

Health Care Financing Trends

Update on provider input price indexes

by William E. Cymer

The Medicare hospital prospective payment system (PPS), and limits on home health agency (HHA) and skilled nursing facility (SNF) costs, incorporate an inflation factor that reflects the percentage change in the price of a fixed quantity of goods and services purchased in order to furnish care. First adopted in 1979 in connection with the limits on hospital routine operating costs, these measures of provider-specific price inflation are known as input price indexes or market baskets.

The definition of each market basket and specific methodology used in its development are referenced 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 3, 1986 (*Federal Register, 1986*). The latest HHA regulatory market basket was published July 7, 1987 (*Federal Register, 1987a*) and the latest SNF market basket was published October 2, 1987 (*Federal Register, 1987b*). Costs presently excluded from these input price indexes include capital, medical professional fees, and direct medical education expenses.

Although the mix of inputs reflected in each market basket varies with provider production patterns, all of the Health Care Financing Administration (HCFA) input price indexes are Laspeyres or fixed-weight measures constructed essentially in two steps. First, a base period is selected, and the proportion of total expenditures accounted for by designated spending categories is calculated. These proportions are called cost or expenditure weights. In the second step, a price index is selected to measure the rate of price change for each cost category. The rate of price increase is multiplied by the expenditure weight for that category. The sum of these products for all cost categories yields a weighted estimate of price change for a fixed quantity of purchased goods and services relative to the base period.

A Laspeyres input price index is described as a fixed-weight index because it answers the question of how much more it would cost at a later time to purchase the same mix of goods and services that was

purchased in the base period. The effects on total expenditures resulting from changes in the quantity or mix of purchases made subsequent to the base period are not considered. For example, shifting the site of a particular type of hospital care from an inpatient to an outpatient setting might affect the volume of hospital inputs, resulting in different expenditure weights. However, a Laspeyres market basket would not reflect these changes until the measure is rebased (i.e., revised weights are developed).

HCFA's Office of the Actuary (OACT) revises the historical and forecasted rates of change in the input price indexes each quarter. Tables 1-3 present the percentage rates of increase in each cost category for the current hospital PPS, HHA, and SNF regulatory input price indexes for calendar years 1980-86. The corresponding index levels for each market basket are shown in Tables 4-6. Similar tabulations for specific fiscal periods are available from OACT on request. Caution is suggested because the rates of price change contained in these tables were developed from price-index data available as of November 1987, and may not agree with any corresponding market basket values published previously in the *Federal Register*.

Figure 1 compares the rate of growth in each input price index with that of prices in general, as measured by the Consumer Price Index for all urban consumers (CPI-U). Figure 1 reveals that prior to 1984, increases in the hospital PPS, HHA, and SNF input price indexes generally exceeded the rate of growth in the CPI-U. Beginning in 1984, however, price inflation among providers was more similar, perhaps reflecting cost containment pressures generated by the implementation of the PPS in 1983. The average rate of growth in the HHA market basket during the period 1980-86 was 7.5 percent, well in excess of the corresponding values of 6.6 and 6.1 percent in the hospital PPS and SNF input price indexes, respectively. The average annual rate of increase in the CPI-U for the same period was 6.2 percent.

Wages and salaries are the most important category of each provider input price index, representing no less than 56 percent of base period expenditures. Figure 2 compares the rate of increase in this component of each regulatory market basket with that of economy-wide wages. Economy-wide wages are measured here using the growth in average hourly earnings for the total private nonfarm economy. As tracked by each provider input price index, the average rate of growth in the wages and salaries category during 1980-86 was 7.0 percent for hospitals, 8.0 percent for HHA's, and 6.0 percent for SNF's. The increase in average hourly earnings for the same period was 5.2 percent.

