

This PDF is a selection from an out-of-print volume from the National Bureau of Economic Research

Volume Title: The Price Statistics of the Federal Government

Volume Author/Editor: Price Statistics Review Committee

Volume Publisher: NBER

Volume ISBN: 0-87014-072-8

Volume URL: <http://www.nber.org/books/repo61-1>

Publication Date: 1961

Chapter Title: The Indexes of Prices Paid and Received by Farmers

Chapter Author: Price Statistics Review Committee

Chapter URL: <http://www.nber.org/chapters/c6486>

Chapter pages in book: (p. 73 - 78)

VI

THE INDEXES OF PRICES PAID AND RECEIVED BY FARMERS

1. THE INDEXES AND THEIR SETTING

By virtue of their scope and status, the farm series raise an exceedingly wide range of index-number problems. The Index of Prices Received by Farmers reflects changes in the unit value of the output of a defined economic sector, consistent with the sector classification recommended above for the WPI; but the component prices are to be distinguished from the farm-product group in the present WPI, which relates to central market prices for standard grades of individual commodities. The Index of Prices Paid by Farmers for Production is a unique instance in which there already exists the corresponding index on the input side. Its computation involves problems of pricing the changing variety of production goods emerging from the technological transformation of present-day agriculture. The Index of Prices Paid by Farmers for Family Living, on the other hand, is a particular occupational application of a consumer price index and subject to the various difficulties associated therewith. These two separate indexes of prices paid for goods and services, together with measures of changes in mortgage interest, taxes, and farm wage rates, are combined into one overall index, also known as the Parity Index, which is officially employed for purposes of escalation.

Institutional Background and Constraints.—The Indexes of Prices Paid and Received by Farmers accordingly become an integral part of the agricultural stabilization program of the Federal Government. They provide the basis for computing the price parities for the various agricultural products, to which various measures for price support (and some price ceilings) are related. The Congress has passed legislation which fixes the price base period and specifies the addition of three items (farm wage rates, farm taxes, and mortgage interest per acre) to the combined Index of Prices Paid. This represents a degree of statutory specificity without parallel in any other area of American index number construction. Since various price-support policies operate on a close time schedule, there is a premium on speed of computation, the indexes being generally published about two weeks following the 15th of the month to which they apply.

The statutory constraints go still further. Although the parity formula has been "modernized" to reflect the changing relationship among agricultural product prices over a preceding decade, the purchasing power of a unit of farm commodity produced, rather than of net money income, is the official focus of attention. This concentration on agriculture's terms of trade has serious shortcomings as a reflection of farmers' well-being (see Staff Paper No. 10). Be that as it may, prevailing practices tend to become frozen into legislative history, and revisions desirable from the standpoint of technical improvement in

the indexes open the conscientious public statistician to sharp Congressional rebuke.

A second set of constraints arises out of the peculiarities of the data-collection system. Much of the basic price information is generated by an Agricultural Estimates Division traditionally organized for the purpose of reporting physical crop data, involving statistical officials of the individual States and a delicate pattern of State-Federal working relations. There is a corresponding interest in price data (particularly average prices received) on an individual-state basis, and often pressure for data also for smaller territorial units. At the same time, the availability of state funds means that agricultural statistics are especially well financed as compared with other price data.

The concurrent availability of corresponding data on physical crop production is useful in various ways. Less attention need be paid to obtaining measures of physical volume by the indirect route of deflating a value series by an appropriate price index. Even if the compilation of state average prices were not employed in the computation of national price indexes, and of course the calculation of reliable state prices compels the collection of many times as many price reports as a national price requires, they would continue to make a useful contribution to the preparation of the state personal income estimates by the Office of Business Economics.

Relevant Peculiarities of the Farm Enterprise.—Just as certain institutional peculiarities of the agricultural price indexes condition their interpretation and restrain their modification, certain economic characteristics of the farm unit complicate the construction of appropriate indexes and the interpretation of index behavior.

(a) The farm household as a consuming unit and the farm enterprise as an agricultural production unit are intermingled in particularly intimate fashion, and allocation of individual expenditure items to the two purposes must be to a degree arbitrary. The distinction between indicators of the well-being of a farm family and the input-output relations of a farm firm cannot be sharply drawn. Production of items for consumption on the farm are of declining significance but remain substantial. The cost of housing, an important item in the urban consumer's budget, cannot be readily distinguished from other elements of farm real estate.

