

Projections 2000

Industry output and employment through the end of the century

Service-producing industries add more than 20 million jobs; employment in manufacturing declines, but the output share of the Nation's factories is projected to hold steady

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More than 21 million new jobs are projected to be added to the U.S. economy between 1986 and the year 2000, bringing total employment to just over 133 million. Many industries are projected to share in this expansion and enjoy strong job growth, but several, especially some in manufacturing, are not. This article describes the trends of industry output and job growth projected by the Bureau of Labor Statistics for the remainder of the 20th century.

The 21 million new jobs translate into an increase of 19.2 percent over the projection period, or annual growth of 1.3 percent. This compares to annual rates of job growth of 2.6 percent over the 1972–79 period, and 1.4 percent over the 1979–86 period. Thus, projected employment increases are expected to occur at a slower pace than in the past.

Three projections of employment were prepared—a moderate, a low, and a high. This article focuses on the moderate growth scenario. The demographic and economic assumptions of this scenario are described in detail in companion articles by Howard N Fullerton, Jr., and Norman C. Saunders, on pp. 10–29 of this issue. Some of the key trends which especially affect the industry projections are:

- A continued slowdown in labor force growth following the 1970's surge, during which the baby-boom generation entered the work force and women's labor force participation rose dramatically;
- Average growth of 2.4 percent a year in real gross national product (GNP) between 1986 and 2000, and unemployment tapering from a 7.0-percent rate in 1986 to 6.0 percent by 2000;

- Higher productivity growth, especially in manufacturing, which allows production to expand without corresponding job gains;
- Improvements in the Nation's international trade balance, as the exchange value of the dollar is projected to return to a level more consistent with long-term relationships; imports will continue to make inroads in some key sectors, but the export market, especially for U.S. capital goods, should expand faster;
- Defense spending growing in real terms, at least through 1990, because of projects already approved, but beginning a modest decline after that.

Goods versus services

The 133 million jobs in the year 2000 will be even more concentrated in service-producing sectors than are jobs today, because virtually all of the net increase of 21 million jobs are in the service-producing sector; although some goods-producing industries are projected to grow, others are projected to decline, with a net employment change of zero. As table 1 shows, 119 million of the 133 million total jobs are expected to be nonfarm wage and salary jobs, or payroll employment. The rest are in nonfarm self-employment and unpaid family work, 9.7 million; private household work, 1.2 million; and agriculture (both payroll and self-employed), 2.9 million. Of the nonfarm wage and salary jobs, 3 out of 4 were in service-producing industries in 1986; by the year 2000, almost 4 out of 5 are projected to be. The goods-producing sector, in contrast, is expected to show virtually no net change, as declines in manufacturing and mining just offset projected increases in construction. Manufacturing employment is projected to fall from 19 million in 1986 to 18.2 million by 2000.

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The structural drop in total factory jobs has been occurring since 1979, and for many individual manufacturing industries, the decline started much earlier. In 1979, manufacturing employment peaked at just over 21 million jobs, but over the 1980 and 1981–82 recessions, about 2.8 million of those jobs were lost. Since the trough of the last recession in November 1982, employment in manufacturing has made a partial comeback, but new economic conditions have suppressed full recovery. The high value of the dollar compared to foreign currencies, for example, resulted in unprecedented levels of merchandise imports into the United States, and domestic firms tended to find that their long-established cost structures prevented them from competing with these cheaper imports. Many firms engaged in cost-cutting and restructuring, closing some older plants and streamlining others. This restructuring and cost-cutting, along with other factors such as contracting out, technological advances, new capital investment, and energy substitution, to name a few, pushed productivity gains in manufacturing to a brisk 3.4-percent pace between 1983 and 1986, compared to 2.3 percent in the 1970's. Output reached record high levels in 1986.

The projections of manufacturing employment incorporate a continued restructuring, but the rate of job contraction is expected to slow in the future. The average annual rate of decline in factory jobs was -1.4 percent during the years 1979–86; the 1986–2000 projected rate is just -0.3 percent.

In contrast to jobs, factory output is projected to show very strong growth during the 1986–2000 period. At 2.3 percent a year, it is expected to be only slightly below the rate of increase in total GNP. Demand for U.S. manufactured products is projected to be high for a number of reasons. First, exports are projected to recover some of their markets as the value of the dollar continues to fall, with the rate of growth exceeding that projected for imports. Second, domestic demand for capital goods is expected to be robust as low real interest rates spur investment. Finally, already scheduled defense expenditures for communications equipment, missiles, and aircraft should stimulate those sectors for several years to come. As a result of these factors, manufacturing production, especially of durable goods, is projected to hold a steady 33-percent share of total output through the next decade. Manufacturing jobs, by comparison, are projected to drop from 19 percent of total payroll employment in 1986 to 15 percent by 2000.

Industry output and employment trends

Agriculture. Agricultural production is projected to recover from its 1983–86 slump as the declining dollar stimulates a modest recovery of agricultural exports. However, it is not expected that U.S. exports can regain the world dominance they once enjoyed. This is because several former customer nations have not only achieved self-sufficiency but have in fact become net exporters of the agricultural products they once imported.

One portion of the agricultural sector—the agricultural services, forestry, and fishery products industry—has been posting very rapid growth and is projected to continue to do so. Employment in this industry has been growing, in contrast to long-term steady declines in farm production jobs. About 245,000 new jobs are projected to be added in agricultural services between 1986 and 2000, compared to losses of 585,000 in crop and livestock production. Most of the gains in agricultural services are in landscaping and horticultural services (such as lawn services). Thus, even within the agricultural sector, the shift to services is inexorable.

The overall decline in total agricultural jobs from 1972 to 1986 occurred entirely among the self-employed and unpaid family workers. In contrast, wage and salary farm jobs have actually increased, and are expected to continue to do so, as the following tabulation shows:

	<i>Change in employment (thousands)</i>	
	<i>1972–86</i>	<i>1986–2000</i>
Total agriculture	-266	-340
Self-employed and unpaid family jobs	-619	-488
Wage and salary jobs	353	148

This reflects the closure of many smaller, family-owned farms, and the increasing concentration of farming operations among fewer, larger producers.

Mining. The BLS projections for the mining sector incorporate the latest energy assumptions for the year 2000 from the U.S. Department of Energy.¹ In this scenario, imports of crude petroleum rise enormously from present levels, reflecting the assumption that the current worldwide oil glut will be absorbed. Domestic production of crude oil is projected to drop by almost one-fourth over the 1986–2000 period, while imports are projected to more than double. Correspondingly, employment in crude oil production is projected to fall even further below 1986's depressed level, but some of the recent job loss in exploration services is expected to be made up by the year 2000 because of higher oil prices in the 1990's. Coal production is projected to grow as an alternative energy source, but high productivity in this industry results in the continued shrinking of employment. (See table 6 for detailed projections of industry employment.)

Metal mining is not projected to recover any of the deep cuts experienced in both output and employment since 1979. Demand for U.S. primary metals and, in turn, metal mining activity were severely reduced in the 1980–82 recessions, and did not pick up again in the recovery period. In 1986, output of U.S. metal mines was less than three-fourths of the 1979 level, and employment was only about two-fifths. Further losses are projected, although at a much slower rate. The primary metals manufacturing industries are projected to either decline or to be among the slowest-

growing of all the industries studied in the BLS projections. As a result, production of U.S. metal mines is projected to decline and another 14,000 jobs are projected to be lost.

Construction. The real value of new and maintenance construction is projected to grow by 1.4 percent a year between 1986 and 2000, slightly faster than long-term historical trends but slower than the 2.4-percent projected for overall GNP growth. New construction is especially sensitive to cyclical fluctuations, but demographic factors play a part as well. Because of an expected slowdown in the rate of new household formation in the 1990's, residential construction is projected to slow dramatically. A little growth is expected for new single-family homes and for residential alterations and additions, but this will be just about offset by declines in new apartment and condominium construction and in farm housing. Nonresidential construction is projected to recover from the recent oversupply of office and commercial space, and will grow about 2.0 percent a year during the 1986-2000 period.

Construction employment is projected to rise by 890,000 between 1986 and 2000, to 5.8 million wage and salary jobs. The rate of increase, 1.2 percent a year, is just slightly below the projected total job growth in the economy.

Manufacturing. Manufacturing is projected to lose 834,000 jobs by 2000, a rate of decline of -0.3 percent a year. Output, in contrast, is projected to almost keep pace with total GNP growth, averaging 2.3 percent a year. Heavy investment in capital accumulation and the continued winnowing out of less efficient operations, among other factors, are expected to result in substantial productivity growth. The following tabulation presents wage and salary employment estimates (in thousands) for 1979 and 1986, and projected to 2000:

	1979	1986	2000
Manufacturing	21,042	18,994	18,160
Durables	12,762	11,244	10,731
Nondurables	8,280	7,750	7,429

Table 1. Employment by major sector, 1972, 1979, 1986, and projected to 2000

Sector	Employment (in thousands)								
	1972	1979	1986	Projected, 2000			Change, 1986-2000		
				Low	Moderate	High	Low	Moderate	High
Total	84,549	101,353	111,623	126,432	133,030	137,533	14,809	21,407	25,910
Nonfarm wage and salary ¹	73,514	89,481	99,044	113,554	119,156	123,013	14,510	20,112	23,969
Goods-producing	23,668	26,463	24,681	23,148	24,678	25,906	-1,533	-3	1,225
Mining	628	958	783	672	724	779	-111	-59	-4
Construction	3,889	4,463	4,904	5,643	5,794	6,077	739	890	1,173
Manufacturing	19,151	21,042	18,994	16,833	18,160	19,050	-2,161	-834	56
Durable	11,050	12,762	11,244	9,654	10,731	11,193	-1,590	-513	-51
Nondurable	8,101	8,280	7,750	7,179	7,429	7,857	-571	-321	107
Service-producing ¹	49,846	63,018	74,363	90,406	94,478	97,107	16,043	20,115	22,744
Transportation and public utilities	4,541	5,135	5,244	5,410	5,719	5,903	166	475	659
Wholesale trade	4,113	5,204	5,735	7,015	7,266	7,361	1,280	1,531	1,626
Retail trade	11,835	14,989	17,845	21,795	22,702	23,079	3,950	4,857	5,234
Finance, insurance, and real estate	3,907	4,975	6,297	7,508	7,917	8,159	1,211	1,620	1,862
Services ¹	12,117	16,768	22,531	30,778	32,545	33,708	8,247	10,014	11,177
Government	13,333	15,947	16,711	17,900	18,329	18,897	1,189	1,618	2,186
Agriculture	3,523	3,401	3,252	2,784	2,917	3,009	-478	-335	-253
Private households	1,693	1,326	1,241	1,122	1,215	1,234	-119	-26	-7
Nonfarm self-employed and unpaid family workers	5,819	7,145	8,086	8,972	9,742	10,277	886	1,656	2,191

