

Job growth in the 1990s: a retrospect

The long economic expansion fueled job growth during the period, while new technology had mixed effects; the employment divide between the goods- and service-producing sectors of the economy continued to widen

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The U.S. economy sank into recession early in the 1990s and then rebounded with the longest running expansion in the Nation's history.¹ Real gross domestic product (GDP) growth slowed in 1990 as the country slipped into recession. By 1992, however, recovery began and GDP grew throughout the remainder of the decade. Nonfarm payroll employment increased by nearly 21 million workers during the decade.²

Employment in export-sensitive industries followed a cyclical pattern, turning down for the 1990–91 recession and the later Asian economic crisis. Reduced defense spending resulted in job losses in defense-related industries, especially early in the decade. While the number of workers declined in these goods-producing industries, construction and related industries began to slowly recover in 1992, and strong employment growth resumed by mid-decade. Technology and demand for more services drove employment up in the service-producing sector.

Productivity improved as new and cheaper computer technology was applied in all sectors of the economy. Businesses transformed their systems to meet Y2K deadlines and to compete with lower priced foreign goods resulting from economic crisis in Asia. Inflation remained largely in check throughout the decade, with moderate gains in consumer prices. Even after adjusting average hourly earnings for inflation, U.S. workers saw their real wages increase. Low interest

rates spurred new construction and refinance activity. Technology stocks helped create record profits in the stock market and boost the wealth of many households. Consumer confidence rose to new heights and remained strong through the end of the decade.

The private service-producing industries accounted for nearly 90 percent of the job growth in the 1990s and increased their share of total nonfarm employment by more than 4 percentage points. (See chart 1.) All major industry divisions within the service-producing sector added workers and growth was especially strong in the services division. (See chart 2.) Employment in the goods-producing industries edged up slightly, as losses in manufacturing and mining nearly offset gains in construction.

Mining employment sinks lower

The mining industry lost nearly a quarter of its workforce during the 1990s, with most of the losses occurring in coal mining and oil and gas extraction. Of the two, coal mining lost relatively more workers, 40.6 percent, while oil and gas extraction lost the greatest number of workers, 88,100. (See table 1.)

Employment fell as productivity increased in coal mining. Despite having lost jobs more rapidly than other mining industries, losses in coal

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Chart 1. Percent distribution of payroll employment by industry sector, 1950, 1989, 1999

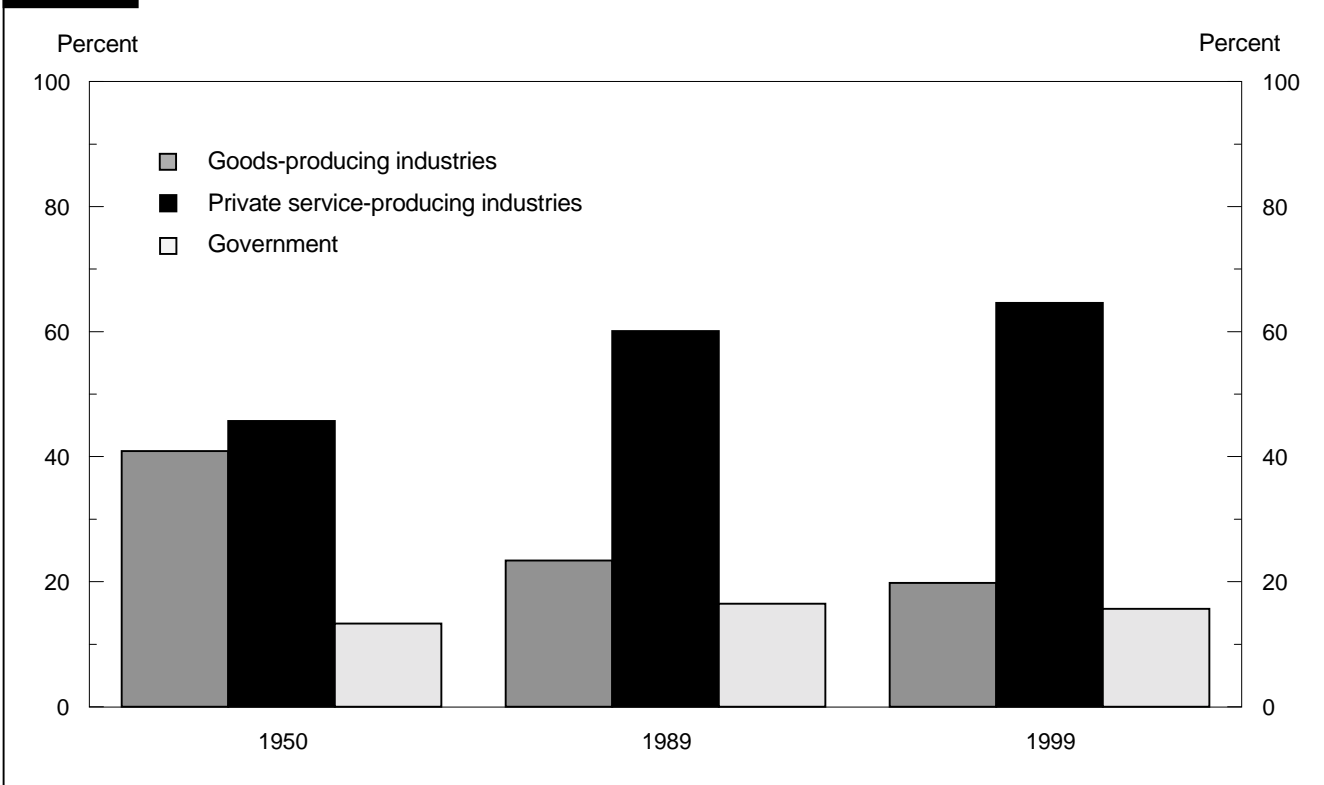


Chart 2. Employment changes by major industry division, 1989-99

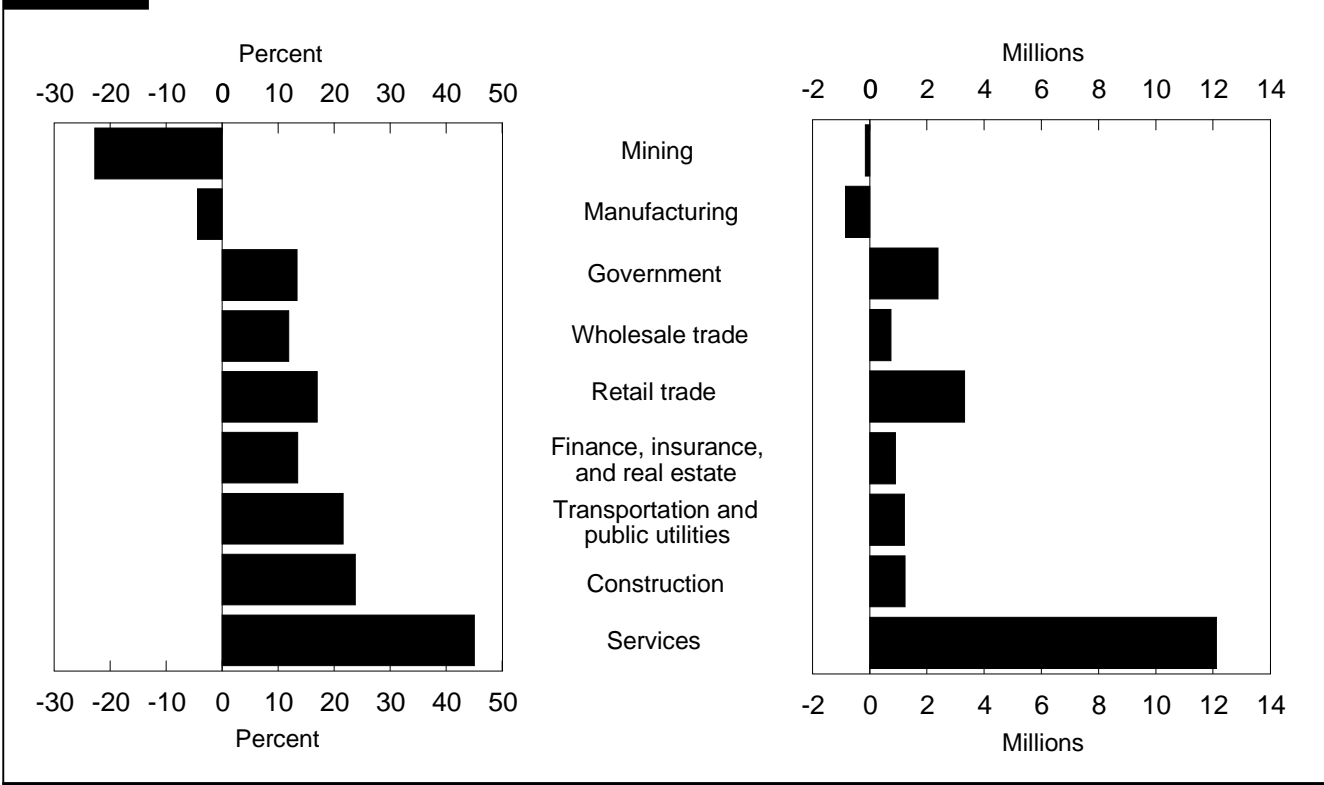


Table 1. Employment change by industry, 1989–99

[Numbers in thousands]

