment*

James C. Franklin

Over the 1996–2006 period, total employment in the United States is projected to increase by 18.6 million, from 132.4 million to 151 million. The projected annual average rate of growth is 1.3 percent, slower than the 1.7-percent annual average rate of growth from 1986 to 1996. The increase of 17.6 million (from 118.7 million to 136.3 million) in nonfarm wage and salary jobs accounts for nearly all of the increase in total employment. The number of agricultural workers—self-employed persons, unpaid family workers, and wage and salary workers, combined—is projected to decline by 24,000. Private household wage and salary jobs also are projected to decline, by 153,000. The remaining portion of growth in total jobs is accounted for by an increase of 1.2 million in non-agricultural self-employed and unpaid family workers. (See table 1.)

The macroeconomic factors whose combined influence most affects the growth of total employment are increases in the labor force,<sup>1</sup> in productivity,<sup>2</sup> and in the Nation's gross domestic product, or GDP. In the latest round of BLS projections, the labor force grows at an annual average rate of 1.1 percent during the 1996–2006 projection period. This is a slowing in the rate of growth compared to the 1.3-percent annual average rate of increase posted over the 1986–96 period. The growth rate of the nonfarm labor

productivity index is projected to average 1.1 percent per year from 1996 through 2006, an increase from the 0.7-percent rate of change during the previous 10 years. The rate of growth for GDP during the projection period is 2.1 percent, a slight decline from the 2.3-percent average annual increase during the 1986–96 period. The overall picture, then, is one of an economy in which the rate of growth of both the labor force and GDP is slowing, but output, as measured by GDP, continues to outpace labor force growth because of productivity gains.

The service-producing sector, excluding private households, has a projected increase of 17.6 million nonfarm wage and salary jobs, from 94.3 million in 1996 to 111.9 million by 2006. Within the service-producing sector, employment growth is highly concentrated. During the 1986–96 period, 11.2 million, or 56 percent, of the 20.1 million increase in service-producing sector employment was concentrated in the services division. The projected 11.3 million gain in wage and salary jobs in the services division over the 1996–2006 period accounts for almost two-thirds of the projected 17.6 million increase in employment in the service-producing sector. The addition of job growth for retail trade (2.3 million), and for State and local government (1.8 million) to that for the services division accounts for 87 percent of the projected job gains in the service-producing sector.

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**Table 1. Employment by major industry division, 1986, 1996, and projected 2006**

Industry	Thousands of jobs			Change		Percent distribution			Average annual rate of change	
	1986	1996	2006	1986-96	1996-2006	1986	1996	2006	1986-96	1996-2006
Total <sup>1</sup> .....	111,374	132,352	150,927	20,978	18,575	100.0	100.0	100.0	1.7	1.3
Nonfarm wage and salary <sup>2</sup> .....	98,727	118,731	136,318	20,004	17,587	88.6	89.7	90.3	1.9	1.4
Goods producing .....	24,538	24,431	24,451	-107	20	22.0	18.5	16.2	.0	.0
Mining .....	778	574	443	-204	-131	.7	.4	.3	-3.0	-2.5
Construction .....	4,810	5,400	5,900	590	500	4.3	4.1	3.9	1.2	.9
Manufacturing .....	18,951	18,457	18,108	-493	-350	17.0	13.9	12.0	-.3	-.2
Durable .....	11,200	10,766	10,514	-433	-252	10.1	8.1	7.0	-.4	-.2
Nondurable .....	7,751	7,691	7,593	-60	98	7.0	5.8	5.0	-.1	-.1
Service producing .....	74,189	94,300	111,867	20,111	17,567	66.6	71.2	74.1	2.4	1.7
Transportation, communications, utilities .....	5,247	6,260	7,111	1,014	851	4.7	4.7	4.7	1.8	1.3
Wholesale trade .....	5,751	6,483	7,228	732	745	5.2	4.9	4.8	1.2	1.1
Retail trade .....	17,878	21,625	23,875	3,747	2,250	16.1	16.3	15.8	1.9	1.0
Finance, insurance, and real estate .....	6,275	6,899	7,651	625	752	5.6	5.2	5.1	1.0	1.0
Services <sup>2</sup> .....	22,346	33,586	44,852	11,240	11,266	20.1	25.4	29.7	4.2	2.9
Federal Government .....	2,899	2,757	2,670	-142	-87	2.6	2.1	1.8	-.5	-.3
State and local government .....	13,794	16,690	18,480	2,896	1,790	12.4	12.6	12.2	1.9	1.0
Agriculture <sup>3</sup> .....	3,327	3,642	3,618	314	-24	3.0	2.8	2.4	.9	-.1
Private household wage and salary .....	1,235	928	775	-307	-153	1.1	.7	.5	-2.8	-1.8
Nonagricultural self-employed and unpaid family workers <sup>4</sup> .....	8,085	9,051	10,216	966	1,165	7.3	6.8	6.8	1.1	1.2

<sup>1</sup> 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.

<sup>2</sup> Excludes sic 074,5,8 (agricultural services) and 99 (nonclassifiable

establishments), and is therefore not directly comparable with data published in *Employment and Earnings*.

<sup>3</sup> Excludes government wage and salary workers, and includes private sector sic 08, 09 (forestry and fisheries).

<sup>4</sup> Excludes sic 08, 09 (forestry and fisheries).

The goods-producing sector, excluding agricultural products, has a slight projected increase of 20,000 wage and salary jobs, with employment remaining essentially stable at 24.4 million over the 1996-2006 period. However, strong productivity gains allow real gross duplicated output<sup>3</sup> to grow at a projected 2.3-percent annual rate. (See table 2.) At the major industry level on the goods-producing side, only construction is projected to post an employment gain. From the 1996 level of 5.4 million, construction is expected to add 500,000 jobs to reach a projected 2006 jobs level of 5.9 million. Employment in mining is projected to decline by 131,000, from a level of 574,000 in 1996 to 443,000 in 2006. Over the 1986-96 period, mining lost 204,000 jobs. Manufacturing is projected to decline by 350,000 jobs, from 18.5 million in 1996 to 18.2 million in 2006. The decline for manufacturing is about 30 percent less than the reduction of 493,000 jobs recorded over the previous 10-year period, 1986-96.

## Service-producing industries

Employment growth in the services division is, overwhelmingly, the most important result of these projections. The services division is very diverse, providing a wide range of services to individuals and businesses. Of the 17.6 million increase in total nonfarm wage and salary jobs over the projection period, the services division is expected to account for 11.3 million, or 64 percent. This is an even greater share than over the 1986-96 period, when the division accounted for 56 percent of the growth of nonfarm wage and salary jobs. Employment in the services division has a projected annual growth rate of 2.9 percent—more than twice the rate for all nonfarm wage and salary jobs. Services division jobs increased as a share of total nonfarm wage and salary employment from 22.6 percent in 1986 to 28.3 percent in 1996. This share is projected to increase to 32.9 percent by 2006.

Within the service division, most of the projected job

growth is in just two industry groups: *business services*, with a job gain of 3.6 million, and *health services*, with an increase of 3.2 million. Together, these industry groups account for 59 percent of the job growth in the services division and 38 percent of the increase in total nonfarm wage and salary employment. The industry groups with the third and fourth largest projected job gains within the services division are *social services*, with a 1.1 million increase, and *engineering, management, and related services*,<sup>4</sup> with an increase of 1 million jobs. Together, these four industry groups account for 78 percent of job growth in the services division and 50 percent of the total increase in nonfarm wage and salary employment.

*Health services.* The health care industry continues to adapt to the economic realities of health care as a social and political issue.<sup>5</sup> Cost consciousness will continue to be a driving force, as will society's concern for the provision of health as a general public good. The aging of the population, driven by the graying of the baby-boom generation and an increase in the numbers of persons aged 85 and older, will continue to boost demand for health services. New technologies that

permit the identification and treatment of conditions not previously treatable will be developed, but experience suggests that these are usually expensive when first brought to market. While medical innovation is often considered a hallmark of the quality of medical care in the United States, it also is often considered a driving factor in the rise in health care expenditures.<sup>6</sup>

During the early 1990s, the health care industry changed, reflecting the consolidation of health care institutions, the rise of the health maintenance organization (HMO), and, to a lesser extent, the spread of the managed care organization (MCO). These organizational changes in the industry have been mostly designed to place an emphasis on preventative medicine and to allow the use of cost-intensive medical technologies only when necessary. The health care industry has been successful to some degree in these efforts, but not to everyone's complete satisfaction. Certain practices of some HMO's have led to political backlash, as consumers complain of being denied what they perceive to be needed health care. The future of health care management will likely continue to be decided through political debate, as well as through industry efforts. Because of the aging population and advances in medical care,

**Table 2. Output by major industry division (gross duplicated output), 1986, 1996, and projected 2006**

Industry	Billions of chained 1992 dollars			Percent distribution			Average annual rate of change	
	1986	1996	2006	1986	1996	2006	1986-96	1996-2006
Total .....	9,391.1	12,059.9	15,568.1	100.0	100.0	100.0	2.5	2.6
Goods producing .....	3,344.5	4,222.8	5,281.0	35.6	35.0	33.9	2.4	2.3
Mining .....	147.7	140.1	136.7	1.6	1.2	.9	-.5	-.2
Construction .....	621.6	608.1	730.8	6.6	5.0	4.7	-.2	1.9
Manufacturing .....	2,575.6	3,474.6	4,414.0	27.4	28.8	28.4	3.0	2.4
Durable .....	1,306.6	1,908.8	2,560.5	13.9	15.8	16.4	3.9	3.0
Nondurable .....	1,270.4	1,566.3	1,864.6	13.5	13.0	12.0	2.1	
Service producing .....	5,700.0	7,462.5	9,847.6	60.7	61.9	63.3	2.7	2.8
Transportation, communications, utilities .....	765.4	982.6	1,336.0	8.1	8.1	8.6	2.5	3.1
Wholesale trade .....	494.0	749.7	1,090.9	5.3	6.2	7.0	4.3	3.8
Retail trade .....	712.5	977.0	1,236.7	7.6	8.1	7.9	3.2	2.4
Finance, insurance, and real estate .....	1,050.8	1,208.7	1,553.3	11.2	10.0	10.0	1.4	2.5
Services .....	1,509.8	2,184.9	3,101.0	16.1	18.1	19.9	3.8	3.6
Federal Government .....	323.9	307.6	305.5	3.4	2.6	2.0	-.5	-.1
State and local government .....	506.9	615.6	723.7	5.4	5.1	4.6	2.0	1.6
Agriculture .....	215.2	261.1	304.3	2.3	2.2	2.0	2.0	1.5
Private households .....	9.0	10.4	9.7	.1	.1	.1	1.5	-.7
Special industries <sup>1</sup> .....	447.8	546.5	630.6	4.8	4.5	4.1	2.0	1.4
Residual <sup>2</sup> .....	-325.4	-443.3	-505.1	-3.5	-3.7	-3.2	3.1	1.3

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

<sup>2</sup> Residual is shown for first level only. Subcategories do not necessarily

add to higher categories as a byproduct of chainweighting.