Sector	Average annual rate of change (in percent)					Percent distribution of wage and salary employment					
	1972-79	1979-86	1986-2000			1972	1979	1986	Projected, 2000		
			Low	Moderate	High				Low	Moderate	High
Total	2.6	1.4	0.9	1.3	1.5	—	—	—	—	—	—
Nonfarm wage and salary ¹	2.8	1.5	1.0	1.3	1.6	100.0	100.0	100.0	100.0	100.0	100.0
Goods-producing	1.6	-1.0	-0.5	0	0.3	32.2	29.6	24.9	20.4	20.7	21.1
Mining	6.2	-2.8	-1.1	-0.6	0	0.9	1.1	0.8	0.6	0.6	0.6
Construction	2.0	1.4	1.0	1.2	1.5	5.3	5.0	5.0	5.0	4.9	4.9
Manufacturing	1.4	-1.4	-0.9	-0.3	0	26.1	23.5	19.2	14.8	15.2	15.5
Durable	2.1	-1.8	-1.1	-0.3	0	15.0	14.3	11.4	8.5	9.0	9.1
Nondurable	0.3	-0.9	-0.5	-0.3	0.1	11.0	9.3	7.8	6.3	6.2	6.4
Service-producing ¹	3.4	2.4	1.4	1.7	1.9	67.8	70.4	75.1	79.6	79.3	78.9
Transportation and public utilities	1.8	0.3	0.2	0.6	0.8	6.2	5.7	5.3	4.8	4.8	4.8
Wholesale trade	3.4	1.4	1.4	1.7	1.8	5.6	5.8	5.8	6.2	6.1	6.0
Retail trade	3.4	2.5	1.4	1.7	1.9	16.1	16.8	18.0	19.2	19.1	18.8
Finance, insurance, and real estate	3.5	3.4	1.3	1.7	1.9	5.3	5.6	6.4	6.6	6.6	6.6
Services ¹	4.8	4.3	2.3	2.7	2.9	16.5	18.7	22.7	27.1	27.3	27.4
Government	2.6	0.7	0.5	0.7	0.9	18.1	17.8	16.9	15.8	15.4	15.4
Agriculture	-0.5	-0.6	-1.1	-0.8	-0.6	—	—	—	—	—	—
Private households	-3.4	-0.9	-0.7	-0.1	0	—	—	—	—	—	—
Nonfarm self-employed and unpaid family workers	3.0	1.8	0.8	1.3	1.7	—	—	—	—	—	—

¹ Excludes Standard Industrial Classifications 074,5,8 (agricultural services) and 99 (nonclassifiable establishments). Therefore, the estimates are not exactly comparable with data pub-

lished in *Employment and Earnings*.

Table 2. Distribution and growth of real domestic output by major sector, 1972, 1979, 1986, and projected to 2000

Sector	Percent distribution					
	1972	1979	1986	Projected, 2000		
				Low	Moderate	High
Total	100.0	100.0	100.0	100.0	100.0	100.0
Goods-producing	48.3	46.5	43.5	41.0	41.5	42.1
Mining	4.8	4.0	3.3	2.4	2.3	2.3
Construction	7.9	6.9	6.8	5.7	6.0	6.5
Manufacturing	35.6	35.6	33.4	33.0	33.2	33.2
Durable	18.0	18.3	17.0	17.6	17.9	17.8
Nondurable	17.6	17.3	16.4	15.3	15.3	15.4
Service-producing	47.9	50.0	53.1	55.6	55.1	54.4
Transportation and public utilities	8.6	9.1	8.1	8.3	8.4	8.4
Wholesale trade	4.8	4.9	5.6	5.8	5.9	6.0
Retail trade	6.6	6.7	7.4	7.8	7.5	7.5
Finance, insurance, and real estate	10.0	10.8	11.6	11.8	12.0	11.7
Services	10.8	12.0	13.8	15.4	15.4	15.1
Government	7.1	6.5	6.6	6.5	6.0	5.7
Agriculture	3.6	3.3	3.3	3.3	3.3	3.4
Private households	.2	.1	.1	.1	.1	.1

Sector	Average annual rate of change (in percent)				
	1972-79	1979-86	1986-2000		
			Low	Moderate	High
Total	2.9	1.6	1.6	2.4	3.0
Goods-producing	2.3	.6	1.0	2.0	2.7
Mining	.3	-1.4	-.9	-.2	.4
Construction	1.0	1.3	.1	1.4	2.6
Manufacturing	2.9	.6	1.3	2.3	2.9
Durable	3.1	.5	1.7	2.7	3.3
Nondurable	2.6	.8	.9	1.8	2.5
Service-producing	3.5	2.4	1.8	2.6	3.1
Transportation and public utilities	3.6	.0	1.6	2.6	3.2
Wholesale trade	3.1	3.6	1.6	2.7	3.4
Retail trade	3.2	3.0	1.8	2.4	3.1
Finance, insurance, and real estate	4.1	2.5	1.6	2.6	3.0
Services	4.4	3.6	2.3	3.2	3.7
Government	1.7	1.8	1.2	1.5	1.8
Agriculture	1.7	1.4	1.5	2.4	3.3
Private households	-3.7	3.0	-.8	.2	.4

Because most of the driving force behind the strong manufacturing output growth stems from investment in and exports of capital equipment, output growth is projected to be sharper for durable goods than for nondurables. Durable manufacturing industries are projected to average production growth of 2.7 percent a year, while nondurables will average 1.8 percent a year. In fact, of the 79 separate durable manufacturing industries in the economic projections system, only 5 are not expected to post any output gains. The exceptions are railroad equipment and four of the primary metals industries; all the other durable goods industries are projected to expand. Similarly, productivity gains are expected to be higher in durable goods industries, resulting in a net decline of 513,000 jobs, compared with a drop of 321,000 in nondurable manufacturing.

At the same time, it should be noted that the occupational composition of the remaining 18.2 million manufacturing jobs in 2000 is expected to change. More details can be

found in the George T. Silvestri and John M. Lukasiewicz article on occupational projections (pp. 46-63 of this issue), but in general, manufacturing employment is expected to shift away from production and assembly-line jobs toward professional, managerial, and technical occupations:

	Percent of employment			
	Durables		Nondurables	
	1986	2000	1986	2000
All manufacturing occupations	100.0	100.0	100.0	100.0
Managerial, professional, technical	19.9	23.4	12.8	14.7
Marketing and sales	2.2	2.3	4.1	4.6
Administrative support, clerical	11.3	10.2	12.6	12.2
Precision production	11.0	11.2	6.6	6.8
Other production type jobs*	47.3	44.9	55.5	53.6

*Mechanics, machine operators, hand assemblers, material movers, laborers.

In fact, although manufacturing in total is projected to drop 834,000 jobs, there will actually be an increase of 258,000 engineering, scientific, and technical positions and 85,000 more managerial jobs.

The shift is more pronounced in industries where imports play a significant role. In some cases, design and engineering are done domestically, but much of the actual assembly is performed overseas. The product is then brought into this country under the brand name of the domestic parent. In these cases—electronic home entertainment equipment as an example—the U.S. firm acts essentially as a design and marketing agent.

Following is a discussion of the outlook for selected manufacturing industries. (See table 6 for the full output and employment detail.)

Industrial machinery (except computers and office equipment). Despite some growth in 1984, 1985, and 1986, virtually all of the heavy industrial machinery industries have yet to regain 1979's peak production levels. Many of them rely on exports for a large share of their markets (between 10 and 30 percent of output), and with the wide disequilibrium in the price of the dollar in recent years, exports fell and imports gained ground—considerable ground in some industries. In addition, primary domestic markets for some of the machinery manufacturers have been depressed, particularly farming and mining.

Similarly, employment is still far below 1979's levels. About 500,000 fewer jobs were found in heavy machinery industries in 1986 than in 1979, shrinking demand having forced the closing of inefficient plants, complete restructuring of some industries, and the drastic streamlining of others.

The outlook for machinery, except electrical, is for a recovery in production to new peak levels (except in a few of the sectors), rapid productivity growth, and some job gains—but not enough to even come close to 1979's employment levels.

This projection varies among the individual machinery producers. General industrial machinery (pumps, compressors, industrial ovens, fans, general purpose robots, and so forth) is projected to post 1.9-percent annual output growth (somewhat slower than prerecession trends) and to add about 13,000 jobs to 1986's employment level of 255,000. Exports rise above 1985's depressed level but imports are projected to increase their market share from about 22 percent in 1985 to more than 26 percent by 2000. (Imports are calculated as a percent of the total value of output in constant 1982 dollars.) Miscellaneous nonelectric machinery (which includes such items as pistons, valves, and carburetors) is projected to have 2.2-percent annual output growth, which again is slower than past trends, and to add about 26,000 jobs to reach an employment level of 301,000 by 2000. Exports and imports are relatively small in this sector. The employment level represents a new peak for the industry, because productivity growth is projected to be rather low; the large number of small firms and the diversity of products limit widespread automation. Metalworking machinery is also characterized by low productivity growth because of the many job shops in the industry, but sluggish growth in domestic output (because of weak demand and rising imports) causes employment in the BLS projections to fall from 304,000 in 1986 to 281,000 by 2000.