SIC code	Industry	1989	1999	Change	
				Number	Percent
	Total nonfarm	107,884	128,786	20,902	19.4
07,10–87,89,99	Total private	90,105	108,616	18,511	20.5
10-39	Goods producing	25,254	25,482	228	.9
10-14	Mining	692	535	-157	-22.7
10	Metal mining	55.7	45.3	-10.4	-18.7
12	Coal mining	143.7	85.4	-58.3	-40.6
13	Oil and gas extraction	381.0	292.9	-88.1	-23.1
14	Nonmetallic minerals, except fuels	111.2	111.8	0.6	.5
15–17	Construction	5,171	6,404	1,233	23.8
15	General building contractors	1,331.8	1,450.1	118.3	8.9
16	Heavy construction, except building	767.0	869.1	102.1	13.3
17	Special trade contractors	3,072.1	4,084.2	1,012.1	32.9
24,25, 32–39	Manufacturing	19,391	18,543	-848	-4.4
24	Durable goods	11,394	11,103	-291	-2.6
24	Lumber and wood products	756.2	828.4	72.2	9.5
25	Furniture and fixtures	524.3	548.4	24.1	4.6
32	Stone, clay and glass products	568.4	563.3	-5.1	-.9
33	Primary metals	771.8	699.7	-72.1	-9.3
34	Fabricated metals	1,445.4	1,517.4	72.0	5.0
35	Industrial machinery and equipment	2,124.9	2,140.5	15.6	.7
36	Electronic and other electrical equipment	1,744.3	1,669.8	-74.5	-4.3
37	Transportation equipment	2,051.5	1,884.2	-167.3	-8.2
38	Instruments and related products	1,025.9	856.4	-169.5	-16.5
39	Miscellaneous manufacturing	381.2	394.9	13.7	3.6
20–23,26–31	Nondurable goods	7,997	7,440	-557	-7.0
20	Food and kindred products	1,644.4	1,676.7	32.3	2.0
21	Tobacco products	49.9	38.4	-11.5	-23.0
22	Textile mill products	719.8	560.2	-159.6	-22.2
23	Apparel and other textile products	1,075.7	692.3	-383.4	-35.6
26	Paper and allied products	695.7	667.8	-27.9	-4.0
27	Printing and publishing	1,555.9	1,552.9	-3.0	-.2
28	Chemicals and allied products	1,073.9	1,034.0	-39.9	-3.7
29	Petroleum and coal products	156.0	133.6	-22.4	-14.4
30	Rubber and misc. plastics products	888.0	1,005.7	117.7	13.3
31	Leather and leather products	137.6	77.9	-59.7	-43.4
40–87,89,99	Service producing	82,630	103,304	20,674	25.0
40–49	Transportation and public utilities	5,614	6,826	1,212	21.6
40	Railroad transportation	292.5	229.7	-62.8	-21.5
41	Local and interurban passenger transit	325.7	484.5	158.8	48.8
42	Trucking and warehousing	1,379.0	1,804.6	425.6	30.9
44	Water transportation	171.6	187.1	15.5	9.0
45	Transportation by air	897.2	1,227.0	329.8	36.8
46	Pipelines, except natural gas	18.5	13.0	-5.5	-29.7
47	Transportation services	319.0	463.4	144.4	45.3
48	Communications	1,272.1	1,551.5	279.4	22.0
49	Electric, gas and sanitary services	938.1	864.7	-73.4	-7.8
50–51	Wholesale trade	6,187	6,924	737	11.9
50	Durable goods	3,653	4,120	467	12.8
51	Nondurable goods	2,534	2,804	270	10.7
52–59	Retail trade	19,475	22,788	3,313	17.0
52	Building materials	783.4	989.2	205.8	26.3
53	General merchandise stores	2,544.3	2,771.3	227.0	8.9
54	Food stores	3,163.5	3,494.8	331.3	10.5
55	Automotive dealers and service stations	2,092.4	2,368.6	276.2	13.2
56	Apparel and accessory stores	1,196.7	1,173.7	-23.0	-1.9
57	Furniture and home furnishing stores	826.4	1,081.5	255.1	30.9
58	Eating and drinking places	6,401.9	7,940.3	1,538.4	24.0
59	Miscellaneous retail establishments	2,466.8	2,969.0	502.2	20.4

Table 1. Continued—Employment change by industry, 1989–99

SIC code	Industry	1989	1999	Change	
				Number	Percent
60–67	Finance, insurance and real estate	6,668	7,569	901	13.5
60	Depository institutions	2,273.4	2,061.0	-212.4	-9.3
61	Nondepository institutions	361.2	710.4	349.2	96.7
62	Security and commodity brokers	430.2	687.8	257.6	59.9
67	Holding and other investment offices	217.7	231.4	13.7	6.3
63	Insurance carriers	1,438.4	1,610.5	172.1	12.0
64	Insurance agents, brokers, and services	651.8	760.8	109.0	16.7
65	Real estate	1,296	1,507	211	16.3
07,70–87,89,99	Services	26,907	39,027	12,120	45.0
07	Agricultural services	464.9	765.5	300.6	64.7
70	Hotels and other lodging places	1,595.8	1,847.7	251.9	15.8
72	Personal services	1,085.7	1,233.1	147.4	13.6
73	Business services	4,940.6	9,266.8	4,326.2	87.6
75	Auto repair, services and parking	884.1	1,184.1	300.0	33.9
76	Miscellaneous repair services	374.3	377.0	2.7	.7
78	Motion pictures	374.7	609.8	235.1	62.7
79	Amusement and recreation services	1,033.3	1,659.8	626.5	60.6
80	Health services	7,462.8	9,989.3	2,526.5	33.9
81	Legal services	880.4	996.7	116.3	13.2
82	Educational services	1,647.0	2,275.7	628.7	38.2
83	Social services	1,643.6	2,800.1	1,156.5	70.4
84	Museums and botanical and zoological gardens	62.0	97.9	35.9	57.9
86	Membership organizations	1,835.7	2,425.4	589.7	32.1
87	Engineering and management services	2,389.2	3,254.1	864.9	36.2
	Government	17,779	20,170	2,391	13.4
	Federal government	2,988	2,669	-319	-10.7
	Federal, except Postal Service	2,155.4	1,796.1	-359.3	-16.7
	State government	4,182	4,695	513	12.3
	State government except education	2,513.8	2,727.1	213.3	8.5
	State government education	1,668.1	1,968.1	300.0	18.0
	Local government	10,609	12,806	2,197	20.7
	Local government except education	4,733.8	5,534.3	800.5	16.9
	Local government education	5,875.4	7,272.0	1,396.6	23.8

mining decelerated during the decade, compared with the prior 10-year period. Most of the losses occurred in bituminous coal and lignite mining—one of the 20 three-digit industries losing the most jobs over the period.³ (See table 2.) Demand for low-sulfur coal grew as populations migrated to the West and Southwest. Because coal must be transported, typically by rail, output at western coal mining sites increased with demand. Productivity in surface mining, which is common in western states, is much greater than that for other types of coal mining.⁴

In addition, demand for western coal increased as electrical utilities purchased relatively more of the lower sulfur coal found in the West as well as in the central Appalachian region. At the same time, demand fell in the northern Appalachian region and in the Illinois basin, where sulfur content is higher and productivity is lower.⁵ With the second phase of the Clean Air Act beginning on January 1, 2000, the demand for lower sulfur coal should continue to increase relative to that for the more labor-intensive, higher sulfur coal and result in continuing employment losses in the coal mining industry.

