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# AGRICULTURAL ECONOMICS RESEARCH 

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# The January 1959 Revision of the Price Indexes 


#### Abstract

By B. R. Stauber, R. F. Hale, and B. S. Peterson The following article describes the January 1959 revision of the price indexes relating to prices received and prices paid by farmers. These indexes are the basic measures of the general price relations affecting American farmers. They are also used in computing parity prices of farm products as required for the administration of various national programs. According to law, the reference period for these indexes for program purposes is the 5-year period 1910-14, which means that the indexes must measure price change over the span of nearly a half century-a period that has been marled by some of the most rapid changes in technology, marketing organization, and production methods in all history. This places a heavy load upon the indexes. It has been the policy to make revisions in the indexes-to revise weights and to review commodity coverage-from time to time. The indexes were first published in the 1920's, revised in 1933-34, and again in 1950. The current revision, however, is the first for which specific information was available from a nationwide farm expenditure survey having for one of its two main purposes the updating of the weighting pattern for the Parity Index. Accordingly, not only does the current revision benefit from the best technical basis for weights that we have ever had; it also provides a Parity Index with a weighting pattern that is more nearly ourrent than at any other time in nearly a quarter of a century. The authors wish to acknowledge their indebtedness and express their deep appreciation to O.V. Wells, Administrator of the Agricultural Marketing Service, and to Nathan Koffsky, Chief of the Farm Income Branch, and C. Kyle Randall, Head of the Statistical and Historical Services Section of AMS, for their advice and counsel at all stages of the work of revising these indexes. These, together with the senior author, served as an informal committee to review and approve all major steps in the work of the revision. The actual computations were conducted under the direction of B. R. Stauber, Chief, Agricultural Price Statistics Branch, AMS, with Byron Peterson in charge of the work for the Index of Prices Received, and Roger Hale for Prices Paid. The assistance of Rudolph Wagner, George Ferrell, W. A. Hill, Charles Hines, Christian Stokstad, Florence Moore, Ronald Johnson, and Floyd Rolf, and also of a devoted and competent secretarial and clerical staff, is gratefully acknowledged. Certain phases of this revision were the subject of hearings before the Subcommittee for Agriculture of the Committee on Appropriations, House of Representatives, February 4, 1959 (86th Cong., 1st sess.). As a result, considerable detailed information is presented in the published report of these hearings (7). ${ }^{1}$


[^0]IN JANUARY 1959 the Agricultural Marketing Service revised the Index of Prices Received by Farmers and the Index of Prices Paid by Farmers Including Interest, Taxes, and Wage Rates. This revision consisted primarily of updating the weighting pattern of the indexes; it preserved the general structure and organization of the indexes as revised in January 1950 and described in this journal for April of that year. It is significant that the authors of the 1950 article (p. 49) quoted a technical subcommittee of the Bureau Committee on Index Numbers to the effect that "it is strongly recommended that investigations be planned now to secure data which can be used as a basis for weights for the Index of Prices Paid for a suitable postwar period. The 1937-41 period is almost a decade behind. It is essential that the weight base period does not lag too far behind the current calculation of the index."

The 1951 budget of the U.S. Department of Agriculture requested funds for making the surveys necessary to obtain basic expenditure data for a contemporary period from which to determine new weights for the Parity Index, but budgetary exigencies were such that it was not until fiscal year 1956 that funds became available.

The current revision, therefore, accomplishes an updating of weights in these indexes which has been long recognized as overdue, and for the first time in a quarter of a century, provides a current index of prices paid by farmers which is reasonably up to date in its weighting pattern.

## Historical

There is already available a reasonably adequate and fairly detailed historical review of the development of both the prices received and prices paid indexes $(6,16)$. It will therefore suffice to say here that the Index of Prices Received by Farmers had its genesis in a set of computations based on prices of 10 crops which were published in the March 1909 issue of the Crop Reporter, and in an index published in the succeeding monthly issues and in those of its successor, the Monthly Crop Report (2). Prices of livestock were brought in somewhat later, and in 1921 the Department published "Prices of Farm Products in the United States" (17). A new series of index numbers was published by the former Bureau of Agricul-
tural Economics in 1924, and this was revised in 1934, in 1944, in January 1950, and in Januan 1954 (13, 15, 6, 8). Each revision has been made for the purpose of achieving more complete and adequate commodity coverage, more up-to-date or representative commodity weights, or improvement in handling various technical problems of price measurement.
It was recognized very early that an analysis of the economic position of farmers could not be accomplished without information concerning the purchasing power of the products they had to sell. Consequently, in 1928 the Bureau of Agricultural Economics published the first Index of Prices Paid by Farmers (10), using price data collected by the Bureau since 1910. Weights for each price series were determined from farm cost-of-living investigations and farm management surveys conducted by various agencies within the Department for representative areas in different parts of the country during the period 1920 to 1925 . In a few instances, surveys for earlier periods were used, and where no data were available, estimates based on total production and sales statistics were employed. With the passage of the Agricultural Adjustment Act of 1933 the index acquired lega status in that it was used thereafter for the com putation of parity prices. The initial index was revised in $1933(11,12,14)$, at which time weights based on information mainly for 1924-29 were used for combining the various commodities. Interest and taxes were added in August 1935 in response to amendments (approved Aug. 24, 1935) to the Agricultural Act of 1933 (16).

A further revision was undertaken in 1936 but, though a preliminary report was published in May 1939, the revision was never adopted. The 1950 revision was the most thoroughgoing in nearly 20 years, and drew upon the cumulative experience available from previous efforts.

It also achieved the broadest commodity coverage of any revision up to that time. Expansion in coverage had been made from time to time as new data became available. Thus for 1910, only 142 price series were available but the number had been expanded to 181 as of 1927. The greatest single addition was as of 1935 , for which it was possible to expand the coverage to 335
items (6). (This includes about 35 items that ere included in more than one subgroup.) Since at time, some further additions and substitutions have been made on the basis of information available from a variety of sources concerning farmers' buying practices.
No general attack on the problem of securing improved representativeness was possible, however, until the 1955 Farm Expenditure Survey and the 1955 Food Consumption Survey became available. At that time, looking forward to the projected index revision, steps were initiated to modify the price collection program of the Agricultural Marketing Service to coincide with the findings of the survey, and to expand coverage to the extent that resources were available.

