PPI Program Spotlight

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How Does the Producer Price Index Differ from the Consumer Price Index?

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It is often assumed that the direction and magnitude of price change in the Producer Price Index (PPI) for finished goods anticipates a similar change in the Consumer Price Index (CPI) for all items. When this assumed relationship is contradicted by the actual movements of the two series, as it often is, many data users ask why the PPI and CPI show different price movements.

The answer is that conceptual and definitional differences between the PPI and CPI--differences which are consistent with the uses of the two measures--contribute to the differences in their price movements. A primary use of the PPI is to deflate revenue streams in order to measure real growth in output. A primary use of the CPI is to adjust income and expenditure streams for changes in the cost of living. The different uses cause definitional differences that can be categorized into two critical areas: (1) the composition of the set of commodities and services they include and (2) the types of prices collected for these items.

Compositional differences

Goods and services included. While both the PPI and CPI measure price change over time for a fixed set of goods and services, the goods and services eligible for inclusion differ. The target set of goods and services included in the PPI is the entire marketed output of U.S. producers. The set includes both goods and services purchased by other producers as inputs to their operations or as capital investment, as well as goods and services purchased by consumers either directly from the producer or indirectly through a retailer. Since the PPI target is U.S. production, imports are excluded. In contrast, the target set of items included in the CPI is the set of goods and services purchased for personal consumption by urban U.S. households. This set includes imports.

Although consumer goods are finished goods, the PPI finished goods price index and CPI all items index do not measure price change for a comparable set of items; they differ in two major respects. First, the finished goods index includes price changes for producers' durable equipment, which is not purchased by typical consumers and, therefore, is not included in the CPI. Second, the all items CPI includes services, which are not reflected in the finished goods price index. PPI coverage of service outputs of the U.S. economy is gradually increasing. In the future, as PPI service coverage nears completion, the Bureau of Labor Statistics plans to compile a new aggregate PPI that combines both goods and services.

In terms of product coverage, the most comparable indexes are the PPI finished consumer goods index and the CPI commodities index.

Weighting. An additional difference in the finished consumer goods and all items indexes is that item components are weighted differently. PPI weights are based on the value of shipments of products as reported by producers for the 1992 economic census. CPI weights reflect expenditures reported by households for the Consumer Expenditure Survey, currently for the years 1982-84. Beginning in January 1998, the CPI weights will reflect expenditures reported by households for the Consumer Expenditure Survey for the years 1993-95. Thus, government purchases and exports of gasoline, furniture, and other goods are included only in the PPI weights. Also, as noted above, consumer purchases of imported vehicles, apparel, and other goods will be included only in the CPI weights.

Differences in the type and timing of prices collected

Sales and excise taxes. The price collected for an item included in the PPI is the revenue received by its producer. Sales and excise taxes are not included in the producer price because they do not represent revenue to the producer. The price collected for an item included in the CPI is the out-of-pocket expenditure by a consumer for the item. Sales and excise taxes are included in the price because they are necessary expenditures by the consumer for the item. As a consequence, changes in the tax rates on cigarettes or alcoholic beverages, for example, can cause the CPI to move relative to the PPI.

Distribution costs. The price (revenue) received by a producer for a particular product may differ from the price paid by a consumer for that same product

Spotlight

for important reasons besides taxes. The product in question, such as food or apparel, may have followed a distribution path from producer through wholesaler and retailer before its final sale to the consumer. In this case, the price paid by the consumer for the product likely reflects intermediate markups to cover the costs of shipping it from one party to another, as well as the costs of doing business by both the wholesaler and retailer.

Timing of collection. Another possible source for discrepancies in price movements between the PPI and CPI is the difference in the timing of data collection in the two programs. The PPI uses a mail survey, which is sent to respondents on a monthly basis. In contrast, the CPI collects price quotes by telephone or personal visits by BLS representatives. Because respondents sometimes do not return PPI survey forms on a timely basis, indexes are routinely subject to revision 4 months after original publication to reflect late reports and price corrections. Once revised, PPI indexes are considered final. When PPI indexes are first released, they are typically based on a substantial portion of the total number of prices that will eventually be received from respondents; hence, subsequent revisions are normally minor. The CPI, on the other hand, does not routinely revise indexes.

The PPI targets the price of goods on a specific date, the Tuesday of the week containing the 13th of the month. CPI prices are typically collected throughout the first 18 working days of each month. If a particular event or pricing decision occurred late in the month, it is possible that it would be reflected in the CPI prior to the PPI.

Prices for some product and service categories in the CPI are collected every other month. Because of this "bi-monthly" price collection, the CPI reflects the price movement for some items over a 2-month period. In the PPI, all price quotations are collected monthly.

In addition, different methods may be employed for the introduction of new models of priced goods. In the PPI, a new model is priced when the producer stops selling the previous model. Most items in the CPI are priced at the outlet until they are no longer available for sale, although for some items, such as new cars and trucks, the new model is first priced when it out-sells the previous model. Therefore, in some cases, a new model might be priced in the PPI well before it shows up in the CPI. For example, in the PPI most new passenger cars are introduced in October; for the CPI, new models are introduced over a longer period (4 to 6 months beginning in September), as dealers close out old inventory and begin selling the newer models.

"Pass through" of price change from the PPI to the CPI

Some assume that a price change recorded in a particular component of the PPI will eventually and directly be seen in the same or most similar component of the CPI. In reality, it is difficult to project whether, in what magnitude, or when an increase in the PPI will "pass through" to the CPI. An increase in the price paid to a producer for a good may not be passed on by a retailer if, for example, competitive conditions in the retail market preclude such an action. Alternatively, the retailer may increase the selling price for the good in question, but not by the full extent of the increase in the price paid to the producer. In this case, for example, the retailer may be realizing efficiencies in operations which allow a shrinkage in markup. This particular example also illustrates that, because of the possibility of change in the costs to transport wholesale or retail products, the CPI for a given component may change even though there has been no change in the PPI for the same component.

Should retailers pass on all or part of an increase in producer prices, the time lag between changes in the PPI and CPI for comparable products can vary considerably. For some products, such as gasoline, where producers own or franchise many of the retail outlets, there could be a fairly immediate price pass-through from the PPI to the CPI as producers pass their cost increases directly on to consumers. For other products, such as pharmaceuticals, which are usually distributed through wholesalers, there is an expected time lag for price transmission. While the PPI will change when the new drugs are produced, the corresponding CPI will not show the change until those pharmaceuticals reach the stores.

Summary. The conceptual and definitional distinctions of the PPI and CPI are consistent with the uses of these two major economic indicators. The PPI is used to deflate revenue to measure real growth in output, while the CPI is used to adjust income and expenditures for changes in the the cost of living. In brief, the CPI includes services, imports, and sales taxes whereas the PPI excludes them; distribution costs are included in CPI prices while PPI prices include only producers' costs; and finally, the PPI includes capital equipment while the CPI does not.