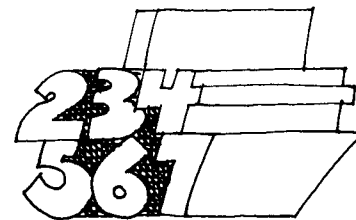


The Anatomy of Price Change



Reconciling the CPI and the PCE Deflator: 2nd quarter 1982

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This article presents the fifth reconciliation of the Federal Government's two major inflation measures—the Consumer Price Index (CPI), published by the Bureau of Labor Statistics, and the Implicit Price Deflator for Personal Consumption Expenditures (PCE Deflator), produced by the Bureau of Economic Analysis. The first reconciliation, which established the technical basis for the analysis, appeared in the September 1981 *Review* and showed that the divergence between the two price measures could be reconciled in terms of three factors—differences in the measurement of housing costs, differences in “weighting”, and the effects of “all other” factors.¹

Table 1. “Reconciliation” of annual and quarterly percent changes in the CPI-U and the Personal Consumption Expenditure price measures, 1980 to second quarter 1982

Difference	1980 ¹	1981 ¹	1981 ^{1,2}				1982	
			I	II	III	IV	I	II
CPI-U ³	13.5	10.4	11.0	7.8	11.8	7.7	3.2	4.6
PCE: Chain-Weight ⁴	10.7	9.1	10.3	7.4	8.0	7.2	5.2	3.7
Total difference ⁵ (CPI-U minus PCE: Chain-Weight)	2.8	1.3	0.7	0.4	3.8	0.5	-2.0	0.9
Housing treatment ⁶	2.3	0.9	0.4	0.5	2.7	-0.5	-1.3	1.6
Weighting effect ⁷	0.5	0.2	0.6	0.3	-0.4	-0.1	-0.4	-0.4
“All other” effect ⁸	0.0	0.2	-0.3	-0.4	1.5	1.1	-0.3	-0.3

¹ Owing to the July 1982 revision of data produced by the Bureau of Economic Analysis, U.S. Department of Commerce, the annual and quarterly figures may differ slightly from those which appeared in table 1, p. 37, July 1982, *Monthly Labor Review (MLR)*.
² Seasonally adjusted annual rates.
³ Annual and quarterly changes in the CPI-U are taken from tables provided by the Office of Prices and Living Conditions, Bureau of Labor Statistics (BLS). The changes are compiled from 1967 based indexes.
⁴ Data for the “PCE: Chain-Weight” were obtained from the Bureau of Economic Analysis (BEA), U.S. Department of Commerce.
⁵ CPI-U minus “PCE: Chain-Weight” equals the sum of “housing treatment”, “weighting”, and “all other” effects.
⁶ Change in CPI-U minus change in CPI-X1. See September 1981 *MLR*, p. 12, for fuller explanation. Source of CPI-X1 data is same as footnote 3.
⁷ Change in “PCE: 1972-Weight” minus change in “PCE: Chain-Weight”. See September 1981 *MLR*, pp. 8-9, for fuller explanation. Data source for “PCE: 1972-Weight” changes is same as for footnote 4.
⁸ Change in CPI-X1 minus change in “PCE: 1972-Weight”. See September 1981 *MLR*, p. 6, for fuller explanation.

Table 2. “Reconciliation” of the CPI-U and the Personal Consumption Expenditure price measures: cumulative percent change from 1972 to the dates shown

Difference	1980	1981	1981 ¹				1982	
			I	II	III	IV	I	II
CPI-U (1972 = 100) ²	197.0	217.4	210.3	214.3	220.4	224.6	226.3	228.9
PCE Deflator (1972 = 100) ³	179.2	194.5	189.2	192.6	196.4	199.8	202.2	204.0
(Current-Weight)								
Total difference ⁴ (CPI-U minus PCE Deflator)	17.8	22.9	21.1	21.7	24.0	24.8	24.1	24.9
Housing treatment ⁵ ..	11.7	14.5	13.3	13.7	15.4	15.5	15.3	16.0
Weighting effect ⁶ ..	5.6	7.6	7.4	7.6	7.5	7.7	7.7	7.7
“All other” effect ⁷ ..	0.5	0.8	0.4	0.4	1.1	1.6	1.1	1.2

