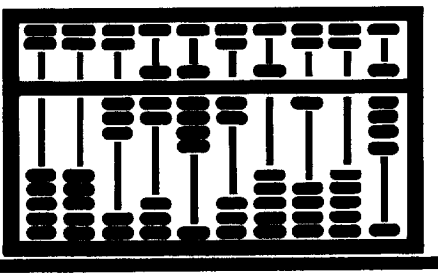
Technical notes



Milestones in Producer Price Index methodology and presentation

Andrew G. Clem

Some of the most profound changes in the history of the Bureau of Labor Statistics' Producer Price Index (PPI) program have occurred during the 1980's. The completion of the PPI Revision has not only greatly expanded the coverage of the index, but has also vastly improved sampling and calculation procedures. It has also made PPI data more compatible with other economic time series by making more extensive use of the Standard Industrial Classification (SIC).

Now that the transition has been completed, it is an appropriate time to review what specific changes have been made in the index itself and in the monthly detailed report, *Producer Price Indexes*. For obvious reasons, the focus here will be on the most recent changes; however, notable earlier accomplishments will be outlined as well. This technical note should be of particular benefit for statistical researchers. (Although the name "Wholesale Price Index" was officially used until 1978, the term "Producer Price Index" as used in this report refers, for the sake of clarity, to the industrial price program over the years.)

The Bureau conducted the first comprehensive overhaul of the PPI when the January 1952 index was published.[1] This overhaul involved a major expansion of the sample of commodities, a revision of the weight structure, and a retroactive recalculation of the indexes back to 1947. The scope of the sample expansion is reflected by the large number of index series in the PPI historical files whose data begin in 1947—1,811 individual items and commodity groupings. Only 81 series date back further than 1947. The other significant first in 1952 was the introduction of indexes for "economic sectors," what we now call "stages of processing" (SOP).

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The next watershed year in the industrial price program was 1967. The commodity code system was extended to provide more "room" for expansion: detailed items' codes were expanded to eight digits instead of six as in the past. This accommodated a new level of aggregation, the subproduct class (below the four-digit product class level). In addition, there was a revision of the weight structure, and a major reclassification involving machinery, transportation equipment, tobacco, and beverages. Finally, the first indexes classified by SIC were published under the Industry–Sector Price Index (ISPI) program, a precursor to the PPI Revision.

The double-digit rates of inflation during the 1970's gave rise to heightened public awareness of government price statistics. In the PPI program, special efforts were made to improve the quality and sample breadth of energy price indexes. Seasonal adjustment methodology was improved, and given greater public prominence. In July 1975, seasonally adjusted percent changes for the principal PPI series were cited as the primary analytical measure of overall price change for the first time. More importantly, research was begun on the comprehensive project to revise the methodology of the PPI.

The year 1978 was marked by several crucial events, both cosmetic and substantive. In March, the name of the program was officially changed from the "Wholesale Price Index" to the "Producer Price Index." For years, the term "wholesale" had been misleading many people into thinking that the index was based on quotes that wholesalers or distributors charged to retail outlets. The name change to "PPI" was intended to express more correctly the type of price collected, which was always the price *received* by the *producer*. At the same time, the analytical focus of the program shifted from the major commodity groups to the stage-of-processing categories. Thus, the Index for All Commodities was replaced by the Finished Goods Price Index as the principal measure of industrial prices. The use of stage-of-processing indexes, instead of major commodity groupings, went a long way toward eliminating the double-counting problem that had been a major criticism of the PPI. By May of 1978, the regular cycle of revising indexes on the fourth month after their original publication was in place. July 1978 marked the introduction of published indexes from the "pilot survey" of four industries for the PPI Revision.[2]

Regular publication of indexes under the revised methodology began in January 1980. The expansion of coverage under the PPI Revision proceeded almost as scheduled during the first half of the decade, in spite of tight budget constraints. Many industries, such as printing and publishing, logging, ship and boat building, and various engineering and scientific instruments were introduced into the PPI for the first time. In addition, coverage was expanded considerably for many other industries, such as aircraft and parts, chemicals, plastics, and special industry machinery. Indexes for steel mill products (July 1982) and refined petroleum products (July 1985) were among those substantially overhauled because of the PPI Revision. However, one consequence of the scientific sampling procedures used in the PPI Revision process was that many detailed indexes could no longer be published.

As the PPI Revision neared completion, several major changes were made in the physical presentation of the data. In January 1985, price indexes for the net output of higher level SIC groupings were introduced. Until then, the highest level indexes that had been published were four-digit industry indexes. A number of three-digit industry group and several two-digit major industry group indexes were first published between 1985 and 1986, thus affording even better compatibility between the PPI and other economic time series.

In January 1986, the first stage of the PPI Revision program was completed, as the final batch of 74 mining and manufacturing industries was published to bring the total up to 490. By that time, the universe of coverage excluded all imported goods. In addition, indexes were first published for the net output of the total mining and total manufacturing sectors. The few remaining Industry–Sector Price Indexes were eliminated, as their function was supplanted by the new industry-classified indexes under

the PPI Revision. Because of these changes, the content of the detailed report changed considerably, with some tables being eliminated, others renumbered, and yet others being reformatted. In July 1986, indexes measuring prices for material inputs to the construction sector were first published. This is a pilot project for what is hoped will eventually become a system of material input indexes for goods-producing industries.

The weighting structure of the PPI commodity grouping indexes was revised at the beginning of 1987, as 1982 census values of shipments replaced the 1972 weights that had been used since 1976.[3] In January 1988, the reference base was changed from 1967 = 100 to 1982 = 100, the first such change since 1971. Thus, the weight base year and the index reference year coincided for the first time in the modern era.

Industry-based "revised" stage-of-process indexes were first released to the public in January 1988; this new system relies exclusively on the input-output table to allocate industries. Indexes for several new "service-sector" industries were first published during 1988, including air freight, deep sea transportation, and radio broadcasting. These represent the first major step in the next stage—an expansion of the PPI into service industries, which are increasingly important in the American economy. □

Footnotes

[1] All dates cited in this report refer to the month to which the indexes pertain, usually 1 month before the indexes were published.

[2] The results of this test phase were described in John Early, "The Producer Price Index Revision: overview and pilot survey results," *Monthly Labor Review*, December 1979, pp. 11–19.

[3] An article describing the weight change and analyzing its effects on the index is Andrew Clem and William D. Thomas, "New weight structure being used in Producer Price Index," *Monthly Labor Review*, August 1987, pp. 12–21.

Patterns of locational adjustment

It has been argued that there are a number of changes in the economic and technological environment of an industry which could make a particular country less attractive as a production location. One might expect that both foreign- and domestically-owned firms would respond to these changes in a broadly similar fashion. That is, if local production becomes less attractive, both groups will reduce it, perhaps closing local production facilities.

It has been suggested, however, that both respective adjustment paths and the new configurations of multinational and domestic firms may differ. Specifically, it is argued that, given the characteristics of the industry in question, multinationals will be more responsive than domestic firms to changes in the attractiveness of local production. According to this view, multinationals can and do relocate production quickly in response to local factor price, exchange rate and regulatory changes and that domestic firms are either less inclined or less able to do this.

—Donald G. McFetridge
Trade Liberalization and the Multinationals
(Ottawa, Economic Council of Canada, 1989),
p. 5.