

# Health Care Indicators

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Contained in this regular feature of the journal is a section on each of the following five topics: community hospital statistics; employment, hours, and earnings in the private health sector; health care prices; hospital skill mix changes: 1980s; and national economic indicators.

## Community hospital statistics

According to the American Hospital Association Panel Survey, community hospitals reported 8.3 million admissions during the second quarter of 1990, an increase of 0.6 percent from the same period a year ago. The number of inpatient days fell 1.4 percent between these two periods. The decline in inpatient days is offset, to

some extent, by outpatient visits. Individuals made 82.6 million outpatient visits to hospitals during the second quarter of 1990, 4.2 million (or 5.4 percent) more than during the same period in 1989. The number of surgical operations, both inpatient and outpatient, performed during the second quarter increased 2.1 percent.

The adult occupancy rate dropped 0.4 percent to 64.1 percent in the quarter ending June 1990 as the closure of hospital beds failed to keep pace with the decline in inpatient days. Hospital capacity, measured by the number of beds available, decreased 0.9 percent in that quarter.

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**Table 1**  
**Selected community hospital statistics: 1987-90**

Item	Calendar year			1987 Q2	1988 Q2	1989 Q2	1989 Q3	1989 Q4	1990 Q1	1990 Q2
	1987	1988	1989							
<b>Operating expenses</b>										
Total in millions	\$161,322	\$177,771	\$195,378	\$39,939	\$43,791	\$48,202	\$49,132	\$50,732	\$52,471	\$53,738
Labor in millions	87,532	96,416	106,019	21,619	23,622	26,057	26,769	27,630	28,319	29,050
Nonlabor in millions	73,790	81,355	89,359	18,320	20,169	22,145	22,363	23,102	24,152	24,688
<b>Inpatient expenses in millions</b>										
Total	129,813	140,475	152,137	32,078	34,545	37,444	38,034	39,372	40,706	40,969
Amount per patient day	581.29	632.57	690.91	577.87	628.69	684.74	704.75	722.34	712.48	759.65
Amount per admission	3,861.00	4,197.00	4,587.60	3,812.50	4,139.10	4,537.10	4,634.30	4,795.60	4,779.90	4,936.00
<b>Utilization</b>										
Admissions in thousands	33,635	33,496	33,176	8,414	8,346	8,253	8,207	8,210	8,516	8,300
Inpatient days in thousands	223,442	222,312	220,362	55,511	54,947	54,684	53,968	54,506	57,132	53,931
Adult length of stay in days	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.7	6.5
<b>Surgical operations in thousands</b>										
Total	21,039	21,253	21,383	5,351	5,415	5,467	5,287	5,249	5,449	5,581
<b>Outpatient visits in thousands</b>										
Total	278,917	296,110	308,086	70,551	74,963	78,368	78,175	76,706	79,336	82,609
<b>Beds in thousands</b>										
Total	955	943	930	957	946	932	927	926	926	924
Adult occupancy rate <sup>1</sup>	64.1	64.5	64.9	63.7	63.8	64.5	63.3	64.0	68.6	64.1
<b>Full-time equivalent (FTE) personnel</b>										
Total in thousands	3,077	3,112	3,162	3,074	3,105	3,150	3,173	3,189	3,212	3,226
Number per bed	3.2	3.3	3.4	3.2	3.3	3.4	3.4	3.4	3.5	3.5
Adjusted patient days <sup>2</sup> per FTE	90	90	89	22	22	22	22	22	23	22
<b>Adjusted patient days in thousands</b>										
Total	277,606	281,245	282,994	69,112	69,654	70,393	69,716	70,233	73,647	70,742

<sup>1</sup>Adult occupancy rate is the ratio of average daily census to the average number of beds maintained during the reporting period.

<sup>2</sup>Adjusted patient days is an aggregate figure reflecting the number of days of inpatient care, plus an estimate of the volume of outpatient services, expressed in units equivalent to an inpatient day in terms of level of effort. It is derived by multiplying the number of outpatient visits by the ratio of outpatient revenue per outpatient visit to inpatient revenue per inpatient day, and adding the product to the number of inpatient days.

NOTES: Q designates quarter of year. Quarterly data are not seasonally adjusted.

SOURCE: American Hospital Association: *National Hospital Panel Survey Reports*. Chicago. Monthly reports for Jan. 1987-June 1990.

**Table 2**  
**Percent change in selected community hospital statistics: 1987-90**

Item	Calendar year			1987 Q2	1988 Q2	1989 Q2	1989 Q3	1989 Q4	1990 Q1	1990 Q2
	1987	1988	1989							
<b>Operating expenses</b>	Annual percent change			Percent change from the same period of previous year						
Total	10.5	10.2	9.9	10.9	9.6	10.1	9.2	10.7	10.9	11.5
Labor	9.2	10.1	10.0	9.3	9.3	10.3	9.2	10.5	10.8	11.5
Nonlabor	12.0	10.3	9.8	12.8	10.1	9.8	9.1	11.0	11.0	11.5
<b>Inpatient expenses</b>	8.8	8.2	8.3	9.3	7.7	8.4	7.7	9.2	9.2	9.4
Amount per patient day	8.6	8.8	9.2	8.9	8.8	8.9	9.0	9.1	9.3	10.9
Amount per admission	9.4	8.7	9.3	10.1	8.6	9.6	9.2	8.6	9.0	8.8
<b>Utilization</b>										
Admissions	-0.6	-0.4	-1.0	-0.7	-0.8	-1.1	-1.4	0.6	0.1	0.6
Inpatient days	0.2	-0.5	-0.9	0.3	-1.0	-0.5	-1.2	0.1	-0.1	-1.4
Adult length of stay	0.8	-0.1	0.1	1.0	-0.2	0.6	0.2	-0.5	-0.2	-1.9
Surgical operations	2.9	1.0	0.6	2.8	1.2	1.0	-1.3	1.6	1.3	2.1
Outpatient visits	5.8	6.2	4.0	5.8	6.3	4.5	3.1	5.1	6.0	5.4
<b>Beds</b>										
Adult occupancy rate <sup>1</sup>	-0.9	-1.3	-1.3	-0.6	-1.2	-1.4	-1.5	-1.1	-1.0	-0.9
	0.7	0.4	0.4	0.5	0.2	0.7	0.3	0.7	0.6	-0.4
<b>Full-time equivalent (FTE) personnel</b>										
Total	0.7	1.1	1.6	0.8	1.0	1.4	1.7	2.0	2.4	2.4
Number per bed	1.6	2.5	3.0	1.5	2.2	2.9	3.3	3.0	3.4	3.3
Adjusted patient days per FTE	1.0	0.2	-1.0	0.9	-0.2	-0.4	-1.6	-0.5	-0.9	-1.9
Adjusted patient days	1.7	1.3	0.6	1.8	0.8	1.1	0.1	1.5	1.5	0.5

<sup>1</sup>Change in rate, rather than percent change.

NOTE: Q designates quarter of year.

SOURCE: American Hospital Association: *National Hospital Panel Survey Reports*. Chicago. Monthly reports for Jan. 1987-June 1990.

**Figure 1**

**Percent change in inpatient days and outpatient visits from the same period of previous year: 1980-90**

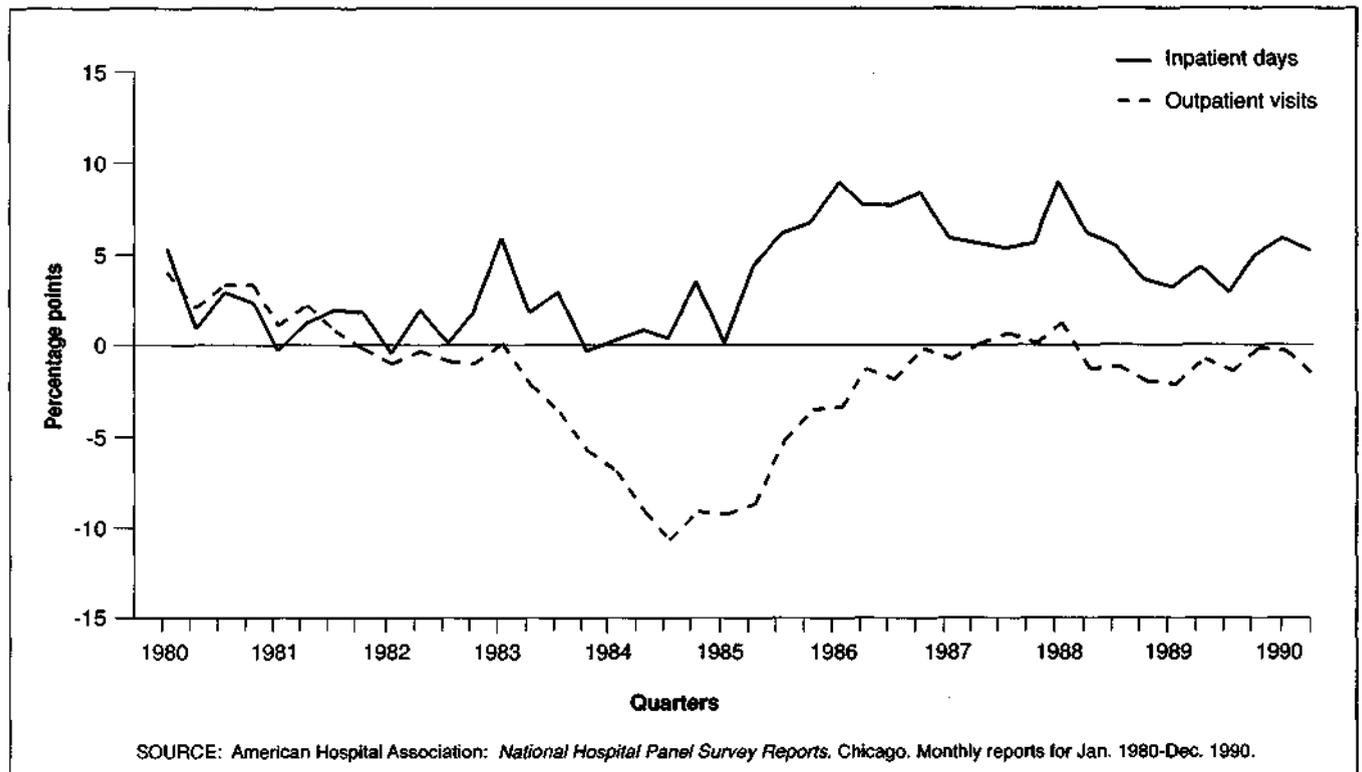
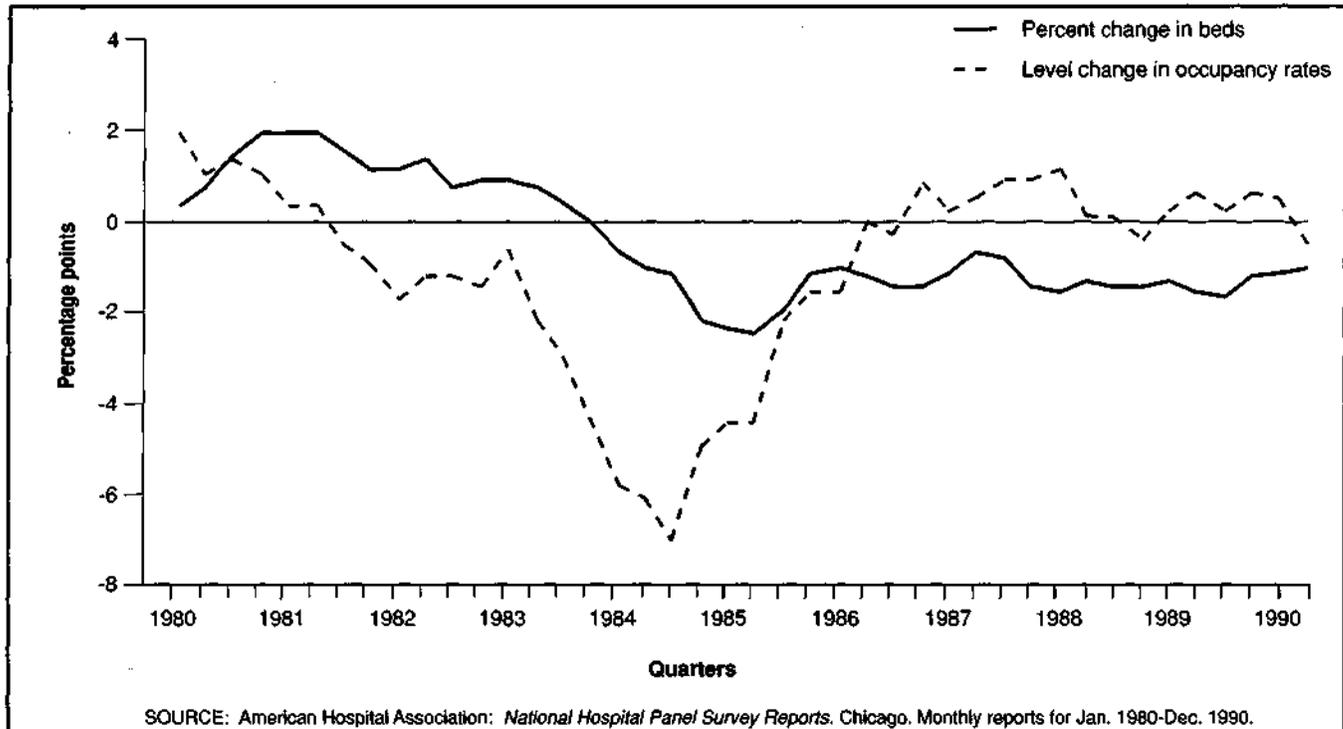


Figure 2

Percent change in beds and level change in occupancy rates from the same period of previous year: 1980-90



Operating expenses of community hospitals reached \$54 billion during the second calendar quarter of 1990, up 11.5 percent from the same period a year ago (Tables 1 and 2). Inpatient expenses, which exclude the costs of operating outpatient facilities, were 9.4 percent higher in the second quarter of 1990 than they had been in the same quarter of 1989. Expense per patient day rose 10.9 percent, and the expense per admission was up 8.8 percent from the same period of the prior year.