Job losses in oil and gas extraction accelerate. While employment losses slowed in coal mining, the rate of decline accelerated slightly in oil and gas extraction. The industry responded to changing oil prices and demand by adjusting production and, consequently, the number of workers. As oil prices began to fall at the start of the decade, employment declines followed. The industry cut back significantly in 1992, and job losses continued until the middle of the decade, when prices began to escalate.

In 1998, however, domestic oil prices plummeted to less than 11 dollars per barrel, and the response was dramatic. Oil and gas extraction companies dropped more than 45,000 workers from payrolls the following year. The industry lost nearly a quarter of its workforce during the decade, and two-thirds of those losses occurred in crude petroleum and natural gas extraction.

Construction rebuilds following recession

Construction's strong connection to changes in the business cycle led to substantial employment losses during the 1990–

91 recession. The expansionary period that followed nourished an explosion of job growth in the industry. A healthy stock market pumped more money into the U.S. economy and, along with low mortgage rates, fostered wealth effects. Construction expenditures grew at an exceptionally healthy rate, and housing starts, completions, and permits surged.⁶ Employment in construction grew almost as rapidly as the service-producing sector, although labor and supply shortages were evident late in the decade.⁷

Special trade contractors, the largest group of industries in construction, benefited the most from the favorable economy. Not only did people have more money to purchase new homes, they were willing to buy in every area of the country. In addition, Americans spent more money renovating existing homes.⁸ Electrical work alone added a quarter-million workers during the decade. This industry accounted for 20 percent of the job growth in construction. Most industries classified under special trade contractors grew faster than the national job market.

In contrast to the special trade contractors industry, general building contractors lost more than a quarter of a million jobs during the recession. The corresponding recovery was a long, arduous process. Low interest rates and a strong housing market provided enough stimuli to effect a full recovery, yet employment in the industry grew by only about half the rate of the total nonfarm economy during the decade.

The remaining group of construction industries, heavy construction, except building contractors, experienced large declines during the 1980–82 recessions, from which it did not recover during the subsequent economic expansion. After suffering additional losses during the 1990–91 recession, however, by 1999, employment in the industry had completely recovered from losses incurred during the 1990s, and nearly recovered from those incurred during the 1980s. Throughout the 1990s expansion, government expenditures on long-term heavy construction projects helped boost growth.⁹

Job losses continue in manufacturing

While construction-related manufacturing added workers during the 1990s, the prevailing trend was negative throughout most other manufacturing industries—13 of 20 lost workers.¹⁰ In addition to losses suffered during the U.S. recession, technological improvements allowed fewer workers to generate more output than in the past, the Asian economic crisis reduced demand for goods manufactured in the United States, and the U.S. Government reduced defense spending.

Technological innovations transformed the manufacturing industry into a highly efficient machine. Output per hour increased more rapidly in the 1990s, compared with a decade earlier.¹¹ Durable goods industries showed the greatest productivity gains, and two industries stand out with particularly

impressive labor productivity improvements—output per hour for the 10 years ending in 1997 grew at an average annual rate of 25 percent in computer and office equipment, followed by electronic components and accessories, with nearly 20 percent per year. Industrial production for all of manufacturing increased by more than a third during the decade, even as employment and aggregate hours decreased.¹²

Business cycles create drag on manufacturing employment.

The manufacturing group of industries was particularly sensitive to changing economic conditions, both at home and abroad. (See chart 3.) Even before 1990, both employment and the average factory workweek, a leading economic indicator, began to edge down. The manufacturing industry soured even more as the U.S. economy went into recession. Not until 2 years after the official end of the recession did manufacturing businesses begin to slowly add workers back to their payrolls.

A financial crisis hit Thailand in July 1997 and quickly spread to neighboring Asian countries. In the United States, manufacturing industries soon felt the pinch as well. The average workweek began to edge down at the start of the next year, and employment peaked in April 1998. The trade deficit for manufacturing products increased by nearly 200 percent during the decade.¹³ The Asian crisis escalated to such an extent that the Federal Reserve Board lowered interest rates to insulate the U.S. economy from the global financial turmoil.¹⁴ Special interest groups, including manufacturers, urged Congress to approve funding for the International Monetary Fund to stabilize countries in crisis.¹⁵ Although the Asian crisis and subsequent global economic turmoil abated late in the decade, U.S. manufacturing firms continued to reduce payrolls. A positive signal appeared late in 1999, however, as employment losses appeared to taper off.

The durable goods industries experienced the greatest losses and were slower to recover from national and global economic weaknesses. Employment in primary metals (SIC 33), which fluctuates with trade balances, sharply declined during the decade. Significant reductions in employment occurred prior to and shortly after the recession. Payrolls stabilized for the most part until the Asian crisis, when large amounts of foreign steel found its way into the U.S. market at extremely low prices.

Blast furnaces and basic steel products (SIC 331) was hurt in particular, and production capacity bottomed out as financial crisis spread across the globe.¹⁶ Claims of illegal dumping prompted the U.S. Department of Commerce to investigate. Although the amount of foreign steel imported subsequently decreased, employment continued to fall until the final quarter of the decade.

The Asian crisis reversed the positive employment trend in electronic and other electrical equipment (SIC 36). This industry gained an average of 36,000 jobs annually between the

Table 2. The 20 industries losing the most jobs over the 1989–99 period

[Numbers in thousands]

Rank	SIC code	Industry	Employment		Change	
			1989	1999	Level	Percent
1		Federal government, except Postal Service	2,155.4	1,796.1	-359.3	-16.7
2	603	Savings institutions	481.5	251.5	-230.0	-47.8
3	372	Aircraft and parts manufacturing	711.0	494.9	-216.1	-30.4
4	562	Women's clothing stores	422.7	278.4	-144.3	-34.1
5	233	Women's and misses' outerwear manufacturing	342.4	205.2	-137.2	-40.1
6	381	Search and navigation equipment manufacturing	299.5	166.3	-133.2	-44.5
7	232	Men's and boys' furnishings manufacturing	287.0	157.2	-129.8	-45.2
8	376	Guided missiles, space vehicles, and parts manufacturing	194.1	88.1	-106.0	-54.6
9	357	Computer and office equipment manufacturing	458.7	370.2	-88.5	-19.3
10	491	Electric services	448.2	360.0	-88.2	-19.7
11	602	Commercial banks	1,555.0	1,475.9	-79.1	-5.1
12	225	Knitting mills manufacturing	214.8	141.0	-73.8	-34.4
13	533	Variety stores	209.8	138.0	-71.8	-34.2
14	40	Railroad transportation	292.5	229.7	-62.8	-21.5
15	131	Crude petroleum and natural gas extraction	192.7	133.1	-59.6	-30.9
16	122	Bituminous coal and lignite mining	134.2	79.8	-54.4	-40.5
17	517	Petroleum and petroleum products distribution	206.9	155.2	-51.7	-25.0
18	331	Blast furnaces and basic steel products manufacturing	279.1	227.6	-51.5	-18.5
19	314	Footwear, except rubber manufacturing	77.3	32.9	-44.4	-57.4
20	631	Life insurance	550.2	506.0	-44.2	-8.0

end of the recession and the start of the Asian crisis.¹⁷ The industry lost 37,000 jobs in 1999. Almost half of the output produced by the electronic and other electrical equipment industry is sold to foreign countries, making it the most export dependent of all manufacturing industries.¹⁸ Electronic components and accessories firms, along with producers of semiconductors and printed circuit boards, lost the most jobs. The computer and office equipment industry experienced a significant workforce reduction as foreign computer products entered the United States and productivity advances occurred.¹⁹

Textile mill products (SIC 22) and the apparel industries (SIC 23) steadily lost jobs to foreign competition and technological advances throughout the 1990s. Improved technology reduced production time and the number of workers required to manufacture fabrics in the textile industry.²⁰ Apparel and other textile products, influenced less by technological innovations than by imports, lost a third of its workforce during the decade. This industry was especially harmed in the latter half of the decade, when most Asian countries devalued their currencies, making their products much less costly in the United States.²¹ Job losses were widespread, but substantial declines occurred in women's and misses' outerwear.