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

**Table 3. Industries with fastest and slowest wage and salary employment growth, 1996–2006**

Standard Industrial Classification	Industry description	Thousands of jobs		Change	Average annual rate of change
		1996	2006	1996–2006	1996–2006
<b>Fastest growing</b>					
737	Computer and data processing services .....	1,207.9	2,509.1	1,301.2	7.6
807–809	Health services, n.e.c. ....	1,171.9	1,968.3	796.4	5.3
874	Management and public relations .....	873.2	1,400.0	526.8	4.8
473, 474, 478	Miscellaneous transportation services .....	204.3	327.4	123.1	4.8
836	Residential care .....	672.1	1,069.8	397.7	4.8
736	Personnel supply services .....	2,646.0	4,039.3	1,393.3	4.3
494–497, pt. 493	Water and sanitation .....	230.9	349.1	118.2	4.2
832, 839	Individual and miscellaneous social services .....	846.3	1,265.9	419.6	4.1
801–804	Offices of health practitioners .....	2,751.4	4,045.9	1,294.5	3.9
791, 799	Amusement and recreation services, n.e.c. ....	1,108.6	1,565.3	456.7	3.5
752–754	Automobile parking, repair, and services .....	890.3	1,236.2	345.9	3.3
805	Nursing and personal care facilities .....	1,732.2	2,377.0	644.8	3.2
792	Producers, orchestras, and entertainers .....	151.7	204.6	52.9	3.0
735	Miscellaneous equipment rental and leasing .....	257.8	320.2	82.4	3.0
62	Security and commodity brokers .....	551.4	740.4	189.0	3.0
472	Passenger transportation arrangement .....	212.9	277.2	64.3	2.7
835	Child day care services .....	569.3	733.5	164.2	2.6
732, 733, 738	Miscellaneous business services .....	2,022.8	2,599.3	576.5	2.5
84	Museums, botanical, zoological gardens .....	84.7	108.8	24.1	2.5
61, 67	Nondepository; holding and investment offices .....	725.6	928.2	202.6	2.5
<b>Most rapidly declining</b>					
12	Coal mining .....	96.4	52.0	–44.4	–6.0
387	Watches, clocks, and parts .....	7.7	5.1	–2.6	–4.0
313, 314	Footwear, except rubber and plastic .....	46.5	30.8	–15.7	–4.0
381	Search and navigation equipment .....	160.7	109.5	–51.2	–3.8
131, 132	Crude petroleum, natural gas, and gas liquids .....	148.2	101.5	–46.7	–3.7
311, 315–317, 319	Luggage, handbags, and leather products, n.e.c. ....	49.4	34.4	–15.0	–3.6
21	Tobacco products .....	41.4	30.3	–11.1	–3.1
341	Metal cans and shipping containers .....	39.0	28.6	–10.4	–3.1
301	Tires and inner tubes .....	79.5	59.3	–20.2	–2.9
386	Photographic equipment and supplies .....	84.9	65.1	–19.8	–2.6
362	Electrical industrial apparatus .....	156.0	122.4	–33.6	–2.4
291	Petroleum refining .....	100.2	79.5	–20.7	–2.3
363	Household appliances .....	121.0	96.4	–24.6	–2.2
331	Blast furnaces and basic steel products .....	240.3	196.7	–43.6	–2.0
...	State and local government enterprises, n.e.c. ....	598.2	490.2	–108.0	–2.0
361	Electric distribution equipment .....	81.7	67.5	–14.2	–1.9
88	Private households .....	928.0	775.2	–152.8	–1.8
208	Beverages .....	178.5	149.3	–29.2	–1.8
10	Metal mining .....	53.8	45.0	–8.8	–1.8
231–238	Apparel .....	642.9	475.1	–167.8	–3.0

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

it seems reasonable to expect continued strong growth in the medical care industry.

The projected growth rate for employment in health services is 2.9 percent, slightly more than twice that for total nonfarm wage and salary jobs. Over the 1986–96 period, health services employment grew at an annual rate of 3.8 percent, compared with 1.9 percent for total nonfarm job growth. Health services employment grew from 6.5 million in 1986 to 9.5 million in 1996, and is projected to increase to 12.6 million by 2006. The growth in health services employment accounted for 14.7 percent of the increase in total nonfarm jobs during the 1986–96 period, and is expected to account for

18.2 percent of the growth from 1996 through 2006. Within the health services sector, the *private hospitals* industry is projected to be the slowest growing, with jobs increasing at a 1.0-percent annual rate. Consolidation and cost-cutting policies by hospitals striving to compete with HMO's are expected to continue taking their toll throughout the projection period. *Offices of practitioners*, with projected annual growth of 3.9 percent, and *nursing and personal care facilities*, with growth of 3.2 percent yearly, both have projected rates of employment increase that place them among the fastest growing industries. (See table 3.) The remaining health industry, *health services not elsewhere classified*, with a projected annual in-

crease of 5.3 percent, is the second fastest growing industry due to the expansion of the home health care industry and of medical and dental laboratories.

*Business services.* Employment in this industry group grew at a 6.3-percent annual rate from 3.9 million in 1986 to 7.3 million in 1996. This rate of increase made it the fastest growing industry group during that period. The group's projected level of employment, 10.8 million, reflects an increase of 3.6 million, the equivalent of a 4.1-percent rate of employment growth through 2006. Although the projected rate of increase for business services employment is slower than that posted for the 1986–96 period, it will still be the fastest rate for any industry group. (See table 3.)

Among the six detailed industries within the business services group, the three that added the most jobs over the 1986–96 period accounted for 90 percent of the employment growth in business services. They are *personnel supply services*,<sup>7</sup> made up mostly of temporary help services, and adding 1.7 million jobs at a 10.3-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 715,000 at a 4.5-percent rate of growth; and *computer and data processing services*,<sup>8</sup> adding 620,000 at an annual growth rate of 7.5 percent. (See table 4.) Over the projection period, employment in the personnel supply services industry is expected to increase by 4.3 percent per year, on average, and to gain 1.4 million jobs. Computer and data processing services, with a 7.6-percent annual rate of growth, is projected to add 1.3 million jobs. Miscellaneous business services, growing by 2.5 percent per year, has a projected gain of 577,000 jobs. The projected rates of job increase for miscellaneous business services and for personnel supply services are slower than the 1986–96 rates. For computer and data processing services, the projected employment growth rate basically continues the 1986–96 rate. As can be seen in table 3, computer and data processing services is the fastest growing industry in terms of employment. Personnel supply services is sixth and miscellaneous business services is eighteenth among the 20 fastest growing industries. In terms of the *level* of employment change, as shown in table 6, these three industries all are among the top 10. Personnel supply services is ranked first for added jobs, computer and data processing services ranks fourth, and miscellaneous business services ranks tenth.

The importance of the computer and data processing services industry can additionally be realized from its real output growth ranking. As can be seen from table 5, this industry is one of the fastest growing in terms of real output, with a projected growth

rate of 9.3 percent annually. (In fact, it is second only to the computer and office equipment manufacturing industry.) This projected growth rate is only slightly less than the 9.7-percent average annual rate of increase posted during the 1986–96 period.

*Social services.* Employment for the social services industry group increased by 1 million over the 1986–96 period, posting a 5.5-percent annual rate of growth. The projected 1996–2006 employment increase of 1.1 million results in a total of 3.5 million jobs in social services. More than a third of the projected job gains (398,000) are in the *residential care* industry. This industry includes institutions that 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 in the employment growth of this industry. The *child care*<sup>9</sup> industry is expected to add 164,000 jobs, while *individual and miscellaneous social services* has a projected increase of 420,000 jobs. The remaining industry in social services—*job training and related services*—is projected to add 76,000 jobs. With the exception of this last industry, the detailed industries of the social services industry group are among the fastest growing industries in terms of employment. (See table 3.)

*Transportation.* The *transportation* sector is projected to have 4.7 million jobs in 2006, an increase of 691,000 from the 1996 level of 4 million. During the 1986–96 period, transportation employment grew by just under 1 million jobs, of which the *trucking and warehousing* industry accounted for 247,000. During the projection period, trucking and warehousing employment is expected to increase by another 219,000 jobs, rising from 1.6 million in 1996 to 1.9 million in 2006, at an average annual rate of 1.3 percent. Over the 1986–96 period, employment for trucking and warehousing grew at an average annual rate of 1.6 percent, while output<sup>10</sup> grew at an annual rate of 4.6 percent, indicating strong gains in productivity.<sup>11</sup> The projected annual average growth rate for trucking and warehousing output is 2.8 percent through 2006.

During the 1986–96 period, the *air transportation* industry gained 556,000 jobs, at an average annual growth rate of 7.1 percent. Employment in the industry almost doubled, rising from 566,000 to 1.1 million. Over the 1996–2006 projections period, employment growth in air transportation is expected to slow to a rate of 2.2 percent, adding 279,000 jobs.

*Communications.* Since 1982, the communications industry group has been characterized by flat employment overall, but a declining share of employment for the telecommunications component. Telecommunications jobs accounted for 1.1 million of the 1.4 million peak in communications employment in 1982. Since then, telecommunications employment