## General Structure of Indexes Retained

The 1959 revised indexes are of the same general form as those of the 1950 revision. The weighting pattern continues to represent the average of all farms. The same major and minor commodity groups and subgroups indexes are retained. The commodity content of the various groups has been reviewed, however, and where appropriate, revised in line with currently availble price series and expenditure or sale patTerns as the case may be. The revision necessarily added a new link to the pattern established by the 1950 revision. Thus, the 1950 revision uses weights for the period 1924-29 from 1910 to 1935, with allowance for motor vehicles and supplies introduced in 1924, and weights representing the period 1937-41 from 1935 forward. The 1959 revision continues this principle, using weights for the period 1955 (1953-57 for the prices received index) from September 1952 forward, and linked to the previous indexes in September 1952.

## The Index of Prices Paid for Commodities and Services Including Interest, Taxes, and Farm Wage Rates-the Parity Index

## Basis for Weights for 1959 Revision

The primary basis for the weighting pattern of the 1959 revision of this index was provided by the Farm Expenditure Survey, conducted in the spring of 1956 jointly by AMS and the Bureau of the Census, with the cooperation of the Agri-
cultural Research Service of the U.S. Department of Agriculture $(18,19)$.

These data were supplemented by a survey of food consumption made in early 1955 by ARS and AMS (9). In addition, various sources of official information of the Department were used. Particularly important were data from the ARS for interest on farm real estate indebtedness, taxes on farm real estate, annual estimates of fertilizer consumption; and information on livestock from the official estimates of the Department.

The dimensions of the Farm Expenditure Survey and of the Food Consumption Survey have been set forth in some detail in other publications $(18,19,9)$. Briefly, the sample for the survey was a stratified probability sample designed to give unbiased estimates of farmers' expenditures for both living and production. The number of usable questionnaires was 6,715 for production expenditures and 3,845 for family living expenditures. Schedules for both questionnaires were obtained by special enumerators in 306 primary sampling units (counties or pseudocounties) throughout the United States (fig. 1) and the results expanded to U.S. totals on a basis representing all farms. The Food Expenditure Survey was a detailed enumerative nationwide survey of food consumption among city, rural, and rural nonfarm families. Like the Farm Expenditure Survey, it was conducted on a probability sample design. The rural farm segment of the food survey was based on reports from 2,006 cooperating families, and this segment was used for the index revision.

Collectively, these sources undoubtedly represent the most satisfactory set of basic source data ever available for use in developing weights for the Parity Index.

The new group weights, based on data for 1955, are presented in table 1, together with those of previous periods for comparison. The actual expenditures for each major group and subgroup have, of course, increased sharply from 1937-41 to 1955 , but the increases have not been uniform from group to group so that the distribution of expenditures as between major index groups has changed. In 1955, a larger proportion of total expenditures was used for items used in production, with a corresponding smaller proportion spent for items used for family living, and for interest, taxes, and wages for hired farm labor.


Figure 1

The above shift in expenditure distribution appears to be quite consistent with the reduction in the number of farms, the increasing tendency toward production on larger farms, and the increasing commercialization of agriculture generally.

## Development of Group Weights

From the results of the above mentioned survey, including numerous detailed tabulations in work sheet form from the Expenditure Survey, expenditures for almost 2,500 items for which farmers reported expenditures were assigned to the several index categories.

Family living groups.-For family living expenditures, the commodity groups are food and tobacco, clothing, autos and auto supplies, household operation, household furnishings, and building materials for house. For certain types of expenditures, price series are not now available and never have been. Because of this lack, it con-
tinues to be impossible to include such items in the index computations, and thus to measure their effect directly. Thus, of family living expenditures, price series are not now and never have been available to measure price trends for the various elements entering into the cost of medical care to farm families amounting to $\$ 1,044$ million or 7.4 percent of all expenditures for living purposes; recreation, $\$ 328$ million or 2.1 percent; cash gifts and contributions, $\$ 523$ million or 2.1 percent; and personal insurance, $\$ 409$ million or 2.6 percent of expenditures for living purposes.

These groups have never been represented in the index and it is impossible with resources now available to undertake the collection of the price data necessary to incorporate them in the index. But their importance has been spread over the available six index subgroups so that their effect is reflected in the distribution of weights between the major component indexes.

Table 1.-Group weights: Index of prices paid by farmers, including interest, taxes, and wage rates

| Item | Weight base period |  |  |
| :---: | :---: | :---: | :---: |
|  | $\begin{gathered} 1924- \\ 29{ }^{19} \end{gathered}$ | $\begin{gathered} 1937- \\ 41^{2} \end{gathered}$ | $1955{ }^{3}$ |
| Living | Percent 41. 2 | $\begin{array}{r} \text { Percent } \\ 44.0 \end{array}$ | $\begin{aligned} & \text { Percent } \\ & 39.50 \end{aligned}$ |
| Food (including tobacco ${ }^{4}$ ) - | 14.8 | 16. 7 | 13. 40 |
| Clothing | 12. 5 | 8. 6 | 6. 34 |
| Autos and auto supplies.-- | 4. 5 | 6. 9 | 5. 63 |
| Household operations_---- | 3. 9 | 5. 9 | 5. 77 |
| Household furnishings_--- | 2. 4 | 4. 19 | 3. 99 4. 37 |
| Building materials, house-- |  | 1. 9 | 4.37 |
| Production. | 36.4 | 41.2 | 50. 90 |
| Feed | 10.1 | 10.2 | 12. 80 |
| Livestock | 4. 4 | 5. 3 | 4. 60 |
| Motor supplies | 3. 9 | 5. 2 | 8. 39 |
| Motor vehicles | 3. 9 | 5. 2 | 4. 38 |
| Farm machinery | 3. 4 | 4.5 | 5. 21 |
| Building and fencing materials_ | 3. 7 | 2. 7 | 5. 20 |
| Fertilizer and lime. | 2. 7 | 3. 1 | 4. 11 |
| Equipment and supplies.- | 3. 3 | 3. 3 | 3. 66 |
| Seeds-------------------- | 1. 0 | 1. 7 | 2. 55 |
| Total commodities | 77. 6 | 85.2 | 90. 40 |
| Taxes. | 5. 7 | 3. 8 | 2. 04 |
| Interest | 6. 5 | 3. 0 | 96 |
| Cash wage rates | 10.2 | 8. 0 | 6. 60 |
| Ommodities, interest, taxes, and cash wage rates | 100. 0 | 100. 0 | 100. 0 |

${ }^{1} 1910$ to March 1935.
${ }^{2}$ March 1935 to September 1952, inclusive.
${ }^{3}$ September 1952 forward.
${ }^{4}$ June 1935 forward.
Some reduction in the list of unallocated expenditures was accomplished by the introduction of a series of tuition fees for land-grant colleges into the household operation index. This series together with the series measuring average newspaper subscription rates used to represent changes in the per unit cost of nontechnical reading matter, is considered as part of the general cost of household operation, which includes such general items as fuel, laundry supplies, and electricity, telephone, and other services of benefit to individuals within the family group, as well as to the group as a whole.