Defense spending slows. The end of the Cold War and the fall of the Soviet Union ushered in an era of significant cuts in defense spending. The aerospace industry shifted its focus to serving commercial and foreign markets, which soured late in the decade. Mergers allowed businesses to scale back costs by combining research and development laboratories.²² Air-

craft and parts dropped 216,000 workers. Guided missiles, space vehicles, and parts lost more than half its workforce during the decade, and search and navigation equipment fared only slightly better.

Economic expansion helps build job growth. Low interest rates and greater personal income marked much of the 1990s and helped boost both construction- and auto-related employment. Manufacturing firms struggled to keep up with the demand placed on them by the exuberant housing and household accessories markets. Shortages for materials like drywall, brick, and insulation delayed the construction development cycle in the latter part of the decade.²³

Lumber and wood products (SIC 24) added 72,000 jobs over the period, due mostly to strength in millwork, plywood and structural members (SIC 243), and in wood buildings and mobile homes (SIC 245); the latter was the only three-digit manufacturing industry to make the list of the 20 fastest-growing industries in the decade. (See table 3.) In the same vein, rubber and miscellaneous plastics products (SIC 30) added 118,000 jobs, mainly due to high demand for plastic plumbing fixtures.

Consumers struggled with furniture shortages once their houses were built. The scarcity of labor and fabric in the furniture manufacturing industry during the last half of the decade prolonged delivery times and burdened retailers.²⁴ Demand for both building materials and automotive parts stimulated employment growth in fabricated metal products (SIC 34). The component industries fabricated structural metal products, metal forgings and stampings, and miscellaneous fabricated

metal products all benefited from the healthy U.S. economy. The robustness of the automotive and construction markets positively influenced industrial machinery employment also. Workers were added to assembly lines to manufacture carburetors, pistons, and valves.

Transportation and public utilities diverge

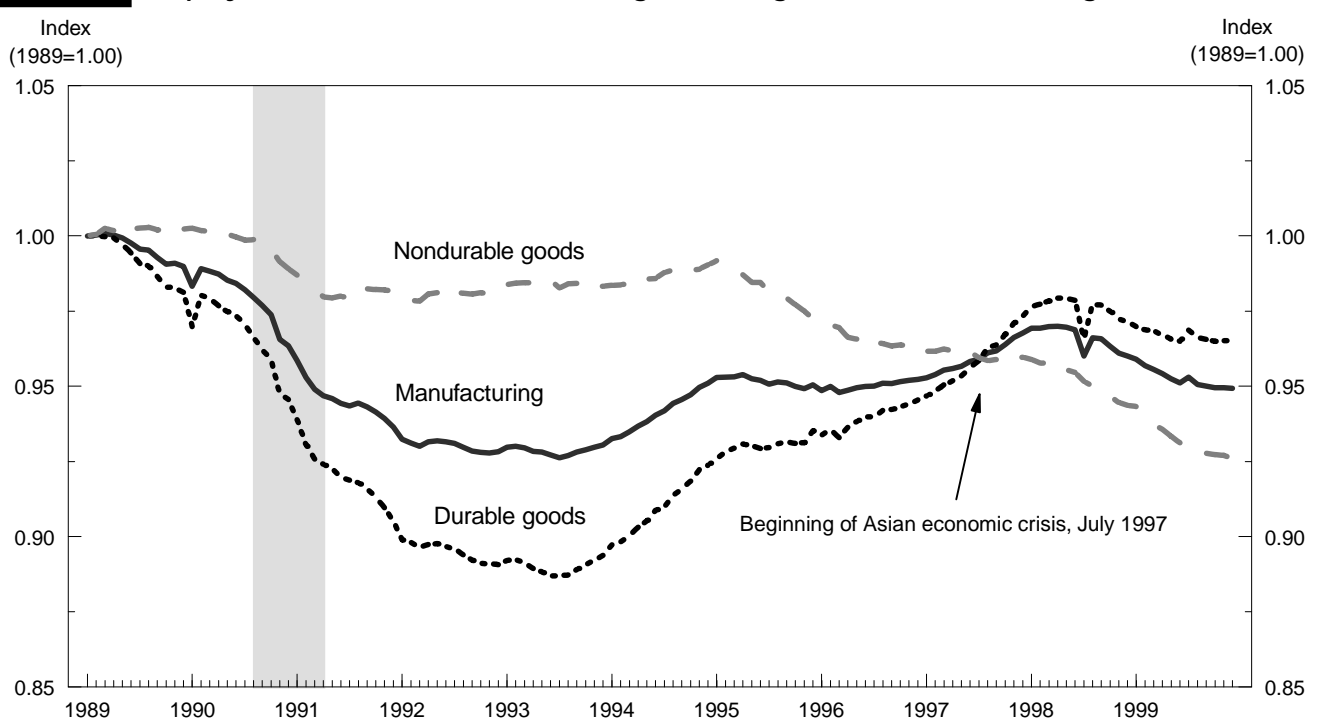
Transportation and public utilities added 1.2 million jobs during the decade. While this industry division was the second-fastest growing in the service-producing sector, its component industries took off in opposite directions. Transportation accounted for more than 80 percent of the gain in this varied industry division. Relatively strong employment growth was apparent in several industries throughout transportation services. Trucking and courier services was among the top 20 industries adding jobs during the decade. (See table 4.) Air transportation services followed closely by adding more than 260,000 workers. Air travel as measured by passenger miles tripled from 1970 to 1995.²⁵ The shift from heavier, lower value manufacturing goods to lighter, higher value products decreased the demand for water and rail services relative to air freight and trucking services.²⁶ As demand increased, prompt, reliable and cost-efficient service became a necessity and forced trucking and courier services to transform

their infrastructures. These services underwent a technological revolution similar to the manufacturing industry, as a way to keep up with the growing demand for just-in-time delivery.²⁷ Technologies like automatic vehicle-location systems, mobile communication systems, and on-board computers allow transportation companies and their customers to track freight inventories in real time.²⁸

While trucking and air transportation added greater numbers of workers, local and suburban transportation expanded at a much more rapid pace as States and localities raced to get more passengers out of their cars and into mass transit systems. In contrast, railroad transportation employment continued to decline, but at a much slower pace than occurred during the 1980s.

The communications industry added more than a quarter of a million jobs during the decade. Cable and other pay television services (SIC 484) continued to grow even during the economic recession and became one of the 20 fastest growing industries.²⁹ Employment gains in the telephone communications industry during the 1990s offset losses that occurred in the 1980s following the break up of AT&T. The demand for cellular service doubled in the last 3 years of the 1990s with more than 76 million subscribers in June of 1999.³⁰ In addition, the increased popularity of pagers and the Internet helped raise employment levels.

Chart 3. Employment indexes for manufacturing, durable goods, and nondurable goods, 1989–99



NOTE: Shaded area represents the period of economic contraction, July 1990 to March 1991.

Table 3. The 20 industries growing the fastest during the 1989–99 period

[Numbers in thousands]

Rank	SIC code	Industry	Employment		Change	
			1989	1999	Level	Percent
1	808	Home health care services	243.7	635.6	391.9	160.8
2	737	Computer and data processing services	736.3	1,830.8	1,094.5	148.6
3	736	Personnel supply services	1,454.5	3,600.7	2,146.2	147.6
4	616	Mortgage bankers and brokers	149.1	356.8	207.7	139.3
5	628	Security and commodity services	71.1	156.7	85.6	120.4
6	781	Motion picture production and services	133.9	278.3	144.4	107.8
7	411	Local and suburban transportation	126.8	245.4	118.6	93.5
8	835	Child day care services	378.4	694.9	316.5	83.6
9	836	Residential care	422.7	775.4	352.7	83.4
10	874	Management and public relations	570.0	1,035.5	465.5	81.7
11	799	Miscellaneous, amusement and recreation services	697.7	1,240.5	542.8	77.8
12	615	Business credit institutions	75.4	132.1	56.7	75.2
13	832	Individual and family services	433.7	752.3	318.6	73.5
14	484	Cable and other pay television services	117.4	200.5	83.1	70.8
15	495	Sanitary services	105.2	178.9	73.7	70.1
16	573	Radio, television, and computer stores	272.3	454.5	182.2	66.9
17	473	Freight transportation arrangement	113.9	187.2	73.3	64.4
18	422	Public warehousing and storage	114.6	185.4	70.8	61.8
19	632	Medical service and health insurance	228.1	368.9	140.8	61.7
20	245	Wood buildings and mobile homes manufacturing	64.4	102.9	38.5	59.8

While job growth occurred in transportation and communications, the public utility industries lost 7.8 percent of their workforce. The loss can be attributed to substantial reductions in electric services employment. The electric services industry underwent major upheaval with the introduction of deregulation. Electric companies repositioned themselves as a precautionary measure against the threat of deregulation.³¹ Mergers led to economies of scale. Productivity improved, allowing fewer workers to produce more energy than in the past.