(b) Even if expenditures associated with farm production could be accurately identified, there is the further difficulty of distinguishing current operating expenses and expenditures of the farm firm for capital investment. The purchase of tractors, trucks, and farm machinery follows a less stable time pattern than recurrent outlays. One-time surveys of expenditures, to be adapted for computing weights, may give misleading results in this respect. Similarly, individual proprietorship implies that changes in the asset position of the enterprise (particularly as indicated by land values) are important relative to current prices, income, and expenditures.

(c) Even viewed only as a consuming unit, the farm households vary much more widely in income and type of living than the urban worker families, at least as the latter is now defined by the BLS. The movements of the national parity index can therefore depart rather widely from the corresponding experience of different classes of farmers.

(d) Diversity of enterprise is reflected in matters of income distribution as well as expenditure pattern, as may be illustrated from the results of the AMS-Census Bureau Survey of Farmers' Expenditures in 1955. While the smaller units contributed only moderately less than their proportional share of living expenditures by all farms, the lowest two-fifths (ranked by value of sales) were responsible for only about a tenth of all expenditures attributable to farm production and a still smaller fraction of total sales. If social interest is in the condition of the lower income group, then aggregate expenditures averaged out for all farms can seriously mislead.

(e) Off-farm earnings of the farm population amount to a substantial total, around half as large as operators' net farm income. The expenditure associated with that income cannot be isolated, and yet clearly it ought not to be deflated by measures heavily influenced by farm production expenditures.

The Scope of the Committee's Review.—The Committee does not have a mandate to review the agricultural programs of the Federal Government, nor does it have the expertise or the desire to enter into this difficult area. We therefore accept for the purpose of our review what may be termed the philosophy of the farm price indexes—the measurement of the price component of farmers' welfare by a comparison of indexes of prices paid and received.

We interpret this acceptance of the philosophy of the indexes broadly. We do not enter into such questions as whether separate parity indexes should be calculated for major classes of farmers, even though a single index does not describe realistically the movement of the price component of farmers' welfare for the various farm products and areas (see Staff Paper No. 10). On the other hand, we do not refrain from appraisal of elements of the indexes prescribed by statute, where matters of technical index number practice are involved.

2. THE STRUCTURE OF THE INDEXES

Three price indexes are involved in the present system: an index of prices received for farm products; an index of prices paid by farmers for production items; and an index of prices paid by farmers as consumers. The present practice is to combine the indexes of production and living costs, and compare them with the index of prices received.

This mixing of production and living costs does not seem desirable. We believe it would be much more logical to separate the activities of the farm as a production unit from its activities as a consumption unit, even though the distinction between the two is not always clear either analytically or statistically. If a comparison were made between the prices received—the receipts component—and the prices paid for production purposes—the production expenditure component—one would obtain a figure for the price component of farmers' net income from farming. This in turn could be compared directly with the index of prices paid for living purposes, to obtain the price component of changes in farmers' welfare. Such a revision of structure need have no implications for the level of the parity index.

The merit of separating the farm as a production enterprise from the farm as a consumption unit is that a clearer measure of the produc-

tion activities would be obtained, and this sector of the economy is still so important that this measure is desirable. The revision would also pose clearly the problem of whether farmers' expenditures as consumers should be compared directly with their net income as farmers, or whether the price component of large amounts of off-farm earnings should be added to the farmers' net income price index. At present perhaps one-third of farmers' living expenditures are financed by off-farm earnings. One can eliminate the anomaly of comparing an income index with a much more comprehensive living cost index either by basing the living cost index upon expenditures of farmers who receive the majority of their income from farming, or by adding an appropriate index of off-farm earnings to the income index. The choice between these alternatives turns upon whether the price component of welfare changes is to be measured for families obtaining their income chiefly by farming or for families living on farms. Either decision could be implemented in such a way as to leave the current parity index unaffected.

3. PRICING PROBLEMS

The analyses of index number problems in Section III of our report are applicable to the indexes of farm prices, whether they are continued on present lines or recast as we propose in the previous section. Our proposals in Section IV to bring consumer price indexes closer to welfare indexes are also applicable to the living cost component of the farm indexes.

We would emphasize in particular our recommendation (III, 2) that the Agricultural Marketing Service move toward specification pricing of the commodities bought and sold by farmers. We believe that such a move will improve the price indexes for the measurement of the price component of changes in farmers' welfare, and also make the price indexes much more useful for all other purposes—the extension of an urban Consumer Price Index to the entire nation, the improvement of the deflation of national income accounts, the measurement of changes in productivity, etc.