Production groups.-For production, the commodity groups are feed, feeder and stocker livestock, motor supplies, motor vehicles, farm machinery, building and fencing materials, fertilizer and lime, farm supplies, and seed. As in the case
of living commodities, there are certain production items for which it has not been possible with available resources to initiate the collection of price data. These categories include machine hire and custom work in the amount of $\$ 567$ million or 2.8 percent of all production expenditures. They include $\$ 509$ million of marketing expenses for crop and livestock or 2.5 percent, cash rent and irrigation to the amount of $\$ 514$ million or 2.6 percent, and insurance of $\$ 155$ million. These, together with various miscellaneous items, amount in all to about 15 percent of total production expenditures.

Price series for these are not now available, and never have been, for with available resources it has not been possible to include such items in the AMS price collection program. Since their effect could not be imputed uniquely to any specific price series or index group it was imputed to the production group as a whole and allocated on a pro rata basis in determining the percentage weights.

Existing group indexes, for the most part, measure price changes for fairly homogeneous categories of items. In some cases, however, some question could arise as to which group an item should be assigned, as for example whether a particular item should be considered as farm machinery or as an item in the farm supply group.
In general, all mobile equipment for field and transport (excluding tractors, trucks, and autos) were classified as farm machinery. Likewise, stationary engines, motors, hammer mills, elevators, and bulk milk coolers, all with moving parts, were assigned to the machinery index. Small tools, including both hand and shop tools were placed in the farm supply category, along with spray materials, crop containers, and other general farm supplies. In some cases, however, where prices paid data were not available for items like water heaters, sinks, and other milkhouse equipment, weights were assigned to prices of milk coolers or other farm machinery items in the farm supply index, and the series with the appropriate weight carried in the farm supply index until a specific price series can be established.

General imputation problems.-This classification of expenditures into index categories provided the basis for the percentage weights used for combining the various groups and subgroup indexes into the total index.

As indicated in a later section, the use of percentage weights for combining the subgroups of living into the combined Living Index; for combining the subgroups of production into the combined Production Index, and for combining these with the indexes for Interest on Farm Mortgage Indebtedness, Taxes on Farm Real Estate, and Farm Wages into the total Parity Index is equivalent, under the conditions and procedures used herein, to a direct computation from the several aggregates-prices multiplied by quantities-as expressed in the conventional form of index number representation.
Table 2 presents a summary of this phase of the analysis. The first column shows total expenditures imputed to individual commodities in each index category. The next column indicates the expenditures for items imputed specifically to each group, but not to any individual item. The third column is the sum of columns 1 and 2. The fourth column shows the preceeding column inflated to take account of the distribution of the various expenditures which properly belong in the living and production groups (such items as medical, dental, and hospital expense, personal insurance, custom work, and marketing expenses, as already indicated) but which do not fit an existing index category and for which no price series are available. These have to be considered in the overall weight, vis-a-vis other components, even though no specific price series are available for their measurement.

A special adjustment is required in the case of food and tobacco expenditures. The Food Consumption Survey provided the detail on farm food purchases, by individual items, for one week in the spring of 1955 . This, plus expenditures for tobacco, was the basis for the entries in the first three columns of the table. For food items, they represent 52 times the value of a week's consumption of purchased food. This is based on food purchases in the spring of the year, a season when some home-produced food is available for use.

The data for food and tobacco in column 4, on the other hand, are based on the Farm Expenditure Survey data for the entire year. Prior to the general imputation of their proportionate share of noncovered family living items, they were $\$ 49$ higher than indicated by the Food Consumption Survey. Being based on the enumeration of
four seasonal subtotals, the higher expenditure for the year indicated by the Farm Expenditure Sum vey was accepted, in view of seasonal differenc in amounts purchased, sampling, and other discrepancies between the two surveys.

With respect to the Feeder and Replacement Livestock allocation, since the estimates of receipts from sale of livestock used in computing income from livestock sales-and the weights for the livestock component of the Prices Received Indexdo not include as sales the income received from sales to other farmers in the same State, it was concluded that the Livestock Group in the Prices Paid Index should be on the same basis. Accordingly, the expenditure data exclude intrastate purchases and are on a basis comparable to the income data and AMS official estimates. These estimates, rather than the survey data, were used for determining the group weight for livestock.
Similarly, since information for the expenditure survey was collected for the most part from farm operators (some of whom operated rented land), rather than from landlords, it was decided to use the existing ARS series to represent expenditures for interest on mortgages secured by farm real estate and for taxes payable on farm real estate. This insured the inclusion of payments by both operators and landlords, and co formed to the legislative language in determining what shall be included in the index.
The new expenditure pattern is of course on a much higher level than heretofore. In 1955, farmers were spending more for every major expenditure category. But the increases were far from uniform-the distribution of expenditures has shifted considerably. The major shift, as indicated by table 1, was toward a larger proportion of expenditures in the Production categories collectively, and smaller proportions for Living, Taxes on Farm Real Estate, Interest on Farm Mortgage Indebtedness, and for Cash Wages. As indicated by the table, some readjustments also occurred within groups. Thus, although the proportion of expenditures for living purposes collectively declined, the proportions for building materials for the farm home increased. Similarly, there was variation in the Production group, most categories of which were up, though proportionate expenditures for motor vehicles and livestock were down.

Table 2.-Farm expenditures: Dollars per farm, United States, $1955^{1}$

${ }^{1}$ Basis Farm Expenditure Survey for 1955, the Household Food Consumption Survey, and related estimates of the Agricultural Marketing Service and the Agricultural Research Service. Relative expenditures (percent) for Living; Production; Living and Production combined; and Living, Production, Interest, and Taxes all rounded to 3 significant digits.
${ }^{2}$ Excludes expenditures of $\$ 594$ per farm family for medical expenses; haircuts, beauty shop and other personal services; movie and other admissions; other recreational expenses; personal insurance; gifts and contributions; and other miscellaneous expenses which were distributed proportionately to each living expenditure group; also $\$ 35$ equalization adjustment basis supplementary survey indications, namely a $\$ 49$ deficiency in the Household Food Consumption Survey, a $\$ 17$ expenditure for lodging away from home, and a $\$ 31$ increase in the family iving portion of auto expense based on combined returns from both the living and production component of the Farm Expenditure Survey
${ }_{3} 101.015$ percent of $\$ 3,250(2621+594+49+17-31)$ placing expenditures per family on a per farm basis.