Wholesale trade mimics manufacturing

Employment in wholesale trade grew the slowest of all service-producing industries during the decade. Job growth in durable goods distribution only slightly outpaced that of non-durable goods and, when combined, resulted in sluggish employment growth in wholesale trade compared to the all-industry average. Like manufacturing, employment contracted during the year prior to the recession, and then lagged behind in the recovery. Wholesale trade did not fully recover until 1995.

The durable goods distribution industry, which accounts for approximately 60 percent of total employment in wholesale trade, responded dramatically to the changing business cycle. Losses were severe and recovery slow, but, once underway, expansion was rapid. In contrast, employment in nondurable goods distribution was not nearly as volatile and more closely mirrored overall industry employment trends.

Professional and commercial equipment (SIC 504) accounted for close to 40 percent of employment growth in

durable goods and was affected much more mildly during the recession. This industry was largely influenced by the computers, peripherals, and software industry. During the first half of the decade, the average annual rate of job growth in the computer industry remained flat, but rebounded and managed to grow at an 8-percent average annual rate for the rest of the decade. The integration of the personal computer into the daily routine of more and more U.S. households increased consumer demand and, therefore, employment.³² According to the Bureau of the Census, the percent of households that owned a computer more than doubled to 36.6 percent between 1989 and 1997.³³

Retail trade sells itself short

Employment changes in the retail trade industry were highly sensitive to shifting trends in demographics, buying power, and fashion. More disposable income in the 1990s helped retail sales expand by 70 percent. Strong sales were not reflected in strong job growth in retail trade, and employment in the industry grew slower than that of the total private economy.³⁴ Retail e-commerce sales in the fourth quarter of 1999 were less than one percent of total retail sales; thus, e-commerce cannot be blamed for this sluggish growth.³⁵

A tight labor market plagued the Nation at the end of the decade and hampered employment growth in most retail industries. Employers desperate for workers devised new and innovative methods for hiring and retaining employees. Major retail chains started to recruit seasonal help earlier. Companies hosted parties and added extra incentives, such as bigger

store discounts and increased wages.³⁶ Retail stores not only competed against each other for workers, but against higher paying industries as well.

Apparel and accessory stores—the only retail industry to lose workers during the decade—experienced widespread employment declines. The largest losses were in women’s clothing stores. Declines in employment were caused by several different factors. Over-saturation of stores in the women’s apparel market discouraged employment growth with chains going out of business or reducing the number of stores.³⁷ A key demographic group, 25-to 44-year-old women, spent less money on clothes for themselves and price-shopped more aggressively.³⁸

While apparel stores were losing workers, employment in department stores continued to grow. Discount department stores benefited from the increasing number of price-conscious shoppers. Customers liked the convenience of one-stop shopping. According to some reports, discount department stores even became a fashionable place to shop for clothing.³⁹ Although department stores were one of the 20 industries adding the most jobs in the 1990s, their percentage increase was below the average growth rate for all industries.

Furniture and home furnishings stores added more than a quarter of a million jobs in the 1990s. This was due largely to radio, television and computer stores, which was one of the fastest growing industries overall. Increased use of personal computers and other high-tech appliances at home and in the workplace fueled job growth in radio, television, and computer stores.⁴⁰ Employment in this industry grew by 66.9

percent over the decade.

As households became more prosperous, they spent more money eating outside the home. Eating and drinking places’ sales, in current dollars, increased by 60 percent during the decade.⁴¹ Sales growth was reflected in employment, which grew faster than the all-industry average. Almost 1 out of every 2 jobs added in retail trade occurred in eating and drinking places.

Employment in grocery stores grew slower than total retail but they still added 270,000 jobs. These stores, forced to compete with nontraditional food retailers, underwent major renovations. Many local or regional businesses transformed into national food store chains through mergers and acquisitions. Larger retailers, using economies of scale, positioned themselves to compete against gas stations with convenience stores, drugstores selling groceries, and super centers, a combination discount department store and supermarket.⁴²

Low interest rates, healthy economy drive finance

Finance, insurance, and real estate posted moderate employment gains during the 1990s. Economic changes late in the decade spurred growth in some of these industries. The lowest interest rates in 3 years generated a frenzy of activity and strong employment growth for mortgage bankers and brokers. Stock brokerages also added workers at a rapid pace as the number of households that owned stocks multiplied and strength in technology stocks resulted in a soaring market. Job losses in depository institutions partly offsets gains made

Table 4. The 20 industries gaining the most jobs during the 1989–99 period

[Numbers in thousands]						
Rank	SIC code	Industry	Employment		Change	
			1989	1999	Level	Percent
1	736	Personnel supply services	1,454.5	3,600.7	2,146.2	147.6
2	58	Eating and drinking places	6,401.9	7,940.3	1,538.4	24.0
3		Local government education	5,875.4	7,272.0	1,396.6	23.8
4	737	Computer and data processing services	736.3	1,830.8	1,094.5	148.6
5		Local government, except education	4,733.8	5,534.3	800.5	16.9
6	738	Miscellaneous business services	1,197.5	1,820.7	623.2	52.0
7	801	Offices and clinics of medical doctors	1,267.9	1,876.6	608.7	48.0
8	806	Hospitals	3,438.5	3,982.4	543.9	15.8
9	799	Miscellaneous amusement and recreation services	697.7	1,240.5	542.8	77.8
10	874	Management and public relations services	570.0	1,035.5	465.5	81.7
11	805	Nursing and personal care facilities	1,355.7	1,784.5	428.8	31.6
12	808	Home health care services	243.7	635.6	391.9	160.8
13	836	Residential care services	422.7	775.4	352.7	83.4
14	421	Trucking and courier services, except air	1,260.6	1,610.5	349.9	27.8
15	832	Individual and family services	433.7	752.3	318.6	73.5
16	835	Child day care services	378.4	694.9	316.5	83.6
17	531	Department stores	2,116.3	2,430.8	314.5	14.9
18		State government education	1,668.1	1,968.1	300.0	18.0
19	822	Colleges and universities	1,000.6	1,286.3	285.7	28.6
20	541	Grocery stores	2,814.3	3,084.6	270.3	9.6

in these industries. Depository institutions lost 9.3 percent of their workforce. The vast majority of the contraction was in savings institutions, which shrank by almost half. In addition, traditional commercial banks dropped workers from their payrolls, but at a much slower rate than savings institutions. Depository institutions continued to adopt new technologies and business practices as they were faced with increased competition from other financial businesses. Banks increasingly relied on technology such as automated teller machines (ATM) and Internet banking to lower transaction costs.⁴³ According to the American Bankers Association, for example, an ATM transaction costs 75 percent less than one made through a traditional teller.⁴⁴ Finance industries continued to make their workforces more flexible by contracting for some of their labor, lower skilled workers in particular.⁴⁵ Bank failures and merger activity continued to mark the industry.⁴⁶ With all of these changes, commercial banks produced more output with fewer employees, and labor productivity increased close to 30 percent during the decade.⁴⁷

Employment in nondepository institutions almost doubled as mortgage banks, credit-card issuers, and auto-financing companies grew in popularity as an alternative to traditional commercial banks. Looser restrictions on the fees companies can charge customers, a growing real estate market, and record levels of consumer spending and debt are a few expla-

nations for rapid growth.⁴⁸ Particularly noteworthy is the fourth fastest-growing industry, mortgage bankers and brokers, which increased their labor force by 139.3 percent over the decade. (See chart 4.) Low mortgage rates and the red-hot housing market helped push loan originations for purchase and refinancing to a record level, \$1.47 trillion, in 1998.⁴⁹

The real estate market flourished under the low interest rates and expanding economy. Households and businesses took advantage of favorable market conditions to buy and sell real estate. According to the National Association of Realtors, potential buyers—who used the Internet during the latter part of the decade to research neighborhoods and view homes on virtual tours—were more likely to use a real estate agent.⁵⁰ As a result, employment in real estate agents and managers expanded by 189,600 jobs during the decade. Despite this rapid expansion, real estate operators and lessors experienced anemic job growth, while subdividers and developers failed to fully recover from the recession early in the decade.