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Table 1
Annual percent change in the prospective payment system hospital input price index,
by expense category: 1980-86

Expense category ¹	Base-year weights 1982 ²	Calendar year							Average percent change
		1980	1981	1982	1983	1984	1985	1986	
Total	100.00	11.7	10.1	7.7	5.3	4.8	3.8	2.7	6.6
Wages and salaries	55.83	9.7	10.3	8.9	6.3	5.5	4.4	3.6	7.0
Employee benefits	9.80	10.5	10.7	9.9	6.6	4.6	3.1	1.3	5.2
Other professional fees	.76	10.7	10.4	8.6	6.5	5.8	4.1	3.7	7.1
Energy and utilities	3.16	37.7	18.5	3.4	-2.8	0.2	-0.6	-16.5	5.7
Fuel oil, coal, and other fuel	1.15	51.7	19.5	-5.5	-10.1	-2.8	-4.8	-36.0	1.7
Electricity	1.09	20.5	14.7	12.1	3.1	5.1	4.0	1.5	8.7
Natural gas	.47	32.8	29.8	21.8	6.6	-0.5	-3.0	-12.9	10.7
Motor gasoline	.42	55.8	15.7	-7.4	-9.8	-6.1	-1.6	-34.3	1.7
Water and sewage	.03	6.8	12.0	11.9	8.3	6.6	6.0	5.4	8.1
Malpractice insurance	.66	-3.1	11.7	15.4	14.5	18.6	24.2	26.1	15.3
Other products	21.05	15.8	8.5	3.7	3.0	3.8	2.1	2.2	5.6
Pharmaceuticals	4.10	8.9	11.7	11.1	10.7	9.2	9.2	8.8	9.9
Food	3.56	8.9	5.1	2.6	2.7	3.8	0.4	2.6	3.7
Direct purchase	2.27	8.4	3.1	1.1	1.8	3.6	-1.8	1.8	2.6
Contract service	1.29	9.9	9.0	5.3	4.4	4.2	3.9	3.9	5.8
Chemicals and cleaning products	3.13	22.7	12.1	-3.0	-2.7	-0.5	-0.9	-4.6	3.3
Surgical and medical instruments	2.38	12.1	9.8	5.9	2.9	3.1	-0.8	0.8	4.8
Photographic supplies	2.26	50.1	3.1	-0.3	3.7	2.3	1.2	1.6	8.8
Rubber and plastics	2.16	11.9	7.0	3.8	0.8	1.5	-0.4	0.0	3.5
Paper products	1.19	12.9	8.6	2.3	0.0	7.1	1.1	0.4	4.6
Apparel	1.08	8.7	9.6	5.2	-1.4	1.6	0.5	0.5	3.5
Minor machinery and equipment	.43	12.1	9.8	5.9	2.7	2.3	2.0	1.5	5.2
Miscellaneous products	.76	13.5	9.3	4.0	1.6	2.1	0.9	-1.4	4.3
Other services	8.74	10.2	9.1	9.3	5.9	3.9	3.8	2.6	6.4
Business services	3.02	10.1	8.2	10.3	6.3	3.4	3.6	3.1	6.4
Computer and data processing	1.40	12.8	10.6	13.6	12.3	4.0	4.7	5.5	9.1
Transportation and shipping	1.08	17.8	12.1	4.1	2.4	4.4	2.6	-3.9	5.6
Telephone	.76	2.5	8.8	10.2	6.4	8.4	3.9	4.9	6.4
Blood services	.54	8.8	0.7	7.5	1.2	-4.2	2.9	2.8	2.8
Postage	.32	0.0	17.2	11.9	0.0	0.0	8.8	1.3	5.6
Other—labor intensive	.97	7.9	8.8	7.8	4.9	6.0	3.5	2.8	6.0
Other—nonlabor intensive	.65	13.5	10.3	6.2	3.2	4.3	3.6	1.9	6.1

¹For a description of the proxies currently used to measure the rate of price change for each expense category, see *Federal Register*, September 3, 1986.

²Category weights may not sum to totals because of rounding.

SOURCE: Health Care Financing Administration: Data from the Office of the Actuary.