## Determination of Commodity Quantity Weights

Within each index group, the quantity weights were derived from the expenditures reported by the surveys and other basic sources (or estimated from source data where expenditures were not explicitly given) for each index item, together with direct imputations for similar items purchased, but for which price series are not available.

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${ }^{4}$ Allocations based on independent and detailed data from Household Food Consumption Survey for 1 week in the spring of 1955.
${ }^{5}$ Based on Farm Expenditure Survey; includes expenditures for food away from home.
${ }^{6}$ Excludes expense of vacation housing, lodging at school, etc., interest and taxes on owner-occupied dwellings.
${ }^{7}$ Excludes taxes ( $\$ 39$ ) and mortgage interest ( $\$ 20$ ) on owner-occupied dwellings.
${ }^{8}$ Estimate based on indications from farm production and family living surveys.
${ }^{9} 117.084$ percent of $\$ 3,618.76$ to include allowance for expenditures for machine hire and custom work, veterinary services, insurance, marketing costs other than feed fed at markets, etc.; subgroup totals are increased proportionally.
${ }^{10}$ Includes cost of feed fed at markets.
${ }^{11}$ Based on purchases of feeder and stocker livestock and poultry excluding interfarm sales within States, as estimated by Agricultural Economics Division, Agricultural Marketing Service.
${ }^{12}$ Based on estimates of the Agricultural Research Service.

The surveys reported expenditures for many more items purchased by farmers than it has been possible for the AMS to include in the current price collection program. It was therefore necessary to match the expenditure items as reported by the surveys to the available price series, to assign expenditure weights from the surveys to the
available price series, and to impute to the extent possible to commodities for which price series were available, the expenditure for items that were similar in character but for which price series were not available. For example, a price series is available for prices paid by farmers for white granulated sugar, but not for powdered or brown sugar. Since these items all have a similar origin, the expenditures for powdered and brown sugar were added to that for white granulated sugar to reflect purchases of all sugar.
Similarly, a price series is available for white bread, but not for whole wheat and other bread or for rolls, biscuits, cakes, pies, and kindred wheat products. As these are all derived from flour and other generally similar ingredients, the expenditures for all are imputed to the price series for white bread.
A considerable number of the items reported in the surveys were either represented directly by price series or imputed to items sufficiently alike to provide reasonably accurate indications of price trends. In most index groups, however, a residuum of items could not be imputed to any available price series, although they definitely could be assigned to the specific index group.
Moreover, there were in most index groups many items for which the expenditure was trivial. On the basis of comparisons made during the 1950 revision (6) the general rule was adopted to include an available price series if the item amounted to as much as one-half of 1 percent of the expenditure for the group, but to drop the series and discontinue price collection if the item accounted for less than one-half of 1 percent of the group total. Thus, the resources available for collecting current price data are directed to pricing commodities that are important in farmer expenditures.

Table 3 presents the working table for the food and tobacco group and illustrates the general pattern of imputation followed. Specifically, the qualifying items in the food group for which price series are available for 1955 are listed on the left side of the table, and the expenditures for those and similar food items on the other. Items are arranged so as to coincide as nearly as possible with the items for which prices were available.

Items that match precisely are shown in opposite columns in the same line of the table. Items which match approximately and whose weight
was imputed to the series for which prices are available are shown immediately following. This listing includes rice and lemons, items dropp because the amount spent for them was no longer as much as one-half percent of the total. Where no price series is available, and where no available series is sufficiently similar to justify "imputation," the weight is shown as "unallocated." The totals from this table are also those shown in columns one to three inclusive of table 1 under Food and Tobacco. Other groups are handled in a generally similar manner.
It will be noted that the data from the survey are in terms of expenditures for the items in question. These were used in arriving at a total expenditure, including imputations for the respective items. The actual quantity weight (table 4) was then derived by dividing the expenditure items by the average price for the commodity priced in the year 1955. This then became the basic quantity weight by which the prices year by year were multiplied to compute the commodity aggregates. ${ }^{2}$
The pattern just described was followed generally, although some modifications were made as special circumstances required.
Some modification of this specific approach was required in determining weights for buildin materials for house and for service buildings. In this case the expenditure survey did not report in detail the quantities of individual items of lumber, cement, and other building materials bought by farmers. It was impracticable for farmers to report this type of item in detail, especially on contracted construction. But the survey did indicate the farms on which new dwellings had been erected by the farm operator during the year in question. A photograph of each of these dwellings was taken, together with fairly detailed information concerning the general outline and dimensions of the structure, the materials used in its construction, and similar information.

[^1]Table 3.-Food and tobacco prices paid by farmers: Revision of index coverage and weights, United States, based on expenditures for purchased food and tobacco used at home, spring of 1955

See footnote at end of table.

Table 3.-Food and tobacco prices paid by farmers: Revision of index coverage and weights, United States, based on expenditures for purchased food and tobacco used at home, spring of 1955-Continued


Table 3.-Food and tobacco prices paid by farmers: Revision of index coverage and weights, United States, based on expenditures for purchased food and tobacco used at home, spring of 1955-Continued

Table 3.-Food and tobacco prices paid by farmers: Revision of index coverage and weights, United States, based on expenditures for purchased food and tobacco used at home, spring of 1955-Continued

${ }^{1}$ By rural farm families: From Household Food Consumption Survey 1955, Report No. 1.

Typical of the supplementary details enumerated for these houses were the type of foundation; the existence of a basement and its dimensions; the materials used in constructing floors, walls, and partitions; type of heating, fuel, water, and sewage system installed; separate sketches of the
layout for the first and second floors, with existing porches; type of above-ground construction and exterior covering; type of sheathing and insulation materials; type of finish of interior walls and ceilings; the linear feet of partitions; and the flooring material used.

Table 4.-Food and tobacco prices paid by farmers: Derivation of revised commodity index weights, basis food consumption and farm expenditure surveys for 1955, United States
${ }^{1}$ Including imputations.
${ }^{2}$ Including wheat flakes and rice.
${ }^{3}$ Including salt pork.
${ }^{4}$ Including lemons and grapefruit.

In addition, the number of doors and windows on the first and second floors were counted, by types; the linear feet of base and wall cabinets in the kitchen were measured, and the number of fireplaces noted. Similar detail was recorded for the roof, including the type of material used; the number and material used in constructing chimneys, and the number of dormers. Other notations covered how much of the exterior and interior was painted and whether the house was equipped with screens and storm windows.

This information was then utilized by an engineer familiar with building construction to develop the bill of goods necessary to construct a building of the type and size indicated. This was done for all of the farm dwellings for which sample data were available. From this analysis a representative bill of goods was developed, and this was combined with other survey data to develop the pattern of total expenditures for building purposes. Appropriate weights were derived from this analysis.