**Table 4. Employment and output by industry, 1986, 1996, and projected 2006**

Standard Industrial Classification	Industry title	Employment							Output				
		Thousands of jobs			Change		Average annual rate of growth (percent)		Billions of chained (1992) dollars			Average annual rate of growth (percent)	
		1986	1996	2006	1986-1996	1996-2006	1986-1996	1996-2006	1986	1996	2006	1986-1996	1996-2006
...	Nonfarm wage and salary <sup>1</sup> .....	98,727	118,731	136,318	20,004	17,587	1.9	1.4	9,167	11,789	15,252	2.5	2.6
10-14	Mining .....	78	574	443	-204	-131	-3.0	-2.5	148	140	137	-.5	1.5
10	Metal mining .....	41	54	45	13	-9	2.8	-1.8	7	10	12	3.6	
12	Coal mining .....	177	96	52	-81	-44	-5.9	-6.0	23	26	29	1.2	1.1
131, 132	Crude petroleum, natural gas, and gas liquids .....	224	148	102	-76	-47	-4.1	-3.7	88	74	65	-1.7	-1.3
138	Oil and gas field services .....	226	169	146	-57	-23	-2.9	-1.5	17	13	14	-2.1	.0
14	Nonmetallic minerals, except fuels .....	110	106	99	-3	-7	-.3	-.7	13	16	18	2.1	.8
15, 16, 17	Construction .....	4,810	5,400	5,900	590	500	1.2	.9	622	608	731	-.2	1.9
20-39	Manufacturing .....	18,951	18,457	18,108	-493	-350	-.3	-.2	2,576	3,475	4,414	3.0	2.4
24, 25, 32-39	Durable manufacturing .....	11,200	10,766	10,514	-433	-252	-.4	-.2	1,307	1,909	2,561	3.9	3.0
24	Lumber and wood products .....	724	780	797	56	17	.7	.2	79	89	106	1.2	1.7
241	Logging .....	84	80	81	-4	1	-.5	.1	18	16	22	-1.4	3.2
242	Sawmills and planing mills .....	193	182	172	-11	-10	-.6	-.6	21	24	24	1.2	.1
243	Millwork, plywood, and structural members .....	252	288	304	36	16	1.3	.6	22	26	31	1.5	1.9
244, 9	Wood containers and miscellaneous wood products .....	125	141	145	16	4	1.2	.3	10	15	18	3.5	2.1
245	Wood buildings and mobile homes .....	69	89	95	19	6	2.5	.7	7	9	11	2.7	1.4
25	Furniture and fixtures .....	498	504	509	6	5	.1	.1	38	50	60	2.6	1.9
251	Household furniture .....	294	275	256	-19	-19	-.7	-.7	20	22	26	1.2	1.3
254	Partitions and fixtures .....	73	85	94	13	9	1.6	1.0	6	7	9	2.7	1.8
252, 3, 9	Office and miscellaneous furniture and fixtures .....	31	144	159	13	16	.9	1.0	13	20	25	4.3	2.5
32	Stone, clay, and glass products .....	558	541	497	-17	-43	-.3	-.8	57	71	73	2.2	.3
321-3	Glass and glass products .....	155	148	126	-7	-22	-.5	-1.6	16	20	20	2.2	.4
324	Hydraulic cement .....	22	17	15	-5	-3	-2.5	-1.6	4	5	5	1.2	-.0
325,6,8,9	Stone, clay, and miscellaneous mineral products .....	173	164	143	-8	-21	-.5	-1.4	17	19	18	1.5	-.7
327	Concrete, gypsum, and plaster products .....		212	214	3	2	.1	.1	21	27	30	2.9	.9
33	Primary metal industries .....	752	711	633	-41	-78	-.6	-1.2	118	164	201	3.4	2.0
331	Blast furnaces and basic steel products .....	273	240	197	-33	-44	-1.3	-2.0	47	73	91	4.4	2.3
332	Iron and steel foundries .....	131	129	116	-2	-13	-.2	-1.0	11	14	15	2.4	.6
333	Primary nonferrous .....	39	39	35	1	-5	.2	-1.3	9	13	15	4.0	1.4
334	All other primary metals .....	42	45	42	3	-3	.7	-.6	8	13	16	4.8	2.6
335	Nonferrous rolling and drawing .....	181	168	154	-13	-14	-.8	-.9	36	42	53	1.4	2.3
336	Nonferrous foundries .....	86	89	89	3	0	.4	.0	7	10	11	3.0	1.1
344	Fabricated metal products .....	1,422	1,448	1,378	25	-70	.2	-.5	154	195	211	2.4	.8
341	Metal cans and shipping containers .....	57	39	29	-18	-10	-3.8	-3.1	12	13	14	.5	.8
342	Cutlery, hand tools, .....	136	125	109	-11	-16	-.9	-1.3	15	18	19	1.6	1.0
343	Plumbing and nonelectric heating equipment .....	62	58	52	-5	-5	-.8	-.9	6	6	7	-.0	.8
344	Fabricated structural metal products .....	429	439	440	10	2	.2	.0	40	52	57	2.6	1.0
345	Screw machine products, bolts, rivets, etc. ....	92	101	93	9	-8	.9	-.8	9	11	11	2.7	-.0
346	Metal forgings and stampings .....	239	253	220	13	-33	.5	-1.4	29	40	40	3.1	.1

**Table 4.** Continued—Employment and output by industry, 1986, 1996, and projected 2006

Standard Industrial Classification	Industry title	Employment							Output				
		Thousands of jobs			Change		Average annual rate of growth (percent)		Billions of chained (1992) dollars			Average annual rate of growth (percent)	
		1986	1996	2006	1986–1996	1996–2006	1986–1996	1996–2006	1986	1996	2006	1986–1996	1996–2006
347	Metal coating, engraving, and allied services .....	108	133	144	25	11	2.1	.8	8	14	18	5.8	2.6
348	Ordnance and ammunition .....	76	48	42	-28	-6	-4.6	-1.2	8	5	5	-4.5	-9
349	Miscellaneous fabricated metal products .....	222	254	248	31	-6	1.3	-2	27	37	40	3.1	.8
35	Industrial machinery and equipment .....	2,074	2,112	2,087	39	-25	.2	-.1	190	396	686	7.7	5.6
351	Engines and turbines .....	99	84	73	-15	-11	-1.6	-1.3	17	21	26	2.1	2.2
352	Farm and garden machinery and equipment .....	89	99	84	10	-15	1.1	-1.6	12	20	21	5.5	.8
353	Construction and related machinery .....	224	232	247	8	15	.4	.6	29	39	56	2.8	3.7
354	Metalworking machinery and equipment .....	320	345	344	25	-1	.8	-.0	25	33	37	2.7	1.2
355	Special industry machinery .....	150	177	175	27	-2	1.7	-.1	17	31	34	6.6	.8
356	General industrial machinery and equipment .....	234	257	250	23	-7	.9	-.3	28	37	42	2.9	1.3
357	Computer and office equipment .....	469	363	314	-106	-49	-2.5	-1.4	26	159	636	19.7	14.9
358	Refrigeration and service industry machinery .....	172	205	220	33	15	1.8	.7	23	36	44	4.3	2.2
359	Industrial machinery, n.e.c. ....	316	349	379	33	31	1.0	.8	22	37	50	5.3	3.0
36	Electronic and other electric equipment .....	1,774	1,651	1,627	-122	-25	-.7	-.1	170	322	515	6.6	4.8
361	Electric distribution equipment .....	103	82	68	-21	-14	-2.3	-1.9	10	12	11	2.0	-.9
362	Electrical industrial apparatus .....	182	156	122	-26	-34	-1.5	-2.4	17	25	27	3.5	.9
363	Household appliances .....	133	121	96	-12	-25	-1.0	-2.2	17	22	24	2.6	1.1
364	Electric lighting and wiring equipment .....	198	178	161	-20	-16	-1.0	-1.0	19	22	23	1.7	.4
365	Household audio and video equipment .....	82	83	73	1	-10	.1	-1.3	12	15	20	2.8	2.7
366	Communications equipment .....	296	269	255	-26	-14	-.9	-.5	37	63	101	5.5	4.8
367	Electronic components and accessories .....	610	610	700	-0	90	-.0	1.4	38	141	285	14.0	7.3
369	Miscellaneous electrical equipment .....	170	153	151	-17	-2	-1.0	-.1	21	24	36	1.3	4.4
37	Transportation equipment .....	2,003	1,781	1,792	-222	11	-1.2	.1	357	446	539	2.3	1.9
371	Motor vehicles and equipment .....	872	963	929	91	-33	1.0	-.4	219	320	372	3.9	1.5
372,6	Aerospace .....	855	550	596	-305	46	-4.3	.8	113	94	120	-1.8	2.5
373	Ship and boat building and repairing .....	185	157	142	-29	-14	-1.7	-1.0	15	14	16	-.8	1.5
374	Railroad equipment .....	29	36	42	7	6	2.3	1.5	3	7	12	9.3	6.3
375, 9	Miscellaneous transportation equipment .....	61	75	83	14	7	2.1	.9	7	11	18	4.8	5.3
38	Instruments and related products .....	1,036	854	787	-182	-67	-1.9	-.8	114	138	174	2.0	2.3
381	Search and navigation equipment .....	349	161	110	-188	-51	-7.5	-3.8	41	28	31	-3.7	1.0
382	Measuring and controlling devices .....	312	297	265	-15	-32	-.5	-1.1	27	43	55	4.5	2.5
384	Medical equipment, instruments, and supplies .....	213	268	310	55	43	2.3	1.5	23	42	59	6.2	3.4
385	Ophthalmic goods .....	37	36	32	-1	-4	-.4	-1.1	2	3	5	7.7	3.3

**Table 4. Continued—Employment and output by industry, 1986, 1996, and projected 2006**

Standard Industrial Classification	Industry title	Employment							Output				
		Thousands of jobs			Change		Average annual rate of growth (percent)		Billions of chained (1992) dollars			Average annual rate of growth (percent)	
		1986	1996	2006	1986–1996	1996–2006	1986–1996	1996–2006	1986	1996	2006	1986–1996	1996–2006
386	Photographic equipment and supplies .....	114	85	65	-30	-20	-2.9	-2.6	19	22	25	1.1	1.4
387	Watches, clocks, and parts .....	11	8	5	-3	-3	-3.5	-4.0	1	1	1	-5.6	-1.0
39	Miscellaneous manufacturing industries .....	361	387	408	26	22	.7	.5	33	47	55	3.6	1.7
391	Jewelry, silverware, and plated ware .....	54	49	46	-5	-3	-1.0	-7	6	6	5	1.1	-2.0
394	Toys and sporting goods .....	93	114	134	21	21	2.0	1.7	9	14	20	4.9	3.4
393, 5, 6, 9	Manufactured products, n.e.c. ....	214	224	228	10	4	.5	.2	18	26	30	3.6	1.5
20–23, 26–31	Nondurable manufacturing ....	7,751	7,691	7,593	-60	-98	-.1	-.1	1,270	1,566	1,865	2.1	1.8
20	Food and kindred products .....	1,605	1,693	1,713	88	21	.5	.1	339	416	472	2.1	1.3
201	Meat products .....	372	481	551	110	70	2.6	1.4	71	92	111	2.7	1.9
202	Dairy products .....	162	144	134	-18	-10	-1.2	-7	44	49	53	.9	.8
203	Preserved fruits and vegetables .....	225	237	237	13	-	.6	-	39	48	57	2.1	1.7
204, 7	Grain mill products a and fats and oils .....	157	158	157	1	-1	.1	-.1	56	73	82	2.8	1.1
205	Bakery products .....	215	210	192	-5	-18	-2	-9	27	27	30	.2	.8
206	Sugar and confectionery products .....	98	99	95	0	-4	.0	-4	20	23	25	1.5	.9
208	Beverages .....	209	179	149	-31	-29	-1.6	-1.8	56	71	79	2.3	1.1
209	Miscellaneous food and kindred products .....	167	185	199	19	13	1.1	.7	27	33	36	2.1	.9
21	Tobacco products .....	59	41	30	-17	-11	-3.4	-3.1	43	47	35	.7	-2.9
22	Textile mill products .....	703	624	588	-79	-36	-1.2	-6	61	74	90	2.0	1.9
221–4, 6, 8	Weaving, finishing, yarn, and thread mills .....	387	332	301	-55	-31	-1.5	-1.0	32	38	45	1.5	1.7
225	Knitting mills .....	210	180	165	-31	-15	-1.6	-8	14	18	22	2.7	2.0
227	Carpets and rugs .....	55	61	76	6	14	1.0	2.1	9	10	13	1.1	2.4
229	Miscellaneous textile goods .....	51	51	47	0	-5	.1	-1.0	6	9	10	3.8	1.7
23	Apparel and other textile products .....	1,100	864	714	-236	-150	-2.4	-1.9	69	78	81	1.2	.4
231–8	Apparel .....	916	643	475	-273	-168	-3.5	-3.0	53	53	51	.1	-5
239	Miscellaneous fabricated textile products .....	184	221	239	37	18	1.9	.8	16	24	30	4.1	2.1
26	Paper and allied products ...	667	681	702	14	21	.2	.3	118	140	174	1.7	2.2
261–3	Pulp, paper, and paperboard mills .....	242	223	210	-19	-13	-.8	-.6	48	59	72	2.0	2.1
265	Paperboard containers and boxes .....	197	217	242	21	25	1.0	1.1	28	32	43	1.5	3.0
267	Converted paper products except containers .....	229	240	250	12	10	.5	.4	42	49	59	1.5	1.8
27	Printing and publishing .....	1,456	1,538	1,501	82	-37	.5	-.2	154	170	195	1.0	1.4
271	Newspapers .....	460	442	395	-18	-47	-.4	-1.1	42	32	30	-2.8	-.5
272	Periodicals .....	115	132	140	17	9	1.4	.6	22	22	21	-.1	-.2
273	Books .....	109	124	130	16	5	1.4	.4	19	24	30	2.4	2.3
274	Miscellaneous publishing ..	71	86	83	15	-3	2.0	-.3	6	11	13	5.4	1.5
275, 6	Commercial printing and business forms .....	551	609	610	58	1	1.0	.0	53	68	86	2.6	2.4
277	Greeting cards .....	23	27	30	4	3	1.5	1.0	3	4	4	1.7	.4
278	Blankbooks and bookbinding .....	72	66	69	-6	2	-.9	.4	5	5	5	.9	-.3
279	Service industries for the printing trade .....	56	52	45	-4	-7	-.8	-1.4	5	5	6	.6	2.9
28	Chemicals and allied products .....	1,021	1,032	1,070	11	38	.1	.4	258	325	387	2.4	1.8
281, 6	Industrial chemicals .....	290	263	261	-27	-2	-1.0	-.1	87	89	102	.2	1.4
282	Plastics materials and synthetics .....	168	159	145	-9	-14	-.5	-.9	40	57	64	3.6	1.1
283	Drugs .....	208	259	319	51	61	2.2	2.1	49	74	98	4.2	2.9