Table 2
Annual percent change in the home health agency input price index, by expense category:
1980-86

Expense category ¹	Base-year weights	Calendar year							Average percent change
	1976 ²	1980	1981	1982	1983	1984	1985	1986	
Total	100.00	11.5	11.9	10.0	6.5	5.1	4.7	3.1	7.5
Wages and salaries	65.14	10.6	12.3	11.2	7.4	5.3	5.3	3.9	8.0
Employee benefits	7.90	10.5	10.7	9.9	6.6	4.6	3.1	1.3	6.7
Transportation	4.87	17.8	12.1	4.1	2.4	4.4	2.6	-3.9	5.6
Office costs	2.79	15.4	13.1	9.1	3.4	5.2	5.1	5.0	8.0
Medical and nursing supplies and equipment	1.35	8.0	9.3	9.3	6.2	4.6	4.4	4.9	6.7
Rent	1.17	8.8	8.7	7.6	5.8	5.2	6.1	5.8	6.9
Nonrental space occupancy	2.81	25.1	17.4	6.7	2.4	3.2	-0.2	-8.1	6.6
Contract services	7.10	11.5	11.9	10.0	6.5	5.1	4.7	3.1	7.5
Miscellaneous	6.87	13.5	10.4	6.2	3.2	4.3	3.6	1.9	6.2

¹For a description of the proxies currently used to measure the rate of price change for each expense category, see *Federal Register*, July 7, 1987.

²Category weights may not sum to totals because of rounding.

SOURCE: Health Care Financing Administration: Data from the Office of the Actuary.

Table 3
Annual percent change in the skilled nursing facility input price index, by expense category:
1980-86

Expense category ¹	Base-year weights	Calendar year							Average percent change
	1977 ²	1980	1981	1982	1983	1984	1985	1986	
Total	100.00	10.0	9.6	7.3	5.5	4.3	3.1	2.7	6.1
Wages and salaries	63.02	8.2	9.0	7.7	6.4	4.2	3.3	3.4	6.0
Employee benefits	7.60	10.5	10.7	9.9	6.6	4.6	3.1	1.3	6.7
Food	9.74	8.5	5.4	2.6	2.0	3.7	0.4	2.6	3.6
Direct purchase	4.93	8.4	3.1	1.1	1.8	3.5	-1.8	1.8	2.6
Contract service	4.81	8.5	7.8	4.1	2.2	3.8	2.3	3.3	4.6
Fuel and other energy	4.27	25.0	17.4	6.8	2.4	3.2	-0.1	-7.9	6.7
Electricity	1.21	15.7	15.0	9.9	3.2	6.4	3.6	1.4	7.9
Natural gas	.91	19.3	13.2	20.7	16.7	0.7	-0.7	-4.8	9.3
Fuel oil, and coal	1.66	37.8	21.4	-1.1	-6.1	2.2	-3.5	-19.2	4.5
Water and sewage	.49	6.8	12.0	11.9	8.3	6.6	6.0	5.4	8.1
All Other	15.37	13.4	11.4	7.8	4.3	5.3	4.8	4.0	7.3
Drugs	1.50	8.9	11.7	11.1	10.7	9.2	9.2	8.8	9.9
Supplies	3.28	13.5	10.4	6.2	3.2	4.3	3.6	1.9	6.2
Health services	1.21	10.6	11.0	9.4	7.7	6.9	5.8	7.3	8.4
Other business services	4.59	15.4	13.1	9.1	3.4	5.2	5.1	5.0	8.0
Miscellaneous	4.79	13.5	10.4	6.2	3.2	4.3	3.6	1.9	6.2

¹For a description of the proxies currently used to measure the rate of price change for each expense category, see *Federal Register*, October 2, 1987.

²Category weights may not sum to totals because of rounding.

SOURCE: Health Care Financing Administration: Data from the Office of the Actuary.