Average full-time equivalent (FTE) employment in community hospitals increased 2.4 percent between the second quarter of 1989 and the second quarter of 1990. FTE employees per bed grew 3.3 percent over the same period.

The change in inpatient days and outpatient visits for 1980-90 is shown in Figure 1. The change in beds and occupancy rate for the same period is shown in Figure 2.

### Private health sector: Employment, hours, and earnings

The data in Table 3 show the levels of employment, hours, and earnings in private (nongovernment) health service establishments. These data were drawn from the Bureau of Labor Statistics (BLS) "Establishment" survey of the private nonagricultural sector. An average of 8.1 million persons were employed on a full-time or part-time basis in private health service establishments during the calendar quarter ending June 1990; nonsupervisory employees worked a 32.5-hour week and earned \$10.31 an hour. The employment in private hospitals dominates the health services industry, with almost one out of every

two health service industry workers employed by the hospital sector.

Nonsupervisory employment in the private health sector grew four times as fast as in the general private nonagricultural economy (Table 4) during the second calendar quarter of 1990: Between the second quarter of 1989 and the second quarter of 1990, growth in nonsupervisory employment in all private establishments slowed to 1.8 percent whereas growth in nonsupervisory employment in the health sector accelerated to 7.4 percent. Within the health sector, nonsupervisory employment in physicians' and surgeons' offices exhibited the strongest growth, up 9.6 percent in the second quarter. Nonsupervisory employment growth in private hospitals and nursing and personal care facilities continued at a strong pace.

However, nonsupervisory employment growth in dental offices slowed for the second consecutive quarter, and growth in average weekly hours declined for the third consecutive quarter. Services provided in dental offices are among the first to be affected by a slowdown in the general economy. Because these services are covered less often by public and private insurance than are other health services, out-of-pocket costs for dental services have an immediate financial impact when services are purchased. During slowdown in economic growth, individuals opt to delay these services, because adverse health effects will not usually result.

Implied nonsupervisory work-hour and payroll growth, developed from the BLS establishment survey data, are composite measures of business activity. Within the private health industry, growth in work-hours and payroll varied by type of establishment. Between the second

**Table 3**  
**Employment, hours, and earnings in private<sup>1</sup> health service establishments, by selected type of establishment: 1987-90**

Type of establishment and measure	Calendar year			1987 Q2	1988 Q2	1989 Q2	1989 Q3	1989 Q4	1990 Q1	1990 Q2
	1987	1988	1989							
<b>Health services (SIC 80)</b>										
Total employment in thousands	6,805.4	7,144.2	7,635.3	6,766.4	7,084.9	7,571.4	7,714.1	7,828.3	7,966.8	8,102.1
Nonsupervisory workers:										
Employment in thousands	6,052.1	6,324.3	6,713.4	6,018.2	6,279.2	6,657.2	6,780.5	6,873.9	6,995.4	7,148.2
Average weekly hours	32.4	32.4	32.5	32.3	32.3	32.4	32.6	32.5	32.5	32.5
Average hourly earnings	\$8.69	\$9.21	\$9.82	\$8.61	\$9.11	\$9.70	\$9.90	\$10.07	\$10.24	\$10.31
<b>Offices of physicians and surgeons (SIC 801)</b>										
Total employment in thousands	1,042.3	1,112.0	1,206.8	1,033.4	1,101.8	1,195.0	1,220.1	1,243.0	1,269.8	1,333.9
Nonsupervisory workers:										
Employment in thousands	946.0	992.0	1,064.0	940.3	985.6	1,053.3	1,076.2	1,095.4	1,121.9	1,154.3
Average weekly hours	30.9	31.2	31.5	30.7	31.2	31.4	31.6	31.7	31.6	31.6
Average hourly earnings	\$8.61	\$9.07	\$9.78	\$8.51	\$8.98	\$9.63	\$9.85	\$10.09	\$10.31	\$10.46
<b>Offices of dentists (SIC 802)</b>										
Total employment in thousands	469.7	486.3	511.7	468.7	484.1	510.6	515.9	519.8	524.6	526.8
Nonsupervisory workers:										
Employment in thousands	414.7	424.5	439.9	413.4	423.7	438.9	442.9	446.4	451.0	456.9
Average weekly hours	28.3	28.4	28.5	28.1	28.3	28.7	28.4	28.5	28.4	28.5
Average hourly earnings	\$8.50	\$8.82	\$9.40	\$8.46	\$8.75	\$9.33	\$9.42	\$9.62	\$9.88	\$10.08
<b>Nursing and personal care facilities (SIC 805)</b>										
Total employment in thousands	1,285.3	1,318.6	1,384.2	1,281.8	1,309.3	1,373.7	1,398.0	1,413.4	1,432.7	1,454.5
Nonsupervisory workers:										
Employment in thousands	1,161.2	1,187.0	1,238.3	1,157.9	1,180.7	1,229.3	1,250.2	1,262.4	1,278.6	1,304.4
Average weekly hours	31.6	31.6	31.9	31.4	31.5	31.7	32.2	31.9	31.7	31.9
Average hourly earnings	\$6.00	\$6.33	\$6.79	\$5.95	\$6.24	\$6.72	\$6.84	\$6.96	\$7.07	\$7.18
<b>Private hospitals (SIC 806)</b>										
Total employment in thousands	3,143.0	3,300.2	3,490.7	3,122.7	3,275.9	3,465.1	3,523.7	3,560.9	3,614.3	3,664.7
Nonsupervisory workers:										
Employment in thousands	2,866.9	3,010.8	3,176.4	2,847.9	2,990.0	3,152.1	3,207.4	3,237.9	3,287.8	3,340.1
Average weekly hours	34.2	34.0	34.0	34.1	33.9	33.9	34.1	34.0	34.2	34.2
Average hourly earnings	\$9.84	\$10.51	\$11.21	\$9.73	\$10.40	\$11.06	\$11.31	\$11.49	\$11.62	\$11.66
<b>All private nonagricultural establishments</b>										
Total employment in thousands	85,190	88,150	90,644	84,944	87,951	90,603	91,539	91,821	90,436	92,272
Nonsupervisory workers:										
Employment in thousands	68,976	71,383	73,474	68,796	71,222	73,447	74,289	74,528	73,104	74,791
Average weekly hours	34.8	34.7	34.7	34.8	34.7	34.7	34.9	34.7	34.3	34.6
Average hourly earnings	\$8.98	\$9.28	\$9.66	\$8.92	\$9.22	\$9.59	\$9.67	\$9.82	\$9.90	\$9.97
<b>Employment in thousands</b>										
All hospitals	4,437.5	4,606.1	4,804.6	4,415.2	4,583.9	4,770.1	4,843.9	4,891.3	4,954.1	5,015.6
Private hospitals (SIC 806)	3,143.0	3,300.2	3,490.7	3,122.7	3,275.9	3,465.1	3,523.7	3,560.9	3,614.3	3,664.7
Federal hospitals	249.4	240.7	225.6	250.0	243.7	224.1	226.1	226.7	227.1	227.7
State hospitals	438.7	446.2	450.0	438.2	446.0	448.7	450.9	451.8	452.2	454.4
Local hospitals	606.4	619.0	638.3	604.3	618.3	632.2	643.2	651.9	660.5	668.8

<sup>1</sup>Excludes hospitals, clinics, and other health-related establishments run by all governments.

NOTES: Standard Industrial Classification (SIC) codes for 1972 are used. Q designates quarter of year. Quarterly data are not seasonally adjusted.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics: *Employment and Earnings*. Washington, U.S. Government Printing Office. Monthly reports for Jan. 1987-June 1990.

quarter of 1989 and the second quarter of 1990, the largest growth in health sector work-hours (nonsupervisory employment times average weekly hours) was experienced in physicians' and surgeons' offices, and the smallest was in the offices of dentists (Table 5). Nonsupervisory payrolls (nonsupervisory work-hours

multiplied by average hourly earnings) increased the slowest, 11.4 percent, for offices of dentists, and the fastest, 17.9 percent, for offices of physicians and surgeons. Payroll growth in the offices of physicians and surgeons was more than three times as fast as payroll growth in all private nonagricultural establishments.

**Table 4**  
**Percent change in employment, hours, and earnings in private<sup>1</sup> health service establishments, by selected type of establishment: 1987-90**

Type of establishment and measure	Calendar year			1987 Q2	1988 Q2	1989 Q2	1989 Q3	1989 Q4	1990 Q1	1990 Q2
	1987	1988	1989							
<b>Health services (SIC 80)</b>	Annual percent change			Percent change from same period of previous year						
Total employment	4.1	5.0	6.9	4.1	4.7	6.9	7.0	7.1	7.3	7.0
Nonsupervisory workers:										
Employment	4.2	4.5	6.2	4.2	4.3	6.0	6.2	6.6	6.9	7.4
Average weekly hours	-0.1	0.0	0.3	0.0	0.0	0.3	0.3	0.6	0.3	0.3
Average hourly earnings	4.2	5.9	6.7	3.8	5.8	6.4	6.9	6.5	6.4	6.4
<b>Offices of physicians and surgeons (SIC 801)</b>										
Total employment	5.5	6.7	8.5	5.1	6.6	8.5	8.7	8.8	8.6	11.6
Nonsupervisory workers:										
Employment	5.0	4.9	7.3	4.9	4.8	6.9	7.5	8.0	8.8	9.6
Average weekly hours	-0.1	1.1	0.9	-0.6	1.6	0.6	1.3	1.3	1.0	0.6
Average hourly earnings	3.2	5.3	7.8	2.4	5.5	7.2	8.6	8.1	8.1	8.6
<b>Offices of dentists (SIC 802)</b>										
Total employment	2.6	3.6	5.2	2.7	3.3	5.5	5.3	5.3	4.9	3.2
Nonsupervisory workers:										
Employment	2.5	2.4	3.6	2.7	2.5	3.6	3.9	4.3	4.6	4.1
Average weekly hours	0.9	0.5	0.4	0.4	0.7	1.4	0.4	-0.3	-0.4	-0.7
Average hourly earnings	2.8	3.9	6.6	2.3	3.4	6.6	6.2	6.5	6.8	8.1
<b>Nursing and personal care facilities (SIC 805)</b>										
Total employment	3.1	2.6	5.0	3.5	2.1	4.9	5.2	5.6	6.0	5.9
Nonsupervisory workers:										
Employment	3.1	2.2	4.3	3.5	2.0	4.1	4.4	5.2	5.6	6.1
Average weekly hours	0.5	0.1	0.9	0.6	0.3	0.6	1.3	0.9	0.3	0.6
Average hourly earnings	3.5	5.4	7.3	2.9	4.8	7.7	7.0	6.9	6.4	6.9
<b>Private hospitals (SIC 806)</b>										
Total employment	3.5	5.0	5.8	3.3	4.9	5.8	5.8	5.7	5.9	5.8
Nonsupervisory workers:										
Employment	3.6	5.0	5.5	3.4	5.0	5.4	5.6	5.5	5.8	6.0
Average weekly hours	-0.3	-0.5	0.0	-0.3	-0.6	0.0	0.0	0.6	0.9	0.9
Average hourly earnings	5.1	6.8	6.7	4.9	6.9	6.3	6.9	6.3	5.9	5.4
<b>All private nonagricultural establishments</b>										
Total employment	2.8	3.5	2.8	2.7	3.5	3.0	2.6	2.3	2.1	1.8
Nonsupervisory workers:										
Employment	2.9	3.5	2.9	2.9	3.5	3.1	2.7	2.4	2.1	1.8
Average weekly hours	0.1	-0.1	-0.1	0.3	-0.3	0.0	-0.3	-0.3	-0.3	-0.3
Average hourly earnings	2.5	3.4	4.1	2.3	3.4	4.0	4.2	4.0	3.8	4.0
<b>Employment</b>										
All hospitals	3.3	4.4	5.0	3.1	4.4	4.8	5.1	5.2	5.6	5.5
Private hospitals (SIC 806)	3.5	5.0	5.8	3.3	4.9	5.8	5.8	5.7	5.9	5.8
Federal hospitals	1.2	-3.5	-6.3	1.1	-2.5	-8.0	-5.1	-1.8	0.7	1.6
State hospitals	0.1	1.7	0.8	0.0	1.8	0.6	0.7	0.8	0.8	1.3
Local hospitals	0.9	2.1	3.1	0.7	2.3	2.3	3.3	4.8	5.5	5.8