**Table 4. Continued—Employment and output by industry, 1986, 1996, and projected 2006**

Standard Industrial Classification	Industry title	Employment							Output				
		Thousands of jobs			Change		Average annual rate of growth (percent)		Billions of chained (1992) dollars			Average annual rate of growth (percent)	
		1986	1996	2006	1986-1996	1996-2006	1986-1996	1996-2006	1986	1996	2006	1986-1996	1996-2006
284	Soap, cleaners, and toilet goods .....	146	154	157	8	3	.5	.2	36	49	56	3.3	1.3
285	Paint and allied products ...	63	53	52	-10	-1	-1.8	-2	14	16	19	1.1	2.3
287	Agricultural chemicals .....	54	52	52	-2	-0	-3	-0	13	19	24	3.3	2.5
289	Miscellaneous chemical products .....	93	93	84	-1	-9	-1.0	-1.0	18	22	24	2.2	.9
29	Petroleum and coal products .....	169	142	118	-27	-23	-1.7	-1.8	137	171	222	2.2	2.7
291	Petroleum refining .....	131	100	80	-31	-21	-2.7	-2.3	125	156	204	2.3	2.8
295, 9	Miscellaneous petroleum and coal products .....	38	42	39	4	-3	.9	-.7	12	15	17	2.1	1.6
30	Rubber and miscellaneous plastics products .....	822	981	1,091	159	110	1.8	1.1	85	140	201	5.1	3.7
301	Tires and inner tubes .....	88	80	59	-9	-20	-1.0	-2.9	11	15	15	2.9	.4
302, 5, 6	Rubber products and plastic hose and footwear .....	171	188	176	16	-11	.9	-.6	15	21	25	3.5	1.7
308	Miscellaneous plastics products, n.e.c. ....	563	714	855	151	141	2.4	1.8	59	104	160	5.8	4.5
31	Leather and leather products .....	149	96	65	-53	-31	-4.3	-3.8	9	8	7	-1.8	-1.0
313, 4	Footwear, except rubber and plastic .....	95	47	31	-48	-16	-6.8	-4.0	5	3	2	-4.0	-3.3
311, 5-7, 9	Luggage, handbags, and leather products, n.e.c. ....	54	49	34	-5	-15	-1.0	-3.6	4	4	4	.2	.4
40-42, 44-49	Transportation, communications, utilities .....	5,247	6,260	7,111	1,014	851	1.8	1.3	765	983	1,336	2.5	3.1
40-42, 44-47	Transportation .....	3,051	4,038	4,774	987	736	2.8	1.7	306	450	594	3.9	2.8
40	Railroad transportation ....	332	231	202	-100	-29	-3.5	-1.3	32	38	50	1.5	2.9
41	Local and interurban passenger transit .....	286	439	527	153	88	4.4	1.8	14	11	16	-2.3	4.1
42	Trucking and warehousing .....	1,394	1,641	1,860	247	219	1.6	1.3	124	194	255	4.6	2.8
44	Water transportation .....	174	173	167	-1	-6	-.1	-.4	29	35	47	1.8	3.0
45	Air transportation .....	566	1,122	1,401	556	279	7.1	2.2	76	130	169	5.6	2.7
46	Pipelines, except natural gas .....	18	15	13	-4	-2	-2.2	-1.5	8	10	9	1.9	-.7
47	Transportation services ...	281	417	605	136	187	4.0	3.8	24	34	49	3.3	3.7
472	Passenger transportation arrangement .....	157	213	277	56	64	3.1	2.7	9	14	21	4.3	3.8
473, 4, 8	Miscellaneous transportation services .	124	204	327	81	123	5.1	4.8	15	19	28	2.6	3.6
48	Communications .....	1,275	1,337	1,360	63	23	.5	.2	214	302	422	3.5	3.4
49	Electric, gas, and sanitary services .....	921	885	976	-37	91	-.4	1.0	244	230	319	-.6	3.3
491, pt. 493	Electric utilities .....	579	474	472	-105	-2	-2.0	-.0	153	151	229	-.1	4.3
492, pt. 493	Gas utilities .....	216	180	155	-35	-25	-1.8	-1.5	76	60	68	-2.3	1.2
494-7, pt. 493	Water and sanitation .....	127	231	349	104	118	6.2	4.2	16	18	22	1.7	1.9
50, 51	Wholesale trade .....	5,751	6,483	7,228	732	745	1.2	1.1	494	750	1,091	4.3	3.8
52-591	Retail trade .....	17,878	21,625	23,875	3,747	2,250	1.9	1.0	713	977	1,237	3.2	2.4
52-57, 59	Retail trade, excluding eating and drinking places .....	11,976	14,126	14,991	2,149	866	1.7	.6	513	723	923	3.5	2.5
58	Eating and drinking places .....	5,902	7,499	8,884	1,598	1,384	2.4	1.7	200	254	315	2.4	2.2
60-67	Finance, insurance, and real estate .....	6,275	6,899	7,651	625	752	1.0	1.0	1,051	1,209	1,553	1.4	2.5
60	Depository institutions .....	2,219	2,024	1,950	-196	-74	-.9	-.4	294	279	358	-.5	2.5
61, 67	Nondepository; holding and investment offices .	531	726	928	194	203	3.2	2.5	36	44	57	2.2	2.5
62	Security and commodity brokers .....	396	551	740	156	189	3.4	3.0	50	125	215	9.5	5.6
63	Insurance carriers .....	1,365	1,510	1,694	145	184	1.0	1.2	184	213	266	1.5	2.3

**Table 4. Continued—Employment and output by industry, 1986, 1996, and projected 2006**

Standard Industrial Classification	Industry title	Employment							Output				
		Thousands of jobs			Change		Average annual rate of growth (percent)		Billions of chained (1992) dollars			Average annual rate of growth (percent)	
		1986	1996	2006	1986-1996	1996-2006	1986-1996	1996-2006	1986	1996	2006	1986-1996	1996-2006
64	Insurance agents, brokers, and service .....	579	707	777	128	70	2.0	.9	79	50	63	-4.5	2.3
65	Real estate .....	1,184	1,381	1,561	198	180	1.6	1.2	414	508	623	2.1	2.1
...	Royalties .....	-	-	-	-	-	-	-	38	66	76	5.6	1.4
...	Owner-occupied dwellings ....	-	-	-	-	-	-	-	387	490	565	2.4	1.4
70-87, 89	Services <sup>1</sup> .....	22,346	33,586	44,852	11,240	11,266	4.2	2.9	1,510	2,185	3,101	3.8	3.6
70	Hotels and other lodging places .....	1,378	1,716	1,978	338	262	2.2	1.4	85	94	97	1.0	.3
72	Personal services .....	1,008	1,184	1,294	176	110	1.6	.9	55	66	81	1.8	2.0
721, 5	Laundry, cleaning, and shoe repair .....	392	439	460	48	21	1.2	.5	18	22	27	2.2	2.0
722, 9	Personal services, n.e.c. ..	173	238	273	65	34	3.2	1.4	16	19	24	2.2	1.9
723, 4	Beauty and barber shops .....	367	412	462	45	51	1.2	1.2	15	19	23	2.0	2.0
726	Funeral service and crematories .....	76	95	99	19	4	2.2	.4	7	6	8	-.7	2.3
73	Business services .....	3,931	7,254	10,835	3,324	3,581	6.3	4.1	220	425	775	6.8	6.2
731	Advertising .....	204	242	270	39	28	1.7	1.1	16	21	28	2.3	3.2
734	Services to buildings .....	685	897	1,097	212	200	2.7	2.0	20	29	42	4.0	3.6
735	Miscellaneous equipment rental and leasing .....	156	238	320	82	82	4.3	3.0	20	27	34	2.9	2.5
736	Personnel supply services .....	990	2,646	4,039	1,656	1,393	10.3	4.3	22	57	98	10.3	5.5
737	Computer and data processing services .....	588	1,208	2,509	620	1,301	7.5	7.6	66	166	403	9.7	9.3
732, 3, 8	Miscellaneous business services .....	1,308	2,023	2,599	715	577	4.5	2.5	77	126	175	5.1	3.4
75	Auto repair, services, and garages .....	762	1,084	1,482	322	399	3.6	3.2	112	180	336	4.8	6.5
751	Automotive rentals, without drivers .....	157	193	246	36	53	2.1	2.4	55	108	239	7.0	8.3
752-4	Automobile parking, repair, and services .....	604	890	1,236	286	346	4.0	3.3	57	72	91	2.3	2.3
76	Miscellaneous repair shops .....	322	375	425	53	51	1.5	1.3	31	32	40	.3	2.1
762	Electrical repair shops .....	103	114	128	11	14	1.1	1.2	8	11	13	3.0	1.4
763, 4	Watch, jewelry, and furniture repair .....	29	27	26	-2	-1	-6	-4	2	3	3	2.5	1.7
769	Miscellaneous repair services .....	190	233	271	43	38	2.1	1.5	20	18	24	-1.1	2.5
78	Motion pictures .....	320	522	628	202	106	5.0	1.9	35	60	86	5.5	3.6
781-3	Motion pictures .....	227	368	455	141	87	5.0	2.2	33	54	77	5.1	3.6
784	Video tape rental .....	94	155	173	61	18	5.1	1.1	3	7	9	9.6	3.0
79	Amusement and recreation services .....	895	1,466	1,998	571	532	5.1	3.1	61	92	125	4.3	3.1
792	Producers, orchestras, and entertainers .....	110	152	205	42	53	3.3	3.0	13	19	29	3.6	4.5
793	Bowling centers .....	92	82	73	-10	-9	-1.1	-1.1	3	2	2	-3.1	-1.6
794	Commercial sports .....	81	124	155	42	31	4.3	2.3	9	9	8	-.3	-.7
791, 9	Amusement and recreation services, n.e.c. ....	612	1,109	1,565	497	457	6.1	3.5	35	62	86	5.9	3.3
80	Health services .....	6,528	9,469	12,620	2,941	3,151	3.8	2.9	432	587	727	3.1	2.2
801-4	Offices of health practitioners .....	1,752	2,751	4,046	1,000	1,295	4.6	3.9	182	231	287	2.4	2.2
805	Nursing and personal care facilities .....	1,245	1,732	2,377	488	645	3.4	3.2	37	59	84	5.0	3.6
806	Hospitals, private .....	3,037	3,814	4,229	776	416	2.3	1.0	178	232	274	2.7	1.7
807-9	Health services, n.e.c. ....	494	1,172	1,968	678	796	9.0	5.3	35	65	81	6.4	2.3
81	Legal services .....	747	930	1,187	183	257	2.2	2.5	95	99	138	.4	3.4
82	Educational services .....	1,421	2,020	2,478	599	458	3.6	2.1	64	85	98	2.9	1.5
83	Social services .....	1,406	2,403	3,461	997	1,058	5.5	3.7	53	76	109	3.7	3.7
832, 9	Individual and miscellaneous social services .....	522	846	1,266	324	420	5.0	4.1	19	31	45	4.8	4.1
833	Job training and related services .....	241	315	392	74	76	2.7	2.2	8	11	13	3.2	1.7
835	Child day care services ....	322	569	734	247	164	5.9	2.6	15	18	28	1.6	4.6