Table 4
Index values, prospective payment system hospital input price index,
by expense category: 1980-86
(1982 = 1.000)

Expense category	Calendar year						
	1980	1981	1982	1983	1984	1985	1986
Total	.844	.929	1.000	1.055	1.106	1.148	1.179
Wages and salaries	.833	.919	1.000	1.063	1.121	1.171	1.213
Employee benefits	.822	.910	1.000	1.066	1.116	1.150	1.165
Other professional fees	.834	.921	1.000	1.065	1.128	1.174	1.218
Energy and utilities	.816	.967	1.000	.972	.973	.967	.807
Fuel oil, coal, and other fuel	.886	1.059	1.000	.899	.874	.832	.532
Electricity	.778	.892	1.000	1.031	1.084	1.128	1.145
Natural gas	.633	.821	1.000	1.066	1.061	1.029	.896
Motor gasoline	.933	1.080	1.000	.902	.846	.833	.547
Water and sewage	.798	.894	1.000	1.083	1.154	1.224	1.289
Malpractice insurance	.776	.867	1.000	1.145	1.357	1.685	2.125
Other products	.889	.964	1.000	1.030	1.069	1.092	1.116
Pharmaceuticals	.806	.900	1.000	1.107	1.209	1.320	1.436
Food	.927	.975	1.000	1.027	1.066	1.070	1.098
Direct purchase	.959	.989	1.000	1.018	1.054	1.035	1.054
Contract service	.871	.949	1.000	1.044	1.088	1.131	1.175
Chemicals and cleaning products	.919	1.031	1.000	.973	.968	.960	.915
Surgical and medical instruments	.860	.944	1.000	1.029	1.060	1.052	1.061
Photographic supplies	.972	1.003	1.000	1.037	1.061	1.074	1.091
Rubber and plastics	.901	.964	1.000	1.008	1.023	1.019	1.019
Paper products	.900	.977	1.000	1.000	1.071	1.083	1.088
Apparel	.868	.950	1.000	.986	1.002	1.006	1.011
Minor machinery and equipment	.860	.944	1.000	1.027	1.051	1.072	1.088
Miscellaneous products	.880	.961	1.000	1.016	1.037	1.047	1.032
Other services	.838	.915	1.000	1.059	1.100	1.141	1.172
Business services	.838	.906	1.000	1.063	1.100	1.139	1.175
Computer and data processing	.796	.880	1.000	1.123	1.168	1.223	1.290
Transportation and shipping	.857	.960	1.000	1.024	1.069	1.098	1.055
Telephone	.834	.907	1.000	1.064	1.154	1.198	1.257
Blood services	.924	.930	1.000	1.012	.970	.998	1.026
Postage	.762	.894	1.000	1.000	1.000	1.088	1.102
Other—labor intensive	.852	.927	1.000	1.049	1.112	1.151	1.183
Other—nonlabor intensive	.854	.942	1.000	1.032	1.076	1.114	1.136

SOURCE: Health Care Financing Administration: Data from the Office of the Actuary.

Table 5
Index values, home health agency input price index, by expense category: 1980-86
(1976 = 1.000)

Expense category	Calendar year						
	1980	1981	1982	1983	1984	1985	1986
Total	1.415	1.584	1.743	1.857	1.951	2.044	2.106
Wages and salaries	1.393	1.564	1.738	1.868	1.967	2.071	2.152
Employee benefits	1.477	1.635	1.797	1.916	2.005	2.068	2.094
Transportation	1.509	1.691	1.761	1.803	1.883	1.933	1.858
Office costs	1.498	1.694	1.848	1.911	2.012	2.114	2.220
Medical and nursing supplies and equipment	1.306	1.427	1.560	1.657	1.734	1.810	1.898
Rent	1.323	1.438	1.548	1.637	1.722	1.828	1.935
Nonrental space occupancy	1.811	2.125	2.269	2.324	2.397	2.393	2.200
Contract services	1.415	1.584	1.743	1.857	1.951	2.044	2.106
Miscellaneous	1.447	1.597	1.696	1.750	1.825	1.890	1.926