<sup>1</sup>Excludes hospitals, clinics, and other health-related establishments run by all governments.

NOTES: Standard Industrial Classification (SIC) codes for 1972 are used. Q designates quarter of year.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics: *Employment and Earnings*. Washington. U.S. Government Printing Office. Monthly reports for Jan. 1987-June 1990.

**Table 5**  
**Percent change in implied nonsupervisory payrolls and work-hours in private<sup>1</sup> health service establishments, by selected type of establishment: 1987-90**

Type of establishment	Calendar year			1987 Q2	1988 Q2	1989 Q2	1989 Q3	1989 Q4	1990 Q1	1990 Q2
	1987	1988	1989							
<b>Private health service establishments (SIC 80)</b>	Annual percent change			Percent change from same period of previous year						
Payrolls	8.5	10.9	13.4	7.9	10.8	12.8	13.9	14.0	14.0	14.6
Work-hours	4.1	4.5	6.5	4.2	4.3	6.3	6.6	7.2	7.3	7.7
<b>Offices of physicians and surgeons (SIC 801)</b>										
Payrolls	8.1	12.1	16.8	6.9	12.4	15.8	18.3	17.9	17.6	17.9
Work-hours	4.9	6.0	8.2	4.2	6.5	7.6	8.8	9.4	9.8	10.3
<b>Offices of dentists (SIC 802)</b>										
Payrolls	6.3	7.1	10.3	5.3	6.9	11.6	10.2	10.5	11.3	11.4
Work-hours	3.5	2.9	4.0	3.0	3.2	5.1	4.2	4.0	4.2	3.4
<b>Nursing and personal care facilities (SIC 805)</b>										
Payrolls	7.2	7.8	13.0	7.1	7.3	12.8	13.2	13.7	12.8	14.1
Work-hours	3.6	2.3	5.2	4.2	2.3	4.8	5.7	6.2	5.9	6.8
<b>Private hospitals (SIC 806)</b>										
Payrolls	8.6	11.7	12.6	8.3	11.6	12.1	12.9	12.8	13.0	12.7
Work-hours	3.3	4.5	5.5	3.1	4.4	5.4	5.6	6.1	6.7	6.9
<b>All private nonagricultural establishments</b>										
Payrolls	5.5	6.8	6.8	5.3	6.9	6.9	6.8	6.0	5.5	5.7
Work-hours	3.1	3.3	2.8	3.1	3.2	3.1	2.4	2.1	1.8	1.5

<sup>1</sup>Excludes hospitals, clinics, and other health-related establishments run by all governments.

NOTES: Standard Industrial Classification (SIC) codes for 1972 are used. Q designates quarter of year.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics: *Employment and Earnings*. Washington, U.S. Government Printing Office. Monthly reports for Jan. 1987-June 1990.

## Health care prices

### Medical care consumers

Prices paid by consumers of medical care in the second calendar quarter of 1990, as measured by the Consumer Price Index (CPI) for all urban consumers, were 9.0 percent higher than in the previous year's second quarter (Tables 6 and 7). The growth in the medical care component of the CPI was almost twice as fast as the 4.6 percent increase in the index for all items.

Within the medical care component of the CPI, inflation in hospital and prescription drug prices increased faster than other prices in this sector. Hospital prices rose 10.8 percent between the second quarter of 1989 and the second quarter of 1990, the seventh consecutive quarter of double-digit increases. Prescription drug prices climbed 10.0 percent, compared with a 5.0-percent growth in nonprescription drugs and medical supplies.

Growth in prices for all items less medical care slowed to 4.3 percent between the second quarter of 1989 and that of 1990. Apparel and upkeep prices increased 4.6 percent, food and beverage prices grew 5.4 percent, and housing was up 5.2 percent (Table 7).

Figures for the second calendar quarter of 1990 showed energy prices no longer pulling up the overall rate of inflation (a fact that was dramatically reversed later in the year). Labor Department analysts calculate that energy

prices (including gas, electric, and fuel oil) increased only 0.2 percent from the second quarter of 1989 to that of 1990, contributing very little to the overall inflation rate.

The percent change in measures of price inflation is shown in Figure 3.

### Health care providers

#### Background on input price indexes

In 1979, the Health Care Financing Administration (HCFA) developed the hospital input price index. This input price index is designed to measure the pure price changes associated with expenditure changes for hospital services. The skilled nursing facility (SNF) and home health agency (HHA) input price indexes were developed in the early 1980s. These indexes are often referred to as "market baskets" because they price a consistent set of goods and services over time. Since their creation, they have played an important role in helping to set payment percent increases and highlighting the contribution of input price increases to growing health expenditures.

The input price indexes, or market baskets, are Laspeyres or fixed-weight indexes that are constructed in two steps. First, a base period is selected. For example, for the prospective payment system (PPS) hospital input

**Table 6**  
**Selected items of the Consumer Price Index for all urban consumers: 1987-90**

Item	Calendar year			1987	1988	1989	1989	1989	1990	1990
	1987	1988	1989	Q2	Q2	Q2	Q3	Q4	Q1	Q2
All items	113.6	118.3	124.0	113.1	117.5	123.7	124.7	125.9	128.0	129.3
All items less medical care	112.6	117.0	122.4	112.1	116.3	122.2	123.1	124.2	126.3	127.5
Apparel and upkeep	110.6	115.4	118.6	110.6	116.0	119.7	116.7	121.3	120.8	125.2
Energy	88.6	89.2	94.3	88.2	89.0	97.1	97.1	93.7	96.5	97.3
Food and beverages	113.5	118.2	124.9	113.3	117.1	124.5	125.6	126.7	130.7	131.3
Housing: shelter	121.2	127.1	132.8	120.5	126.2	131.8	133.9	135.2	136.9	138.6
Medical care	130.1	138.6	149.3	129.3	137.5	147.6	150.7	153.7	157.4	160.8
Medical care services <sup>1</sup>	130.0	138.3	148.9	129.1	137.2	147.1	150.3	153.3	157.1	160.5
Professional services	128.8	137.5	146.4	128.1	136.6	145.4	147.5	149.3	152.2	155.0
Physicians' services	130.4	139.8	150.0	129.5	138.7	148.9	151.4	153.2	156.5	159.8
Dental services	128.8	137.5	146.0	128.0	136.6	145.2	146.9	149.1	152.3	154.4
Hospital and related services	131.6	143.9	160.5	130.1	141.5	157.5	162.6	167.3	171.5	174.5
Hospital room	131.1	143.3	158.1	129.7	141.1	154.8	159.8	165.0	169.7	172.2
Other inpatient services <sup>2</sup>	103.9	114.0	128.9	102.8	111.7	126.7	130.7	134.2	136.7	139.4
Outpatient services <sup>2</sup>	103.3	112.5	124.7	101.9	110.9	122.6	126.7	129.8	134.0	136.3
Medical care commodities	130.9	139.9	150.8	129.9	138.8	149.8	152.3	155.1	158.5	162.3
Prescription drugs	140.8	152.0	165.2	139.6	150.7	163.7	167.2	170.6	175.5	180.2
Nonprescription drugs and medical supplies <sup>2</sup>	103.1	108.1	114.6	102.5	107.5	114.4	115.3	117.1	118.0	120.1
Internal and respiratory over-the-counter drugs	123.9	130.8	138.7	122.9	129.8	138.5	139.4	141.7	142.6	144.9
Nonprescription medical equipment and supplies	119.6	123.9	131.1	119.3	123.4	130.7	132.1	134.1	135.2	138.1

<sup>1</sup>Includes private health insurance (not shown separately).

<sup>2</sup>December 1986 = 100.

NOTES: 1982-84 = 100.0 unless noted. Q designates quarter of year. Quarterly data not seasonally adjusted.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics: *CPI Detailed Report*. Washington. U.S. Government Printing Office. Monthly reports for Jan. 1987-June 1990.

**Table 7**  
**Percent change in selected items of the Consumer Price Index for all urban consumers: 1987-90**

Item	Calendar year			1987	1988	1989	1989	1989	1990	1990
	1987	1988	1989	Q2	Q2	Q2	Q3	Q4	Q1	Q2
	Annual percent change			Percent change from same period of previous year						
All items	3.7	4.1	4.8	3.8	3.9	5.2	4.7	4.6	5.2	4.6
All items less medical care	3.4	3.9	4.6	3.5	3.8	5.0	4.4	4.4	5.0	4.3
Apparel and upkeep	4.4	4.3	2.8	5.3	4.8	3.2	2.0	1.5	3.6	4.6
Energy	0.4	0.8	5.7	0.0	0.9	9.1	5.7	5.0	8.0	0.2
Food and beverages	4.1	4.1	5.7	4.8	3.4	6.3	5.2	5.3	6.5	5.4
Housing: shelter	4.7	4.8	4.5	4.5	4.7	4.4	4.6	4.8	5.0	5.2
Medical care	6.6	6.5	7.7	6.8	6.4	7.3	7.7	8.4	8.5	9.0
Medical care services <sup>1</sup>	6.6	6.5	7.6	6.8	6.3	7.2	7.7	8.4	8.5	9.1
Professional services	6.6	6.7	6.4	6.7	6.7	6.4	6.3	6.4	6.2	6.6
Physicians' services	7.4	7.2	7.3	7.5	7.1	7.3	7.1	7.2	6.6	7.3
Dental services	6.7	6.8	6.2	6.8	6.7	6.3	6.0	6.1	6.5	6.3
Hospital and related services	6.9	9.3	11.5	7.0	8.8	11.3	11.6	11.8	10.9	10.8
Hospital room	7.2	9.2	10.3	7.3	8.8	9.7	9.9	11.1	11.1	11.2
Other inpatient services	NA	9.7	13.1	NA	8.7	13.4	13.5	12.5	10.3	10.1
Outpatient services	NA	8.9	10.9	NA	8.8	10.5	11.6	11.5	11.8	11.2
Medical care commodities	6.7	6.9	7.8	6.3	6.9	7.9	7.8	8.1	8.5	8.3
Prescription drugs	8.0	7.9	8.7	7.8	7.9	8.7	9.0	9.2	10.1	10.0
Nonprescription drugs and medical supplies	NA	4.9	6.0	NA	4.8	6.4	5.7	6.0	5.6	5.0
Internal and respiratory over-the-counter drugs	5.3	5.5	6.1	4.7	5.6	6.7	5.7	5.9	5.3	4.6
Nonprescription medical equipment and supplies	4.0	3.6	5.8	3.7	3.5	5.9	5.7	6.2	5.9	5.7

