Parity Prices

By C. Kyle Randall

The Bureau of Agricultural Economics has been calculating the official parity prices since the date of their official initiation. In the interest of presenting the necessary revisions in the level of parity prices as well as the methods of calculation occasioned by the Agricultural Act of 1948, the author has written this article.

PARITY prices have been an integral part of agricultural policy of the United States since 1933. Action programs that have had a material effect on the economic situation of agriculture have been based on or related to parity prices. These programs include such things as price supports, price ceilings, and marketing agreements and orders. Parity prices in themselves are merely measuring devices or yardsticks; it is only when action programs based on parity prices are in operation that prices received by farmers are appreciably affected by them.

One of the significant provisions of the Agricultural Act of 1948 [1] is the revision in the parity-price formula which is effective January 1, 1950. This is the first major change in the parity-price formula since it was included in the Agricultural Adjustment Act of 1933. The present formula implies that the purchasing power of a unit of *each individual farm product* should be maintained at its level in some fixed (and often distant) base period. The new formula implies that the purchasing power per unit of *agricultural products in general* should be maintained at the 1910–14 level, but that relative prices of individual farm products should be based upon recent experience and should change gradually with changing conditions of supply and demand.

Review of Present Practice

A review of the present parity-price formula makes perhaps the best point of departure for discussing the new one. [2] The present formula is

designed to result in prices for individual agricultural products which would have the same purchasing power in terms of prices paid by farmers as they had in some base period. There are a number of these base periods. For many of the important farm commodities the base period is the 60-month period August 1909–July 1914.

From time to time different base periods have been specified for other commodities. At present, the base period for potatoes and all types of tobacco, [3] except flue-cured (types 11–14) and Burley (type 31), is the period August 1919–July 1929. The base period for flue-cured and Burley tobaccos is August 1934–July 1939. The Agricultural Marketing Agreement Act of 1937 provides for the use of the period August 1919–July 1929 or some part thereof for any commodity for which satisfactory data for the determination of purchasing power are not available for the period August 1909–July 1914.

As of July 1948 the Bureau of Agricultural Economics was calculating parity prices for 149 agricultural commodities. Of these, only 47 commodities remained on the August 1909–July 1914 base, including three commodities for which comparable prices are used. One hundred commodities utilized the period August 1919–July 1929 or some part thereof and two classes of tobacco were on the August 1934–July 1939 base. [4] For a few commodities price data are available for only two or three seasons in the 1919–29 period. The commodities remaining on the 1909–14 base accounted for about 85 percent of total cash receipts from farm marketings in 1947.

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[1] U. S. Stat. 62: 1247, 1948.

[2] Throughout this discussion the parity-price formula now in use, which is based on the legal provision of the Agricultural Adjustment Act of 1938 as amended and the Agricultural Marketing Agreement Act of 1937, is referred to as the present parity formula. The formula based on the Agricultural Act of 1948 is called the new formula.

[3] A provision of Title I of the act provides for the use of August 1936–July 1941 as the base period for Maryland tobacco, effective January 1, 1949. This special base period for Maryland tobacco is, of course, eliminated by the new parity formula, effective January 1, 1950.

[4] See U. S. Bur. Agr. Econ., *Agricultural Prices*, July 1948, pp. 26–31 for base periods for the list of commodities.

For commodities on the August 1909–July 1914 base period, purchasing power is measured by the index of prices paid by farmers, *including* interest and taxes. For commodities on other base periods, the index of prices paid, *excluding* interest and taxes, is used. This index of prices paid is based on prices collected by Bureau of Agricultural Economics for 86 items used in family living and 91 items used in farm production.[5]

The index of prices paid is converted to whatever base period is used for the parity price of a given commodity. This has necessitated the use of several conversion factors.

Parity prices are based on and are comparable to national average prices received by farmers for commodities sold in their local markets. Parity prices are not computed by States, by grades, or for specific markets. In administering action programs, however, it is possible to determine differentials for grade, location, season, or other factors, to be applied to parity prices. The resulting prices should properly be described as parity equivalents rather than parity prices.

For many of the major commodities on the August 1909–July 1914 base period, the base-period price is a simple 60-month average of prices received by farmers. As an illustration, the price received by farmers for wheat during the base period was 88.4 cents per bushel. The parity index (1910–14=100) as of September 15, 1948 was 250. Therefore, the parity price of wheat was 2½ times 88.4 or $2.21 per bushel.[6]

For most of the commodities that are on the other base periods, the base-period price is an average of weighted season average prices. For example, the base-period price of potatoes (1919–28 seasons) was $1.12 per bushel. The index of prices paid (excluding interest and taxes, August 1919–July 1929=100) as of September 15, 1948 was 166. Therefore, the parity price of potatoes was $1.86.

This definition of parity prices determines a fixed set of relationships among the parity prices of the various agricultural commodities as well as an over-all relationship between prices received by farmers and prices paid by farmers. One of the criticisms of the present parity-price formula has been that the formula freezes the relationships among agricultural prices that existed as much as 35 years ago and does not take account of the changes in price relationships which could be expected to result from changing technology and demand conditions.