With low interest rates and the corresponding mortgage refinance activity, consumers had more money to spend and continued to stimulate the economic expansion. In addition to buying commercial goods and services, consumers bought stocks and bonds. Close to 50 percent of households owned stocks, and Wall Street earned record profits.⁵¹ Employment

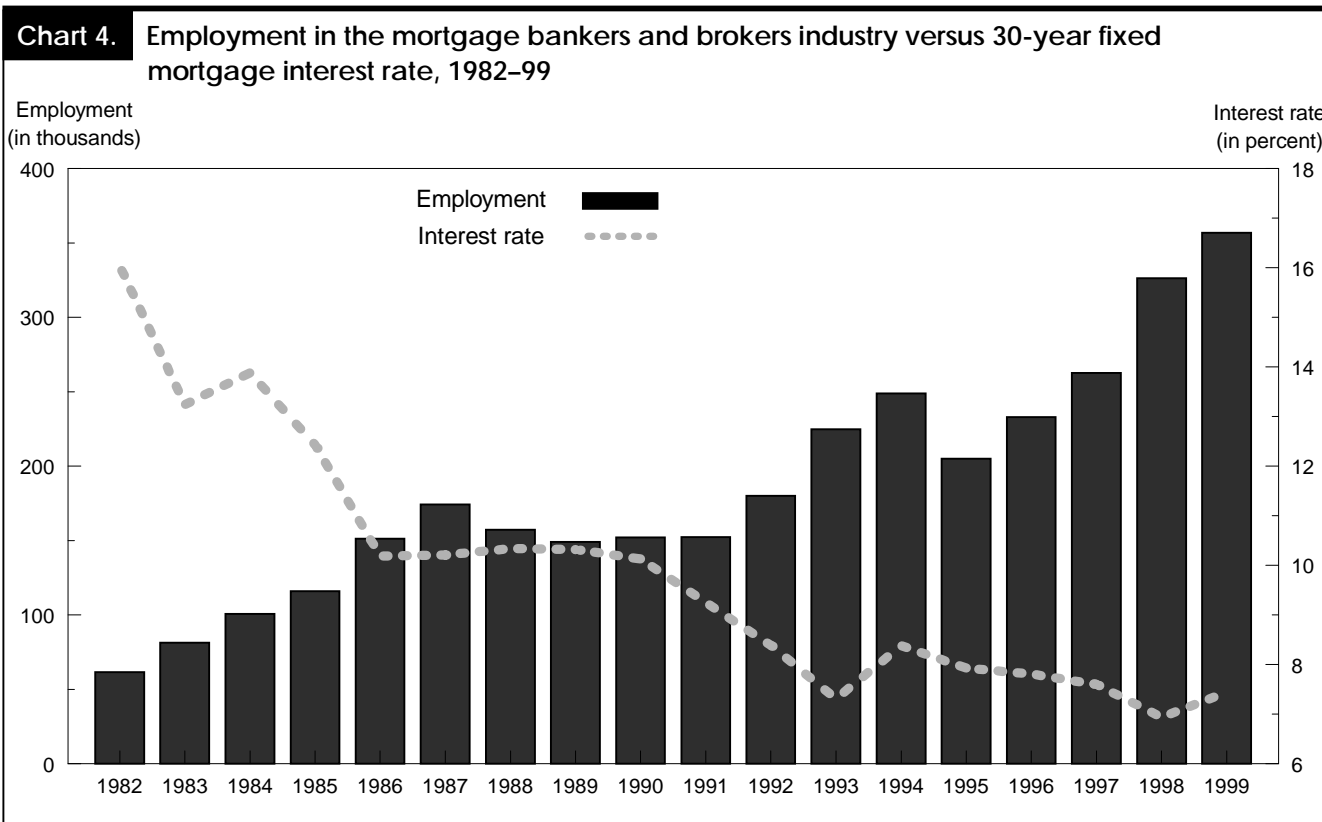


Table 5. Private production or nonsupervisory workers and average weekly hours

Industry	Production or nonsupervisory workers (percent of total private)			Average weekly hours		
	1989	1999	Change	1989	1999	Change
Total private	100.0	100.0	...	34.6	34.5	-.1
Goods-producing	24.3	20.4	-3.9	40.3	41.0	.7
Mining7	.5	-.2	43.0	43.8	.8
Construction	5.5	5.6	.1	37.9	39.1	1.2
Manufacturing	18.1	14.3	-3.8	41.0	41.7	.7
Service-producing	75.7	79.6	3.9	32.7	32.8	.1
Transportation and public utilities	6.4	6.4	.0	38.3	38.7	.4
Wholesale trade	6.8	6.2	-.6	38.0	38.3	.3
Retail trade	23.6	22.5	-1.1	28.9	29.0	.1
Finance, insurance, and real estate	6.6	6.2	-.4	35.8	36.2	.4
Services	32.2	38.3	6.1	32.6	32.6	.0

in securities and commodity brokerages grew by more than a quarter of a million jobs by the end of the decade. Security and commodity services, while accounting for slightly less than a quarter of total employment in security and commodity brokers, more than doubled its employment.

Services leads job growth

The services industry was the driving force behind job growth during the 1990s. Rapid technological transformation helped prolong the longest economic expansion on record and helped create a substantial number of employment opportunities in services. Of the 10 specific industries adding the most jobs during the decade, 7 were in services.

Business services: The Real McCoy. Employment in business services grew more than any other industry group during the decade. (See table 1.) Business services accounted for approximately a third of all job growth in the services division. Topping the list of most jobs added and third in growth rate, personnel supply services, which includes both traditional employment agencies and help supply firms (primarily temporary help agencies), accounted for half the strength in business services. Employment opportunities exploded in the help supply industry as more firms relied on temporary help as a way to manage labor more effectively. Businesses adopted the concept of “just-in-time labor,” similar to just-in-time production which is common in the automobile industry. Labor supplied by the help supply industry enabled firms to quickly adjust their labor forces to stay competitive.⁵²

Firms expanded demand for temporary workers, especially for more highly skilled ones. During the 1980s, firms typically used temporary workers for more repetitive clerical and menial-labor tasks. This practice transformed during the next decade as companies routinely purchased the services of

highly skilled workers from temporary agencies to meet their diverse needs in areas such as financial services, health services, telecommunications, and information technology.⁵³ Skilled workers were added to payrolls, and training was offered to expand the skills of all workers in areas such as word processing and computer-based applications.⁵⁴ In addition to providing a wider range of workers, some help supply establishments began to take on the functions of traditional employment agencies, as client firms increasingly used temporary agencies to try out potential permanent employees. Some businesses even opted to have temp firms handle all of their staffing needs and provided on-site offices for a temporary agency.⁵⁵

Computer and data processing services mimicked help supply in its demand for more highly skilled computer professionals. Even though employment growth remained strong during the decade, recession included, there were signs of slowing very late in the decade. Colleges and universities could not produce graduates with computer degrees fast enough, as firms scrambled to cure the Y2K bug and design chips and software for computers and other consumer products.⁵⁶

Computer and data processing services added more than a million jobs during the decade. The computer market expanded during the 1990s as a response to the technological advancements made and the continual reduction of price. Parents began to purchase computers as educational tools for their children. Within computer and data processing services, employment grew especially in information retrieval services and the software industry.⁵⁷ Computer game software became more sophisticated with the evolution of the computer chip, and helped employment in the software industry grow.⁵⁸ More Americans increasingly integrated the Internet into their everyday routines, and as a result, employment blossomed in information retrieval services. Computer consulting services, which dominates the residual category, were greatly in de-

mand during the decade.⁵⁹ Demand for consulting services expanded as businesses set up local area networks, developed websites, and rewrote programs for the new millennium.