**Table 4. Continued—Employment and output by industry, 1986, 1996, and projected 2006**

Standard Industrial Classification	Industry title	Employment							Output				
		Thousands of jobs			Change		Average annual rate of growth		Billions of chained (1992) dollars			Average annual rate of growth	
		1986	1996	2006	1986–1996	1996–2006	1986–1996	1996–2006	1986	1996	2006	1986–1996	1996–2006
836	Residential care .....	321	672	1,070	351	398	7.7	4.8	10	16	23	4.8	3.3
84	Museums, botanical, zoological gardens .....	52	85	109	33	24	5.0	2.5	2	3	4	5.5	3.5
86	Membership organizations .....	1,536	2,185	2,428	649	243	3.6	1.1	65	82	101	2.3	2.2
87, 89	Engineering, management, and related services .....	2,042	2,893	3,930	852	1,036	3.5	3.1	202	307	392	4.3	2.5
871	Engineering and architectural services .....	681	839	1,052	158	213	2.1	2.3	70	91	119	2.6	2.7
873	Research and testing services .....	456	569	726	112	158	2.2	2.5	28	56	84	7.3	4.1
874	Management and public relations .....	445	873	1,400	428	527	7.0	4.8	54	106	136	7.1	2.5
872, 89	Accounting, auditing, and other services .....	459	613	752	153	139	2.9	2.1	51	57	60	1.1	.6
...	Government .....	16,693	19,447	21,150	2,754	1,703	1.5	.8	831	923	1,029	1.1	1.1
...	Federal Government .....	2,899	2,757	2,670	-142	-87	-5	-3	324	308	305	-5	-1
...	Federal enterprises .....	991	1,017	1,070	26	53	.3	.5	58	70	87	1.9	2.2
...	U.S. Postal Service .....	789	856	880	67	24	.8	.3	43	53	69	2.1	2.7
...	Federal electric utilities .....	33	26	25	7	-1	-2.3	-5	8	9	10	1.6	1.6
...	Federal Government enterprises, n.e.c. ....	168	135	165	-34	30	-2.2	2.1	8	9	8	1.4	-8
...	Federal general government .....	1,908	1,740	1,600	-168	-140	-9	-8	266	238	220	-1.1	-8
...	Federal Government capital services .....	-	-	-	-	-	-	-	53	61	56	1.4	-8
...	State and local government .....	13,794	16,690	18,480	2,896	1,790	1.9	1.0	507	616	724	2.0	1.6
...	State and local enterprises .....	850	895	802	45	-93	.5	-1.1	84	103	121	2.0	1.6
...	Local government passenger transit .....	195	211	212	16	1	.8	.0	6	5	6	-8	1.4
...	State and local electric utilities .....	80	85	100	5	15	.7	1.6	17	24	30	3.2	2.4
...	State and local government enterprises, n.e.c. ....	575	598	490	23	-108	.4	-2.0	61	73	85	1.8	1.4
...	State and local general government .....	12,944	15,795	17,678	2,851	1,883	2.0	1.1	423	513	603	2.0	1.6
...	State and local government hospitals ...	1,039	1,038	1,017	-2	-21	-0	-2	33	38	44	1.5	1.5
...	State and local government education .....	7,045	8,671	10,002	1,626	1,331	2.1	1.4	212	245	284	1.5	1.5
...	State and local general government, n.e.c. ....	4,859	6,086	6,658	1,227	573	2.3	.9	141	177	205	2.3	1.5
...	State and local government capital services .....	-	-	-	-	-	-	-	37	53	70	3.7	2.8
01,02,07,08,09	Agriculture <sup>2</sup> .....	3,327	3,642	3,618	314	-34	.9	-1	215	261	304	2.0	1.5
01, 02	Agricultural production .....	2,382	2,235	1,982	-147	-253	-6	-1.2	186	224	263	1.8	1.6
07	Agricultural services .....	835	1,326	1,565	490	240	4.7	1.7	23	28	31	2.0	.9
08, 09	Forestry, fishing, hunting, and trapping .....	110	81	71	-29	-10	-3.0	-1.4	6	9	11	4.3	1.5
88	Private household wage and salary .....	1,235	928	775	-307	-153	-2.8	-1.8	9	10	10	1.5	.7
...	Nonagricultural self-employed and unpaid family <sup>3,4</sup> .....	8,085	9,051	10,216	966	1,165	1.1	1.2	-	-	-	-	-
...	Total <sup>5,6</sup> .....	111,374	132,352	150,927	20,978	18,575	1.7	1.3	9,391	12,060	15,568	2.5	2.6

<sup>1</sup> 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*.

<sup>2</sup> Excludes government wage and salary workers, and includes private sic 08, 09 (forestry and fisheries).

<sup>3</sup> Excludes sic 08, 09 (forestry and fisheries).

<sup>4</sup> Comparable estimate of output growth is not available.

<sup>5</sup> Wage and salary data are from the Current Employment Statistics (pay-roll) 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 1986 and 1996, therefore, differ from the official employment estimates of the Bureau of Labor Statistics.

<sup>6</sup> Subcategories do not necessarily add to higher categories as a byproduct of chain-weighting.

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.

has gradually declined from 1.1 million in 1982 to the 1996 level of 879,700, while overall employment for communications has declined slightly, to 1.3 million. During the 1982–96 period, real output for communications increased at an average annual rate of 2.9 percent, which, when combined with the flat employment growth, indicates strong productivity gains.

During the development of the Bureau's previous set of projections, which covered the period 1994 to 2005, the future of this industry group was very uncertain in the face of deregulation, rapid technological change, and efforts by businesses to develop new markets. Over the last 2 years, the future of the communications market has not become any clearer. Three factors remain key to the Bureau's projections for this group: communications is the lifeblood of the information age and the commerce built during this era; the capital equipment of the communications industry is built around the microprocessor and electronic components; and, finally, the application of the electronic capital equipment has resulted in high rates of productivity growth historically. Within this context, the projected output of the communications industry has a strong annual average growth rate of 3.4 percent during the 1996–2006 period. With the expectation of continued productivity growth, employment is projected to increase slightly, by 23,000, from the 1996 level of 1.4 million.

*Wholesale and retail trade.* Both *wholesale trade* and *retail trade*—except *eating and drinking places*—are expected to have healthy productivity increases stemming from applications of inventory control and computerized order systems, and from restructuring of sales work forces. Wholesale trade is projected to add 745,000 jobs to its 1996 level of 6.5 million to reach 7.2 million by 2006. During the 1986–96 period, wholesale trade gained 732,000 jobs. The real output for wholesale trade is projected to grow at annual average rate of 3.8 percent, outpacing the growth of the economy as a whole. By contrast, employment is projected to expand at an annual rate of 1.1 percent. Jobs in retail trade, excluding eating and drinking places, are projected to increase by 865,000 from the 1996 level of 14.1 million to a 2006 level of 15.0 million. The projected job growth is significantly less than the increase of 2.2 million posted during the 1986–96 period. On an annual average basis, the projected employment growth rate is 0.6 percent. Output for retail trade is projected to increase at an annual average rate of 2.5 percent.

Real output for eating and drinking places is projected to grow at an average rate of 2.2 percent per year between 1996 and 2006, a slower pace than the 1986–96 growth rate of 2.4 percent. The expected slowdown is due to a wider availability of prepared food from grocery specialty stores, and to slower growth in the fast food sector as the population ages. Productivity gains also will contribute to the slower employment

growth rate of 1.7 percent annually, which translates into a job gain of 1.4 million over the 1996–2006 projection period. By comparison, employment grew by 1.6 million jobs, or at a 2.4-percent rate, over the 1986–96 period.

*Finance, insurance, and real estate.* *Depository institutions*,<sup>12</sup> which include banks, credit unions, and savings and loans, are expected to have high rates of productivity growth through the projection period. It also is expected that the mergers and consolidations that have characterized the industry in recent years will continue, resulting in employment loss as unprofitable branches are closed and operations are combined and centralized. Additionally, banks will continue to expand 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 2.5 percent, while employment is projected to decline at an annual rate of 0.4 percent. This loss of 74,000 jobs ranks the industry sixth among those with the largest job declines from 1996 to 2006. (See table 6.)

The *security and commodity brokers* industry has higher-than-average projected rates of growth for both real output (5.6 percent) and employment (3.0 percent). In fact, the securities industry is the sixth-fastest growing in terms of real output. Its projected rate of output growth, however, represents a slowing from the 9.5-percent rate of increase posted over the 1986–96 period. Similarly, the projected 3.0-percent rate of employment growth is slower than the 3.4-percent rate recorded during 1986–96. The gain in jobs for the security and commodity brokers industry is an expected 189,000, raising total employment from 551,000 in 1996 to 740,000 in 2006.

Employment for *insurance carriers* is projected to increase by 184,000 to 1.7 million in 2006. Output is expected to grow at an annual rate of 2.3 percent, a little slower than the 2.6-percent rate for the total economy. Employment in the *insurance agents, brokers, and services* industry is projected to increase from 707,000 to 777,000, for a gain of 70,000. The industry's output is projected to grow at a rate of 2.3 percent.