## Commodity Coverage Compared With Previous Revisions

The commodity coverage achieved in the 1959 revision sets a new high in the history of the index both qualitatively and quantitively. Information available from the 1955 surveys in many respects provided more satisfactory data than had been available for any earlier revision, and the commodity review, in addition to being far more current than in previous revisions, was considerably more precise for many items.

As a consequence of this revision there was a net increase of 49 in the index coverage-from 340 to 389. This is net in terms of individual commodity price series. Some of these series, however, appear in more than one commodity group. Thus gasoline, autos, telephones, electricity, to mention only a few, are used for both family living and production purposes. Accordingly, these price series enter into an appropriate subgroup within both the family living and farm production categories, with the weights allocated appropriately. Including such duplications, the total number of index items has increased from 370 to 435 , or a total increase of $65 .^{3}$

[^2]As a result of changes in purchasing patterns, 62 commodities were so unimportant as not merit continuing in the index, based on the on half-percent criterion. Nine others were dropped, but replaced by other essentially similar items. For example, the average price for all soybean meal, was replaced by soybean meal with 44 percent protein; similarly, the average price for all cottonseed meal was replaced by cottonseed meal with 41 percent protein.

The most important single addition to the commodity coverage was used autos and pickup trucks. According to the Expenditure Survey, these items accounted for about a third of the expenditures by farmers for all autos and trucks. The weight for these items was divided between living and production on the basis of the usage indicated by the survey. This addition was made, not in 1952, but at the beginning of 1955 , inasmuch as war and immediate postwar conditions-including the Korean conflict-had brought about an unusually strong sellers' market for used cars. To have introduced this group of items in 1952, would have had a distorting influence.

This situation had about worked itself out by 1955, so that the trend in used car prices since 1955 has generally paralleled that of new ca> and trucks. This introduction has not strong affected the index since 1955, but it has broadened the commodity base, and gives a more dependable measure of this area of expenditures than continued reliance wholly on new car and truck prices. Of the added items, only 16 represented substitution items, and 120 were outright addi-tions-items shown to be important in farmers' 1955 purchases for which price series are available. These included such items as cake mix, nylon slips, postage rates, television sets, bathtubs, and turkey feed.

Table 5 presents a complete list of items dropped, added, and substituted, with the average 1955 expenditure per farm and the one-half percent criterion for each group. There are only a few exceptions to the general rule of one-half percent. Parcel post expenditures at $\$ 1.83$ per year fell slightly below the one-half percent point of expenditures for household operation; yet parcel post rates do not necessarily change at the same time or by the same amount as first-class mail rates.

Table 5.-The parity index: Items added and dropped, January 1959 revision


Table 5.-The parity index: Items added and dropped, January 1959 revision-Continued


## See footnotes at end of table.

Table 5.-The parity index: Items added and dropped, January 1959 revision-Continued

| Item | 1955 average expenditure per farm | Added new | Substituted for- | Dropped |
| :---: | :---: | :---: | :---: | :---: |
| Feed-Continued | Dollars |  |  |  |
| Meat scrap_ | 1. 47 |  |  | X |
| Tankage-- | 1. 36 |  |  | X |
| Corn gluten- | 1.36 .84 |  |  | X |
| Mill run---- | . 70 |  |  | X |
| Total | 907. 00 | 5 | 7 for 3 | 6 |
| $1 / 2$ percent of total | 4. 54 |  |  |  |
| Livestock-no changes: |  |  |  |  |
| Total $1 / 2$ percent of tota | 327. 00 |  |  |  |
|  |  |  |  |  |
| Motor supplies: Tractor tires |  |  |  |  |
| Antifreeze. | 13. 31 | X |  |  |
| Motor tuneup | 34.26 | X |  |  |
| Lubrication. | 7. 51 | X |  |  |
| Kerosene. | . 31 |  |  | X |
| Inner tubes | 1. 96 |  |  | X |
| Total | 597. 16 | 4 |  | 2 |
| $1 / 2$ percent of total | 2. 99 |  |  |  |
| Motor vehicles: |  |  |  |  |
| Used vehicles: |  |  |  |  |
| Pickups.- | 13. 95 | X |  |  |
| Trucks------ | 5. 16 | X |  |  |
| Crawler tractors under 25 hp | . 10 |  |  | X |
| Farm machinery: |  |  |  |  |
| Disk plow, 2 disks | 2. 79 | X |  |  |
| 1-way disk tiller.- | 2. 05 | X |  |  |
| Disk harrow, tandem, 6 ft - | 4. 14 | X |  |  |
| Disk harrow, tandem, 8 ft | 4. 52 | X |  |  |
| $\xrightarrow[\text { Disk harrow, offset, }]{\text { Springtooth harrow, }} 2$ stection | 1. 2.91 | X |  |  |
| Cultivator, 4-row, tractor | 2. 45 | X |  |  |
| Manure loader, tractor--- | 3. 84 | X |  |  |
| Corn planter, 2-row, fertilizer | 6. 45 |  | 2 row plain |  |
| Corn planter, 4-row, plain | 2.14 |  |  |  |
| Hay rake, side-delivery, PTO- | 7.26 | X |  |  |
| Pickup baler, auxiliary engine | 27. 2 |  | PTO model |  |
| Combine, auxiliary engine, 5-6 | 10. 3 | X |  |  |
| Combine, PTO, 7-9 $\mathrm{ft}_{\text {ct- }}$ | 10. 32 |  | Auxiliary engine 8 |  |
| Combine spreader, 14 ft . | 8. 39 | X |  |  |
| Corn picker-husker, 1 row | 6. 98 | X |  |  |
| Cotton picker, less tractor | 2. 01 | X |  |  |
| Cotton picker, spreader | 2.31 | X |  |  |
| Farm milk cooler- | 9. 70 | X |  |  |
| Gas engine (2.1-3.5 hp.) | 2. 97 |  | $1-2 \mathrm{hp}$ |  |
| Farm grain elevator, 28 ft | 2. 93 |  |  |  |
| Farm grain elevator, 34 ft | 4. 51 |  |  |  |
| Farm grain elevator, 40 ft | 3. 04 |  |  | X |
| Stationary milker installation | 2. 10 |  |  | X |
|  | 370.64 | 21 | 5 for 4. | 2 |
| $1 / 2$ percent of total | 1. 35 |  |  |  |