Although engineering and management services grew at half the pace of business services, it outpaced the rate of total nonfarm employment growth by one and a half times. Engineering and management services added 800,000 jobs during the decade. Much of this strength can be attributed to the value added to most industry sectors by engineering and management personnel. The construction industry in particular benefited greatly from the engineering and architectural industry. Finance, insurance, and real estate businesses frequently relied upon management and public relation services to improve productivity.⁶⁰ Management and public relations accounted for more than half of all job growth in management and engineering services.

Huge gains arise from serving people. Health services, while growing less than half as fast as business services during the 1990s, still contributed more than 2.5 million jobs to nonfarm payrolls. The growth rate slowed from that of the previous decade. The growing popularity of HMOs and the implementation of the perspective payment plan by Congress led to decreased health care expenditures.⁶¹ Not all health service industries experienced the slower growth phenomena. Home health care services grew the fastest of all the industries, and also made the list of the top 20 in terms of number of jobs gained. Several factors contributed to this above-average growth. First, medicare expanded benefits to make more people eligible for home health care coverage, the cost associated with care at home was relatively less costly compared to that at hospitals, and technological advancements provided people the option to receive medical treatment in the comfort

of their own home.⁶² Nevertheless, home health care also was affected by cutbacks in health expenditures, and ended the decade with employment 78,000 lower than its July 1997 peak.

Offices and clinics of medical doctors added jobs at a considerably slower rate than in the 1980s, but still faster than average for services. Offices and clinics of medical doctors ranked 7th in the number of jobs added. Hospital employment also increased by more than a half a million jobs, but the rate of growth in this huge industry was anemic. This, in part, is due to the decreased average length of stay and the restructuring of hospital staffs to reduce costs.⁶³

Social services grew twice as rapidly as health services during the 1990s, increasing employment by 70 percent or more than a million employees. The growth was concentrated in three industries—residential care services, individual and family services, and child day care services. Each of these industries made the top-20 list for both the number of jobs gained and the growth rate. Job training, which benefited from the restructuring of the American workforce, also added jobs at a rapid pace. People needed skills that did not exist 10 years ago as a result of the rapidly changing technology.

In a lighter vein, two industries that serve up entertainment—motion picture services and amusement and recreation services experienced strong rates of job growth during the 1990s. The strong U.S. economy enabled these industries to prosper throughout the majority of the decade. As disposable income continued to increase, the public devoted more time and money to these luxury items.

Government employment growth slows

Taken together, the pace of job growth in Federal, State, and local governments fell short of that in the private sector. The Federal government reduced its workforce while State and

Table 6. Average hourly earnings in current and constant dollars, 1989–99

Industry	Current dollars		Change		Constant dollars		Change	
	1989	1999	Level	Percent	1989	1999	Level	Percent
Total private	\$ 9.66	\$13.24	\$3.58	37.1	\$7.64	\$7.86	0.22	2.9
Goods-producing	11.22	14.84	3.62	32.3	8.87	8.81	-.06	-.7
Mining	13.26	17.09	3.83	28.9	10.48	10.15	-.33	-3.1
Construction	13.54	17.18	3.64	26.9	10.70	10.20	-.50	-4.7
Manufacturing	10.48	13.91	3.43	32.7	8.28	8.26	-.02	-.2
Service-producing	9.04	12.73	3.69	40.8	7.15	7.56	.41	5.7
Transportation and public utilities	12.57	15.69	3.12	24.8	9.94	9.32	-.62	-6.2
Wholesale trade	10.39	14.58	4.19	40.3	8.21	8.66	.45	5.5
Retail trade	6.53	9.08	2.55	39.1	5.16	5.39	.23	4.5
Finance, insurance, and real estate	9.53	14.62	5.09	53.4	7.53	8.68	1.15	15.3
Services	9.38	13.36	3.98	42.4	7.42	7.93	.51	6.9

local governments added workers. The Federal government lost more workers than any other industry except the apparel and other textile products industry. The U.S. Postal Service, part of the Federal government employment counts, added less than a quarter of the number of jobs added during the previous decade. Changes in the rest of the Federal government were even more dramatic: Employment peaked in 1992 and then began a descent that did not abate until the Census Bureau began hiring temporary workers late in the decade.⁶⁴ (See chart 5.) Excluding the Postal Service and temporary Census workers, Federal employment fell to levels not observed since 1965. The U.S. Department of Defense suffered the greatest losses —333,000 civilian workers.

While job losses occurred in the Federal government, State and local governments added employees. The increase in State workers, however, fell short of the number added during the 1980s. In contrast, local government added more than twice as many workers compared to the previous decade, with the noneducation agencies adding about 4 times as many workers in the 1990s as in the 1980s.

As the following tabulation shows, both employment in local public education and public enrollment for grade K through 12 increased substantially during the 1990s.⁶⁵

	1989	1999
Employment (in thousands)	5,875	7,272
Enrollment (in thousands)	40,543	47,244
Student-employee ratio	6.9 : 1	6.5 : 1

Employment grew faster, however, and the student-to-employee ratio fell. Although the number of all education employees grew more rapidly, teacher shortages were reported during much of the decade and suppressed potential employment growth.⁶⁶

Hours and earnings

Production workers in the goods-producing sector and nonsupervisory workers in the private service-producing sector earned more per week at the end of the decade, even after adjusting for price increases. Although these workers toiled fewer hours per week on average, their average hourly rate of pay increased 2.9 percent after deflation by the Consumer Price Index for Urban Wage Earners and Clerical Workers.

Services industry pulls down average weekly hours. The average workweek for production or nonsupervisory workers edged down 0.1 hour over the decade, a continued slowing in a long-term declining trend.⁶⁷ But there is more to the story than the small change indicates. Average weekly hours fluctuated by as much as two-tenths of an hour from one year to the

next as industries adjusted their workforces to meet changes in demand and changes in production processes. (See chart 6.)

In 1989 and 1990, a shrinking of the average workweek in manufacturing signaled the coming recession. Hours in retail trade ticked down in 1990 as well, and by 1991, production workers in 7 of the 9 major industry divisions cut back on their average weekly hours. As the U.S. economy began to recover, hours rose. Especially large gains occurred in 1994 throughout most of the industry divisions, but were offset the following year. (See table 5.)

All major industry divisions showed at least a small increase in their average workweek during the 10-years ending in 1999 with the exception of services, which saw no change over the decade. Despite these increases, average weekly hours edged down for the typical, private-sector production or nonsupervisory worker. The answer to this enigma lies in the changing industry composition of employment and the difference in the average workweeks among industries.

In 1989, the goods-producing sector employed nearly a quarter of all production workers, and their average workweek stood at 40.3 hours. Ten years later, this sector's average weekly hours had risen but their share of production workers fell, particularly in the manufacturing industry. In fact, among all industry divisions, only the services industry experienced a significant increase in production or nonsupervisory workers as a percent of those in all nonfarm, private industries. Because services' average weekly hours were lower than those for all other industries, except retail trade, and because it was the only industry to gain a greater share of all production or nonsupervisory workers, services managed to lower the topside average slightly, even though its average workweek remained unchanged.

Earnings increases outpace inflation. While the average workweek decreased during the decade, the same cannot be said for earnings. Average hourly earnings for production or nonsupervisory workers grew by 37.1 percent. (See table 6.) Earnings for the goods-producing sector and the transportation and public utilities industry division grew at slower rates than the rest of the industry divisions, while the finance, insurance, and real estate industry division had the fastest earnings growth.