Revision of Formula

The Agricultural Act of 1948 so revises the parity-price formula, effective 1950, that the price relationships among the commodities are based on the last 10-year period preceding the year for which parity prices are being calculated. The over-all relationship between prices received by farmers and prices paid by farmers is still determined from the 1910–14 period.

The new formula substitutes an "adjusted base price" for the actual base-period price in the parity-price calculation. This adjusted base price is the average price received by farmers for the commodity during the last 10 calendar years (or marketing seasons) preceding the determination, divided by the general index of prices received by farmers during that same 10-year period. Again using wheat as an example, the 1938–47 average price received by farmers for wheat was $1.22 per bushel. The index of prices received by farmers in that period was 168. The adjusted base price for wheat, then, is 72.6 cents per bushel. This base price multiplied by 2½ gives a new parity price of $1.82.[7]

Parity prices calculated according to the new formula[8] and the present formula as of October 15, 1948 for several important agricultural products are given in table 1. In general, the new formula results in lower parity prices for the major field crops and higher parity prices for many of the livestock items.

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[5] For a description of this index see U. S. Bur. Agr. Econ., *Agricultural Prices*, Oct. 1948, pp. 25–32.

[6] See U. S. Bur. Agr. Econ., *Agricultural Prices*, July 1948, pp. 26–31 for base periods and parity prices for the complete list of commodities.

[7] These parity prices are based on the 10-year period 1938–47 and are illustrations only. When the new parity formula becomes effective in 1950 the parity prices will be based on average prices received by farmers for individual commodities and the average of the general index of prices received by farmers in the period Jan. 1940–Dec. 1949.

[8] See footnote 7.

Transition Period

The law provides for the use of transitional parity prices for those commodities for which, at the time the new parity formula becomes effective, the new parity prices are less than 95 percent of the parity prices calculated according to the present formula. The transitional parity price is 95 percent of the parity price according to the present formula the first year; 90 percent the second year; 85 percent the third year; and so on until the transitional parity price is lower than the parity price according to the new formula. Based on the relationships existing in the 1937–48 period, it would require 4 years to make the transition for wheat and 3 years for cotton and corn. It is of course possible that these price relationships will change within the next few years so that the transition period for these crops may be either shorter or longer than the present relationships would indicate. Column 4 in table 1 illustrates the transitional parity prices for several commodities, assuming that the parity price provisions of the Act went into effect January 1, 1948.

Practices Under New Formula

Once the transition to new parity prices has been made, the general level of parity prices will be substantially the same as the general level of parity prices according to the present formula. Also by that time all parity prices will be calculated from the same base period and the use of a number of different base periods, which now complicates the parity calculation, will be eliminated.

The use of the latest 10-year period, moving forward a year at a time, is designed to keep the relative parity prices in a more nearly satisfactory alignment with current conditions of supply and demand. It will also make it possible to calculate parity prices for new commodities which have become increasingly important since the base periods specified by law.

It should be remembered that the parity index establishes the level of parity prices. If the parity index stands at 250, for instance, the new formula indicates that the index of prices received with prices at parity should also be 250. The parity price of a particular commodity depends in part on the average price received for that commodity during the latest 10-year period relative to the index of prices received during that same period. A high price for a commodity during the latest 10-year period will not necessarily result in a higher parity price, provided the index of prices received was also high during that 10-year period.

The change in price of a given commodity from the present parity base period to the 10-year period, in contrast to the change in the index of prices received by farmers over the same period of years, determines whether the new parity formula results in a higher or lower parity price than the present formula. Using the 1937–48 period again as an illustration, the index of prices received during that period averaged 168. Any commodity whose price during that period was less than 168 percent of its price in the parity base period (August 1909–July 1914) would have a lower parity price under the new formula. Any commodity whose price in the 10-year period averaged more than 168 percent of its price in the parity base period would have a higher parity price under the new formula.

How It Works Out

The increase in prices of wheat (38 percent) and cotton (46 percent) is less than the increase in the index of prices received (68 percent). Therefore the parity prices according to the new formula are less than those calculated by the present formula. The increase in prices of hogs (72 percent) is slightly greater whereas that for beef cattle (101 percent) is substantially larger than the increase in the index. As a result, new parity prices for these products are higher than the present parities.

The fact that the new formula utilizes the latest 10-year period makes the adjustment to relatively recent conditions automatic. This is designed to eliminate efforts to select special base periods for certain commodities. In addition, the task of obtaining satisfactory price information for the latest 10-year period is much simpler than obtaining price information for the August 1909–July 1914 period, or the August 1919–July 1929 period, for many commodities.

Publication of Parity Prices

The use of this new parity-price formula will require some changes in procedures in the Bureau of Agricultural Economics in regard to publication

of parity prices. For several years the Bureau has published parity prices of a number of important agricultural commodities each month in its *Agricultural Prices* and has published a complete list of parity prices for all agricultural commodities for which such prices are calculated twice each year, in that publication. When the new formula becomes effective it will probably be necessary to recalculate the "adjusted base prices" shortly after the first of each year. This will require the use of preliminary estimates of season average prices received for the last season in the 10-year average. The law provides that the marketing seasons beginning in the previous 10-calendar-year period shall be used in determining the adjusted base prices for those commodities whose parity prices are based on weighted season averages.

