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

<table>
<thead>
<tr>
<th>Difference</th>
<th>1980 1</th>
<th>1981 1,2</th>
<th>1981 1,2</th>
<th>1982 1,2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
<td>II</td>
<td>III</td>
<td>IV</td>
</tr>
<tr>
<td>CPU-U</td>
<td>13.5</td>
<td>10.4</td>
<td>11.0</td>
<td>7.8</td>
</tr>
<tr>
<td>PCE: Chain-Weight 4</td>
<td>10.7</td>
<td>8.1</td>
<td>10.3</td>
<td>7.4</td>
</tr>
<tr>
<td>Total difference 6 (CPU-U minus PCE: Chain-Weight)</td>
<td>2.8</td>
<td>2.3</td>
<td>1.6</td>
<td>1.6</td>
</tr>
<tr>
<td>Housing treatment 6</td>
<td>0.5</td>
<td>0.2</td>
<td>0.4</td>
<td>0.4</td>
</tr>
<tr>
<td>Weighting effect 6</td>
<td>0.0</td>
<td>0.2</td>
<td>-0.3</td>
<td>-0.4</td>
</tr>
<tr>
<td>&quot;All other&quot; effect 6</td>
<td>0.0</td>
<td>0.2</td>
<td>-0.3</td>
<td>-0.4</td>
</tr>
</tbody>
</table>

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, the annual and quarterly figures may differ slightly from those which appeared in table 1, p. 37, July 1982, Monthly Labor Review (MLR).
2 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, the annual and quarterly figures may differ slightly from those which appeared in table 1, p. 37, July 1982, Monthly Labor Review (MLR).
3 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, the annual and quarterly figures may differ slightly from those which appeared in table 1, p. 37, July 1982, Monthly Labor Review (MLR).
4 Data for the "PCE: Chain-Weight" were obtained from the Bureau of Economic Analysis (BEA), U.S. Department of Commerce. The data incorporate revisions released in August 1982.
5 CPI-U minus PCE Deflator equals the sum of "housing treatment", "weighting", and "all other" effects.
6 CPI-U minus PCE: Chain-Weight equals the sum of "housing treatment", "weighting", and "all other" effects.

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. 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
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, 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 ---


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).

--- A note on communications ---

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