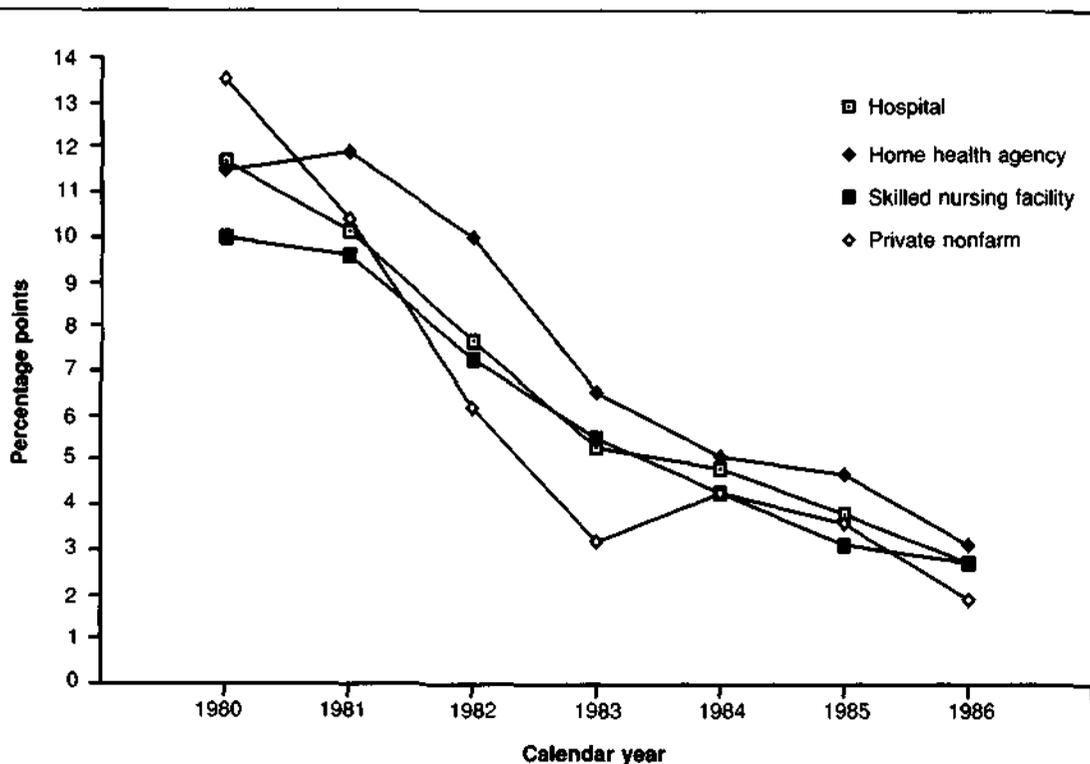
SOURCE: Health Care Financing Administration: Data from the Office of the Actuary.

Table 6
Index values, skilled nursing facility input price index, by expense category: 1980-86
(1977 = 1.000)

Expense category	Calendar year						
	1980	1981	1982	1983	1984	1985	1986
Total	1.308	1.434	1.539	1.623	1.694	1.746	1.793
Wages and salaries	1.275	1.390	1.496	1.592	1.660	1.715	1.774
Employee benefits	1.330	1.472	1.619	1.726	1.806	1.862	1.886
Food	1.307	1.379	1.415	1.443	1.496	1.501	1.540
Direct purchase	1.296	1.337	1.352	1.376	1.424	1.399	1.424
Contract service	1.319	1.422	1.479	1.512	1.569	1.606	1.658
Fuel and other energy	1.607	1.886	2.014	2.062	2.129	2.126	1.957
Electricity	1.330	1.529	1.681	1.735	1.845	1.911	1.937
Natural gas	1.521	1.721	2.077	2.424	2.440	2.424	2.306
Fuel oil, and coal	1.963	2.383	2.357	2.214	2.262	2.184	1.765
Water and sewage	1.242	1.391	1.557	1.686	1.797	1.905	2.007
All Other	1.352	1.505	1.622	1.692	1.781	1.866	1.942
Drugs	1.226	1.369	1.522	1.684	1.839	2.008	2.185
Supplies	1.359	1.500	1.593	1.644	1.714	1.775	1.809
Health services	1.307	1.451	1.588	1.711	1.829	1.936	2.076
Other business services	1.391	1.573	1.715	1.775	1.868	1.963	2.061
Miscellaneous	1.359	1.500	1.593	1.644	1.714	1.775	1.809

SOURCE: Health Care Financing Administration: Data from the Office of the Actuary.