## See footnotes at end of table.

Table 5.-The parity index: Items added and dropped, January 1959 revision-Continued

| Item | 1955 average expenditure per farm | Added new | Substituted for- | Dropped |
| :---: | :---: | :---: | :---: | :---: |
| Farm supplies: Gasoline | Dollars 3 |  |  |  |
| Kasosene | 19.70 | X |  |  |
| Fuel oil | 3. 86 | X |  |  |
| Soft coal | 1. 83 | X |  |  |
| DDT.-- | 38. 41 | X |  |  |
| 2-4D-.-- | 10. 06 | X |  |  |
| Burlap sacks.-.- Open mesh bags | 4. 90 | X |  |  |
| Open mesh bags | 7. 88 | $\stackrel{\hat{\mathbf{X}}}{\mathbf{X}}$ |  |  |
| Fruit box shook. | 2. 52 | X |  |  |
| Lug box shook. | 1. 37 | X |  |  |
| Vegetable crate shook | 3. 33 | X |  |  |
| Barbed wire-- | 5. 87 | X |  |  |
| Baler twine | 2. 31 | X |  |  |
| Gas engines--- | 7. 76 | X |  |  |
| Electric motors | 5. 19 | X |  |  |
| Brooders.-- | 3. 30 | X |  |  |
| Telephone service | 1. 84 | X |  |  |
| Magazines_--- | 2. 51 | X |  |  |
| Postage rates | 2. 55 | X |  |  |
| Paris green----- | n.a. |  |  |  |
| Scythes--.---- | n.a. |  |  | $\underset{\mathrm{X}}{\mathrm{X}}$ |
| Horse collars.- | . 45 |  |  |  |
| Total $1 / 2$ percent of total | $\begin{aligned} & 261.06 \\ & 1.31 \end{aligned}$ | 22 |  | 4 |
| Building and fencing materials: |  |  |  |  |
| Flooring, yellow pine_Paint, interior- | 3. 34 | X |  |  |
| Concrete blocks | 2.99 | X |  |  |
| Insulating board, interior | 2. 84 | X |  |  |
| Domestic water system- | 12.58 | X |  |  |
| 2 by 4's, pine, under No. 2 | 1. 03 |  |  | X |
| Shiplap.-.-------1. | 1. 38 |  |  |  |
| Under No. 2 | n.a. |  |  | X |
| Drop siding----1 | . 84 |  |  |  |
| Fir, under ${ }^{\text {C }}$ | n.a. |  |  |  |
| Barn window sash | 1. 70 |  |  | X |
| Linseed oil...-. | n.a. |  |  | X |
| Brick, common- Poultry netting- | 1. 28 |  |  | X |
| Steel gates.-.-- | 1. 28 |  |  | $\underset{\mathrm{X}}{\mathrm{X}}$ |
| Windmills..- | 1. 26 |  |  |  |
| Total $1 / 2$ percent of total. | $\begin{array}{r} 369.52 \\ 1.85 \end{array}$ | 5 |  | 11 |
| Fertilizer and lime: |  |  |  |  |
| Mixed goods: |  |  |  |  |
| $0-14-14$ <br> $5-20-20$ | 1. 70 | X |  |  |
| 8-16-16-12 | 2. 63 | X |  |  |
| $\begin{aligned} & 12-12-12 \\ & 6-6-6 \end{aligned}$ | 6. 63 | X |  |  |
| 8-24-8-0 | 1. 50 |  |  | $\frac{\mathrm{X}}{\mathrm{X}}$ |
| 10-20-0 | 1. 25 |  |  | X |
| \%ypsum.4 | 1.81 |  |  | X |
| Gypsum.- | 2. 59 | X |  |  |

## See footnotes at end of table.

Table 5.-The parity index: Items added and dropped, January 1959 revision-Continued


[^3]In order to measure postal rates more adequately, both parcel post and first-class rates were included. Can milk coolers were retained, similarly, to supplement the bulk cooler coverage in the dairy equipment field. And two analyses of mixed fertilizer qualifying for inclusion in 1955 were dropped because of sharply declining usage in the years immediately following 1955.

A further comparison in terms of commodity contribution to the index for December 1958 is presented in table 6. This table compares the old Prices Paid, Interest, and Taxes Index (pre-1950 formula still used for computing parity prices for commodities not yet on the Modernized Formula), the 1950 revision, and 1959 revision. The first of these indexes is based on only 183 price series, so that the average percentage contribution of one commodity to the total of 100 percent will generally be higher than for commodities in the 1950 revision, and this in turn will average slightly higher than in the 1959 revision. The latter has a broader and more representative coverage; at the same time, individual commodities will in general affect the total index less than in the other indexes. Thus the last revision may be expected to be more stable, and less affected by an unusual
gyration of a given item. A perusal of this table will indicate the greater susceptibility of the pre1950 index and the 1950 revision as well, to undue effects of wide price fluctuations for one or two volatile items.
Table 7 presents the quantity weights as computed from the weight base data, for all three weight base periods.

## Formula and Method of Computation

The formula of this index, is, as already indicated, similar to that of the 1950 revision, except for the addition of one more link. Thus, the index is basically an aggregative index, modified from the traditional Laspeyres formula (1) to permit reflecting changes over time in the importance of commodities (by chaining together several "links," each link consisting of an index computed using as a base period the period from which the weights were derived) ; (2) to introduce (or drop) from time to time commodities for which satisfactory data were not available over the whole period covered by the various "links;" and (3) to impute to the weights of commodities in the index an allowance for similar or related items for which price series were not available.

Table 6.-Prices paid, interest, taxes, and wage rates: Item coverage and relative importance of each commodity and service, Dec. 15, 1958