Hourly earnings in finance industries expanded by more than 50 percent during the decade. Although more contracting of lower-skilled workers and rapidly improving technology helped boost the average hourly wage rate, the strong U.S. economy ignited earnings growth in several finance industries where workers rely heavily on commissions. Historically low interest rates spurred buying and refinance activity, especially for mortgage bankers and brokers. Positive wealth effects resulting from the healthy markets helped consumers decide to funnel more of their funds into the markets and

Chart 5. Employment in Federal Government, except Postal Service, seasonally adjusted, 1965–2000

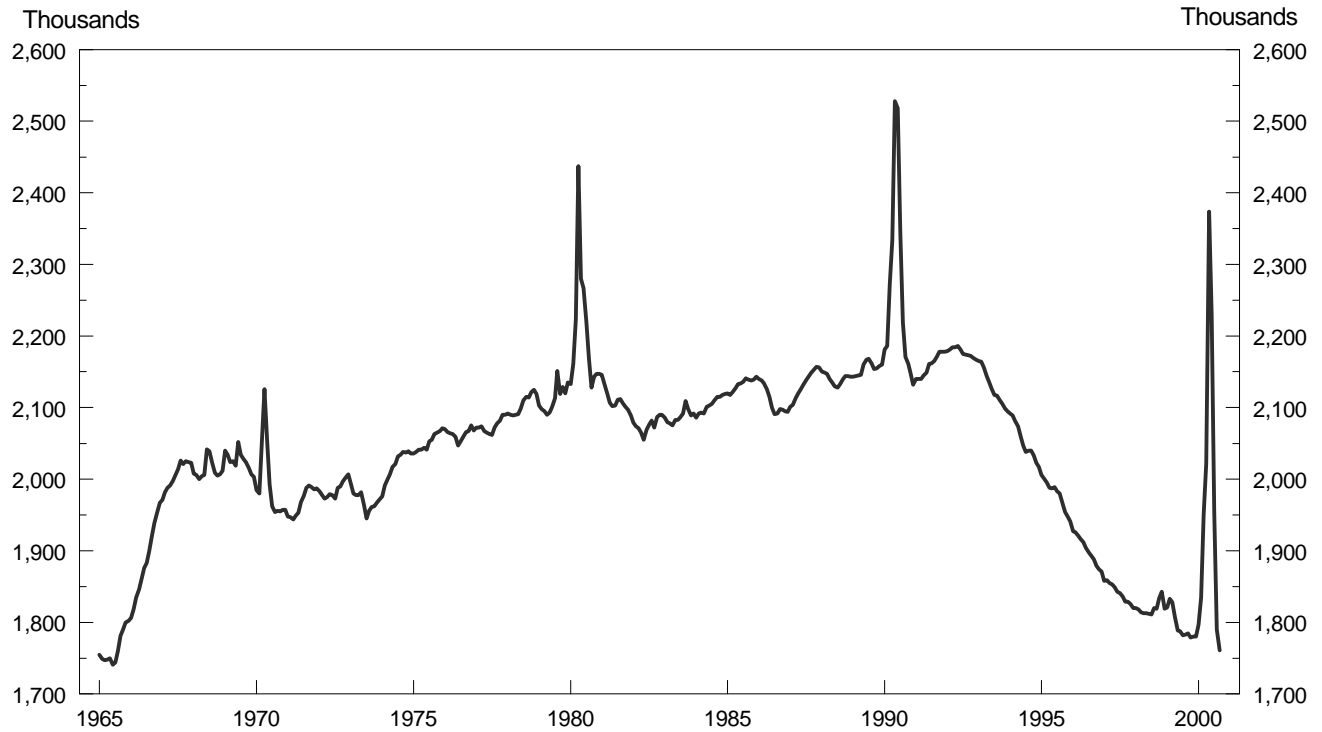


Chart 6. Average weekly hours of private sector production or nonsupervisory workers, 1989–99



NOTE: Data are annual averages of monthly estimates from the Current Employment Statistics (CES) program.

insurance plans, which, in turn, helped boost earnings of security and commodity brokers and insurance carriers.

All of the service-producing industry divisions except transportation and public utilities had lower average hourly earnings than all of the goods-producing industry division, at the beginning of the decade. Because of the differential rates of earnings growth, By the end of the decade the average hourly earnings of nonsupervisory workers both in wholesale trade and in finance, insurance, and real estate surpassed that of manufacturing production workers. Only workers in retail trade and services earned, on average, less than manufacturing production workers in 1999.

After adjusting for price changes, the average production or nonsupervisory workers in the private economy still enjoyed an increase in hourly earnings. However, there are sharp contrasts among industry divisions. Workers in all the service-producing industry divisions, with the exception of those in the transportation and public utilities industry, received inflation-adjusted or real increases in hourly earnings. However, real average hourly earnings in all the goods-producing industry divisions, and in transportation and public utilities lost ground by decade end. Transportation and public utilities took the biggest hit, while manufacturing's real average hourly earnings were down only slightly. □

Notes

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² Data on employment, hours and earnings used in this article are from the Current Employment Statistics (CES) program, which surveys nearly 380,000 nonfarm employers monthly. For more information on the CES program's concepts and methodology, see *BLS Handbook of Methods*, Bulletin 2490 (Bureau of Labor Statistics, April 1997), chapter 2, pp. 15–31. These data are available on the Internet at <http://www.bls.gov/ceshome.htm>.

³ Table 1 represents employment change from 1989 to 1999 for each industry group by two-digit SIC code. If most of the employment movement in an industry can be explained by changes in one of its component industries, then those three-digit industries may be discussed also. Tables 2, 3, and 4 display employment change at this more detailed level. Table 2 contains the 20 industries losing the most jobs, table 3 shows the 20 most rapidly growing industries, and table 4 reveals the 20 industries gaining the most.

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¹³ U.S. Department of Commerce, International Trade Administration, table 2: U.S. trade in goods, 1972–1999, on the Internet at <http://www.ita.doc.gov/td/>

[industry/otca/usfth/aggregate/H99t03.txt](http://www.ita.doc.gov/td/industry/otca/usfth/aggregate/H99t03.txt) (visited June 9, 2000).

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¹⁵ National Association of Manufacturers, "NAM Board of Directors urging Congress to fund the IMF," NAM Issue Information, on the Internet at <http://www.nam.org/Search/DetailIssue.asp?ID=230&Type=NamTrak> (visited June 7, 2000).

¹⁶ For more information, see the American Iron and Steel Institute website, on the Internet at <http://www.steel.org/>.

¹⁷ This figure is computed using annual average data for 1993–98. Data are computed from 1993 through 1998 annual averages because that period captures the positive growth trend in electronic and other electrical equipment.

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⁵⁰ Daniela Deane, "Web used by 37% of house hunters," *The Washington Post*, May 10, 2000, p. E01.

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⁵² For a more complete discussion, see U.S. Department of Labor, *Report on the American Workforce*, 1999, ch. 1, pp. 5-36.

⁵³ Rick Melchionno, "The changing temporary work force: Managerial, professional, and technical workers in the personnel supply services industry," *Occupational Outlook Quarterly*, Spring 1999, pp. 24-32.

⁵⁴ U.S. Department of Labor, *Report on the American Workforce*, 1999, pp. 18-24.

⁵⁵ Linda Davidson, "Maximize the return on temp staff investments," *Workforce*, November 1999, pp. 58-60.

⁵⁶ Sholnn Freeman, "Colleges reel as computer courses swell," *The Wall Street Journal*, July 1, 1998.

⁵⁷ Laura Freeman, "Job creation," pp. 46-56.

⁵⁸ Olivia Crosby, "Working so others can play: Jobs in video game development," *Occupational Outlook Quarterly*, Summer 2000, pp. 2-13.

⁵⁹ Plunkert, Lois, "Rapidly growing, high paying service sector industries: the U.S. experience," *Entrepreneurship Proceedings of a Joint United States and European Seminar*, February 2000, pp. 48-67.

⁶⁰ Angela Clinton, "Flexible labor: restructuring the American work force," *Monthly Labor Review*, August 1997, pp. 3-27.

⁶¹ Cynthia Engel, "Health services industry: still a job machine?" *Monthly Labor Review*, March 1999, pp. 3-14.

⁶² Laura Freeman, "Home-sweet-home health care," *Monthly Labor Review*, March 1995, pp. 3-11.

⁶³ Bureau of the Census, *Statistical Abstract of the United States 1999* (119th Edition) Washington, DC, 1999.

⁶⁴ Laura A. Kelter, "Counting the counters: effects of Census 2000 on employment," *Monthly Labor Review*, February 2000, pp. 24-29.

⁶⁵ Enrollment figures are from the U.S. Department of Education, National Center for Education Statistics, on the Internet at <http://nces.ed.gov/>. Enrollment figures for 1999 are projections.

⁶⁶ See for example, Shu Shin Luh, "Schools to recruit overseas shortages prompt deal with INS," *Chicago Sun-Times*, Dec. 19, 1999; and Jess McCuan, "Your career matters: You think your recruiting job is tough?" *The Wall Street Journal*, July 20, 1999.

⁶⁷ For a more complete discussion of the long-term decline in average weekly hours see, Katie Kirkland, "On the decline in average weekly hours worked," *Monthly Labor Review*, July 2000, pp. 26-31.