For the commodities whose marketing seasons start late in the calendar year it may be necessary to recalculate the adjusted base prices during the year, as revised season average prices for the preceding season become available. But this can be done, at least in most cases, before any action program, such as a support-price program based on the parity price for a specific commodity, would be undertaken.

Redefinition of Parity Income

Parity income has not been used as a basis for any agricultural program. The latest statistical data on parity income can be found in the *Farm Income Situation* for August–September 1948. Those interested in a thoroughgoing discussion of parity income as now defined should see *The Concept of Income Parity for Agriculture* by Ernest W. Grove.[9]

[9] GROVE, E. W. THE CONCEPT OF INCOME PARITY FOR AGRICULTURE. In Conference on Research in Income and Wealth. Studies in Income and Wealth. V. 6, pp. 96–140. Natl. Bur. Econ. Research. New York. 1943.

Parity income is redefined in the Agricultural Act of 1948. Parity income as now defined in the Agricultural Adjustment Act of 1938 is the per capita net income to persons on farms from farming that bears the same relationship to per capita income of persons not on farms as prevailed in 1910–14. This definition was more or less tailored to fit the available statistics. It will be noted that the nonfarm income of farm people is allocated by this definition to the nonfarm population. It seems fair to say that practically no one has been completely satisfied with this definition.

The definition of parity income in the Agricultural Act of 1948 is as follows:

" 'Parity' as applied to income shall be the gross income from agriculture which will provide the farm operator and his family with a standard of living equivalent to those afforded persons dependent upon other gainful occupation."

This definition appears to be the statement of a laudable objective but in the present state of the arts, is not subject to statistical determination.

It might be well to quote the statement of the former Secretary of Agriculture on this point.

"S. 2318 also includes a new definition of parity income. However, this definition is not related to any operating provisions of the bill. Apparently for the present this definition merely states the principle that parity income rather than parity prices should be the ultimate objective of agricultural policy. It is not now possible to put the proposed definition of parity income into statistical form and if this definition remains, it will be taken as a directive to institute research looking toward a quantitative definition of income parity within the limits of funds and personnel which may be made available."[10]

[10] UNITED STATES CONGRESS, SENATE, COMMITTEE ON AGRICULTURE AND FORESTRY. AGRICULTURAL ACT OF 1948. HEARINGS . . . ON S. 2318 . . . 80th Cong., 2d sess., 1948. p. 56.

TABLE 1.—*Prices received by farmers, parity prices, and parity prices according to provisions of Agricultural Act of 1948, (assuming the act went into effect Jan. 1, 1948) United States, Oct. 15, 1948*

| Commodity | Unit | (1) Average price received by farmers Oct. 15 | Parity price Oct. 15 | | |
			(2) Agricultural Act of 1948 formula	(3) Transitional [1]	(4) Present formula
		Dollars	*Dollars*	*Dollars*	*Dollars*
Field crops:					
Wheat	bu	1.98	1.81	2.09	2.20
Corn	bu	1.38	1.41	1.52	1.60
Oats	bu	.699	.814	.944	.994
Barley	bu	1.10	1.20	1.46	1.54
Rice	bu	2.07	2.13	---	2.02
Rye	bu	1.43	1.44	1.70	1.79
Grain sorghums	cwt	1.99	2.32	2.86	3.01
Flaxseed	bu	5.74	4.11	---	4.21
Dry field peas	cwt	4.84	5.55	---	5.20
Beans, dry edible	cwt	7.99	8.24	---	8.39
Soybeans	bu	2.27	2.46	---	2.39
Peanuts	lb	.104	.092	.114	.120
Cotton	lb	.3107	.2679	.2934	.3088
Cottonseed	ton	63.70	65.98	---	56.10
Potatoes	bu	1.42	1.60	1.75	1.84
Sweetpotatoes	bu	2.07	2.28	---	2.19
Fruits:					
Apples	bu	2.20	2.69	---	2.39
Grapefruit	box	.61	1.12	1.95	2.05
Lemons	box	2.38	2.31	3.14	3.31
Oranges	box	1.60	2.30	3.57	3.76
Livestock and products:					
Hogs	cwt	24.60	18.53	---	18.10
Beef cattle	cwt	22.10	16.16	---	13.50
Veal calves	cwt	25.00	18.23	---	16.80
Sheep	cwt	9.08	8.47	10.74	11.30
Lambs	cwt	22.10	17.63	---	14.60
Butterfat	lb	.678	[2] .657	---	[2] .655
Milk, wholesale	cwt	4.93	[2] 4.16	---	[2] 3.98
Chickens	lb	.299	.301	---	.284
Turkeys	lb	.427	.364	---	.359
Eggs	doz	.547	[2] .463	[2] .508	[2] .535
Wool	lb	.461	.518	---	.456

[1] Assuming the act went into effect Jan. 1, 1948, transitional parity prices would be 95 percent of the present parity in those cases where that is higher than parity prices according to new formula.
[2] Not adjusted for seasonal variation.