| Group and commodity | Relative importance |  |  |
| :---: | :---: | :---: | :---: |
|  | Old <br> index | $\begin{gathered} 1950 \\ \text { revision } \end{gathered}$ | $\begin{gathered} 1959 \\ \text { revision } \end{gathered}$ |
| Family living | Percent <br> 49. 80 | Percent <br> 42. 40 | $\begin{array}{r} \text { Percent } \\ 39.24 \end{array}$ |
| Food and tobacco | 16.3 | 16. 7 | 13.48 |
| Meat and fish- | (4.70) | (3.78) | (3.34) |
| Round steak | 3. 07 | 1. 25 | . 54 |
| Hamburger |  | . 36 | . 41 |
| Chuck roast |  |  | . 21 |
| Frying chicken |  |  | . 18 |
| Bologna |  | 48 | . 39 |
| Frankfurters |  |  | . 25 |
| Bacon, sliced | . 41 | . 44 | . 44 |
| Ham, whole Pork chops | 1. 22 | . 20 | .26 .17 |
| Pork sausage |  | . 13 | . 16 |
| Frozen haddock |  |  | 19 |
| Salmon, pink |  | - 69 | . 14 |
| Fats--1 | (.21) | (.66) | (.63) |
| Lard | . 21 | . 30 | . 15 |
| Vegetable shortening Margarine |  | .19 .17 | .26 .22 |
| Dairy products and eggs | (1.17) | (1.44) | (1.90) |
| Milk, fluid.- |  | . 25 | . 51 |
| Milk, evaporated |  | . 13 | . 14 |
| Butter | . 91 | . 60 | 32 |
| Cheese, American | . 26 | . 38 | . 32 |
| Ice cream |  |  | . 44 |
| Eggs |  | . 08 | . 17 |
| Cereal and bakery products | (4.74) | (4. 12) | (2.52) |
| Flour | 3.33 | 1. 51 | . 59 |
| Baking powder | . 08 | . 25 | . 16 |
| Cake mix |  |  | . 12 |
| Soda crackers |  | . 26 | . 24 |
| Bread, whi | . 64 | 1. 16 | 1. 01 |
| Cornmeakes | . 30 | . 39 | . 12 |
| Rice. | . 17 | . 14 | (i) |
| Vegetables |  | (1.61) | (1.35) |
| Corn, canned |  | . 23 | . 16 |
| Peas, canned |  | . 12 | . 16 |
| Beans, dry |  | . 24 | . 13 |
| Potatoes, white |  | . 41 | . 32 |
| Cabbage |  | . 15 | . 15 |
| Lettuce |  | . 17 | . 21 |
| Tomatoes |  | . 29 | . 10 |
| Catsup. |  |  | 12 |
| Fruit | (1.67) | (1. 59) | (.94) |
| Apples | . 99 | . 73 | . 08 |
| Bananas | . 36 | . 28 |  |
| Lemons | . 13 | . 08 | ${ }^{(1)}$ |
| Oranges-..-- | 19 | . 50 | . 33 |
| Peaches, canned---- |  |  | .20 .14 |
| Salt_-------------------- | (. 15) |  |  |
| Sweets | (1.87) | (1.20) | (.78) |
| Sugar | 1. 87 | . 66 | . 44 |
| Sirup, table |  | . 44 | . 18 |
| Candy, nonchocolate | (1.79) | .10 <br> (1. 48 | (1.16) |

${ }^{1}$ Item dropped; represented only 0.4 percent of food and tobacco total in 1955.

Table 6.-Prices paid, interest, taxes, and wage rates: Item coverage and relative importance of
each commodity and service, Dec. 15,1958 -Con

| Group and commodity | Relative importance |  |  |
| :---: | :---: | :---: | :---: |
|  | Old index | $\begin{gathered} 1950 \\ \text { revision } \end{gathered}$ | $\begin{gathered} 1959 \\ \text { revision } \end{gathered}$ |
| Family living-Continued <br> Beverages-Continued Coffee, ground | $\begin{array}{r} \text { Percent } \\ 1.40 \end{array}$ | $\begin{aligned} & \text { Percent } \\ & 1.32 \end{aligned}$ | Percent |
|  |  |  | Percent .48 |
| Coffee, instant 09 |  |  |  |
| Tea-------------- . 39 - 16 |  |  |  |
| Cola drin |  |  |  | 25 |
|  |  |  |  |
|  |  |  |  |
| Smoking tobacc |  | . 49 | . 19 |
|  |  |  |  |
| Clothing------------------16. 16.0 9. 7 6. |  |  |  |
| Overalls, bi | 1. 50 | - 41 | (2. .32 |
| Shirts, cotton, work | 1. 28 | . 28 | . 13 |
| Undershirts, sleeveless.- | . 17 | . 07 | . 10 |
| Unionsuits, heavy, cot- |  |  |  |
|  |  |  |  |  |  |
| Gloves, canvas------------ $\quad .31$ - 070 |  |  |  |
| Socks, cotton----------- $\quad .37$ - 16 |  |  |  |
| Shirts, broadeloth----------------- 28 - 17 |  |  |  |
|  |  |  |  |  |  |
| Suits, wool |  |  |  |
|  |  |  |  |  |  |
| Trousers, extra, woolen- 1.00 .12 <br> Overcoats_---- .08  |  |  |  |
| Hats, felt------------- .79 .20 <br> Jackets, leather   |  |  |  |
|  |  |  |  |  |  |
| Shoes, work----------- 2.41 .52 .20 <br> Boots, rubber, knee    |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |
| Overshoes, with buckles |  | . 04 | . 05 |
| Overshoes, no buckles--------- 03 |  |  |  |
| Boys' clothing---------- |  | (.90) | (.57) |
| Overalls, waist------------------------ 38 |  |  |  |
| Suits, wool.---------------------12 |  |  |  |
| Sweaters, woo |  | . 11 | . 07 |
|  |  |  |  |
| Dresses, house, percale.- | 1.50 | . 25 | . 19 |
| Dresses, street, cotton.- |  | . 39 | . 17 |
| Nightgowns, cotton. |  | . 13 | 16 |
| Hose, cotton. |  | . 09 |  |
| Hose, nylon | . 25 | . 11 | 21 |
| Coats: ${ }^{\text {Hats, }}$ |  |  |  |
| Coats: <br> Lightweight, full length |  | . 43 | 20 |
| Heavy, all wool, with fur trim |  | . 13 |  |
| Heavy, all wool, with- |  |  |  |
| Sweaters-.---------------------- 0.06 |  |  |  |
|  |  | . 09 | . 22 |
| Dresses, rayon |  | . 63 | 15 |
| Panties or briefs -------17Sline |  |  |  |
|  |  |  |  |
|  |  |  |  |  |  |
| Shoes | 1. 72 | 69 | . 37 |
| Girls' clothing_-.-.-.-.-------- (1.04) (.53) |  |  |  |
|  |  |  |  |
|  |  |  |  |  |  |

Table 6.-Prices paid, interest, taxes, and wage rates: Item coverage and relative importance of each commodity and service, Dec. 15, 1958-Con.


Table 6.-Prices paid, interest, taxes, and wage rates: Item coverage and relative importance of each commodity and service, Dec. 15, 1958-Con.


Table 6.-Prices paid, interest, taxes, and wage rates: Item coverage and relative importance of each commodity and service, Dec. 15, 1958-Con.

${ }^{3}$ Auto supplies (1.24) included in Household Operation Total.