Employment in the *real estate* industry is projected to increase from 1.4 million in 1996 to 1.6 million in 2006, or by a 1.2-percent annual rate. This is a slight slowing of job growth in comparison to the 1986–96 period, during which employment expanded at a 1.6-percent annual rate. Output is projected to grow by 2.1 percent per year, a continuation of the pace observed during the 1986–96 period. A variety of computer information applications, such as internet-accessible multiple listing services used to help clients screen real estate, will allow productivity increases for the real estate industry.

*Government.* Employment in the public sector is projected to increase by 1.7 million over its 1996 level of 19.4 million

through 2006. This reflects an annual growth rate of 0.8 percent, slower than the total nonfarm wage and salary increase of 1.4 percent. Federal Government employment is projected to decline by 87,000 as downsizing continues in the Federal sector. In 1996, employment in the Federal sector was slightly less than 2.8 million, and is projected to decline to just under 2.7 million by 2006.

State and local government employment is projected to increase from the 1996 level of 16.7 million to 18.5 million by 2006. Of the 1.8 million jobs added in State and local employment, 1.3 million are in State and local education<sup>13</sup> as a consequence of the growth in the school-age population. As the following tabulation shows, the elementary school population (aged 5 to 13) is expected to rise by 1.1 million between 1996 and 2006. The secondary school population (aged 14 to 17) has a projected increase of 2.0 million, and the postsecondary school population (aged 18 to 24) expands by 3.6 million.<sup>14</sup>

Year	Population (in millions)		
	Aged 5–13	Aged 14–17	Aged 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 .....	31.8	13.3	27.0
1994 .....	33.9	14.4	25.3
1995 .....	34.1	14.8	25.2
1996 .....	34.6	15.2	24.9
Projected, 2006	35.7	17.2	28.5

## Goods-producing industries

**Mining.** The projected 131,000 decline in wage and salary employment in the mining division is a continuation of a long-term trend. The mining industries are suppliers of raw material and energy to other sectors of the economy. As such, the mining division is subject to international competition and global price pressures. These influences, combined with productivity increases, are the principal factors behind the employment decline.

About 55 percent of mining employment in 1996 was accounted for by the *crude petroleum, natural gas, and gas liquids* industry and the *oil and gas field services* industry. The combined employment decline for these industries will account for more than half of the decrease (70,000) for all mining employment. Productivity gains are expected in both industries, but increased reliance on foreign oil and decreased production of domestic crude are the principal factors in the projected decline for the crude petroleum mining industries.

The *coal mining* industry has a projected loss of 44,000

wage and salary jobs, but productivity increases will allow growth in coal production. Although coal mining output has been relatively flat since 1990, growth is expected over the projection period as coal is expected to remain the principal fuel source for electrical energy production.<sup>15</sup>

The *metal mining* industry is projected to contract by 14,000 jobs, a 25-percent decline from its 1996 level of 54,000. The *nonmetallic minerals mining* industry has a projected decrease of 7,000 jobs from its 106,000 total in 1996. Productivity gains for both of these industries should result in annual average output growth rates of 4.2 percent for metal mining and 0.8 percent for nonmetallic minerals mining.

**Construction.** The construction industry is projected to gain 500,000 jobs over the 1996–2006 period, the result of annual average growth of 0.9 percent. Since the late 1980s, wage and salary employment in construction has hovered around 5 million, except during the recession in the early 1990s. Employment bottomed out at 4.5 million in 1992, but by 1996, it had recouped its losses and stood at 5.4 million. Construction output, led by public investment in new construction and in the maintenance and rebuilding of roads, bridges, and other public structures, is expected to grow, but at a slower rate than output of the aggregate economy, 2.3 percent versus 2.6 percent. Growth in residential construction will be moderated by slowing population growth from 1996 to 2006. Fixed residential investment is expected to show annual growth of 0.9 percent through 2006, whereas investment in nonresidential construction has a stronger growth rate, 1.5 percent.<sup>16</sup>

**Manufacturing.** The outlook for manufacturing remains one of strong output and productivity growth, but also one of employment declines. Such a pattern is expected for two-thirds, or 63 out of 96, of the detailed manufacturing industries for which projections were developed. Through the 1996–2006 period, real output for manufacturing is projected to increase at an annual average rate of 2.4 percent. Wage and salary employment in manufacturing has a projected loss of 350,000 jobs, declining at a annual average rate of 0.2 percent. Output grew at an annual rate of 3.0 percent during the previous 10-year period, while employment fell at a 0.3-percent annual rate, for a loss of 493,000 wage and salary jobs. Strong demand for durable goods by consumers, businesses, and the export market is expected to drive the growth in manufacturing output.

**Durable goods.** Output for the durable goods sector of manufacturing has projected growth of 3.0 percent, on an annual average basis, from 1996 through 2006. Employment, however, is expected to decline because of productivity gains. Historically, the durable goods manufacturing sector has enjoyed strong productivity gains, and this is expected to con-

tinue. During the 1986–1996 period, durable goods manufacturing lost 433,000 jobs, despite a 3.9-percent annual average growth rate for output. Because of expected productivity gains, the number of jobs in durable manufacturing is projected to decline by 252,000 jobs.

Output growth for durable goods manufacturing is driven by consumer, business, and foreign purchases of durable equipment. Many of these purchases involve computers and other office equipment. Personal consumption of durable goods is projected to grow at an annual rate of 3.2 percent from 1996 to 2006.<sup>17</sup> Investment in producers' durable equipment is projected to increase at an even faster rate, 4.8 percent. Because of the expected strong demand by both consumers and busi-

nesses, output growth for the durable goods manufacturing sector is much faster than the overall growth of the aggregate economy.

With computer purchases playing such a dominant role in demand for durable goods, it is not surprising that output growth rates for *industrial machinery and equipment* (5.1 percent) and for *electronic and other electric equipment* (4.3 percent) are the fastest among those for two-digit SIC industry groups. The two industry groups within durable manufacturing with the next highest rates of output growth are *primary metal industries* (2.5 percent) and *instruments and related products* (2.1 percent). Declining employment is projected for all four of these industry groups, a continuation of the 1986–

**Table 5. Industries with fastest and slowest output growth, 1996–2006**

Standard Industrial Classification	Industry description	Billions of chained (1992) dollars		Change	Annual rate of change
		1996	2006	1996–2006	1996–2006
<b>Fastest growing</b>					
357	Computer and office equipment .....	158.8	635.6	476.8	14.9
737	Computer and data processing services .....	165.9	403.4	237.5	9.3
751	Automotive rentals, without drivers .....	107.7	238.7	131.0	8.3
367	Electronic components and accessories .....	140.8	285.3	144.4	7.3
374	Railroad equipment .....	6.6	12.2	5.5	6.3
62	Security and commodity brokers .....	124.7	215.3	90.6	5.6
736	Personnel supply services .....	57.2	97.5	40.4	5.5
375, 379	Miscellaneous transportation equipment .....	10.6	17.8	7.2	5.3
366	Communications equipment .....	63.1	101.0	37.9	4.8
835	Child day care services .....	17.7	27.8	10.1	4.6
308	Miscellaneous plastics products, n.e.c. ....	103.6	160.3	56.6	4.5
792	Producers, orchestras, and entertainers .....	19.0	29.4	10.4	4.5
369	Miscellaneous electrical equipment .....	23.8	36.4	12.6	4.4
491, pt. 493	Electric utilities .....	150.9	228.8	77.9	4.3
41	Local and interurban passenger transit .....	10.7	16.1	5.3	4.1
873	Research and testing services .....	56.1	83.8	27.7	4.1
832, 839	Individual and individual and miscellaneous social services .....	30.5	45.5	14.9	4.1
472	Passenger transportation arrangement .....	14.3	20.8	6.5	3.8
50, 51	Wholesale trade .....	749.7	1,090.9	341.2	3.8
353	Construction and related machinery .....	39.0	55.9	16.9	3.7
<b>Most rapidly declining</b>					
313, 314	Footwear, except rubber and plastic .....	3.3	2.4	-1.0	-3.3
21	Tobacco products .....	46.8	34.7	-12.0	-2.9
391	Jewelry, silverware, and plated ware .....	6.5	5.3	-1.2	-2.0
793	Bowling centers .....	2.3	2.0	-.4	-1.6
131, 132	Crude petroleum, natural gas, and gas liquids .....	74.0	65.0	-9.0	-1.3
387	Watches, clocks, and parts .....	.7	.6	-.1	-1.0
348	Ordnance and ammunition .....	5.0	4.5	-.4	-9.9
361	Electric distribution equipment .....	11.9	10.9	-1.0	-9.9
...	Federal Government capital services .....	61.3	56.4	-4.9	-8.8
...	Federal Government enterprises, n.e.c. ....	8.9	8.2	-.7	-8.8
...	Federal General government .....	176.7	163.7	-13.0	-8.8
46	Pipelines, except natural gas .....	9.6	8.9	-.7	-7.7
325, 326, 328, 329	Stone, clay, and miscellaneous mineral products .....	19.3	18.0	-1.4	-7.7
794	Commercial sports .....	9.0	8.4	-.6	-7.7
881	Private households .....	.4	9.7	-.7	-7.7
231–238	Apparel .....	53.3	50.8	-2.6	-5.5
271	Newspapers .....	31.9	30.4	-1.4	-5.5
278	Blankbooks and bookbinding .....	5.2	5.0	-.2	-3.3
272	Periodicals .....	21.6	21.2	-.4	-2.2
345	Screw machine products, bolts, rivets, etc. ....	11.3	11.2	-.1	-.9