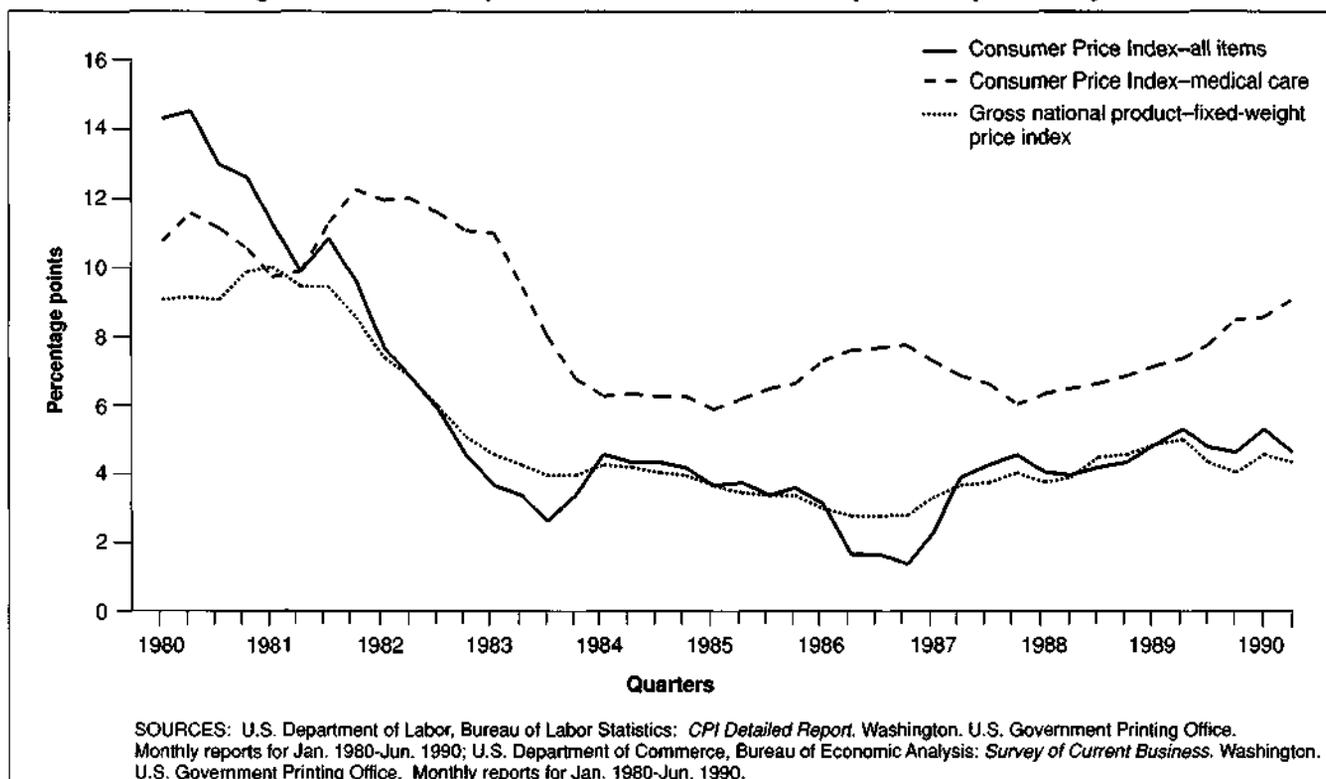
<sup>1</sup>Includes private health insurance (not shown separately).

NOTES: Q designates quarter of year. NA designates not available.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics: *CPI Detailed Report*. Washington. U.S. Government Printing Office. Monthly reports for Jan. 1987-June 1990.

Figure 3

Percent change in measures of price inflation from the same period of previous year: 1980-90



price index, the base period is 1987. Next, a set of cost categories such as food, fuel, and labor are identified and their 1987 expenditure amounts determined. The proportion or share of total expenditures accounted for by specific spending categories is calculated. These proportions are called cost or expenditure weights. There are 28 expenditure categories in the 1987-based hospital PPS input price index. In the next step, a price proxy is selected to match each expenditure category. The purpose of the price proxy is to measure the rate of price increase of the goods or services in that expenditure category. The price proxy index for each spending category is multiplied by the expenditure weight for that category. The sum of these products (weights multiplied by the price index) over all cost categories yields the composite input price index for any given time period, usually a fiscal year or a calendar year. The percent change in the input price index is an estimate of price change over time for a fixed quantity of goods and services purchased by a provider.

The input price indexes are estimated on a historical basis and forecasted out several years. The HCFA-chosen price proxies are forecasted under contract with Data Resources, Inc. (DRI)/McGraw-Hill. Each quarter, 1 month after the end of a calendar quarter, DRI updates its macroeconomic forecasts of wages and prices. DRI bases its new forecasts on updated historical information and revised forecast assumptions. New forecasts and estimates are done in February, May, August, and November. Some of the data in Tables 8 through 13 are forecasted and are expected to change as more recent historical data become available and subsequent quarterly forecasts are received.

The methodology and price proxy definitions used in the input price indexes are described in the *Federal Register* notices that accompany the annual revisions of the PPS, HHA, and SNF cost limits. A description of the current PPS input price index was published September 4, 1990 (*Federal Register*, 1990). The latest HHA regulatory input price index was published July 7, 1987 (*Federal Register*, 1987a), and the latest SNF input price index was published October 2, 1987 (*Federal Register*, 1987b).

**Current data**

Each input price index is presented in two tables: The first is a percent-change table, and the second provides the actual index numbers from which the percentages were computed. The hospital input price index for PPS is in Tables 8 and 9. The SNF input price index is in Tables 10 and 11. The HHA input price index is in Tables 12 and 13.

**Data highlight**

The PPS input price index has been revised, and a new base year of 1987 has been selected (Tables 8 and 9). Effective October 1, 1990, the new PPS input price index will be used to set the fiscal year 1991 market basket update factor for the prospective payment rates. This revision also includes changes in certain variables used for price proxies. Periodically, the various input price indexes are revised so that the cost weights will reflect changes in the mix of goods and services that providers purchase.

Table 8

**Percent change in four-quarter averages in the prospective payment system hospital input price index, by expense category: 1988-91**

Expense category <sup>1</sup>	Base year weights 1987 <sup>2</sup>	Four quarters ending							
		1988 Q1	1988 Q2	1988 Q3	1988 Q4	1989 Q1	1989 Q2	1989 Q3	1989 Q4
Total	100.000	4.2	4.5	4.7	5.0	5.4	5.6	5.6	5.4
Wages and salaries	52.212	4.1	4.3	4.4	4.5	4.8	4.8	4.9	4.9
Employee benefits	9.497	4.0	4.6	5.4	6.2	6.4	6.6	6.7	6.9
Other professional fees	1.649	4.2	4.4	4.6	4.5	4.7	4.6	4.5	4.6
Energy and utilities	2.370	3.4	3.4	0.6	-1.7	-0.5	2.3	4.8	7.4
Fuel oil, coal, and other fuel	0.625	15.7	13.1	3.2	-5.2	-4.2	0.9	6.2	13.6
Electricity	1.143	-1.5	-1.0	-0.3	0.6	1.6	2.4	2.7	3.2
Natural gas	0.343	-7.5	-4.1	-4.3	-2.7	-0.6	2.0	5.6	6.0
Motor gasoline	0.229	14.9	12.5	4.3	-2.4	-0.9	6.0	9.6	13.5
Water and sewerage maintenance	0.036	5.4	5.3	5.3	5.5	5.7	6.0	6.0	6.1
Professional liability insurance	1.433	17.3	18.0	20.3	24.2	22.5	17.0	9.7	0.6
All other	32.839	4.0	4.3	4.7	5.2	5.9	6.4	6.3	5.8
Other products	21.788	4.2	4.5	5.1	5.8	6.6	7.2	6.8	6.1
Pharmaceuticals	3.873	8.8	8.3	8.0	7.9	8.1	8.5	9.0	9.1
Food	3.299	3.1	2.9	3.5	4.3	5.0	5.4	5.0	4.5
Direct purchase	2.111	2.6	2.3	3.3	4.5	5.4	6.0	5.2	4.5
Contract service	1.188	3.8	3.8	3.9	4.0	4.3	4.4	4.5	4.6
Chemicals and cleaning products	3.126	7.3	8.2	10.0	11.9	13.9	14.5	11.7	7.5
Surgical and medical instruments	2.672	1.6	1.3	1.4	1.7	2.3	3.4	3.9	4.1
Photographic supplies	2.623	1.6	1.7	1.7	2.2	3.9	5.9	7.7	8.8
Rubber and plastics	2.323	2.6	4.2	5.6	6.2	6.1	5.4	4.2	3.0
Paper products	1.399	4.4	5.9	7.6	9.0	9.8	9.5	8.2	6.5
Apparel	1.142	1.1	1.6	2.4	3.0	2.7	2.3	2.0	2.1
Minor machinery and equipment	0.497	1.6	1.8	2.2	2.6	2.9	3.2	3.5	3.7
Miscellaneous products	0.833	2.6	2.4	2.3	2.5	3.3	4.3	4.8	5.1
Other services	11.051	3.6	3.9	4.0	4.1	4.5	4.9	5.1	5.1
Business services	3.845	4.1	4.6	4.6	4.5	4.4	4.7	5.1	5.4
Computer and data processing	1.992	6.2	6.8	7.0	6.7	6.8	6.9	7.2	7.4
Transportation and shipping	1.233	4.6	4.6	4.0	3.1	3.3	4.3	4.7	5.0
Telephone	0.987	-0.9	-0.7	-0.6	-0.4	-0.3	0.0	0.8	1.0
Blood services	0.588	0.6	-2.0	-2.4	1.2	4.7	7.9	8.0	5.5
Postage	0.372	0.0	3.4	6.8	10.1	13.5	9.8	6.3	3.1
Other—labor intensive	1.233	2.7	2.6	2.9	3.4	3.8	4.0	3.9	3.7
Other—nonlabor intensive	0.800	4.1	4.1	4.1	4.1	4.3	4.6	4.8	4.8

See footnotes at end of table.

Table 8—Continued

## Percent change in four-quarter averages in the prospective payment system hospital input price index, by expense category: 1988-91

Expense category <sup>1</sup>	Base year weights 1987 <sup>2</sup>	Four quarters ending							
		1990 Q1	1990 Q2	1990 Q3	1990 Q4	1991 Q1	1991 Q2	1991 Q3	1991 Q4
Total	100.000	5.1	4.8	4.8	4.8	4.9	5.1	5.2	5.3
Wages and salaries	52.212	4.9	5.0	5.1	5.2	5.4	5.5	5.5	5.6
Employee benefits	9.497	7.5	7.8	7.9	7.8	7.2	6.8	6.5	6.3
Other professional fees	1.649	4.6	4.9	5.3	5.7	6.0	5.9	5.7	5.4
Energy and utilities	2.370	8.5	5.4	3.6	2.9	1.7	4.0	6.6	7.5
Fuel oil, coal, and other fuel	0.625	17.3	11.3	9.5	7.0	3.2	6.3	8.5	9.1
Electricity	1.143	3.1	2.6	0.8	0.7	1.0	1.8	3.8	4.2
Natural gas	0.343	4.9	1.6	-2.3	-3.7	-4.5	-0.2	6.3	11.5
Motor gasoline	0.229	16.3	7.7	7.6	9.3	7.9	12.5	13.5	12.0
Water and sewerage maintenance	0.036	6.2	6.3	6.4	6.5	6.4	6.6	7.0	7.3
Professional liability insurance	1.433	-2.2	-1.6	-0.6	-0.1	-0.7	-1.7	-1.8	1.9
All other	32.839	4.9	4.0	3.7	3.6	3.8	4.3	4.5	4.7
Other products	21.788	5.0	3.8	3.4	3.3	3.5	4.0	4.3	4.5
Pharmaceuticals	3.873	9.3	9.2	9.5	10.0	10.5	11.2	10.7	10.3
Food	3.299	3.9	3.8	4.2	4.4	4.6	4.4	4.2	4.1
Direct purchase	2.111	3.5	3.3	3.8	4.0	4.2	3.8	3.5	3.5
Contract service	1.188	4.6	4.7	4.9	5.1	5.3	5.3	5.3	5.2
Chemicals and cleaning products	3.126	2.4	-1.8	-3.1	-2.9	-1.5	0.8	2.3	3.5
Surgical and medical instruments	2.672	4.0	3.3	2.8	2.4	2.1	2.0	2.1	2.3
Photographic supplies	2.623	8.1	6.8	5.2	3.9	3.0	2.6	2.4	2.4
Rubber and plastics	2.323	2.0	1.1	0.9	0.9	1.0	1.5	1.9	2.4
Paper products	1.399	4.6	2.7	1.8	1.4	1.8	2.7	3.5	4.1
Apparel	1.142	2.5	2.9	3.0	2.7	2.3	1.9	1.8	1.8
Minor machinery and equipment	0.497	3.6	3.5	3.1	2.8	2.6	2.5	2.8	3.1
Miscellaneous products	0.833	5.2	4.3	3.9	3.5	2.8	3.0	3.3	3.7
Other services	11.051	4.8	4.4	4.2	4.2	4.4	4.7	4.9	4.9
Business services	3.845	5.4	5.3	5.1	5.1	5.2	5.1	5.1	4.8
Computer and data processing	1.992	7.1	6.6	6.3	6.3	6.7	7.0	7.1	7.1
Transportation and shipping	1.233	5.1	3.8	3.5	3.4	2.9	3.2	3.3	3.6
Telephone	0.987	1.2	1.2	1.0	1.6	2.1	2.8	3.4	3.7
Blood services	0.588	3.1	1.1	0.5	0.7	1.5	2.0	2.1	1.9
Postage	0.372	0.0	0.0	0.0	0.0	0.7	3.5	6.3	9.1
Other—labor intensive	1.233	3.6	3.5	3.5	3.3	3.4	3.9	4.2	4.6
Other—nonlabor intensive	0.800	4.9	4.8	4.8	4.8	4.4	4.3	4.2	4.2

<sup>1</sup>Data sources used to estimate the input price index relative weights and choice of price proxies were taken from the *Federal Register* (1990).