Computers and office equipment. The computer manufacturing industry has been one of the fastest growing U.S. industries over the last 25 years and, despite rising imports, it is one of the few manufacturing industries to show a consistently large trade surplus. Job gains have been rapid in the industry since the mid-1970's, but since 1984, employment levels have fallen as the growth of domestic output slowed. The nature of work in this industry is uncharacteristic of manufacturing industries as a whole as reflected in its high concentration of scientific personnel and its relatively low concentration of production workers.² More than 25 percent of employment in computer manufacturing consists of engineers, technicians, and systems analysts, while production workers represent only 35 percent. For manufacturing as a whole, production workers accounted for 68 percent of all jobs in 1986, although, as noted earlier, occupational shifts away from production-type occupations are projected to occur.

Output growth for computers is expected to slow considerably over the next 14 years, although the industry is still projected to be the fastest growing in the economy in terms of output. The slowdown occurs as the industry matures and its size makes it difficult to expand at past rates of growth; future technological advances are not assumed to have the same dramatic impact as the introduction of the minicomputer or the microcomputer. However, demand is expected to be buoyed by rapidly expanding purchases by private consumers. Employment is projected to expand by about 85,000 jobs to 503,000 in 2000, with even more of a shift from production to research and development occupations.

Electrical and electronic equipment. The fastest growing industries within this sector are projected to be semiconductors and miscellaneous electronic components. Despite significant import growth, domestic production increases in these industries will rank them among the top five of all U.S. industries. Also enjoying rapid output growth of more than 5 percent a year will be the X-ray and electromedical apparatus industry, as demand for sophisticated health equipment continues unabated. Defense demand will not have as much of an impact on the communications equipment industry as in the past, but the slack is expected to be taken up by increases in private investment purchases of such items as satellites, fiber optics systems, broadcasting equipment, and industrial laser systems.

The rapid production gains in these electrical equipment industries are expected to lead to some job growth, but it is almost totally offset by declines in other, related industries. Overall employment in electrical equipment manufacturing is projected to remain at 2.1 million jobs.

Table 3. Projected output trends for selected industries, 1986-2000

Fastest growing	Average annual rate of change (percent)
Electronic computing equipment	7.4
Arrangement of passenger transportation	5.9
Semiconductors and related devices	5.8
Miscellaneous electronic components	5.5
Amusement and recreation services, n.e.c.	5.5
X-ray and other electromedical apparatus	5.2
Optical and ophthalmic products	5.1
Child day care services	5.1
Computer and data processing services	4.9
Electronic home entertainment equipment	4.9
Residential care	4.9
Medical instruments and supplies	4.4
Outpatient facilities and health services, n.e.c.	4.4
Research, management, and consulting services	4.3
Radio and tv communication equipment	4.2
Oil and gas field services	4.1
Telephone and telegraph apparatus	4.1
Partitions and fixtures	4.0
Office and miscellaneous furniture and fixtures	4.0
Drugs	4.0
Slowest growing or most rapidly declining	Average annual rate of change (percent)
New farm housing, alterations, and additions	-3.2
Crude petroleum, natural gas, and gas liquids	-2.0
Footwear except rubber and plastic	-2.0
New nonfarm housing, n.e.c.	-1.7
Railroad equipment	-1.3
Luggage, handbags, and leather products, n.e.c.	-1.0
Metal mining	-.8
Blast furnaces and basic steel products	-.8
Iron and steel foundries	-.7
New conservation and development facilities	-.4
Tobacco manufactures	-.2
Watch, clock, jewelry, and furniture repair	-.2
New local transit facilities	-.1
New gas utility and pipeline facilities	-.0
Ship and boat building and repairing2
Private households2
Miscellaneous primary and secondary metals3
Mobile homes4
Jewelry, silverware, and plated ware4
New nonbuilding facilities, n.e.c.5

n.e.c. = not elsewhere classified.

Table 4. Projected employment trends for wage and salary workers, selected industries, 1986–2000

Fastest growing	Average annual rate of change (percent)
Computer and data processing services	5.2
Outpatient facilities and health services, n.e.c.	4.6
Personnel supply services	4.4
Offices of health practitioners	4.4
Credit reporting and business services, n.e.c.	4.1
Legal services	3.8
Nursing and personal care facilities	3.8
Research, management, and consulting services	3.6
Residential care	3.5
Miscellaneous publishing	3.4
Equipment rental and leasing	3.4
Accounting, auditing, and services, n.e.c.	3.2
Personal services, n.e.c.	3.1
Detective and protective services	3.1
Credit agencies and investment offices	2.9
Advertising	2.9
Services to dwellings and other buildings	2.9
Individual and miscellaneous social services	2.9
Automotive rentals, without drivers	2.7
Arrangement of passenger transportation	2.6
Most rapidly declining	Average annual rate of change (percent)
Railroad transportation	-3.9
Footwear except rubber and plastic	-3.6
Railroad equipment	-3.4
Metal mining	-3.1
Miscellaneous primary and secondary metals	-2.3
Luggage, handbags, and leather products, n.e.c.	-2.3
Blast furnaces and basic steel products	-2.2
Iron and steel foundries	-2.1
Electronic home entertainment equipment	-2.1
Agricultural chemicals	-1.9
Dairy products	-1.9
Petroleum refining	-1.9
Grain mill products and fats and oils	-1.8
Tobacco manufactures	-1.8
Tires and inner tubes	-1.8
Plastics materials and synthetics	-1.7
Coal mining	-1.6
Ship and boat building and repairing	-1.6
Sugar and confectionery products	-1.6
Aircraft	-1.5

n.e.c. = not elsewhere classified.

Transportation equipment. BLS projects that employment in the auto industry will fall below the 1986 level, as tapering demand and higher productivity offset the trend toward more domestic-based production of foreign automobiles. Domestic production is expected to slow to about 2.0 percent a year, somewhat below pre-1979 rates of growth and trailing the 2.4-percent projected growth rate of GNP.

The slowdown reflects a projected absolute decline in the size of the 16- to 34-year-old population, which accounts for the majority of first-time car buyers. This dampening trend offsets the expectation that there will be a larger number of older car buyers, who generally buy higher priced cars. At the same time, investment in new auto plants with the latest automated production techniques leads to a projected 3.2-percent gain in productivity. Slower demand and high productivity outweigh the assumption that Japanese automakers will expand their U.S. operations—a likely event as the rising value of the yen relative to the dollar forces Japanese car prices to less competitive levels. Imports (in dollar

terms) are projected to hold a slightly smaller share of the market than at present, about 22 percent in 2000, as imports from Japan shrink but those from the Third World rise. In total, domestic output of the motor vehicle industry is projected to grow only about 2.0 percent a year during the 1986–2000 period (compared to 2.4 percent for GNP), and employment to fall from 865,000 to 749,000 jobs.

The aircraft industry is expected to see production gains of only 0.8 percent a year, considerably slower than recent trends. The turnabout mainly results from the assumption of tapering defense demand following current high levels, but it is tempered somewhat by accelerated export growth. The industry is expected to be able to remain competitive in the export market through cost-cutting and productivity improvements—jobs are projected to shrink from 339,000 in 1986 to 274,000 in 2000. Similar trends apply in the aircraft and missile engines and equipment industry—an increase in exports buoy output growth but the numbers of jobs fall from 385,000 in 1986 to 330,000 in 2000.

Instruments and related products. Demand is projected to be very high for many products in this industry, especially for optical instruments (in particular, spectrographs and electron microscopes), medical instruments, measuring and controlling devices, and engineering and scientific instruments. These industries have typically experienced very rapid output growth, and continued strong demand reflects the assumed high levels of research and development spending by U.S. manufacturers on this type of equipment in the future. Employment will grow from 707,000 in 1986 to 771,000 in 2000, or about 9 percent over the entire period.

Primary and fabricated metals. Primary metals have suffered by far the largest job contraction of all the manufacturing sectors in the 1979–86 period, shrinking by 40 percent. All the primary metals industries have been affected, but basic steel and iron and steel foundries have lost the most jobs. The 1980–82 recessions accelerated a long-term decline in steel—the peak employment year for steel was 1965 and for production, 1974—and the industry closed many of its plants and cut production and jobs drastically. Large capital expenditures would be necessary to improve the competitiveness of raw steel production in the United States, but recent financial losses by most of the large steel companies have led instead to reduced capital expenditures. Also, this industry is faced by worldwide excess capacity, making needed capital improvements very risky.

The industry's declines are projected to ease in the future because most of the more inefficient mills have already closed, but no rebound is anticipated. U.S. steel output in real terms is projected to fall –0.8 percent a year over the 1986–2000 period (compared to –8.9 percent during the 1979–86 period), and employment to decline by –2.2 percent annually (versus –10.3 percent over the 1979–86 period). (The year 1986 may have been atypical because of a strike in the industry, but clearly, long-term trends are

sharply negative.) Imports are projected to rise in value from 22.5 percent of total output in 1985 to almost 31 percent by 2000. Most of the import increases are expected to be in the form of semifinished steel for further processing in U.S. finishing mills, which are relatively more efficient than the Nation's raw steel manufacturing plants. Demand for steel and other primary metals will be sharply limited by the continued shift to other inputs (such as plastics and composites) in transportation equipment, machinery, and other manufactured goods.

Fabricated metal products lost 285,000 jobs between 1979 and 1986, and the sector is projected to lose another 120,000 by 2000. Among the fabricated metals industries, structural metal products of the type used in construction are projected to post output growth at about the same rate as new construction, 1.7 percent a year, but more efficient production techniques will result in continued employment declines. Metal coating, engraving, and allied services is the only fabricated metals industry projected to add jobs. It is expected to enjoy fairly strong output growth (2.9 percent a year), because about 10 percent of its output is purchased by the fast-growing electronic components industry. Productivity advances in this industry are limited by the large number of small firms and by product diversity.

Food products. Overall output of food products is projected to grow slower than past trends, reflecting the future slowdown in population growth. Changing demographics and consumer preferences will boost demand for higher valued food items, such as prepared convenience foods, while limiting growth for others, such as sugar and confectionery products.