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

**Table 6. Industries with the largest wage and salary employment growth and declines, 1996–2006**

Standard Industrial Classification	Industry description	Thousands of jobs		Change	Average annual rate of change (percent)
		1996	2006	1996–2006	1996–2006
<b>Largest growth</b>					
736	Personnel supply services .....	2,646.0	4,039.3	1,393.3	4.3
58	Eating and drinking places .....	7,499.4	8,883.5	1,384.1	1.7
...	State and local government education .....	8,671.3	10,002.3	1,331.0	1.4
737	Computer and data processing services .....	1,207.9	2,509.1	1,301.2	7.6
801–804	Offices of health practitioners .....	2,751.4	4,045.9	1,294.5	3.9
52–57, 59	Retail trade excluding eating and drinking places .....	14,125.5	14,991.3	865.8	.6
807–809	Health services, n.e.c. ....	1,171.9	1,968.3	796.4	5.3
50, 51	Wholesale trade .....	6,483.1	7,228.3	745.2	1.1
805	Nursing and personal care facilities .....	1,732.2	2,377.0	644.8	3.2
732, 733, 738	Miscellaneous business services .....	2,022.8	2,599.3	576.5	2.5
...	State and local general government, n.e.c. ....	6,085.9	6,658.4	572.5	.9
874	Management and public relations .....	873.2	1,400.0	526.8	4.8
15, 16, 17	Construction .....	5,400.0	5,899.9	499.9	.9
82	Educational services .....	2,020.1	2,478.1	458.0	2.1
791, 799	Amusement and recreation services, n.e.c. ....	1,108.6	1,565.3	456.7	3.5
832, 839	Individual and miscellaneous social services .....	846.3	1,265.9	419.6	4.1
806	Hospitals .....	3,813.5	4,229.0	415.5	1.0
836	Residential care .....	672.1	1,069.8	397.7	4.8
752–754	Automobile parking, repair, and services .....	890.3	1,236.2	345.9	3.3
45	Air transportation .....	1,122.1	1,401.0	278.9	2.2
<b>Largest declines</b>					
88	Private households .....	928.0	775.2	-152.8	-1.8
...	Federal general government .....	1,740.0	1,600.0	-140.0	-.8
01, 02	Agricultural production .....	1,059.0	942.9	-116.1	-1.2
...	State and local government enterprises, n.e.c. ....	598.2	490.2	-108.0	-2.0
231–238	Apparel .....	642.9	475.1	-167.8	-3.0
60	Depository institutions .....	2,023.5	1,950.0	-73.5	-.4
381	Search and navigation equipment .....	160.7	109.5	-51.2	-3.8
357	Computer and office equipment .....	363.0	313.7	-49.3	-1.4
271	Newspapers .....	442.3	394.9	-47.4	-1.1
131, 132	Crude petroleum, natural gas, and gas liquids .....	148.2	101.5	-46.7	-3.7
12	Coal mining .....	96.4	52.0	-44.4	-6.0
331	Blast furnaces and basic steel products .....	240.3	196.7	-43.6	-2.0
362	Electrical industrial apparatus .....	156.0	122.4	-33.6	-2.4
371	Motor vehicles and equipment .....	962.5	929.3	-33.2	-.4
346	Metal forgings and stampings .....	252.5	220.0	-32.5	-1.4
382	Measuring and controlling devices .....	297.0	265.0	-32.0	-1.1
221–224, 226, 228	Weaving, finishing, yarn, and thread mills .....	332.0	301.2	-30.8	-1.0
40	Railroad transportation .....	231.1	201.8	-29.3	-1.3
208	Beverages .....	178.5	149.3	-29.2	-1.8
492, pt. 493	Gas utilities .....	180.3	155.0	-25.3	-1.5

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

96 trend except in the case of industrial machinery and equipment, in which employment increased slightly over the earlier period.

The *computer manufacturing*<sup>18</sup> industry has the fastest projected rate of growth in real output—14.9 percent per year, on average—within the *industrial machinery and equipment* industry group. Both businesses and consumers are expected to maintain strong demand for computer equipment. Personal consumption of computers and accessories is projected to grow at an annual rate of 27 percent, from a real level of \$61 billion in 1996 to \$665.4 billion in 2006.<sup>19</sup> From 1986 through 1996, personal consumption of computers and accessories increased at a 39.9-percent annual rate, from \$2.1 billion to \$61 billion real terms. On the business side, investment in

computer office equipment is expected to grow at an annual rate of 15.8 percent, compared to the 19-percent rate posted over the 1986–1996 period. Business investment in office equipment is projected to grow from the 1996 real level of \$140.9 billion to \$612.0 billion.<sup>20</sup> Although computer manufacturing output will have the strongest rate of growth among all the detailed industries, productivity gains lead to a projected decrease in employment from 363,000 in 1996 to 314,000 in 2006.

Other industries within the industrial machinery and equipment industry group with strong rates of real output growth are *construction and related machinery* and *industrial machinery, not elsewhere classified*, with 3.7- and 3.0-percent annual average growth rates, respectively. Both of these in-

dustries have projected gains in employment, although advances in productivity will hold the annual rate of job increase to less than 1 percent for both industries.

Within the industry group, *electronic and other electric equipment*, the *electronic components and accessories*<sup>21</sup> industry (7.3 percent) and the *miscellaneous electrical equipment* industry (4.4 percent) have the highest projected annual average rates of output growth. The next highest output growth rates are for the *household audio and video equipment* (2.7 percent) and the *communications equipment* (2.4 percent) industries. Projected changes in output for the remaining industries range from growth of 1.1 percent to a decline of 0.9 per-

cent—as compared to the average 2.6-percent rate of increase for total output. Although the projected output growth for this industry group is strong (4.3 percent annually), continued advances in productivity are expected to result in a decline of 69,000 in wage and salary jobs from 1996 to 2006. Employment is projected to increase by 90,000 for *electronic components and accessories*, but the remaining industries within this industry group are expected to have declining employment.

Investment purchases of medical equipment and demand for medical supplies produced by the *medical equipment, instruments, and supplies* industry will be the principal driving force for growth in the *instruments and related products* in-

**Table 7. Industries with largest output growth and declines, 1996–2006**

	Industry description	Billions of chained (1992) dollars		Change	Average annual rate of change (percent)
		1996	2006	1996–2006	1996–2006
<b>Largest growth</b>					
357	Computer and office equipment .....	158.8	635.6	476.8	14.9
50, 51	Wholesale trade .....	749.7	1090.9	341.2	3.8
737	Computer and data processing services .....	165.9	403.4	237.5	9.3
52–57, 59	Retail trade, excluding eating and drinking places .....	723.1	922.7	199.5	2.5
367	Electronic components and accessories .....	140.8	285.3	144.4	7.3
751	Automotive rentals, without drivers .....	107.7	238.7	131.0	8.3
15, 16, 17	Construction .....	608.1	730.8	122.7	1.9
48	Communications .....	302.1	422.3	120.1	3.4
65	Real estate .....	507.9	623.3	115.4	2.1
62	Security and commodity brokers .....	124.7	215.3	90.6	5.6
60	Depository institutions .....	279.0	358.2	79.1	2.5
491, pt. 493	Electric utilities .....	150.9	228.8	77.9	4.3
...	Owner-occupied dwellings .....	489.6	565.0	75.5	1.4
42	Trucking and warehousing .....	194.3	255.1	60.7	2.8
58	Eating and drinking places .....	254.2	314.9	60.7	2.2
308	Miscellaneous plastics products, n.e.c. ....	103.6	160.3	56.6	4.5
801–804	Offices of health practitioners .....	231.1	287.4	56.3	2.2
63	Insurance carriers .....	212.6	265.8	53.2	2.3
371	Motor vehicles and equipment .....	320.0	372.4	52.4	1.5
732, 733, 738	Miscellaneous business services .....	125.5	175.3	49.8	3.4
<b>Largest declines</b>					
...	Federal general government .....	176.7	163.7	–13.0	–.8
21	Tobacco products .....	46.8	34.7	–12.0	–2.9
131, 132	Crude petroleum, natural gas, and gas liquids .....	74.0	65.0	–9.0	–1.3
...	Federal Government capital services .....	61.3	56.4	–4.9	–.8
321–238	Apparel .....	53.3	50.8	–2.6	–.5
271	Newspapers .....	31.9	30.4	–1.4	–.5
325, 326, 328, 329	Stone, clay, and miscellaneous mineral products .....	19.3	18.0	–1.4	–.7
391	Jewelry, silverware, and plated ware .....	6.5	5.3	–1.2	–2.0
361	Electric distribution equipment .....	11.9	10.9	–1.0	–.9
313, 314	Footwear, except rubber and plastic .....	3.3	2.4	–1.0	–3.3
...	Federal Government enterprises, n.e.c. ....	8.9	8.2	–.7	–.8
88	Private households .....	10.4	9.7	–.7	–.7
46	Pipelines, except natural gas .....	9.6	8.9	–.7	–.7
794	Commercial sports .....	9.0	8.4	–.6	–.7
348	Ordnance and ammunition .....	5.0	4.5	–.4	–.9
272	Periodicals .....	21.6	21.2	–.4	–.2
793	Bowling centers .....	2.3	2.0	–.4	–1.6
278	Blankbooks and bookbinding .....	5.2	5.0	–.2	–.3
387	Watches, clocks, and parts .....	0.7	.6	–.1	–1.0
345	Screw machine products, bolts, rivets, etc. ....	11.3	11.2	.0	.0



dustry group. Over the 1986–96 period, real output for this industry group rose at an annual rate of 2.0 percent, but employment declined by 182,000 jobs, or at an annual rate of 1.0 percent. The projected rate of output growth for instruments and related products is 2.1 percent annually. The *medical equipment, instruments, and supplies* industry has a projected output growth rate of 3.4 percent. It was the only industry within the instruments and related products group to have had actual employment gains—55,000 jobs—over the past decade. Over the projection period, it is the only industry within the group to have employment gains—42,000 by 2006, reflecting a 1.5-percent annual growth rate. Overall, employment for the instruments and related products industry group is expected to decline from the 1996 level of 854,000 to 770,000 in 2006.

Since the 1990–91 recession, employment for the *transportation equipment* industry group has not reattained its prerecession level of just over 2 million. In 1996, wage and salary employment for this industry group stood at 1.8 million. Defense cutbacks and the subsequent loss of markets<sup>22</sup> by the *aerospace* industry have contributed to the postrecession stagnation of the group. In 1996, two industries—*motor vehicles and equipment* and *aerospace*—accounted for 93 percent of output and 85 percent of wage and salary employment within the transportation equipment group. Since the mid-1980s, these two industries together have accounted for about these same percentages of output and employment. Their individual shares have been shifting, however, with motor vehicles gaining in shares of both employment and output.

In 1978, employment in the *motor vehicles and equipment* industry peaked at 1 million, then fell to 699,000 in the latter part of the 1981–82 recession. With the industry buffeted by high dollar exchange rates and stiff foreign competition, employment fluctuated around 860,000 from 1984 through the rest of the decade. During the 1990–91 recession, motor vehicle employment reached another trough, falling to 789,000 in 1991. However, improvements in the dollar's exchange rate, coupled with a concerted effort by the industry to boost productivity and public perceptions of quality, led to gains in both output and employment during the ensuing years. By 1996, industry employment had increased to 963,000 and output had reached an estimated \$320 billion in 1992 dollars. Over the projection period, however, output growth is expected to be slower than the rate posted since the 1990–91 recession, and employment is expected to decline to 929,000. Several factors contribute towards the modest output growth and employment declines. The increased longevity and reliability of new autos will encourage consumers to maintain them, and to put off new purchases, as the autos built in the early to mid-1990s reach the 10-year mark. Slower growth in the driving age population, compared to the last 10 years, will work against increased output growth. Also, global competitive pressures, combined with global excess manufacturing capacity, will

dampen domestic production.<sup>23</sup> On the employment side, the workers in this industry tend to be older than average, so that there should be a large number of retirements and transfers in the next decade. However, productivity increases will cause retiring and leaving workers to be replaced at less than a 1-to-1 ratio. The net effect for employment is a decline of 33,000 jobs from 1996 through 2006.

Employment in the *aerospace* industry peaked at 905,000 in 1989 after steady increases since the late 1970s. By 1995, it had fallen to 549,000, largely because of defense cutbacks. By 1969, the decline seems to have halted, with employment stabilized at around 550,000. Although defense cutbacks are expected to continue throughout the projections period, expectations of increased commercial passenger and freight traffic already have boosted orders for commercial aircraft. Also, noise regulations that take effect in the year 2000 are stimulating demand for new, quieter aircraft. Over the projection period, the industry is expected to accommodate itself to the new market realities, whereby military demand declines and private commercial demand increases in importance. The net result is a modest increase of 46,000 in employment to a level of 596,000 by 2006. The industry's output growth should remain fairly strong at 2.5 percent annually, slightly less than the 2.6-percent annual increase for total output.