<sup>2</sup>Category weights may not sum to total due to rounding.

NOTES: Data for 1988 and 1989 are historical. Data for 1990 are partly historical and partly forecasted. Data for 1991 are forecasted. Q designates quarter of year. Percent change data shown are four-quarter moving averages. The following is an example of how this computation is done: Use the quarterly index levels shown in Tables 9, 11, and 13. Choose the four-quarter period ending for which you would like to calculate the percent change (e.g., year-end 1990: Quarter 3). Count back three quarters so that you have a total of four (e.g., 1990: Quarter 3; 1990: Quarter 2; 1990: Quarter 1; 1989: Quarter 4). Average these four quarters (add the index levels and divide by 4). Now, take the four quarters previous to the four quarters that you just used (e.g., 1989: Quarter 3; 1989: Quarter 2; 1989: Quarter 1; 1988: Quarter 4). Average these four quarters. Finally, compute a percent change using the two averages.

SOURCES: Health Care Financing Administration, Office of the Actuary: Data from the Office of National Cost Estimates, Division of Statistical Analysis. Forecasts created by Data Resources, Inc./McGraw-Hill.

**Table 9**  
**Quarterly index levels of the prospective payment system hospital input price index, by expense category: 1988-91**

Expense category <sup>1</sup>	Base year	1988	1988	1988	1988	1989	1989	1989	1989
	weights 1987 <sup>2</sup>	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Total	100.000	103.8	105.4	107.1	108.4	110.0	111.3	112.6	113.6
Wages and salaries	52.212	103.6	104.9	106.4	107.5	108.9	109.9	111.6	112.8
Employee benefits	9.497	105.0	106.3	108.0	109.2	111.6	113.4	115.8	117.4
Other professional fees	1.649	103.8	105.1	106.7	107.3	108.8	109.6	111.4	112.3
Energy and utilities	2.370	97.4	100.5	102.9	98.8	101.5	111.0	110.2	106.7
Fuel oil, coal, and other fuel	0.625	98.6	103.3	101.9	97.9	103.4	123.1	113.9	115.9
Electricity	1.143	96.7	99.2	105.1	98.8	99.5	102.4	108.7	102.1
Natural gas	0.343	96.9	96.2	93.6	97.2	102.4	102.7	101.7	100.3
Motor gasoline	0.229	96.7	105.3	108.3	102.1	102.7	133.4	119.3	112.7
Water and sewerage maintenance	0.036	104.1	105.7	108.3	109.1	110.7	112.1	114.5	115.9
Professional liability insurance	1.433	115.8	124.0	132.6	141.2	130.7	126.2	129.4	130.3
All other	32.839	103.8	105.4	107.2	108.9	111.1	112.4	112.8	113.6
Other products	21.788	104.0	105.9	108.0	109.8	112.2	113.6	113.7	114.5
Pharmaceuticals	3.873	107.0	109.3	111.0	113.5	116.4	119.0	121.7	123.9
Food	3.299	102.3	104.0	106.5	106.9	108.5	109.3	110.1	110.9
Direct purchase	2.111	101.7	103.8	107.0	106.9	108.8	109.3	109.8	110.4
Contract service	1.188	103.3	104.4	105.7	106.7	108.0	109.2	110.6	111.7
Chemicals and cleaning products	3.126	107.5	111.6	116.8	120.5	125.2	125.0	121.0	119.6
Surgical and medical instruments	2.672	101.2	101.4	102.3	103.7	104.9	106.6	106.4	107.4
Photographic supplies	2.623	100.9	102.1	102.9	105.2	109.3	111.4	112.6	113.8
Rubber and plastics	2.323	104.8	106.5	108.3	109.0	110.0	110.7	110.5	110.4
Paper products	1.399	106.3	108.9	111.8	114.0	116.2	117.8	117.6	118.1
Apparel	1.142	102.1	103.2	103.5	103.4	104.0	104.6	105.7	106.6
Minor machinery and equipment	0.497	102.0	102.5	103.3	104.1	105.4	106.3	107.3	107.9
Miscellaneous products	0.833	101.4	102.6	103.7	104.8	106.6	108.7	108.6	109.9
Other services	11.051	103.4	104.4	105.6	107.1	108.8	110.2	110.9	112.0
Business services	3.845	104.8	104.8	105.7	107.2	109.7	110.7	111.8	113.2
Computer and data processing	1.992	106.2	107.4	109.0	111.6	114.0	115.8	117.4	119.5
Transportation and shipping	1.233	102.9	104.0	105.4	106.4	107.4	111.3	110.3	110.7
Telephone	0.987	99.4	99.6	98.8	99.5	99.7	100.6	100.8	100.1
Blood services	0.588	96.9	97.4	101.2	104.8	105.8	105.6	105.4	105.5
Postage	0.372	100.0	113.5	113.5	113.5	113.5	113.5	113.5	113.5
Other—labor intensive	1.233	102.3	103.3	104.6	105.8	106.5	107.1	108.1	109.6
Other—nonlabor intensive	0.800	103.3	104.6	106.0	107.1	108.3	110.0	110.9	112.0

See footnotes at end of table.

**Table 9—Continued**  
**Quarterly index levels of the prospective payment system hospital input price index, by expense category: 1988-91**

Expense category <sup>1</sup>	Base year weights 1987 <sup>2</sup>	1990 Q1	1990 Q2	1990 Q3	1990 Q4	1991 Q1	1991 Q2	1991 Q3	1991 Q4
Total	100.000	115.3	116.4	118.0	119.2	121.2	122.6	124.4	125.8
Wages and salaries	52.212	114.4	115.6	117.5	118.8	120.9	122.0	124.0	125.4
Employee benefits	9.497	120.9	122.5	124.4	125.9	128.4	130.1	132.5	134.1
Other professional fees	1.649	114.1	115.6	118.1	119.5	121.2	121.6	124.2	125.5
Energy and utilities	2.370	110.2	109.7	109.9	111.8	114.2	118.5	120.8	121.1
Fuel oil, coal, and other fuel	0.625	124.0	120.8	119.4	124.2	127.9	133.2	135.7	136.0
Electricity	1.143	102.2	103.5	105.0	104.8	106.0	108.1	109.4	109.4
Natural gas	0.343	103.6	96.7	94.0	97.6	101.8	108.1	112.1	114.8
Motor gasoline	0.229	121.1	127.9	130.6	132.0	134.2	144.1	148.6	146.1
Water and sewerage maintenance	0.036	118.1	119.4	121.5	123.4	125.8	128.1	130.5	133.0
Professional liability insurance	1.433	130.8	132.0	131.4	122.0	127.8	132.5	132.5	133.3
All other	32.839	115.0	115.9	117.1	118.3	120.0	121.4	122.6	124.0
Other products	21.788	115.8	116.5	117.8	118.9	120.5	122.0	123.2	124.6
Pharmaceuticals	3.873	127.3	129.5	134.8	137.7	141.3	144.6	147.1	150.7
Food	3.299	112.3	114.4	115.4	115.8	117.4	118.6	120.1	120.7
Direct purchase	2.111	112.0	114.2	114.8	114.8	116.3	117.4	118.9	119.1
Contract service	1.188	113.0	114.7	116.3	117.7	119.2	120.7	122.2	123.7
Chemicals and cleaning products	3.126	119.8	118.3	118.9	119.7	121.2	122.6	124.2	125.6
Surgical and medical instruments	2.672	108.4	109.0	108.8	109.4	110.5	111.2	111.6	112.4
Photographic supplies	2.623	115.4	116.0	116.0	116.9	117.9	119.1	118.7	119.9
Rubber and plastics	2.323	110.8	111.2	111.6	111.8	112.4	113.6	114.8	115.5
Paper products	1.399	118.0	118.7	119.2	120.5	121.9	123.4	124.7	126.0
Apparel	1.142	107.5	107.9	108.3	108.5	109.5	109.7	110.2	110.4
Minor machinery and equipment	0.497	108.9	109.5	109.8	110.5	111.5	112.6	113.5	114.8
Miscellaneous products	0.833	112.0	111.8	111.9	113.2	114.6	115.7	116.8	118.2
Other services	11.051	113.4	114.5	115.6	117.1	119.0	120.2	121.4	122.7
Business services	3.845	114.9	116.6	117.3	119.3	121.2	122.0	122.9	124.4
Computer and data processing	1.992	120.7	122.6	125.1	127.5	129.8	131.5	133.8	135.8
Transportation and shipping	1.233	112.7	113.4	113.9	114.5	116.2	116.7	118.2	119.6
Telephone	0.987	100.9	101.3	102.2	103.1	104.1	105.0	106.1	107.4
Blood services	0.588	105.4	105.8	106.8	107.4	108.4	107.9	108.8	108.5
Postage	0.372	113.5	113.5	113.5	113.5	116.6	126.2	126.2	126.2
Other—labor intensive	1.233	110.5	110.8	111.5	112.7	115.3	116.3	116.8	117.5
Other—nonlabor intensive	0.800	113.9	115.2	116.2	117.1	118.2	119.9	121.4	122.4

<sup>1</sup>Data sources used to estimate the input price index relative weights and choice of price proxies were taken from the *Federal Register* (1990).

<sup>2</sup>Category weights may not sum to total due to rounding.

NOTES: Data for 1988 and 1989 are historical. Data for 1990 are partly historical and partly forecasted. Data for 1991 are forecasted. Q designates quarter of year.

SOURCES: Health Care Financing Administration, Office of the Actuary; Data from the Office of National Cost Estimates, Division of Statistical Analysis. Forecasts created by Data Resources, Inc./McGraw-Hill.