The meat products industry is projected to register 1.6-percent annual output growth, with exports rising faster than domestic consumption. Canned, dried, and frozen foods is

projected to have the fastest output growth of all the food sectors, 2.2 percent a year. Strong demand for high-priced frozen dinners and other frozen specialties will more than offset diminishing purchases of canned fruits and vegetables. The market for alcoholic beverages is expected to erode further as consumers continue to change their drinking habits. Output of domestic beer, wine, and liquor has shown no growth in real terms since 1979, and is projected to recover to only 1.0-percent annual growth over the 1986-2000 period. This compares to 3- to 4-percent average growth for the industry prior to 1979. Soft drinks and flavorings (including carbonated waters) are projected to reap some of the benefits of flat beer and liquor sales, but because of slow growth in both the teen population and the number of fast food establishments, output of soft drinks will grow much slower than historically.

Efficiencies in food production are projected to continue to increase over the next decade, especially in grain mill products and in dairy products. Employment has been declining or has remained essentially unchanged in most food industries over the past 25 years, and this trend is expected to continue. Meat products, the largest food industry in terms of employment, is projected to add 10,000 jobs to reach 382,000 by 2000, but overall, food industries combined are estimated to lose 161,000 jobs between 1986 and 2000.

Apparel and textiles. Rising real disposable income will boost consumer demand for apparel, but a larger proportion of output will come from foreign suppliers. Clothing imports are expected to claim a 37-percent market share by 2000, compared to an already high 28 percent in 1985. Despite rising imports, domestic production of apparel is projected to expand by 1.1 percent a year, because of the strong consumer demand and because continued cost-cutting measures will keep U.S. apparel prices competitive. Nevertheless, employment in the industry is projected to fall from 921,000 in 1986 to 763,000 in 2000, a cutback of 158,000 jobs.

Textile mill products will benefit from both the steady growth in domestic apparel production and from the continued diffusion of new, automated technologies. Although imports are expected to increase their market share slightly, U.S. textile manufacturers are projected to be able to enjoy a healthy expansion of production. Floor covering mills are expected to be the fastest growing of the textile industries, with output rising 3.0 percent a year. Employment in textiles will continue to fall, however. About 300,000 jobs have been cut back in textile industries since the peak year 1973, and 99,000 fewer jobs are expected by 2000.

Printing and publishing. Printing and publishing is one of the few manufacturing sectors to have registered consistent job gains in the last few years. Even during the recession, both output and employment increased steadily. Despite the introduction of electronic composition systems and other

Table 5. Industries projected to generate the largest numbers of new wage and salary jobs, 1986-2000

Industry	New jobs (thousands)
Eating and drinking places	2,471
Offices of health practitioners	1,375
New and repair construction	890
Nursing and personal care facilities	852
Personnel supply services	832
State and local government education	784
Machinery and equipment wholesalers	614
Computer and data processing services	613
Grocery stores	598
Hotels and other lodging places	574
Outpatient facilities and health services, n.e.c.	547
State and local general government, n.e.c.	546
Research, management, and consulting services	531
Legal services	522
Credit agencies and investment offices	499
Credit reporting and business services, n.e.c.	497
Hospitals, private	481
Department stores	386
Real estate	353
Services to dwellings and other buildings	341

n.e.c. = not elsewhere classified.

new technologies in the larger firms, employment gains in printing and publishing have actually accelerated from past rates to average 2.6 percent a year over the 1979–86 period.

The explanation for this growth lies in sharp increases in demand for new trade journals and newsletters, catalogs and directories, software manuals, new specialty magazines such as health and fitness and regional magazines, commercial printing and business forms, elementary school textbooks, and greeting cards. Also, the industry encompasses a large number of small, widely scattered firms, which often have only limited capacity to invest in the newer technologies. Occupational shifts also are occurring within the printing trades industries, from fewer typesetters and other craftworkers to more front-office personnel such as writers, editors, managers, and salesworkers.

Growth is projected to continue to be strong through the 1990's, and all of the printing and publishing industries are projected to show increases in both output and employment between 1986 and 2000. The most rapid growth will be for miscellaneous publishing, with 3.6-percent per year output gains and 3.4-percent employment growth.

Chemicals and allied products. The chemical industry encompasses a variety of products, each with a somewhat different outlook. Industrial chemicals are projected to continue their upswing from the 1980–82 recessions, but future expansion is limited. Once an important export industry, the domestic chemical sector has seen a weakening in worldwide demand as many foreign countries have invested in their own chemical manufacturing facilities. In contrast, substantial output growth is projected for plastics materials and synthetics, reflecting for the most part gains for plastics and resins (such as carbon fiber resin for autos and airplanes), but little or no growth in synthetic fibers. The plastics materials and synthetics industry traditionally has enjoyed high productivity, however, and employment is expected to continue to fall despite sharp output advances.

The fastest growing chemical industry, and indeed one of the fastest growing industries in the whole economy in terms of output, is drugs and pharmaceutical products. Advances in biomedical research have led to a vast array of important new drugs, and it is expected that these will be adopted widely in coming years. Also, an expanding elderly population which spends more of its income on medicines than any other age group will boost demand. Output of drug products is projected to grow 4.0 percent a year, and employment is expected to rise by 17,000 to 224,000 in 2000.

Service-producing industries

Overall trends for the service-producing sector are projected to be vastly different from those in the goods sector. Payroll job growth will be very strong for almost all of the service-producing industries, particularly health services, business services, and trade. Service-producing employment will constitute about 80 percent of all wage and salary

jobs by the year 2000. More than 20 million new jobs are projected to be added to the service-producing sector between 1986 and 2000.

Transportation. In recent years, deregulation has boosted employment in the air transportation industry as many smaller firms entered the market and price competition stimulated demand. But, in the long-run, consolidation and takeovers are expected to dampen the rate of job growth. Employment has been growing by more than 7 percent a year since 1983, but future increases are expected to be limited to 1.7 percent annually. This represents a gain of 151,000 jobs between 1986 and 2000. The slowdown occurs as unsuccessful competitors cut back on routes or merge with larger companies.

Along with the recent rise in airline transportation output and employment, there has been a corresponding boom in the arrangement of passenger transportation (travel agencies). With the proliferation and constant revision of new routes and new fares, the traveler has turned from the airline itself to an independent travel agent to make reservations. Employment in travel agencies and independent ticket offices rose from 99,000 in 1980 (the first year for which separate data were available for the industry) to 158,000 in 1986, and an additional 69,000 jobs are projected to be added by 2000.

Demand for truck transportation is generally dependent on the state of the economy; the value of trucking output is projected to post 2.2-percent annual growth over the 1986–2000 period. Consolidations are anticipated to have an impact in this industry as well, and projected employment growth is limited to 1.5 percent annually. Greater efficiencies in scheduling, marketing, and cost control are expected to make possible greater gains in output than in employment.

Communications. The breakup of the telephone service monopoly in 1983 thus far has not led to real output gains, and employment in communications (except broadcasting) is beginning to edge downward from the 1.1 million mark maintained through most of the 1970's and 1980's. Competition in the 1990's is expected to lead to an employment decline of about 121,000 (or –0.9 percent a year), but real output is projected to advance 3.9 percent a year as demand for telecommunications surges.

Radio and television broadcasting has seen the development of cable TV systems, which provided a further boost to already expanding output and employment. Growth should taper as the market becomes saturated, and the projections show a deceleration to 1.7-percent annual job gains during the 1986–2000 period, compared to 2.6 percent over the 1982–86 period.

Wholesale trade. Over the projection period, wholesale trade is expected to add 1.5 million jobs, about 600,000 of them among machinery and equipment suppliers. This gain

is a consequence of the earlier described assumptions of strong capital investment and export growth in these manufacturing industries.

Retail trade. In retail trade, 4.9 million jobs will be added. Although a very sizable number, the rate of gain projected for retail jobs falls considerably below historical trends for two reasons: (1) the trade division generally mirrors overall economic patterns, and as growth in the labor force and total employment moderates, retail trade can be expected to do likewise; and (2) a large part of the past additions to retail trade employment have been part-time workers, about 40 percent during the 1973–85 period,³ but trends indicate that this growth in the part-time labor force may not continue indefinitely.

As the following tabulation shows, part-time employment is mainly concentrated among teenagers and women in the 25-to-54 and 55-and-older age groups:

<i>Part-time workers, 1986⁴</i>		
	<i>Number (thousands)</i>	<i>Percent of total</i>
Total	20,598	100.0
16–19:		
Men	2,326	11.3
Women	2,468	12.0
20–24:		
Men	1,300	6.3
Women	1,841	8.9
25–54:		
Men	1,758	8.5
Women	7,399	35.9
55 and over:		
Men	1,438	7.0
Women	2,068	10.0

However, the supply of these workers is projected to be very limited in the future. The teenage labor force will show a net increase of only 195,000 between 1986 and 2000—consisting of an absolute decline of 1.5 million over the 1986–92 period (resulting from the “birth dearth” of the 1960’s and 1970’s) and an increase of 1.7 million over the 1992–2000 period (reflecting the larger numbers of births to baby-boom parents in the 1980’s). The net impact of teenage labor force changes is to shrink this age group from 6.9 percent of all workers in 1986 to 6.0 percent by 2000.

Additionally, data clearly indicate a declining preference by women for part-time work. The following tabulation shows women voluntarily working part time as a percentage of all employed women for selected recent years:

	<i>Percent part-time</i>
1976	24.1
1978	23.7
1980	23.2
1982	22.9
1984	21.9
1986	21.7

Retailers in some areas have already found it difficult to staff their part-time positions, and there is much discussion about alternative sources of labor, such as older workers, to fill these jobs. This might be a partial solution in the longer term, as the labor force age 55 and over is projected to increase dramatically between 1986 and 2000. However, it does not seem a promising interim solution unless many early retirees can be induced to return to part-time work within the next few years. Although the number of workers aged 55 to 64 is projected to increase by 1.7 million between 1986 and 2000—an unprecedented addition—it does not come close to matching the expected increase in retail trade jobs. Furthermore, all of the increase in the labor force of older persons begins to occur only after 1995.

The projected employment data in this article do not distinguish between part-time and full-time jobs, but an examination of the average workweek can provide some indication of expected trends. Average weekly hours in retail trade dropped from 35.6 in 1972 to 29.2 in 1986 (and to 25.6 in eating and drinking places), clearly a reflection of the growth in part-time employment. This decline, however, is beginning to moderate and is assumed to slow further in the projections. The rate of decline in the workweek averaged –0.8 percent a year from 1972 to 1979 for retail trade (other than eating and drinking places) and –2.1 percent for eating and drinking establishments. Over the more recent period 1979–86, the workweek decline averaged –0.7 and –0.6 percent, respectively. The projected decline is only –0.2 percent a year for retail trade and –0.3 percent for eating and drinking establishments.