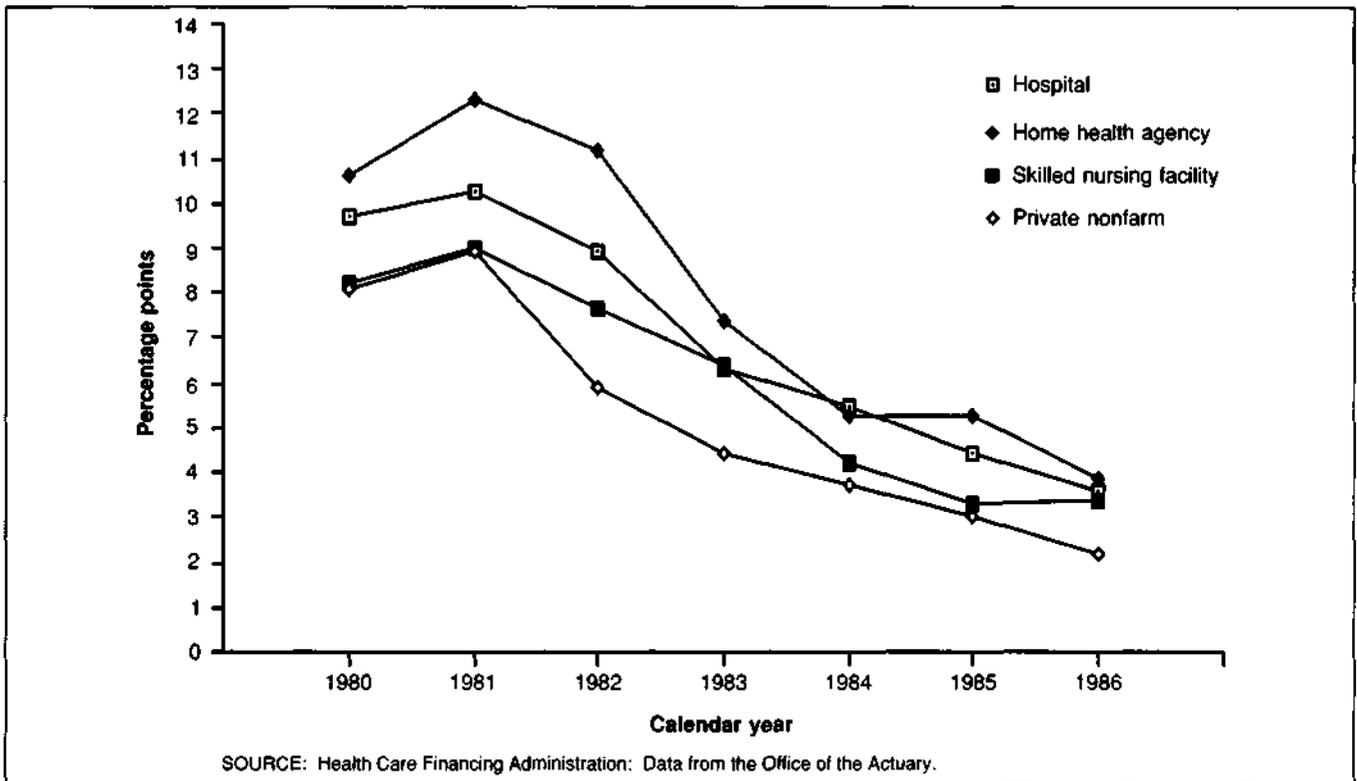
Figure 1
Growth in provider input price indexes compared with Consumer Price Index
for all urban consumers (CPI-U): All items, 1980-86



SOURCE: Health Care Financing Administration: Data from the Office of the Actuary.

Figure 2

Growth in wages and salaries component of provider input price indexes, compared with increase in average hourly earnings for total private nonfarm economy: 1980-86



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