**Table 10**  
**Percent change in four-quarter averages in the skilled nursing facility input price index,**  
**by expense category: 1988-91**

Expense category <sup>1</sup>	Base year weights 1977 <sup>2</sup>	Four quarters ending							
		1988 Q1	1988 Q2	1988 Q3	1988 Q4	1989 Q1	1989 Q2	1989 Q3	1989 Q4
Total	100.00	4.1	4.5	4.9	5.3	5.6	6.0	6.1	6.1
Wages and salaries	63.02	4.2	4.8	5.3	5.8	6.3	6.7	6.8	6.8
Employee benefits	7.60	3.3	3.8	4.5	5.1	5.0	4.8	4.5	4.3
Food	9.74	3.3	2.9	3.5	4.3	5.1	5.8	5.4	5.1
Direct purchase	4.93	2.6	2.3	3.3	4.5	5.4	6.0	5.2	4.5
Contract service	4.81	3.8	3.4	3.7	4.1	4.8	5.6	5.7	5.7
Fuel and other energy	4.27	2.2	2.9	2.1	1.0	1.2	1.5	2.3	3.9
Electricity	1.21	0.4	1.0	1.1	1.4	1.6	2.1	2.8	2.8
Natural gas	0.91	-3.9	-3.1	-2.1	-0.6	1.3	2.4	3.0	2.9
Fuel oil and coal	1.66	6.9	7.8	4.8	0.2	-0.7	-1.0	0.3	4.7
Water and sewerage maintenance	0.49	5.4	5.3	5.3	5.5	5.7	6.0	6.0	6.1
All other	15.37	4.9	4.9	4.9	4.9	5.1	5.4	5.5	5.6
Drugs	1.50	8.8	8.3	8.0	7.9	8.1	8.5	9.0	9.1
Supplies	3.28	4.1	4.1	4.1	4.1	4.3	4.6	4.7	4.8
Health services	1.21	7.2	7.1	7.0	7.2	7.4	7.4	7.4	7.3
Other business services	4.59	4.2	4.3	4.4	4.6	4.7	4.8	4.9	4.9
Miscellaneous	4.79	4.1	4.1	4.1	4.1	4.3	4.6	4.7	4.8

Expense category <sup>1</sup>	Base year weights 1977 <sup>2</sup>	Four quarters ending							
		1990 Q1	1990 Q2	1990 Q3	1990 Q4	1991 Q1	1991 Q2	1991 Q3	1991 Q4
Total	100.00	6.2	6.2	6.3	6.1	5.8	6.0	6.2	6.5
Wages and salaries	63.02	6.8	6.8	6.8	6.5	6.3	6.6	7.0	7.4
Employee benefits	7.60	4.6	4.9	5.3	5.8	5.9	5.8	5.7	5.3
Food	9.74	4.8	4.6	4.8	4.8	4.4	4.0	3.8	3.7
Direct purchase	4.93	3.5	3.4	3.9	4.1	4.3	3.9	3.6	3.6
Contract service	4.81	5.9	5.6	5.5	5.4	4.6	4.2	4.0	3.8
Fuel and other energy	4.27	5.8	6.0	5.9	4.8	1.5	1.2	1.9	2.9
Electricity	1.21	3.0	3.1	3.6	3.9	3.9	3.6	3.0	2.9
Natural gas	0.91	2.0	1.1	0.8	-0.1	-1.3	0.4	1.9	4.4
Fuel oil and coal	1.66	10.3	11.6	11.0	8.1	-0.4	-1.9	-0.8	0.3
Water and sewerage maintenance	0.49	6.2	6.3	6.4	6.5	6.4	6.6	7.0	7.3
All other	15.37	5.6	5.6	5.7	5.8	5.8	5.8	5.8	5.7
Drugs	1.50	9.3	9.2	9.5	10.0	10.5	11.2	10.7	10.3
Supplies	3.28	4.9	4.7	4.7	4.7	4.4	4.3	4.3	4.2
Health services	1.21	7.1	7.1	7.4	8.0	8.8	9.4	9.7	9.5
Other business services	4.59	5.0	5.1	5.2	5.2	5.1	5.0	5.0	5.0
Miscellaneous	4.79	4.9	4.7	4.7	4.7	4.4	4.3	4.3	4.2

<sup>1</sup>Data sources used to estimate the input price index relative weights and choice of price proxies were taken from the *Federal Register* (1987b).

<sup>2</sup>Category weights may not sum to total due to rounding.

NOTES: Data for 1988 and 1989 are historical. Data for 1990 are partly historical and partly forecasted. Data for 1991 are forecasted. Q designates quarter of year. Percent change data shown are four-quarter moving averages. The following is an example of how this computation is done: Use the quarterly index levels shown in Tables 9, 11, and 13. Choose the four-quarter period ending for which you would like to calculate the percent change (e.g., year-end 1990: Quarter 3). Count back three quarters so that you have a total of four (e.g., 1990: Quarter 3; 1990: Quarter 2; 1990: Quarter 1; 1989: Quarter 4). Average these four quarters (add the index levels and divide by 4). Now, take the four quarters previous to the four quarters that you just used (e.g., 1989: Quarter 3; 1989: Quarter 2; 1989: Quarter 1; 1988: Quarter 4). Average these four quarters. Finally, compute a percent change using the two averages.

SOURCES: Health Care Financing Administration, Office of the Actuary; Data from the Office of National Cost Estimates, Division of Statistical Analysis. Forecasts created by Data Resources, Inc./McGraw-Hill.

**Table 11**  
**Quarterly index levels in the skilled nursing facility input price index,**  
**by expense category: 1988-91**

Expense category <sup>1</sup>	Base year weights	1988	1988	1988	1988	1989	1989	1989	1989
	1977 <sup>2</sup>	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Total	100.00	191.4	193.4	197.1	199.8	203.3	205.6	208.7	212.2
Wages and salaries	63.02	190.0	191.8	196.2	199.3	203.0	205.3	209.1	212.9
Employee benefits	7.60	201.7	203.4	205.9	208.2	210.2	212.4	214.6	217.1
Food	9.74	161.7	164.2	168.1	169.6	172.0	173.8	174.8	177.0
Direct purchase	4.93	147.9	150.8	154.9	156.0	158.1	158.7	158.9	161.2
Contract service	4.81	176.0	178.0	181.6	183.5	186.4	189.4	191.1	193.3
Fuel and other energy	4.27	197.1	198.8	198.4	197.8	202.7	204.8	205.1	210.4
Electricity	1.21	194.3	195.0	194.8	199.2	198.7	201.7	200.7	204.0
Natural gas	0.91	217.4	217.2	217.0	223.0	228.6	222.4	220.9	227.7
Fuel oil and coal	1.66	182.1	185.2	182.6	174.1	183.0	188.9	189.6	196.2
Water and sewerage maintenance	0.49	217.4	220.6	226.1	227.8	231.1	234.0	239.0	241.9
All other	15.37	209.4	212.0	214.8	217.5	221.0	224.2	226.7	229.4
Drugs	1.50	249.5	255.0	259.0	264.8	271.5	277.7	283.8	289.1
Supplies	3.28	192.0	194.1	196.4	198.5	201.2	204.1	205.6	207.6
Health services	1.21	232.9	237.2	241.5	244.2	250.9	254.5	258.7	261.8
Other business services	4.59	220.6	223.0	225.6	228.4	231.4	233.9	236.8	239.7
Miscellaneous	4.79	192.0	194.1	196.4	198.5	201.2	204.1	205.6	207.6

Expense category <sup>1</sup>	Base year weights	1990	1990	1990	1990	1991	1991	1991	1991
	1977 <sup>2</sup>	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Total	100.00	216.4	218.9	221.3	224.2	227.6	234.1	236.9	239.1
Wages and salaries	63.02	216.6	219.8	222.6	225.5	229.2	237.7	240.6	242.4
Employee benefits	7.60	221.3	224.4	227.3	230.7	233.8	236.7	239.4	242.2
Food	9.74	180.4	182.5	183.3	184.9	186.7	188.7	190.5	192.4
Direct purchase	4.93	162.7	165.9	166.4	167.6	169.2	170.8	172.4	174.0
Contract service	4.81	198.5	199.5	200.6	202.7	204.8	207.0	209.1	211.3
Fuel and other energy	4.27	223.3	213.4	211.3	214.4	216.9	219.9	223.3	226.8
Electricity	1.21	205.0	209.1	210.5	211.4	212.3	214.2	216.1	218.0
Natural gas	0.91	232.7	219.4	222.2	224.0	226.2	231.7	237.6	242.8
Fuel oil and coal	1.66	224.5	202.6	193.3	198.6	201.7	203.6	206.3	209.5
Water and sewerage maintenance	0.49	246.5	249.2	253.6	257.7	262.7	267.4	272.5	277.6
All other	15.37	233.8	236.6	239.9	243.3	246.9	250.4	253.7	257.1
Drugs	1.50	296.9	302.1	314.4	321.3	329.7	337.3	343.1	351.5
Supplies	3.28	211.7	213.4	214.8	217.4	219.8	222.2	224.6	227.0
Health services	1.21	267.5	273.7	280.2	286.4	294.3	300.7	306.3	311.6
Other business services	4.59	243.4	246.3	249.2	252.1	255.2	258.4	261.7	264.9
Miscellaneous	4.79	211.7	213.4	214.8	217.4	219.8	222.2	224.6	227.0

<sup>1</sup>Data sources used to estimate the input price index relative weights and choice of price proxies were taken from the *Federal Register* (1987b).

<sup>2</sup>Category weights may not sum to total due to rounding.

NOTES: Data for 1988 and 1989 are historical. Data for 1990 are partly historical and partly forecasted. Data for 1991 are forecasted. Q designates quarter of year.

SOURCE: Health Care Financing Administration, Office of the Actuary: Data from the Office of National Cost Estimates, Division of Statistical Analysis. Forecasts created by Data Resources, Inc./McGraw-Hill.

Table 12

**Percent change in four-quarter averages in the home health agency input price index, by expense category: 1988-91**

Expense category <sup>1</sup>	Base year weights 1976 <sup>2</sup>	Four quarters ending							
		1988 Q1	1988 Q2	1988 Q3	1988 Q4	1989 Q1	1989 Q2	1989 Q3	1989 Q4
Total	100.00	5.0	5.4	5.8	6.0	6.2	6.2	6.2	6.1
Wages and salaries	65.14	5.5	6.0	6.5	6.8	7.0	6.8	6.8	6.6
Employee benefits	7.90	3.3	3.8	4.5	5.1	5.0	4.8	4.5	4.3
Transportation	4.87	4.6	4.6	4.0	3.1	3.3	4.3	4.7	5.0
Office costs	2.79	4.2	4.3	4.4	4.6	4.7	4.8	4.9	4.9
Rent	1.35	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.9
Nonrental space occupancy	1.17	2.2	2.9	2.2	1.0	1.2	1.6	2.4	4.0
Medical and nursing supplies and equipment	2.81	3.7	3.7	3.5	3.6	4.3	4.9	5.4	5.8
Contract services	6.87	5.0	5.4	5.8	6.0	6.2	6.2	6.2	6.1
Miscellaneous	7.10	4.1	4.1	4.1	4.1	4.3	4.6	4.7	4.8

Expense category <sup>1</sup>	Base year weights 1976 <sup>2</sup>	Four quarters ending							
		1990 Q1	1990 Q2	1990 Q3	1990 Q4	1991 Q1	1991 Q2	1991 Q3	1991 Q4
Total	100.00	5.9	5.8	5.5	5.4	5.4	5.5	5.6	5.6
Wages and salaries	65.14	6.3	6.1	5.7	5.6	5.6	5.8	6.0	6.0
Employee benefits	7.90	4.6	4.9	5.3	5.8	5.9	5.8	5.7	5.3
Transportation	4.87	5.1	3.8	3.5	3.4	2.9	3.2	3.3	3.6
Office costs	2.79	5.0	5.1	5.2	5.2	5.1	5.0	5.0	5.0
Rent	1.35	4.0	4.1	4.2	4.1	4.0	3.8	3.4	3.5
Nonrental space occupancy	1.17	5.8	6.1	6.0	4.8	1.5	1.2	1.9	2.9
Medical and nursing supplies and equipment	2.81	5.9	5.9	5.9	5.8	6.1	6.4	6.7	6.9
Contract services	6.87	5.9	5.8	5.5	5.4	5.4	5.5	5.6	5.6
Miscellaneous	7.10	4.9	4.7	4.7	4.7	4.4	4.3	4.3	4.2

<sup>1</sup>Data sources used to estimate the input price index relative weights and choice of price proxies were taken from the *Federal Register* (1987a).

<sup>2</sup>Category weights may not sum to total due to rounding.

NOTES: Data for 1988 and 1989 are historical. Data for 1990 are partly historical and partly forecasted. Data for 1991 are forecasted. Q designates quarter of year. Percent change data shown are four-quarter moving averages. The following is an example of how this computation is done: Use the quarterly index levels shown in Tables 9, 11, and 13. Choose the four-quarter period ending for which you would like to calculate the percent change (e.g., year-end 1990: Quarter 3). Count back three quarters so that you have a total of four (e.g., 1990: Quarter 3; 1990: Quarter 2; 1990: Quarter 1; 1989: Quarter 4). Average these four quarters (add the index levels and divide by 4). Now, take the four quarters previous to the four quarters that you just used (e.g., 1989: Quarter 3; 1989: Quarter 2; 1989: Quarter 1; 1988: Quarter 4). Average these four quarters. Finally, compute a percent change using the two averages.