Base Period.—While we take as given the philosophy of the farm price indexes, we do not feel compelled to accept the propriety of the specific legislative limitations placed upon their calculation. The prescription of the 1910-14 price base, which is entering its second half-century of life, is so bold a contradiction of good index number practice as to defy rational defense. The objection to this obsolete base, we emphasize, is not that it is unduly favorable to agriculture: that would be a policy judgment, which can be avoided by choosing a recent period such as 1947-56 for the base period, which would yield parity prices only 2 percent less than at present, or by multiplying a modern base parity ratio by an appropriate constant. The reason for choosing a modern comparison base is that the present course of the indexes has essentially no relationship to the commodities bought and sold by farmers in the 1910-14 period.

Taxes and Interest.—The present treatment of taxes and interest does not yield price indexes. The amounts paid by farmers in real estate taxes and interest on farm mortgages, *per acre*, are bizarre indexes of *expenditures*. They are prescribed by statute, but no

statute can make an index of expenditures into an index of prices. We recommend that the treatment of taxes and interest be altered, by statute if necessary, to conform to the practice recommended in our discussion of durable goods (Section III, 7). There is an element of expenditures also in the Indexes of Prices Received and Paid by Farmers, by the use of current period weights to combine qualities of a commodity, and by the use of current district weights to calculate the state average of certain commodities (turkey feed, tractors, etc.). The current period weights are unavoidable with unit value pricing; the district averaging by current weights should be replaced by base period weights.

Increased Price Coverage.—The scope of prices received by farmers raises few analytical issues. The inclusion of sales of farmers to farmers, as with hay and feed grains, raises the question whether the index seeks to describe farmers as a group: only transaction costs of inter-farm transactions should be included (in production costs) if the index is to represent farmers as a whole. The present procedure does not eliminate the effects of intra-farming transactions because such sales do not have the same relative weights in the prices paid index as in the prices received index.

The production component of the index of prices paid is based upon a seriously incomplete concept of production costs. Certain components of production costs, notably inventory holding costs, cash balances costs, and return on net investment, are omitted, apparently because they are not explicit cash transactions, although expenditures for farm buildings are based upon indirect valuations rather than cash transactions.

There is inadequate coverage of certain production items, particularly custom and veterinary services, repair and maintenance of automobiles and tractors, and farm construction.

Inadequate coverage, notably of medical services, is also a problem for the index of prices paid for farm family living items. We are not persuaded, however, that independent collection of medical service prices is necessary. Just as the BLS is able to employ for the WPI certain price series collected by AMS, we are of the opinion that AMS can properly explore adaptation, for its own use, of prices compiled for computing the CPI. As consumption patterns and distribution outlets become increasingly similar for the farm and the nonfarm population, this procedure becomes all the more desirable, and prices prevailing in the smaller cities become increasingly indicative of those actually paid by farmers. Imputing a missing item in this manner would certainly seem to involve less serious error in the index than the omission of the item altogether. Substantial economies may be possible also in the food and clothing field. Resources would then be spared for improving collection processes for items whose farm behavior has decided peculiarities.

Price Collection by Field Enumeration.—The Indexes of Prices Paid by Farmers now rely predominantly on the collection of prices by mail; this method yields a large number of price quotations at relatively low cost, but the quotations are for commodities that are specified only very loosely. If the recommendations of the preceding section are carried out, so that AMS no longer needs to collect the basic data for every component of the index of prices paid, we believe

that a move should be made toward the collection of prices by field enumeration for the remaining components. AMS has already made very useful experiments in this direction. We believe that the superiority of enumeration lies in the closer control made possible over the nature and comparability through time of the commodities priced. Unless there is a shift to specification pricing, field enumeration is not worth its greater cost. And even if the scope of the AMS price collection program is reduced by partial reliance on BLS data, enumeration cannot be used to collect every price in every state except at prohibitive cost. We recommend, therefore, that collection by enumeration be introduced only for commodities where specification is important and in connection with a shift to specification pricing. Where the dispersion of price changes among states is moderate we recommend the collection of prices in a sample of states, with price changes imputed to the remaining states from this sample (a proposal analagous to our recommendation on city indexes, IV, 2, ii). Or, as a much less attractive possibility, the national prices could be divorced from the state prices and a complete enumeration would then be feasible.