Among individual retail industries, eating and drinking places will have the most growth in jobs, 2.5 million, but the rate of increase will be much slower than historically. In particular, the proliferation of fast-food establishments, which generated many jobs in the past, should taper off as the market becomes saturated and as population growth slows, especially that of the teenage population. Some additional growth is expected for eating and drinking places as the practice of contracting out food service operations reaches more markets, such as hospitals, residential institutions, and schools.

Grocery stores are projected to add 598,000 new jobs by 2000, reflecting both a trend toward providing more labor-intensive services (such as carry-out prepared meals, meat and deli counters, fish counters, and salad bars), as well as the continued expansion of store hours. Department stores will gain 386,000 jobs, and miscellaneous shopping goods stores are projected to add 339,000. (This latter sector includes such establishments as sporting goods, jewelry, book, gift, and stationery stores.)

Finance and insurance. Banking, credit agencies, and investment offices should enjoy very substantial rates of output growth, but consolidation and technological advances in automatic banking and other financial transactions will sharply slow past rates of employment gain. The output

growth is expected as demand for financial services continues unabated, although the projected rates of increase are not expected to match those of recent years. In 1985 and 1986, falling interest rates and a bull market caused a surge in mortgage banking services and brokerage services. The projected long-term rates of output growth for these services are more in line with past longer term trends. Employment in finance is expected to grow less rapidly than in the past, but even so, there are projected to be 262,000 more jobs in banking, 495,000 more in credit agencies and investment offices, and 134,000 more in security and commodity brokers and exchanges by the year 2000. It should be noted that the distinctions among these sectors are blurring, as deregulation eliminates many restrictions on financial services.

The value of insurance services is projected to grow at about the same rate as GNP, 2.3 percent a year during the 1986–2000 period. Because of greater efficiencies in computerized underwriting, job gains will be limited—only 168,000 for insurance carriers and 214,000 for independent agents and brokers.

Services division. The major industry division, services, is composed of many different types of activities—business, health, professional, recreational, personal, and educational, to name a few. Overall, services has been and is projected to be the fastest growing division in terms of employment, adding 10 million new jobs between 1986 and 2000. In 1986, it accounted for about 23 percent of all nonfarm wage and salary jobs; in 2000, it will account for more than 27 percent. More than 32 million payroll jobs will be in the services division in the year 2000.

Despite such awesome growth, the projected gains do not match past increases, due to the overall slowdown of labor force and employment growth expected in the 1990's. Over the period 1972–86, the services division added 10.4 million new jobs; its rate of growth averaged 4.5 percent a year. The projected rate of increase 1986–2000 is 2.7 percent a year.

Following is a discussion of some of the major industries within the services division.

Business and professional services. For the current set of projections, it has been possible because of an expansion in BLS data series to study more of the detailed business services industries to try to get a clearer picture of where growth will occur. As can be seen in table 6, virtually all the business services industries are projected to have very rapid rates of output and employment growth, much faster than the increases in GNP or overall employment. The development of new types of specialized services continues to accelerate, thereby boosting employment in the business services sector.

The most rapidly growing business services industry and, in fact, the most rapidly growing of all the industries in the projections system in terms of employment, will be computer and data processing services. The need for systems design and analysis, programming, and software develop-

ment is certain to be very strong, reflecting the demand for specialized systems by business and government as well as the proliferation of packaged software for a wide variety of users. The heavy investment in computer-assisted design and manufacturing techniques which is assumed for the 1990's inevitably will lead to a sharp increase in demand for computer specialists. Employment in the industry is projected to swell by 5.2 percent a year, just about doubling its 1986 level to reach 1.2 million by 2000.

The business services industry with the biggest absolute increase in employment will be personnel supply services, gaining more than 800,000 jobs over 1986's 1.0 million level by the year 2000. This industry has been one of the most rapidly expanding in recent years, almost doubling in employment over the period 1982–86.

Several factors help explain the phenomenal growth in personnel services. Most important has been the expansion in the temporary help industry.⁵ The demand for temporary help has been very strong because of lower fringe benefit costs—"temps" typically have fewer benefits than permanent employees—and because of employers' need to meet peak workloads under uncertain economic conditions. On the supply side, many workers have been willing to work as temporaries because of the opportunities for flexible scheduling of assignments and the chance for skill enhancement. The temporary field is not limited only to office workers; the market is expanding to include industrial, medical, managerial, and engineering and technical occupations as well. The projected rate of job growth for temporary help, however, is not expected to match the gains of 1982–86 because a large part of that surge was associated with cyclical recovery from the 1980–82 downturns. Despite a slowdown, however, growth of the temporary help industry will still be very strong.

Another factor contributing to growth in personnel supply services has been the trend by government to contract out operations previously performed by public employees. The operation of private prisons under contract with State and local governments is an example. The rise in public facilities management by private firms will foster additional growth in the personnel supply industry.

Contracting out, not only by government agencies but also by private business establishments, has also had an impact on the building services and protective services industries. In addition, the office and commercial building boom in recent years boosted the demand for contract cleaning and guard services. Future gains should be slower as construction tapers and the trend toward contracting out levels off. Thus, projected increases for the services to dwellings industry and the detective and protective services industry are not expected to match historical rates. Some new growth is anticipated for protective services in the field of mechanical protective devices and polygraph services, but these two areas are relatively small compared to building guard services.

The development of new services should keep demand for the research, management, and consulting services industry very strong. Included in this industry are independent laboratories for research and development (nonmedical, and not manufacturing auxiliaries), market research, personnel training or management, economic research, efficiency experts, lobbyists, and other business consultants. Output is projected to grow 4.3 percent a year during the 1986–2000 period, a rate second only to that of computer services among all the business services industries. Some 513,000 new jobs are projected to be added to 1986's level of 788,000, an increase of nearly two-thirds over the period 1986–2000.

The equipment rental and leasing sector shows very high projected output and employment growth rates (ranking among the top 20 for employment) primarily because of video tape rentals. The rest of this industry includes the leasing of tools and heavy construction equipment, which is not expected to be a high-growth service. (Computer leasing is not included here; rather, it is accounted for either in the computer services industry or in the computer manufacturing industry.)

The credit reporting and business services not-elsewhere-classified sector has very rapid projected growth primarily because of the "not-elsewhere-classified" designation. All the new business services that do not fit any other category are included in this industry. Examples are mailing list compilers, word processing services (typing), building inspectors, tourist and convention bureaus, restaurant reservation services, speakers' bureaus, merchandise liquidators, check validating services, and so on. Historically, employment growth in this industry has been very sharp, averaging about 60,000 new jobs each year since 1983. Future gains for miscellaneous business services should be more limited as the size of the industry reaches some upward limit. Employment increases in credit reporting and miscellaneous business services over the next 14 years are projected to average about 36,000 a year, for a total employment level of 1.2 million by 2000.

The legal services industry has been booming, reflecting the increasing incidence of liability litigation; corporate mergers and acquisitions; high divorce levels; the geographic expansion of law firms; a greater degree of legal specialization within firms; and an increase in litigation in general. In addition, trends in the industry indicate a shift from self-employed workers toward more wage and salary personnel. Payroll employment in legal services grew by 7.4 percent each year between 1972 and 1986, while the number of self-employed (plus unpaid family workers) posted only 0.7-percent annual growth. These trends—very rapid demand growth and fewer self-employed lawyers—are projected to continue in the legal services industry. An additional 519,000 payroll jobs are projected for the legal services industry by the year 2000. This represents a 3.8-percent annual rate of increase, ranking legal services among the top 10 fastest growing employment industries. A

rising proportion of these jobs are expected to be filled by legal assistants, rather than attorneys.

Like factory automation in manufacturing industries, office automation in business (and financial) service industries will have a significant impact on the occupational structure of those industries. It is expected that administrative support occupations, mainly in the clerical field, will account for a much smaller share of the work force. In some cases, even the absolute numbers of such jobs will decline, for example, stenographers, payroll and timekeeping clerks, typists and word processors, data entry keyers, and statistical clerks.

Health services. Industries providing medical care are undergoing very pronounced changes having important implications for future growth. Cost containment policies have halted—at least temporarily—the expansion of hospital output and employment, and more of the services once performed in a hospital now are being performed in doctors' offices and in outpatient facilities. Patient care is generally cheaper in these centers than in traditional hospitals, providing an impetus for future growth. New group practices such as emergency care clinics, surgicenters, and walk-in treatment centers, are becoming commonplace. Often these establishments perform their own radiological and laboratory work. This shift from hospital to outpatient care is projected to continue and, coupled with an increasing demand for medical care services, will significantly boost employment in establishments classified as offices of health practitioners. It is projected that 1.4 million new payroll jobs will be added to this industry between 1986 and 2000, reflecting a rate of growth of 4.4 percent a year.