SOURCES: Health Care Financing Administration, Office of the Actuary; Data from the Office of National Cost Estimates, Division of Statistical Analysis. Forecasts created by Data Resources, Inc./McGraw-Hill.

**Table 13**  
**Quarterly index levels of the home health agency input price index, by expense category: 1988-91**

Expense category <sup>1</sup>	Base year weights	1988	1988	1988	1988	1989	1989	1989	1989
	1976 <sup>2</sup>	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Total	100.00	228.4	231.6	235.4	239.4	242.9	245.3	249.9	253.4
Wages and salaries	65.14	235.6	239.1	243.5	248.3	252.1	254.0	259.9	263.9
Employee benefits	7.90	224.0	225.9	228.6	231.1	233.4	235.9	238.2	241.1
Transportation	4.87	193.9	195.9	198.6	200.6	202.5	209.7	207.8	208.6
Office costs	2.79	237.5	240.2	243.0	246.0	249.2	251.9	255.0	258.1
Rent	1.35	206.5	207.6	210.1	212.2	214.0	215.6	218.3	221.0
Nonrental space occupancy	1.17	221.8	223.8	223.3	222.5	228.2	230.6	230.9	236.9
Medical and nursing supplies and equipment	2.81	199.9	203.9	206.4	208.7	210.9	215.9	218.2	221.6
Contract services	6.87	228.5	231.6	235.4	239.5	242.9	245.4	249.9	253.5
Miscellaneous	7.10	204.4	206.6	209.1	211.4	214.2	217.3	218.9	221.0

Expense category <sup>1</sup>	Base year weights	1990	1990	1990	1990	1991	1991	1991	1991
	1976 <sup>2</sup>	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Total	100.00	256.8	258.4	262.7	267.1	271.0	273.4	277.8	281.8
Wages and salaries	65.14	266.9	268.3	273.5	278.6	282.9	285.0	290.1	294.6
Employee benefits	7.90	245.8	249.2	252.4	256.2	259.6	262.8	265.8	268.9
Transportation	4.87	212.5	213.7	214.6	215.8	219.0	219.9	222.7	225.5
Office costs	2.79	262.1	265.3	268.4	271.4	274.8	278.3	281.8	285.2
Rent	1.35	222.6	224.6	228.3	229.2	230.4	232.5	235.2	237.8
Nonrental space occupancy	1.17	251.7	240.3	237.9	241.5	244.3	247.8	251.7	255.7
Medical and nursing supplies and equipment	2.81	223.3	228.4	231.0	234.6	238.9	244.3	247.0	250.3
Contract services	6.87	256.9	258.4	262.8	267.2	271.1	273.4	277.8	281.9
Miscellaneous	7.10	255.4	227.2	228.7	231.4	234.0	236.5	239.1	241.7

<sup>1</sup>Data sources used to estimate the input price index relative weights and choice of price proxies were taken from the *Federal Register* (1987b).

<sup>2</sup>Category weights may not sum to total due to rounding.

NOTES: Data for 1988 and 1989 are historical. Data for 1990 are partly historical and partly forecasted. Data for 1991 are forecasted. Q designates quarter of year.

SOURCES: Health Care Financing Administration, Office of the Actuary; Data from the Office of National Cost Estimates, Division of Statistical Analysis. Forecasts created by Data Resources, Inc./McGraw-Hill.

## Hospital skill mix changes: 1980s

### Overview

Hospitals shifted to a slightly more expensive mix of employee-hours during the 1980s. This skill mix shift is noticeable in nursing employment—hospitals are using relatively more registered nurses and fewer licensed practical nurses and nursing aides. But the magnitude of the shift, measured by a composite index of shares of hours worked, is small—less than 2 percent from 1980 through 1989 (0.2-percent average annual growth). The rate of increase in this skill mix composite index slowed in the second half of the decade. The skill mix trend for private hospitals is very close to the trend for all hospitals.

### Data and methods

The Current Population Survey (CPS) is the source of the official Government household statistics on unemployment and the labor force. In the monthly survey, questions are asked about average hourly earnings, average hours worked, and average weekly earnings to a 25-percent subgroup of the usual monthly sample. These responses were used to estimate shares of

hours worked (Table 14) for seven occupation groups within the hospital industry. Each occupation's share of hours worked is simply total hours worked in that occupation divided by total hours worked in all occupations.

The CPS March Income Supplement was used to create expenditure shares for these labor categories in 1984 (Table 15). Expenditure shares are total wages and salaries income for an occupation divided by total wages and salaries income for all hospital employees.

The two sets of data—shares of hours worked and expenditure share by occupation—were used to create a fixed-weight (Laspeyres) composite index that measures the impact of shifts in relative hours worked among occupations within hospitals (Table 16). The composite index is created by first scaling each occupation's share of hours worked to form index series where 1984 = 100.0. Then each index series is weighted by its 1984 expenditure share. The weighted sum of occupational indexes forms the composite index. The year 1984 was arbitrarily chosen as a base, or reference, year for the index.

The composite index measures only the cost impacts of skill mix change—it ignores overall and relative wage changes and changes in overall hospital employment levels. Each occupation can be thought of as "high-paid"

**Table 14**  
**Percent shares of hours worked in the hospital industry, by occupation: 1980-89**

Occupation	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Percent change <sup>5</sup>
<b>All hospitals</b>											
	Percent										
All occupations	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.0
Registered nurses	21.3	21.0	21.2	21.5	22.3	23.2	23.3	24.4	23.1	22.8	+2.3
Licensed practical nurses	5.5	5.1	5.2	6.2	5.3	5.0	5.0	4.6	4.3	4.3	-0.9
Technicians <sup>1</sup>	8.4	9.5	9.2	9.0	9.5	10.1	9.3	8.7	10.0	9.9	+0.5
Therapists <sup>2</sup>	2.5	3.1	2.8	2.9	3.0	3.1	3.1	3.0	3.0	3.2	+0.2
Nursing aides	12.1	11.3	10.8	10.8	8.8	8.7	8.9	8.4	9.0	8.4	-2.8
Other health occupations <sup>3</sup>	9.3	9.5	10.3	10.8	10.9	10.6	10.2	10.0	10.4	10.8	+0.7
Nonhealth occupations <sup>4</sup>	41.0	40.6	40.5	38.8	40.3	39.5	40.2	40.9	40.3	40.6	-0.1
<b>Private hospitals</b>											
All occupations	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.0
Registered nurses	23.5	22.8	23.1	23.1	24.4	24.6	24.6	26.6	24.8	24.7	+2.3
Licensed practical nurses	5.7	5.6	5.8	6.4	4.9	4.9	4.9	4.7	4.2	4.3	-1.3
Technicians <sup>1</sup>	9.1	10.7	10.1	9.5	10.6	10.7	9.8	9.0	10.4	10.4	-0.1
Therapists <sup>2</sup>	2.6	3.0	2.8	2.8	3.0	3.4	3.3	3.1	3.2	3.1	+0.3
Nursing aides	10.1	9.9	9.4	9.3	7.3	7.7	7.6	7.5	8.0	7.6	-2.1
Other health occupations <sup>3</sup>	8.7	8.6	9.5	10.8	10.0	9.5	9.4	9.1	9.2	9.4	+0.4
Nonhealth occupations <sup>4</sup>	40.3	39.4	39.4	38.1	39.6	39.3	40.4	40.1	40.0	40.4	+0.4

<sup>1</sup>Consists mostly of clinical laboratory, health record, and radiologic technologists and technicians.

<sup>2</sup>Consists mostly of inhalation, occupational, and physical therapists.

<sup>3</sup>Consists mostly of pharmacists, dietitians, physicians, physicians' assistants, medical scientists, and health aides, except nursing.

<sup>4</sup>All other hospital employees, including managers and administrators.

<sup>5</sup>1987-1989 average minus 1980-1982 average.

NOTE: Column values may not sum to 100 percent due to rounding.

SOURCE: Health Care Financing Administration, Office of the Actuary: Data from the Office of National Cost Estimates.

**Table 15**  
**Percent of expenditures for labor categories, for all hospitals and private hospitals: 1984**

Occupation	Expenditure share <sup>5</sup>	
	All hospitals	Private hospitals
All occupations	100.0	100.0
Registered nurses	25.3	28.4
Licensed practical nurses	4.3	3.6
Health technicians and technologists <sup>1</sup>	9.5	10.5
Therapists <sup>2</sup>	3.3	3.5
Nursing aides, orderlies, and attendants	7.0	5.9
Other health occupations <sup>3</sup>	13.7	12.4
Nonhealth occupations <sup>4</sup>	36.7	35.6

<sup>1</sup>Consists mostly of clinical laboratory, health record, and radiologic technologists and technicians.

<sup>2</sup>Consists mostly of inhalation, occupational, and physical therapists.

<sup>3</sup>Consists mostly of pharmacists, dietitians, physicians, physicians' assistants, medical scientists, and health aides, except nursing.

<sup>4</sup>All other hospital employees, including managers and administrators.

<sup>5</sup>Expenditure shares are total wages and salaries income for an occupation divided by total wages and salaries income for all hospital employees.

NOTES: Expenditure shares from 1984 Current Population Survey, March Income Supplement. Values may not sum to 100 percent due to rounding.

SOURCE: Health Care Financing Administration, Office of the Actuary: Data from the Office of National Cost Estimates.

**Table 16**  
**Index levels and absolute percent change, hospital skill mix composite index<sup>1</sup>, by hospital category: 1980-89**

Hospital category	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1980-89
	Index levels										Percent change
All hospitals	98.7	99.0	99.3	99.4	100.0	100.2	100.0	100.2	100.1	100.3	1.7
Private hospitals	98.6	98.7	99.0	99.3	100.0	99.9	99.8	100.1	99.9	100.0	1.3

<sup>1</sup>1984 = 100.

SOURCE: Health Care Financing Administration, Office of the Actuary: Data from the Office of National Cost Estimates.

or "low-paid." High-paid occupations have a higher expenditure share than their share of hours worked in 1984—low-paid occupations have a lower expenditure share than their share of hours worked. The composite index will increase over time if the high-paid occupations work relatively more hours than low-paid workers; it will decrease if low-paid workers work relatively more (and high-paid workers work relatively less).<sup>1</sup>

Between 1980 and 1989, this index has increased by 1.7 percent (0.2-percent average annual growth) for all hospitals and by 1.3 percent for private hospitals. These results indicate that hospitals are using an increasingly expensive mix of workers, but that the overall magnitude of the shift seems very small.

### Data limitations

Each year, the CPS quarterly sample (used to compute shares of hours worked) includes about 200 therapists working for private hospitals, the smallest employment breakdown shown in this article. Although the overall trends seem reliable, sampling variability may distort year-to-year comparisons, especially in the smaller employment categories.

<sup>1</sup>Note that this composite index measures the effect or impact of skill mix changes, not occupation mix changes per se. If all hospital occupations earned the same wage in the base year of the composite index, then changes in relative hours worked would not affect the composite index. In this case, the composite index would always be equal to 100.0. Also, the composite index does not capture the effect of skill changes within an occupation; it assumes that an occupation's "skill" throughout the period is proportionate to base period wages.

## National economic indicators

To put health-related economic trends into perspective, this section shifts focus to discuss national indicators of output, employment, and inflation. The change in selected national economic indicators for 1980-90 is shown in Figure 4.