¹ Owing to changes in seasonal adjustment factors and to the July 1982 revision of data produced by the Bureau of Economic Analysis, U.S. Department of Commerce, annual and quarterly figures may differ slightly from those which appeared in table 2, p. 38, July 1982, *Monthly Labor Review (MLR)*.
² Annual data for the CPI-U are annual averages, 1972=100. The quarterly data for 1981 and 1982 were computed by the Office of Research and Evaluation, employing seasonally adjusted monthly data provided by the Office of Prices and Living Conditions (BLS).
³ Data for the Implicit PCE Deflator, or “PCE: Current-Weight” index, were provided by the Bureau of Economic Analysis, U.S. Department of Commerce. The data incorporate revisions released in August 1982.
⁴ CPI-U minus PCE Deflator equals the sum of “housing treatment”, “weighting”, and “all other” effects.
⁵ CPI-U minus CPI-X1. See September 1981 *MLR*, p. 5, for fuller explanation. Data source for the CPI-X1 is the same as footnote 2.
⁶ “PCE: 1972-Weight” minus “PCE: Current-Weight”. See September 1981 *MLR*, p. 6, for fuller explanation. Data source for the “PCE: 1972-Weight” is same as footnote 3.
⁷ CPI-X1 minus “PCE: 1972-Weight”. See September 1981 *MLR*, p. 6, for fuller explanation.

As with earlier articles in this series, two different reconciliations are presented, one dealing with period-to-period changes in the price measures, and the other with total movement over the decade from 1972 to date.

Reconciling period-to-period changes. In the second quarter of 1982, the Consumer Price Index for All Urban Consumers (CPI-U) rose more rapidly than the “PCE: Chain-Weight” index.² This followed an unusual first quarter in which, for only the second time in 3 years, the reverse had been true. (Compare the first two lines in table 1.)

The renewed acceleration of the CPI-U relative to the “PCE: Chain-Weight” index in the most recent quarter is, however, attributable only to the reemergence of a positive “housing treatment” effect. During the most recent quarter, the CPI-U was once again accelerating at a faster rate than the CPI-X1, the Consumer Price Index which approximates a rental equivalence measure of housing comparable to that employed in the PCE Deflator (the difference between the two being 1.6 percentage

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points—the “housing treatment” effect).

The other two components of the difference between the CPI-U and the “PCE: Chain-Weight” index—the “weighting effect” and “all other effect”—remain negative and are both identical to their values in the first quarter of 1982. The “PCE: Chain-Weight” index, which draws its weights from the immediately preceding period, continued to rise more rapidly than a fixed weight index (1972=100) based on the same price data,³ giving rise to the negative “weighting effect” recorded in table 1. The latter, as noted in previous articles, is unexpected

and unusual, though it has now persisted for four quarters. Included in the “all other” effect is the influence of different seasonal adjustment procedures followed in the CPI-X1 and the “PCE: 1972-Weight” indexes.

Reconciling cumulative changes. Table 2 updates cumulative comparisons of the CPI-U and PCE Deflator which appeared in previous articles, extending the reconciliation through the second quarter of 1982. Results are complementary to those of the period-to-period reconciliation.

———— FOOTNOTES ————

¹ The initial reconciliation and technical basis for the analysis are contained in Jack E. Triplett, “Reconciling the CPI and PCE Deflator,” *Monthly Labor Review*, September 1981, pp. 3–15. Subsequent reconciliations appeared in the January, May, and July 1982 issues of the *Monthly Labor Review*.

² As discussed in Triplett, pp. 7, 13–14, the PCE Deflator, a

Paasche-formula index, cannot be used for this reconciliation because Paasche formulas lend themselves to statistical interpretation only when referring back to the base year (in this case, 1972).

³ See footnote 7 to table 1 and the September 1981 *MLR* article for information on the computation of the weighting effect.

A note on communications

The *Monthly Labor Review* welcomes communications that supplement, challenge, or expand on research published in its pages. To be considered for publication, communications should be factual and analytical, not polemical in tone. Communications should be addressed to the Editor-in-Chief, *Monthly Labor Review*, Bureau of Labor Statistics, U.S. Department of Labor, Washington, D.C. 20212.