Demand for health care is projected to be very strong in the 1990's because of the aging of the population and because of dramatic advances in medical technologies. The following tabulations illustrate the large projected increase in the elderly population and the reasons why this factor is so significant for the health industries:

	<i>Population (millions)</i>		<i>As percent of total</i>	
	<i>65 and older</i>	<i>85 and older</i>	<i>65 and older</i>	<i>85 and older</i>
1970	20.1	1.4	9.8	0.7
1975	22.7	1.8	10.5	.8
1980	25.7	2.3	11.3	1.0
1985	28.5	2.7	11.9	1.1
Projected 2000	34.9	4.9	13.0	1.8

	<i>1982–83 health expenditures as a percent of total expenditures</i>	
	<i>All consumer units</i>	<i>Consumer unit head age 65 or over</i>
Total health care	4.4	9.9
Medical services	2.4	4.1
Drugs and supplies7	2.0
Health insurance	1.2	3.8

Table 6. Employment by selected industry, 1972, 1979, 1986, and projected to 2000

Industry	Standard Industrial Classification	Employment (thousands)						Annual rate of change, 1986-2000 ¹ (percent)	
		1972	1979	1986	Projected, 2000			Employment	Output
					Low	Moderate	High		
Total	—	84,549	101,353	111,623	126,432	133,030	137,533	1.3	2.4
Agriculture	01,2,7,8,9	3,523	3,401	3,252	2,784	2,917	3,009	- 8	2.4
Livestock and livestock products	01 pt., 02 pt.	1,365	988	848	629	677	745	-1.6	1.4
Other agricultural products	01 pt., 02 pt.	1,699	1,785	1,534	1,045	1,120	1,087	-2.2	3.0
Agricultural services, forestry, and fishing	07,08,09	459	628	875	1,110	1,120	1,177	1.8	3.0
Private households	88	1,693	1,326	1,241	1,122	1,215	1,234	- 1	2
Nonfarm self-employed and unpaid family workers	—	5,819	7,145	8,086	8,972	9,742	10,277	1.3	-
Nonfarm wage and salary	—	73,514	89,481	99,044	113,554	119,156	123,013	1.3	-
Mining	10-14	628	958	783	672	724	779	- 6	- 2
Metal mining	10	83	101	41	20	27	29	-3.1	- 8
Coal mining	11,12	161	259	176	140	141	149	-1.6	2.2
Crude petroleum, natural gas, and gas liquids	131,2	143	198	224	169	184	192	-1.4	-2.0
Oil and gas field services	138	125	276	233	253	271	302	1.1	4.1
Nonmetallic minerals, except fuels	14	116	124	109	91	102	106	- 5	1.4
Construction	15,16,17	3,889	4,463	4,904	5,643	5,794	6,077	1.2	1.4
Manufacturing	20-39	19,151	21,042	18,994	16,833	18,160	19,050	- 3	2.3
Durable manufacturing	24,25,32-39	11,050	12,762	11,244	9,654	10,731	11,193	- 3	2.7
Lumber and wood products	24	726	767	711	603	693	763	- 2	1.9
Logging camps and logging contractors	241	69	89	83	67	71	72	-1.1	2.7
Sawmills and planing mills	242	225	237	194	137	173	188	- 8	1.5
Millwork and structural wood members, n.e.c.	2431,4,9	122	150	184	209	227	254	1.5	1.7
Veneer and plywood	2435,6	75	77	61	44	57	68	- 5	2.6
Wood containers and miscellaneous wood products	244,9	124	132	118	96	106	109	- 8	2.1
Mobile homes	2451	80	57	49	34	42	50	-1.1	4
Furniture and fixtures	25	484	498	497	515	563	607	.9	3.1
Household furniture	251	337	329	294	280	311	351	.4	2.2
Partitions and fixtures	254	56	65	72	72	80	81	.7	4.0
Office and miscellaneous furniture and fixtures	252,3,9	91	104	131	163	172	175	2.0	4.0
Stone, clay, and glass products	32	678	710	586	483	535	560	- 6	1.4
Glass and glass products	321,2,3	193	199	155	121	138	146	- 8	1.2
Concrete, gypsum, and plaster products	327	210	216	209	184	206	217	- 1	1.5
Stone, clay, and miscellaneous mineral products	325,6,8,9	243	262	199	162	173	179	-1.0	1.6
Primary metal industries	33	1,173	1,254	753	489	574	646	-1.9	.1
Blast furnaces and basic steel products	331	568	571	275	166	202	229	-2.2	- 8
Iron and steel foundries	332	219	241	131	81	97	109	-2.1	- 7
Miscellaneous primary and secondary metals	334,9	36	51	42	25	30	37	-2.3	.3
Aluminum rolling and drawing	3353,4,5	-	76	65	53	55	60	-1.2	1.1
Nonferrous wire drawing and insulating	3357	85	89	77	60	68	71	- 9	1.6
Aluminum foundries	3361	46	58	53	40	45	46	-1.2	1.4
Fabricated metal products	34	1,547	1,718	1,433	1,172	1,313	1,361	- 6	1.8
Metal cans and shipping containers	341	85	80	58	45	50	52	-1.1	1.3
Cutlery, hand tools, and hardware	342	161	184	136	115	127	130	- 5	1.9
Plumbing and nonelectric heating equipment	343	71	76	61	53	56	59	- 6	1.4
Fabricated structural metal products	344	444	523	438	340	385	394	- 9	1.7
Screw machine products, bolts, rivets, and so forth	345	100	116	93	73	84	88	- 7	1.6
Forgings	3462,3	-	63	39	34	38	41	- 1	1.0
Automotive stampings	3465	104	118	105	75	91	104	-1.0	1.4
Stampings, except automotive	3466,9	-	124	100	85	88	90	- 9	2.4
Metal coating, engraving, and allied services	347	88	107	110	112	126	129	1.0	2.9
Ordnance, except vehicles and missiles	348	82	64	77	67	74	77	- 2	2.7
Miscellaneous fabricated metal products	349	224	264	216	174	193	197	- 8	1.9
Machinery, except electrical	35	1,889	2,485	2,059	1,951	2,129	2,171	- 2	4.5
Engines and turbines	351	115	145	102	85	93	92	- 6	1.4
Farm and garden machinery	352	135	182	91	80	80	85	-1.0	1.2
Construction machinery	3531	139	156	80	71	76	76	- 4	1.8
Mining and oilfield machinery	3532,3	65	120	68	74	83	95	1.4	2.0
Materials handling machinery and equipment	3534,5,6,7	89	106	79	75	87	92	- 7	3.1
Metalworking machinery	354	286	369	304	250	281	286	- 6	1.8
Special industry machinery	355	177	205	159	130	140	138	- 9	.9
General industrial machinery	356	267	329	255	242	268	273	.3	1.9
Electronic computing equipment	3573	182	319	418	466	503	510	1.3	7.4
Office and accounting machines	3572,4,6,9	77	78	57	43	51	49	- 7	3.7
Refrigeration and service industry machinery	358	164	188	171	149	166	169	- 2	2.9
Miscellaneous nonelectrical machinery	359	191	286	275	287	301	306	.7	2.2
Electrical and electronic equipment	36	1,813	2,117	2,124	1,927	2,128	2,222	.0	3.9
Electric distributing equipment	361	128	126	107	79	99	110	- 6	2.4
Electrical industrial apparatus	362	209	251	187	159	175	178	- 5	2.0
Household appliances	363	187	178	135	112	121	132	- 8	2.5
Electric lighting and wiring equipment	364	204	225	196	163	185	191	- 4	1.6
Electronic home entertainment equipment	365	139	115	82	61	61	67	-2.1	4.9
Telephone and telegraph apparatus	3661	160	165	127	94	116	132	- 6	4.1
Radio and tv communication equipment	3662	299	357	505	472	542	585	.5	4.2
Electronic tubes	3671,2,3	46	42	40	26	34	36	-1.1	.6
Semiconductors and related devices	3674	115	201	268	280	289	276	.5	5.8
Miscellaneous electronic components	3675,6,7,8,9	193	281	323	343	352	354	.6	5.5
Storage batteries and engine electrical parts	3691,4	94	118	95	74	86	89	- 7	2.3