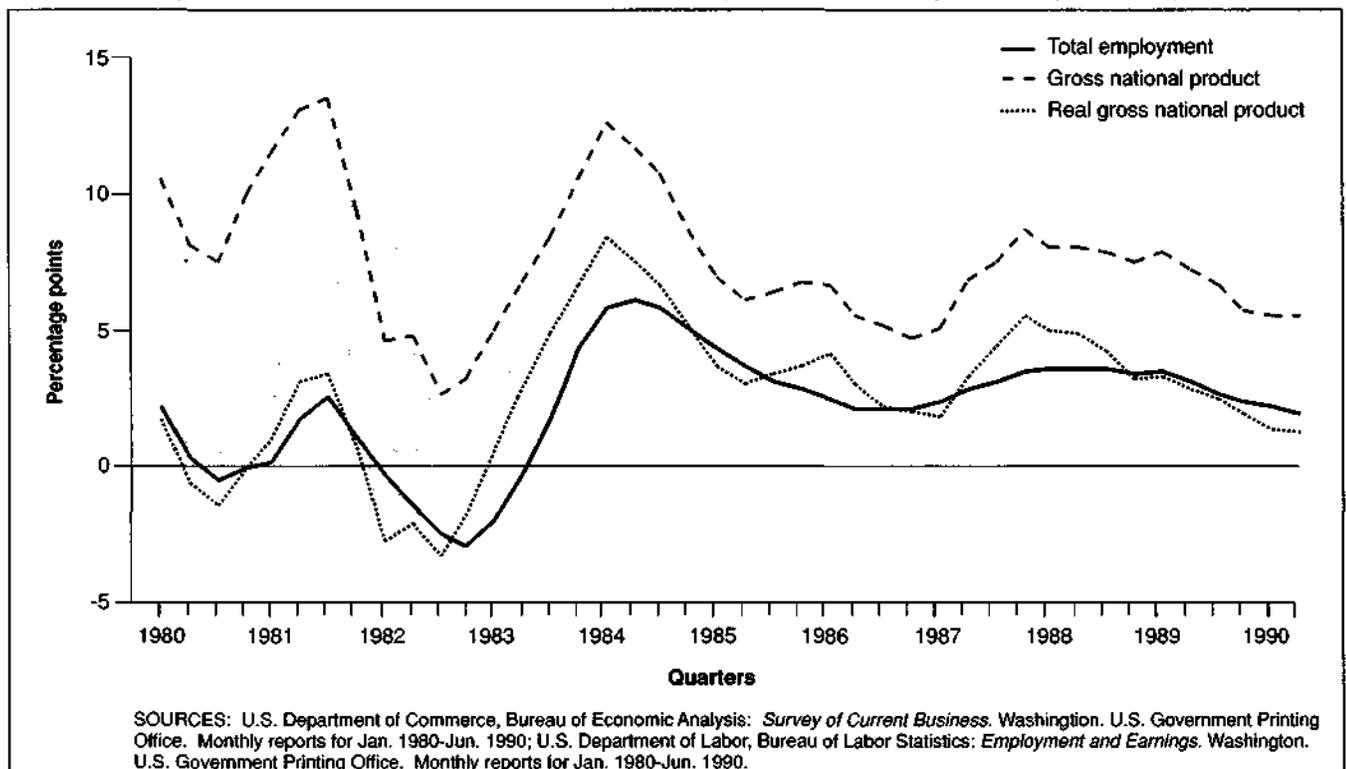
### Output and income

The gross national product (GNP), the most widely used measure of the Nation's output, was \$5.5 trillion during the second calendar quarter of 1990 (seasonally adjusted at annual rates). The growth of "real" GNP (also called constant dollar or price-deflated GNP) slowed during the second quarter of 1990 to 1.2 percent, continuing the trend of decelerating real growth begun in the first quarter of 1988.

Personal income rose to \$4.6 trillion during the second calendar quarter of 1990, up 6.0 percent from the same quarter of 1989. Disposable personal income (personal income net of taxes) grew 6.3 percent during the same period, reaching a level of \$3.9 trillion. The proportion of disposable personal income that was saved rather than spent (personal saving rate) was 5.1 percent.

Figure 4

Percent change in Indicators of national economic activity from the same period of previous year: 1980-90



**Table 17**  
**Selected national economic indicators: 1987-90**

Indicator	Calendar year			1987 Q2	1988 Q2	1989 Q2	1989 Q3	1989 Q4	1990 Q1	1990 Q2
	1987	1988	1989							
<b>Gross national product</b>										
Billions of dollars	\$5,416	\$4,874	\$5,201	\$4,472	\$4,831	\$5,174	\$5,239	\$5,289	\$5,375	\$5,452
Billions of 1982 dollars	\$3,845	\$4,017	\$4,118	\$3,820	\$4,006	\$4,112	\$4,130	\$4,133	\$4,151	\$4,163
Implicit price deflator (1982 = 100.0)	117.40	121.33	126.30	117.00	120.60	125.80	126.80	128.00	129.50	131.00
<b>Employment, hours, and earnings</b>										
Unemployment rate, all workers	6.2	5.5	5.3	6.3	5.5	5.3	5.3	5.3	5.3	5.3
Private nonagricultural workers:										
Total employment in thousands	85,190	88,150	90,644	84,944	87,951	90,603	91,539	91,821	90,436	92,272
Average weekly hours	34.8	34.7	34.6	34.8	34.7	34.6	34.6	34.5	34.5	34.6
Average hourly earnings	\$8.98	\$9.28	\$9.66	\$8.92	\$9.22	\$9.59	\$9.67	\$9.82	\$9.90	\$9.97
Health services workers:										
Total employment in thousands	6,805	7,144	7,635	6,766	7,085	7,571	7,714	7,828	7,967	8,102
Average weekly hours	32.4	32.4	32.5	32.3	32.3	32.4	32.6	32.5	32.5	32.5
Average hourly earnings	\$8.69	\$9.21	\$9.82	\$8.61	\$9.11	\$9.70	\$9.90	\$10.07	\$10.24	\$10.31
<b>Personal income and savings</b>										
Income in billions	\$3,766	\$4,071	\$4,384	\$3,720	\$4,033	\$4,363	\$4,403	\$4,469	\$4,563	\$4,626
Disposable income in billions	\$3,195	\$3,479	\$3,726	\$3,126	\$3,439	\$3,697	\$3,743	\$3,800	\$3,888	\$3,932
Savings in billions	\$92.5	\$145.6	\$171.8	\$45.8	\$140.7	\$168.9	\$154.5	\$174.1	\$191.3	\$199.1
Personal saving rate	2.9	4.2	4.6	1.5	4.1	4.6	4.1	4.6	4.9	5.1
<b>Prices<sup>1</sup></b>										
Gross national product fixed-weight price index (1982 = 100.0)	118.9	123.9	129.5	118.4	123.0	129.0	130.0	131.2	133.3	134.6
Consumer Price Index, all items										
All items less medical care	113.6	118.3	124.0	113.1	117.5	123.7	124.7	125.9	128.0	129.3
Apparel and upkeep	112.6	117.0	122.4	112.1	116.3	122.2	123.1	124.2	126.3	127.5
Energy	110.6	115.4	118.6	110.6	116.0	119.7	116.7	121.3	120.8	125.2
Food and beverages	88.6	89.2	94.3	88.2	89.0	97.1	97.1	93.7	96.5	97.3
Housing: shelter	113.5	118.2	124.9	113.3	117.1	124.5	125.6	126.7	130.7	131.3
Medical care	121.2	127.1	132.8	120.5	126.2	131.8	133.9	135.2	136.9	138.6
Medical care	130.1	138.6	149.3	129.3	137.5	147.6	150.7	153.7	157.4	160.8
Producer Price Index, <sup>2</sup> finished consumer goods										
	103.6	106.2	112.1	103.6	105.6	112.7	112.3	113.5	116.3	116.3

<sup>1</sup>Base period = 1982-84, unless noted.

<sup>2</sup>Formerly called the "Wholesale Price Index."

NOTES: Q designates quarter of year. Quarterly data are not seasonally adjusted.

SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis: *Survey of Current Business*. Washington, U.S. Government Printing Office. Monthly reports for Jan. 1987-August 1990; U.S. Department of Labor, Bureau of Labor Statistics: *Employment and Earnings*. Washington, U.S. Government Printing Office. Monthly reports for Jan. 1987-June 1990.

## Employment, unemployment, and earnings

During the second calendar quarter of 1990, the unemployment rate for all workers was 5.3 percent, approximately the same level as the prior four quarters and the lowest in the past decade. Slower real growth in the GNP has not affected the unemployment rate as of the second quarter of 1990.

The U.S. workforce held 92.3 million jobs during the second quarter of 1990; employment growth in the second quarter of 1990 is the lowest growth since the third quarter of 1983. For nonsupervisory workers, average hourly earnings increased by 4.0 percent to a level of \$9.97 in the second calendar quarter of 1990.

## Prices

Growth in the GNP fixed-weight price index, the most comprehensive measure of price inflation, slowed to 4.3 percent between the second quarters of 1989 and 1990. The GNP implicit price deflator (which reflects changes in the composition of output as well as price inflation) rose 4.1 percent between the second quarter of 1989 and that of 1990. During the same period, the CPI for all items and all urban consumers slowed to 4.6 percent (Tables 17 and 18).

The Producer Price Index for finished consumer goods slowed 3.2 percent between the second quarter of 1989 and the second quarter of 1990.

**Table 18**  
**Percent change in selected national economic indicators: 1987-90**

Indicator	Calendar year			1987 Q2	1988 Q2	1989 Q2	1989 Q3	1989 Q4	1990 Q1	1990 Q2
	1987	1988	1989							
<b>Gross national product</b>	Annual percent change			Percent change from same period of previous year						
Billions of dollars	6.7	7.9	6.7	6.6	8.0	7.1	6.5	5.6	5.4	5.4
Billions of 1982 dollars	3.4	4.5	2.5	3.1	4.9	2.7	2.4	1.8	1.3	1.2
Implicit price deflator (1982 = 100.0)	3.1	3.3	4.1	3.4	3.1	4.3	3.9	3.7	3.9	4.1
<b>Employment, hours, and earnings</b>										
Unemployment rate, all workers <sup>1</sup>	-0.8	-0.7	-0.2	-0.9	-0.8	-0.2	-0.2	0.0	0.1	0.0
Private nonagricultural workers:										
Total employment	2.8	3.5	2.8	2.7	3.5	3.0	2.6	2.3	2.1	1.8
Average weekly hours	0.1	-0.2	-0.4	0.0	-0.1	-0.5	-0.4	-0.6	-0.3	0.0
Average hourly earnings	2.5	3.4	4.1	2.3	3.4	4.0	4.2	4.0	3.8	4.0
Health services workers:										
Total employment	4.1	5.0	6.9	4.1	4.7	6.9	7.0	7.1	7.3	7.0
Average weekly hours	-0.1	0.0	0.3	0.0	0.0	0.3	0.3	0.6	0.3	0.3
Average hourly earnings	4.2	5.9	6.7	3.8	5.8	6.4	6.9	6.5	6.4	6.4
<b>Personal income and savings</b>										
Income	6.8	8.1	7.7	6.0	8.4	8.2	7.1	6.8	6.1	6.0
Disposable income	6.0	8.9	7.1	4.0	10.0	7.5	6.3	6.2	6.2	6.3
Savings	-25.9	57.5	18.0	-70.5	207.2	20.0	-1.5	17.2	0.8	17.9
Personal saving rate <sup>1</sup>	-1.3	1.3	0.4	-2.6	2.3	0.5	-0.2	0.0	-0.7	0.5
<b>Prices<sup>2</sup></b>										
Gross national product fixed-weight price index (1982 = 100.0)	3.5	4.0	4.5	3.5	3.9	4.9	4.3	4.0	4.5	4.3
Consumer Price Index, all items	3.7	4.1	4.8	3.8	3.9	5.2	4.7	4.6	5.2	4.6
All items less medical care	3.4	3.9	4.6	3.5	3.8	5.0	4.4	4.4	5.0	4.3
Apparel and upkeep	4.4	4.3	2.8	5.3	4.8	3.2	2.0	1.5	3.6	4.6
Energy	0.4	0.8	5.7	0.0	0.9	9.1	5.7	5.0	8.0	0.2
Food and beverages	4.1	4.1	5.7	4.8	3.4	6.3	5.2	5.3	6.5	5.4
Housing; shelter	4.7	4.8	4.5	4.5	4.7	4.4	4.6	4.8	5.0	5.2
Medical care	6.6	6.5	7.7	6.8	6.4	7.3	7.7	8.4	8.5	9.0
Producer Price Index, <sup>3</sup> finished consumer goods	2.1	2.5	5.6	2.7	1.9	6.8	4.9	5.1	5.7	3.2

<sup>1</sup>Absolute change, rather than percent change.

<sup>2</sup>Base period = 1982-84, unless noted.

<sup>3</sup>Formerly called the "Wholesale Price Index."

SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis: *Survey of Current Business*. Washington. U.S. Government Printing Office. Monthly reports for Jan. 1987-August 1990; U.S. Department of Labor, Bureau of Labor Statistics: *Employment and Earnings*. Washington. U.S. Government Printing Office. Monthly reports for Jan. 1987-June 1990.

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