*Nondurable goods.* Real output for nondurable manufacturing is projected to grow at a 1.8-percent annual rate over the 1996–2006 period. From 1986 through 1996, the annual rate of growth for nondurable manufacturing output was 2.1 percent. During the projection period, the rate of growth for nondurable output is slower than the comparable figures for all manufacturing and for durable manufacturing. This was also true during the previous 10 years. Employment in nondurable manufacturing is projected to decline as a consequence of productivity gains, contracting by 98,000 jobs. This is almost two-thirds more than the number of jobs lost in nondurable manufacturing during the years 1986–96. The nondurable manufacturing industry groups with the fastest rates of output growth are: *rubber and miscellaneous plastics products*; *petroleum and coal products*; and *paper and allied products*.

At a projected rate of 3.7 percent annually, output growth for the *rubber and miscellaneous plastics products* industry group is well above that for the total economy. However, it is slower than the 5.1-percent annual average posted during the 1986–96 period. From the 1996 level of 981,000, employment is expected to reach just over 1 million, reflecting annual growth of 1.1 percent. Employment is projected to increase more slowly than output due to productivity gains. The growth of this industry group is driven by the demand for the products of the detailed industry *miscellaneous plastics products*, which produces plastic objects used every day in homes and businesses as well as the plastic film and sheets used by

other manufacturing industries. During the 1986–96 period, output of miscellaneous plastics products grew at an annual rate of 5.8 percent, adding 151,000 jobs to the work force. This industry is projected to add 141,000 jobs to the 1996 level of 714,000 to reach 855,000 in 2006. Its annual rate of growth in employment, 1.8 percent, is slower than the 4.5-percent rate of increase in output because of productivity gains.

The petroleum and coal products industry group has a projected output growth rate of 2.6 percent, essentially keeping pace with the aggregate economy. Productivity advances will lead to a decline of 24,000 jobs from 142,000 to 118,000. *Petroleum refining* accounts for most of the employment and output of the industry group because it supplies the refined petroleum products for energy needs and as raw material for production of chemicals and plastics. Petroleum refining output is expected to grow at an annual rate of 2.8 percent during the projection period, and employment is expected to decline from 100,000 to 80,000.

Output and employment for the industry group, *paper and allied products*, is driven by consumer and business demand for finished paper products and by industry demand for the raw pulp and paper to make those finished paper products. The growth of the printing and publishing industry, and the demand for packaging products from other manufacturing industries are factors that drive the growth of the paper and allied products industry group. Employment is projected to grow by 21,000—from 681,000 to 702,000, or at an annual rate of 0.3 percent—over the 1996–2006 period. Output has a projected growth rate of 2.2 percent, a slight acceleration over the 0.7-percent rate recorded over the previous 10 years.

Employment for the *printing and publishing* industry group is projected to decline by 37,000 but still remain above 1.5 million. The growth rate for output will accelerate from a 1.0-percent annual rate over the 1986–96 period to a 1.5-percent annual rate from 1996 to 2006. The industries producing *newspapers* and *commercial printing and business forms* account for about 68 percent of the jobs and 59 percent of the output for printing and publishing. In 1996, newspaper employment was 442,000, while commercial printing and business forms had 609,000 jobs. Newspaper employment and output are both projected to decline. Significant competition from nonprint media for advertising revenues, rising printing costs, and declining readership are the principal factors affecting the health of newspaper industry. The projected employment for commercial printing and business forms changes very little from the 609,000 jobs in 1996. Output, however, has a projected growth rate of 2.4 percent, indicating strong productivity gains. Desktop publishing and advances in photocopying and computerized printing have led to a proliferation of print shops. Desktop publishing presents a double-edged stimulus to the industry: many businesses now find it easy to produce their printed business materials with personal computers, and laser printers, but the same equipment also encourages development of more sophisti-

cated printed materials, which require a print shop for final production.

Employment for the *chemicals and allied products* industry group is projected to increase by 38,000, and to reach nearly 1.1 million in 2006. The group's real output is projected to grow at an average annual rate of 1.8 percent, down from the 2.4-percent rate recorded over the 1986–96 period. Output for the *drugs*<sup>24</sup> industry has a projected annual growth rate of 2.9 percent—faster than the pace for the economy as a whole, but slower than the industry's historical growth rate of 4.2 percent during the 1986–96 period. Employment growth is expected to remain strong, adding 60,000 jobs at a 2.1-percent rate.

For the two industry groups *textile mill products* and *apparel and other textile products*, the long-term trends toward increasing automation and use of offshore labor for work processes that cannot be easily automated are expected to continue. Of the two industry groups, textile mill products has most benefited from automation. Productivity gains resulting from further automation and from the implementation of new technologies are expected during the projection period. Apparel production remains highly labor intensive. Offshore assembly of apparel has become, and is expected to continue to be, the norm. Demand for apparel is, of course, affected by fashion tastes and changes in cultural attitudes towards appropriate dress. However, the rate of growth of the population is an important restraint, and the slowing of population increases during the projection period is expected to dampen consumer demand for clothing. The products of the textile mill industry group mostly serve as inputs for other manufactured products. Apparel is an example, as are cloth seat coverings in automobile and furniture production. The construction and real estate industries also are important users of textile mill products. Employment in the textile mill products industry group is projected to decline from 624,000 to 588,000 jobs between 1996 and 2006. Jobs in the apparel industry group employment are projected to decrease from 864,000 to 714,000. Within the apparel industry group, the detailed industry apparel accounted for 643,000 wage and salary jobs in 1996. With the projected loss of 475,000 jobs, apparel will be one of the industries with the largest numerical decline through the 1996–2006 period. (See table 6.)

THIS SET OF EMPLOYMENT PROJECTIONS is characterized by slowing growth in total employment as a consequence of slowing population and labor force growth. Most of the projected employment increase is in the service-producing sector of the economy, as has been the case historically, and in the last several sets of BLS projections. The majority of the employment growth in the service-producing sector is concentrated in the services division, and within the services division, most of the increase takes place in Business Services (SIC 73) and Health Services (SIC 80). □

## Footnotes

<sup>1</sup> For further discussion of the labor force see, Howard N Fullerton, Jr., "Labor force 2006: slowing down and changing composition," this issue, pages 23–38.

<sup>2</sup> For further discussion of the macroeconomic influences, see Tom Boustead, "The U.S. economy to 2006," this issue, pages 6–22.

<sup>3</sup> 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.

<sup>4</sup> The bulk of the engineering, management, and related services industry group, along with the computer and data processing services industry within business services, are considered to be "high-technology" industries. For a discussion of the employment shifts between manufacturing high-tech industries and services high-tech industries, see William Luker, Jr., and Donald Lyons, "Employment shifts in high-technology industries, 1986–96," *Monthly Labor Review*, June 1997.

<sup>5</sup> For further discussion of the health care industry, see Laura Freeman, "Home-sweet-home health care," pp. 3–11; and 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.

<sup>6</sup> Richard A. Rettig, *Health Care in Transition: Technology Assessment In the Private Sector* (Santa Monica, CA, The RAND Corporation, 1997), p 3.

<sup>7</sup> The rapid growth of temporary help services, which makes up most of personnel supply services, has generated much speculation about the changing nature of the relationship between employer and employee, and created questions about the "permanence" of jobs in the future. The term "contingent worker" often has been used in this discussion. A indepth review of the phenomenon is not undertaken here, because the Bureau has already published a series of articles dealing with the issue of the contingent worker. (See the *Monthly Labor Review*, October 1996.) For a discussion of the temporary help services industry, see Lewis M. Segal and Daniel G. Sullivan, "The Growth of Temporary Services," *Journal of Economic Perspectives*, Spring 1997, pp. 117–36.

<sup>8</sup> For further discussion, see Sheila McConnell, "The role of computers in reshaping the work force," pp. 3–5; and William C. Goodman, "Software, engineering industries: threatened by technological change?" pp. 37–45, both in *Monthly Labor Review*, August 1996.

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

<sup>10</sup> 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.

<sup>11</sup> Discussions of industry-level productivity refer to labor productivity taken as the ratio of output to hours of work. This measure is calculated by the Bureau's Office of Employment Projections, and is derived from data

developed for use in the projections modeling system. It is not part of the official BLS statistics on productivity produced by the Office of Productivity and Technology.

<sup>12</sup> For a discussion of the application of computer technology in commercial banking, see Teresa L. Morisi, "Commercial banking transformed by computer technology," *Monthly Labor Review*, August 1996, pp. 30–37.

<sup>13</sup> For further reading, see Teresa L. Morisi, "Employment in public schools: the student-to-employee ratio," *Monthly Labor Review*, July 1994, pp. 40–44.

<sup>14</sup> For 1970 and 1975, see "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, see "U.S. Population Estimates, by Age, Sex, Race, and Hispanic Origin: 1980 to 1991," *Current Population Reports*, Series P-25, No. 1095 (Bureau of the Census, 1992). For 1990, 1995, and 1996, see "U.S. Population Estimates by Age, Sex, Race, and Hispanic origin: 1990 to 1996," PPL-57 (unpublished paper) (Bureau of the Census, 1997). For projected 2006, see "Population Projections of the United States, by Age, Sex, Race, and Hispanic Origin: 1995 to 2050," *Current Population Reports*, Series P-25, No. 1130 (Bureau of the Census, 1995).

<sup>15</sup> *Annual Energy Outlook 1997* (U.S. Department of Energy, Energy Information Administration.)

<sup>16</sup> See Boustead, "The U.S. economy to 2006," for further discussion of macro result. The macro economic model solves directly for fixed and residential investment.

<sup>17</sup> *Ibid.*

<sup>18</sup> For a discussion of the competitive pressures faced by the computer manufacturing industry, see Jacqueline Warnke, "Computer manufacturing: change and competition," *Monthly Labor Review*, August 1996, pp. 18–29.

<sup>19</sup> See Boustead, "The U.S. economy 2006."

<sup>20</sup> *Ibid.*

<sup>21</sup> For a discussion of the semiconductor industry, see Fancisco A. Moris, "Semiconductors: the building blocks of the information revolution," *Monthly Labor Review*, August 1996, pp. 6–15.

<sup>22</sup> For a discussion of the impacts of cutbacks on defense industries and attempts to forge new markets, see Ron L. Hetrick, "Employment in high-tech defense industries in a post cold war era," *Monthly Labor Review*, August 1996, pp. 57–63.

<sup>23</sup> "The coming car crash," *The Economist*, May 10, 1977, pp. 21–23.

<sup>24</sup> For more indepth reading, see Stephen Heffler, "Drugs manufacturing: a prescription for jobs," *Monthly Labor Review*, March 1995, pp. 12–22.

<sup>25</sup> For additional information, see Lauren A. Murray, "Unraveling employment trends in textiles and apparel," *Monthly Labor Review*, August 1995, pp. 62–72.