Industry	Standard Industrial Classification	Employment (thousands)						Annual rate of change, 1986-2000 ¹ (percent)	
		1972	1979	1986	Projected, 2000			Employment	Output
					Low	Moderate	High		
X-ray and other electromedical apparatus	3693	-	26	32	41	45	46	2.5	5.2
Electrical equipment and supplies, n.e.c.	3692,9	-	30	27	23	24	25	- .9	3.0
Transportation equipment	37	1,790	2,077	2,016	1,516	1,697	1,742	-1.2	1.7
Motor vehicles	371	875	990	865	679	749	770	-1.0	2.0
Motor vehicles and car bodies	3711	415	463	396	307	335	343	-1.2	1.9
Motor vehicle parts and accessories	3714	383	441	387	306	340	350	- .9	2.1
Truck and bus bodies, trailers, and motor homes	3713,5,6	77	86	82	67	75	78	- .7	3.0
Aircraft	3721	287	333	339	243	274	282	-1.5	.8
Aircraft and missile engines and equipment	3724,8,3764,9	224	298	385	282	330	339	-1.1	2.0
Guided missiles and space vehicles	3761	76	81	153	120	124	129	-1.5	.8
Ship and boat building and repairing	373	193	226	185	129	147	151	-1.6	.2
Railroad equipment	374	49	74	28	16	17	17	-3.4	-1.3
Miscellaneous transportation equipment	375,9	86	74	61	47	55	55	- .7	3.4
Instruments and related products	38	517	691	707	692	771	791	.6	3.7
Engineering and scientific instruments	381	65	72	84	89	94	96	.8	3.3
Measuring and controlling devices	382	160	236	246	227	267	272	.6	3.4
Optical and ophthalmic products	383,5	55	77	71	74	79	80	.8	5.1
Medical instruments and supplies	384	90	144	180	204	226	234	1.6	4.4
Photographic equipment and supplies	386	117	134	115	90	97	102	-1.2	2.9
Miscellaneous manufacturing	39	433	445	362	306	329	329	- .7	1.9
Jewelry, silverware, and plated ware	391	52	61	54	50	52	48	- .3	.4
Toys and sporting goods	394	126	121	94	76	85	86	- .7	3.1
Manufactured products, n.e.c.	393,5,6,9	255	263	214	179	192	195	- .8	1.9
Nondurable manufacturing	20-23,26-31	8,101	8,280	7,750	7,179	7,429	7,857	- .3	1.8
Food and kindred products	20	1,745	1,733	1,617	1,421	1,456	1,512	- .7	1.5
Meat products	201	347	358	372	380	382	390	.2	1.6
Dairy products	202	217	180	163	123	125	129	-1.9	1.2
Canned, dried, and frozen foods	203	255	261	238	227	235	252	- .1	2.2
Grain mill products and fats and oils	204,7	172	189	156	120	122	124	-1.8	1.7
Bakery products	205	258	231	210	180	182	188	-1.0	.9
Sugar and confectionery products	206	117	110	97	76	78	82	-1.6	.5
Alcoholic beverages	2082,3,4,5	91	85	71	56	59	64	-1.3	1.0
Soft drinks and flavorings	2086,7	137	153	141	117	122	131	-1.0	1.5
Miscellaneous foods and kindred products	209	152	166	169	142	150	153	- .8	1.8
Tobacco manufactures	21	75	70	59	40	46	47	-1.8	- .2
Textile mill products	22	985	886	706	582	607	653	-1.1	1.6
Weaving, finishing, yarn and thread mills	221,2,3,4,6,8	583	528	388	302	316	337	-1.5	1.4
Knitting mills	225	268	227	207	183	186	198	- .8	1.4
Floor covering mills	227	62	61	56	56	60	68	.5	3.0
Miscellaneous textile goods	229	72	70	55	42	46	51	-1.3	1.7
Apparel and other textile products	23	1,382	1,304	1,105	903	924	965	-1.3	1.3
Apparel	231-8	1,206	1,115	921	744	763	799	-1.3	1.1
Miscellaneous fabricated textile products	239	176	189	184	158	161	166	-1.0	2.1
Paper and allied products	26	689	706	675	633	655	715	- .2	2.4
Pulp, paper, and paperboard mills	261,2,3,6	273	271	249	218	223	233	- .8	2.6
Converted paper products except containers	264	196	221	230	243	256	284	.8	2.7
Paperboard containers and boxes	265	220	214	196	172	176	198	- .8	1.8
Printing and publishing	27	1,094	1,235	1,458	1,643	1,706	1,798	1.1	3.0
Newspapers	271	382	420	458	508	520	541	.9	1.7
Periodicals	272	63	82	115	131	137	147	1.3	3.1
Books	273	96	102	109	121	126	133	1.1	2.4
Miscellaneous publishing	274	38	46	72	106	115	125	3.4	3.6
Commercial printing and business forms	275,6	394	455	557	612	635	671	.9	3.6
Blankbooks and bookbinding	278	58	63	73	82	86	90	1.2	3.1
Printing trade services	279	41	43	51	65	67	69	1.9	3.5
Chemicals and allied products	28	1,009	1,109	1,023	912	950	1,017	- .5	2.6
Industrial chemicals	281,6	284	333	291	250	258	272	- .9	1.9
Plastics materials and synthetics	282	229	212	167	125	132	143	-1.7	3.0
Drugs	283	159	192	207	217	224	235	.6	4.0
Soap, cleaners, and toilet goods	284	122	139	147	147	154	167	.3	2.4
Paints and allied products	285	69	69	63	50	53	58	-1.2	1.6
Agricultural chemicals	287	56	70	55	39	42	47	-1.9	1.6
Miscellaneous chemical products	289	90	93	93	86	89	95	- .3	2.9
Petroleum and coal products	29	195	210	169	120	127	134	-2.0	.6
Petroleum refining	291	151	165	131	96	100	106	-1.9	.6
Rubber and miscellaneous plastics products	30	631	781	789	825	861	913	.6	3.1
Tires and inner tubes	301	122	127	88	65	69	75	-1.8	1.4
Rubber products and plastic hose and footwear	302,3,4,6	166	166	135	108	112	119	-1.4	2.0
Miscellaneous plastics products	307	343	488	566	653	680	720	1.3	3.7
Leather and leather products	31	296	246	152	99	98	103	-3.1	-1.5
Footwear except rubber and plastic	313,4	-	161	96	61	58	58	-3.6	-2.0
Luggage, handbags, and leather products, n.e.c.	311,5,6,7,9	-	85	56	38	40	45	-2.3	-1.0
Transportation and public utilities	40-42,44-49	4,541	5,135	5,244	5,410	5,719	5,903	.6	2.6
Transportation	40-42,44-47	2,678	3,021	3,041	3,315	3,500	3,568	1.0	2.4

Table 6. Continued—Employment by selected industry, 1972, 1979, 1986, and projected to 2000

Industry	Standard Industrial Classification	Employment (thousands)						Annual rate of change, 1986-2000 ¹ (percent)	
		1972	1979	1986	Projected, 2000			Employment	Output
					Low	Moderate	High		
Railroad transportation	40	582	556	331	167	190	203	-3.9	.7
Local and interurban passenger transit	41	276	263	282	300	308	315	.6	1.3
Trucking and warehousing	42	1,124	1,339	1,382	1,627	1,713	1,740	1.5	2.2
Water transportation	44	212	216	174	146	159	167	-.6	1.7
Air transportation	45	348	438	570	690	721	725	1.7	3.7
Arrangement of passenger transportation	4722	-	-	158	217	227	230	2.6	5.9
Miscellaneous transportation services	471,2,3,4,8	-	-	126	153	164	172	1.9	3.0
Communications	48	1,152	1,309	1,279	1,130	1,222	1,320	-.3	3.9
Communications except broadcasting	481,2,9	1,009	1,121	1,041	845	920	978	-.9	3.9
Radio and television broadcasting	483	143	188	238	284	302	342	1.7	3.9
Public utilities	49	711	805	924	965	998	1,015	.6	2.1
Electric utilities including combined services	491,493 pt.	420	493	582	602	613	621	.4	2.4
Gas utilities including combined services	492, 493 pt.	216	220	210	200	210	214	-.2	1.5
Water and sanitation including combined services	494-7, 493 pt.	75	92	126	164	175	180	2.4	3.4
Wholesale trade	50,1	4,113	5,204	5,735	7,015	7,266	7,361	1.7	2.7
Motor vehicles and automotive equipment	501	353	439	431	479	496	502	1.0	-
Machinery, equipment, and supplies	508	869	1,261	1,445	1,988	2,059	2,086	2.6	-
Groceries and related products	514	536	648	757	876	907	919	1.3	-
Petroleum and products	517	225	225	200	187	194	197	-.2	-
Retail trade	52-59	11,835	14,989	17,845	21,795	22,702	23,079	1.7	2.4
Department stores	531	1,706	1,878	1,978	2,261	2,364	2,404	1.3	-
Grocery stores	541	1,578	2,002	2,523	2,984	3,121	3,174	1.5	-
New and used car dealers	551,2	814	881	947	906	947	963	0	-
Gasoline service stations	554	649	577	596	587	502	412	-1.2	-
Apparel and accessory stores	56	784	949	1,070	1,292	1,351	1,374	1.7	-
Eating and drinking places	58	2,860	4,513	5,879	8,084	8,365	8,501	2.6	1.9
Drug and proprietary stores	591	452	489	563	647	677	688	1.3	-
Miscellaneous shopping goods stores	594	375	569	746	1,038	1,085	1,103	2.7	-
Finance, insurance, and real estate	60-67	3,907	4,975	6,297	7,508	7,917	8,159	1.7	2.6
Banking	60	1,115	1,499	1,736	1,930	1,998	2,060	1.0	2.8
Credit agencies and investment offices	61,7	458	665	1,023	1,364	1,518	1,610	2.9	3.1
Security and commodity brokers and exchanges	62	203	204	392	517	526	543	2.1	2.2
Insurance carriers	63	1,054	1,200	1,364	1,454	1,532	1,566	.8	2.3
Insurance agents, brokers, and service	64	301	430	581	767	795	808	2.3	2.3
Real estate	65,6	776	977	1,200	1,476	1,548	1,572	1.8	2.5
Services ²	70-86,89	12,117	16,768	22,531	30,545	32,545	33,708	2.7	3.2
Hotels and other lodging places	70	813	1,060	1,401	1,848	1,971	2,061	2.5	1.9
Personal services	72	912	904	1,104	1,298	1,357	1,391	1.5	1.6
Laundry, cleaning, and shoe repair	721,5	-	367	393	400	434	445	.7	.8
Personal services, n.e.c.	722,9	-	150	267	406	411	422	3.1	3.2
Beauty and barber shops	723,4	-	319	367	410	423	430	1.0	.7
Funeral service and crematories	726	64	69	77	82	89	94	1.0	1.1
Business services	73	1,790	2,906	4,781	7,593	8,121	8,533	3.9	4.2
Advertising	731	121	146	202	284	302	310	2.9	3.5
Services to dwellings and other buildings	734	336	487	681	995	1,020	1,046	2.9	3.2
Personnel supply services	736	221	527	1,017	1,730	1,851	1,908	4.4	3.6
Computer and data processing services	737	107	271	591	1,090	1,203	1,281	5.2	5.0
Research, management, and consulting services	7391,2,7	-	-	788	1,186	1,301	1,394	3.6	4.3
Detective and protective services	7393	-	-	445	658	687	709	3.1	3.9
Equipment rental and leasing	7394	-	-	208	314	330	396	3.4	4.1
Photocopying, commercial art, photofinishing	7332,3,95	-	-	174	199	244	257	2.4	4.1
Credit reporting and business services, n.e.c.	732,5, 7331,39, 7396,99	-	-	677	1,137	1,184	1,233	4.1	4.0
Auto repair, services, and garages	75	399	575	762	919	1,016	1,040	2.1	2.2
Automotive rentals, without drivers	751	-	120	161	210	233	241	2.7	2.6
Automobile parking, repair, and services	752,3,4	-	455	601	709	783	799	1.9	2.2
Miscellaneous repair shops	76	199	282	320	352	397	416	1.5	1.2
Electrical repair shops	762	-	79	104	125	142	146	2.3	.8
Watch, clock, jewelry, and furniture repair	763,4	-	29	28	26	28	29	0	-.2
Miscellaneous repair shops and related services	769	-	174	188	201	226	240	1.3	1.6
Motion pictures	78	205	228	227	207	248	266	.6	2.0
Amusement and recreation services	79	504	712	915	1,143	1,204	1,235	2.0	4.6
Theatrical producers and entertainers	792	-	85	121	159	165	167	2.2	4.0
Bowling alleys and billiard establishments	793	-	110	95	72	82	85	-1.1	.6
Commercial sports	794	-	72	99	126	133	143	2.1	1.5
Amusement and recreation services, n.e.c.	791,9	-	445	600	785	824	840	2.3	5.5
Health services	80	3,412	4,993	6,551	9,369	9,774	10,039	2.9	3.4
Offices of health practitioners	801,2,3,4	694	1,150	1,672	2,901	3,061	3,137	4.4	3.7
Nursing and personal care facilities	805	591	951	1,250	1,992	2,097	2,124	3.8	3.6
Hospitals, private	806	1,980	2,608	3,038	3,438	3,513	3,611	1.0	2.8
Outpatient facilities and health services, n.e.c.	807,8,9	146	284	591	1,038	1,103	1,167	4.6	4.4
Legal services	81	271	460	748	1,191	1,267	1,317	3.8	2.5
Educational services	82	958	1,090	1,428	1,532	1,620	1,666	.9	1.8
Social, membership, and miscellaneous services	83,4,6,9	-	3,571	4,296	5,326	5,569	5,745	1.9	3.0
Individual and miscellaneous social services	832,9	-	393	528	755	790	798	2.9	2.9
Job training and related services	833	-	-	256	333	337	389	2.0	2.6
Child day care services	835	146	303	354	467	478	495	2.2	5.1

Table 6. Continued—Employment by selected industry, 1972, 1979, 1986, and projected to 2000

Industry	Standard Industrial Classification	Employment (thousands)						Annual rate of change, 1986-2000 ¹ (percent)	
		1972	1979	1986	Projected, 2000			Employment	Output
					Low	Moderate	High		
Residential care	836	-	202	319	500	519	532	3.5	4.9
Museums and noncommercial organizations, n.e.c.	84,865,9,892	-	195	263	334	355	357	2.2	3.4
Business and professional associations	861.2	-	118	135	144	159	165	1.2	2.2
Labor, civic, and social organizations	863.4	-	464	485	507	531	537	.7	1.9
Engineering and architectural services	891	339	515	678	887	936	957	2.3	2.9
Accounting, auditing, and services, n.e.c.	893.9	-	316	458	673	711	742	3.2	3.5
Government	-	13,333	15,947	16,711	17,900	18,329	18,897	.7	1.5
Federal Government	-	2,684	2,773	2,899	2,900	3,000	3,093	.2	1.3
Federal enterprises	-	888	876	1,000	1,001	1,031	1,087	.2	2.7
U.S. Postal Service	-	698	661	789	832	845	886	.5	3.0
Federal electric utilities	-	29	52	39	32	33	37	-1.3	1.4
Federal Government enterprises, n.e.c.	-	161	163	172	137	153	164	-.8	2.5
Federal general government	-	1,796	1,897	1,899	1,899	1,969	2,006	.3	.7
State and local government	-	10,649	13,174	13,812	15,000	15,329	15,804	.7	1.7
State and local enterprises	-	547	733	831	973	1,004	1,023	1.4	1.5
Local government passenger transit	-	100	130	174	207	212	218	1.4	1.0
State and local electric utilities	-	59	63	69	69	75	79	.6	1.4
State and local government enterprises, n.e.c.	-	388	540	588	697	716	726	1.4	1.7
State and local general government	-	1,102	12,441	12,981	14,027	14,325	14,781	.7	1.7
State and local government hospitals	-	926	1,108	1,047	1,070	1,103	1,103	.2	2.6
State and local government education	-	5,550	6,486	7,058	7,674	7,842	8,085	.8	1.6
State and local general government, n.e.c.	-	3,625	4,847	4,876	5,306	5,413	5,593	.7	1.7

¹ As projected in the moderate alternative.

² Excludes Standard Industrial Classifications 074,5,6 (agricultural services) and 99 (nonclassifiable establishments). Therefore the estimates are not exactly comparable with data published in *Employment and Earnings*.

³ Does not meet usual publication criteria of BLS Current Employment Statistics survey.

n.e.c. = not elsewhere classified.

NOTE: Dash indicates data not available.

In addition to offices of health practitioners, the outpatient facilities and health services not elsewhere classified industry is also expected to show enormous growth. The absolute increases in numbers of jobs are not projected to be as great as for doctors' offices because outpatient facilities and miscellaneous health services is a smaller industry, but the 4.6-percent annual rate of gain ranks it as the second fastest growing industry in the economy in terms of employment. This industry includes such services as group health associations (GHA's), health maintenance organizations (HMO's), alcohol and drug treatment centers, family planning clinics, home health agencies, and visiting nurse associations. Clearly, these services will balloon as the preferred method of treatment shifts from lengthy hospital care to outpatient or home care.

Nursing and personal care facilities are also expected to benefit from the shift away from hospital treatment. Nursing homes will see very rapid growth through 2000 as the population aged 85 and over (the primary age group for nursing home care) rises from 2.7 million in 1985 (or 1.1 percent of the total population) to 4.9 million in 2000 (1.8 percent of total population). Personal care facilities will grow faster than nursing homes; the former include extended care facilities, convalescent homes, and hospices. Jobs in the nursing home and personal care sector as a whole are projected to grow 3.8 percent a year, with employment rising to a level of 2.1 million by 2000.

Hospitals are projected to show some job gains over the 1986-2000 period, despite the shift to outpatient care. The increase in the number of persons over age 65, plus rapid

advances in new complex technologies, will cause an expansion in hospitals. At 1.0 percent a year, however, projected job growth in private hospitals is just a fraction of the rate expected for other health sectors through the year 2000 and of the historical rate of gain in the industry. Still, almost 500,000 new jobs are expected to be added in hospitals over the projection period.

Personal, repair, and recreation services. Traditional personal and repair service industries are projected to have only very modest output growth through the 1990's, but the newer types of services in the industry termed "personal services not elsewhere classified" are projected to have fairly good growth, increasing faster than GNP. This catch-all group includes health, beauty, and reducing clubs or salons; dating services; tax return preparation services (non-accountants); convenience services for two-earner families; and a wide variety of other personal services. Payroll employment in this industry is projected to rise by 144,000, to 411,000 by 2000. This industry also includes many self-employed workers; their numbers are projected at about 110,000 in 2000.

The small gains expected in the laundry and cleaning industry reflect some growth for industrial launderers, as more hospitals and institutions contract out laundry operations. Consumer demand for commercial laundry and dry cleaning services is expected to remain rather flat.

In contrast, consumers are expected to have high levels of demand for amusement and recreation services. Output of the industry "amusements and recreation, not elsewhere

classified," is projected to grow more than twice as fast as GNP (5.5 percent a year from 1986 to 2000), and 224,000 wage and salary jobs are expected to be added. The output growth rate ranks this sector among the top five of all the industries studied. Included are golf courses, membership sports and recreation clubs, tennis and racquetball facilities, swimming pools, gyms, ski lifts, gambling establishments, recreational classes or instruction, and numerous other recreational services.

The rate of output growth projected for theatrical producers and entertainers also is very high—4.0 percent a year—reflecting the demand for more programming for expanding cable TV networks.

Social, membership, and miscellaneous services. Several of the social service industries are expected to have employment increases of more than 100,000 between 1986 and 2000. The number of jobs in the individual and miscellaneous social services sector, for example, is projected to rise from 528,000 in 1986 to 790,000 in 2000. This industry includes individual and family counseling, disaster relief, adult day care, senior citizens associations, fundraising organizations, and other related social services. Employment growth in the industry averaged 4.3 percent a year over the 1979–86 period. Thus, while projected growth is large in absolute numbers, the 2.9-percent annual increase projected represents a slowdown from historical trends.

Residential care is another social service industry projected to show a large employment gain, 200,000 more jobs by 2000. This industry provides residential care where medical care is not a major element, as in group homes, halfway houses, and rehabilitation centers. The rising demand for these services reflects the growing number of elderly who may need to reside in a home for the aged but who do not require intensive nursing care, as well as an increase in the use of drug and alcohol residential treatment centers.

Government. Total public employment is projected to rise by 1.6 million between 1986 and 2000, with almost all of the increase occurring in State and local governments. Federal employment is expected to remain virtually level, as it has for most of the 1970's and 1980's.

The job gains in State and local governments reflect an additional 784,000 workers in education and 537,000 in other governmental functions except hospitals. The rising

level of educational staff occurs as the population of elementary and secondary school-age children, offspring of the baby-boom cohort, edges up. The following tabulation presents estimates of the school-age population for selected years 1970–85, and projected to 2000 (in millions):

	Population	
	5 to 13	14 to 17
1970	36.7	15.9
1975	33.9	17.1
1980	31.1	16.1
1985	30.1	14.9
Projected 2000	34.4	15.4

Other increases are related to the assumption that some past cutbacks in local government services will be reversed in coming years.

Alternatives

This article has focused on the results of the moderate growth projection scenario, but two alternatives were also prepared. The alternatives show the effects of changes in some of the key assumptions of the macroeconomic model discussed by Norman C. Saunders elsewhere in this issue. In the low-growth scenario, GNP expands by only 1.6 percent a year, 1986–2000, compared to 2.4 percent in the moderate case, and the unemployment rate in 2000 reaches 7.7 percent, versus 6.0 percent in the moderate scenario. In the high-growth scenario, GNP grows by 3.0 percent a year, and the unemployment rate falls to 4.5 percent.

Because of the sluggish growth and high unemployment in the low scenario, total employment only rises to 126.4 million, compared to 133 million in the moderate case discussed in this article. Manufacturing employment falls proportionately more in the low scenario because of slower growth in equipment purchases and an actual decrease in nonresidential construction. Durable goods employment is 10 percent less than in the moderate case; nondurables employment, 3 percent less; and nonmanufacturing employment, about 5 percent less.

In the high scenario, employment rises to 137.5 million in the year 2000, 4.5 million more than in the moderate case. Again, more of the difference is concentrated in manufacturing. Employment in that sector is 5 percent higher than in the moderate scenario, while nonmanufacturing employment is 3 percent higher. □

FOOTNOTES

¹ *Annual Energy Outlook 1986* (U.S. Department of Energy, Energy Information Administration, 1986).

² Marcus E. Einstein and James C. Franklin, "Computer manufacturing enters a new era of growth," *Monthly Labor Review*, September 1986, pp. 9–16.

³ Steven E. Haugen, "The employment expansion in retail trade, 1973–85," *Monthly Labor Review*, August 1986, pp. 9–16.

⁴ Includes voluntary part-time employed, part time for economic reasons who usually work part time, and unemployed looking for part-time work. For more information, see Thomas J. Nardone, "Part-time workers: who are they?" *Monthly Labor Review*, February 1986, pp. 13–19.

⁵ Max L. Carey and Kim L. Hazelbaker, "Employment growth in the temporary help industry," *Monthly Labor Review*, April 1986, pp. 37–44.