Table 6.-Prices paid, interest, taxes, and wage rates: Item coverage and relative importance of each commodity and service, Dec. 15, 1958-Cor

| Group and commodity | Relative importance |  |  |
| :---: | :---: | :---: | :---: |
|  | Old <br> index | $\begin{aligned} & 1950 \\ & \text { revision } \end{aligned}$ | $\begin{gathered} 1959 \\ \text { revision } \end{gathered}$ |
| Auto and auto supplies-Con. Autos-Continued Used | Percent | Percent | Percent . 81 |
|  |  |  |  |
| Pickup truck, $1 / 2$ ton: |  |  |  |
|  |  |  |  |
|  |  |  |  |  |  |  |
| Supplies: 81 1.85 1.68 |  |  |  |
| Motor oil | . 18 | 1.85 | 1. 14 |
| Auto tires 600 by 16 |  |  | . 33 |
|  | . 25 | . 05 | . 33 |
| Inner tubes--------------------- |  |  |  |
| 15 plate------------------- . 02 - 07 |  |  |  |
| 17 plate |  | . 02 |  |
| Antifreeze, permanent------------------ ${ }^{\text {Services: }}$ - 03 |  |  |  |
| Services:Lubrication_------------------------ ${ }^{\text {- }}$ - 11 |  |  |  |
| Motor tuneup, Ford, Chevrolet, Plymouth$.44$ |  |  |  |
| Farm production | 35.70 | $36.90^{-}$ | 50.23 |
| Feed.----------------- | 6.20 | 8.20 | 11.30 |
| Hay, alfalfa | . 93 | . 43 | . 70 |
|  |  | . 39 | . 50 |
| Corn, other | . 17 | .56 .30 | 1.18 |
| Oats |  | . 08 | . 11 |
| Wheat--- |  | . 12 |  |
| Cottonseed meal <br> Cottonseed meal, 41 percent protein . |  |  | 11 |
|  | . 80 | 63 |  |
|  |  |  | . 36 |
| Soybean meal <br> Soybean meal, 44 percent protein. |  | . 16 |  |
|  |  |  | . 13 |
| Linseed meat | . 19 |  |  |
|  | . 14 | . 08 |  |
| Tankage--- |  | . 09 |  |
| Bran_----Middlings | . 78 | . 36 | . 09 |
|  | . 78 | . 34 | . 10 |
| Mill run--- |  | . 07 | -- |
| Cornmeal | . 56 | . 11 | . 10 |
|  | . 21 | . 04 |  |
| Turkey growing mash.- |  |  | . 22 |
| Hominy feed---------- |  | . 17 |  |
| Scratch grain |  | . 42 | . 21 |
|  |  | 1.04 | 1.84 |
| Chick starter mash.---- |  | . 31 | . 37 |
| Broiler growing mash_-- <br> Mixed dairy, under 29 percent protein.-.-.- |  | . 71 | 1.39 |
|  |  | 1.18 |  |
| Mixed dairy, 29 percent protein. |  | . 38 |  |
| Mixed dairy, 14 percent protein. |  |  | . 21 |
| Mixed dairy, 16 percent protein | . 60 |  | . 71 |
| Mixed dairy, 18 percent protein. |  |  | . 21 |
| Mixed dairy, 20 percent protein $\qquad$ |  |  | . 18 |

Table 6.-Prices paid, interest, taxes, and wage rates: Item coverage and relative importance of each commodity and service, Dec. 15, 1958-Con.

${ }^{4}$ Included in Farm Supply Index.
${ }^{5}$ Includes all ply of truck tires.

Table 6.-Prices paid, interest, taxes, and wage rates: Item coverage and relative importance of each commodity and service, Dec. 15, 1958-Con.


Table 6.-Prices paid, interest, taxes, and wage rates: Item coverage and relative importance of each commodity and service, Dec. 15, 1958-Con.

| Group and commodity | Relative importance |  |  |
| :---: | :---: | :---: | :---: |
|  | $\begin{aligned} & \text { Old } \\ & \text { index } \end{aligned}$ | $\begin{gathered} 1950 \\ \text { revision } \end{gathered}$ | $\begin{gathered} 1959 \\ \text { revision } \end{gathered}$ |
| Farm production-Con. ${ }_{\text {Farm }}$ Machinery-Con. Percent Percent Percent |  |  |  |
| Farm Machinery-Con. <br> Pickup balers, auxiliary engine | Percent | Percent | Percent .52 |
| Combines, 10 ft ., selfpropelled |  |  |  |
| Combines, 12 ft., selfpropelled |  |  |  |
| Combines, 14 ft ., self- <br> propelled |  |  |  |
| Combines, <br> iary engine <br> ft., auxil- 1.31 .55 |  |  |  |
| Combines, 8 ft ., auxiliary engine |  |  |  |
|  |  |  | $0^{-}$ |
| Combines, $7-9 \mathrm{ft}$., PTO. |  |  | 07 |
| Forage harvesters, pickup, PTO |  |  |  |
| Forage harvesters, row |  |  |  |
| Corn picker-huskers, 1 |  |  |  |
|  |  |  |  |
| Corn picker-huskers------------------ |  |  |  |
|  |  |  |  |
| Cotton picker, 1 row, self-propelled. |  |  |  |
| Potato diggers | 07 |  |  |
| Single milker units |  | . 10 | 14 |
| Farm milk coolers, 6 <br> can, side door $\square$ $\qquad$ |  |  |  |
| Bulk milk coolers, expansion type. |  |  |  |
|  |  |  |  |
| Cream separators, 750 <br> lb. capacity |  |  |  |
| Hammer mills----------- | .32 .10 | . 16 |  |
| Power sprayers--------------------12 |  |  |  |
|  |  |  |  |
| Farm grain elevator, portable, 28 ft $\qquad$ . 06 |  |  |  |
| Farm grain elevator, portable, 34 ft $\square$$\text { . } 09$ |  |  |  |
| Farm grain elevator, portable, 40 ft _ $\square$$06$ |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Farm supplies | ${ }^{6}$ (3. 19) | 2. 80 | 3. 49 .05 |
| Gasoline------------------------------ ${ }^{\text {Kerosene }}$--- 05 |  |  | . 30 |
| Range or furnace oil.--- |  |  | . 06 |
| Soft coal------------- |  |  | . 03 |
|  |  |  |  |
| Arsenate of lead | . 11 | . 24 | . 03 |
| DDT, wettable powder 40-50 percent |  |  | . 53 |
| Paris green_----------- |  | . 02 |  |
| 2, 4D |  |  | . 13 |

${ }^{6}$ Combined with motor supplies in old index.

Table 6.-Prices paid, interest, taxes, and wage rates: Item coverage and relative importance of each commodity and service, Dec. 15, 1958-C


Table 6.-Prices paid, interest, taxes, and wage rates: Item coverage and relative importance of each commodity and service, Dec. 15, 1958-Con.

| Group and commodity | Relative importance |  |  |
| :---: | :---: | :---: | :---: |
|  | $\begin{aligned} & \text { Old } \\ & \text { index } \end{aligned}$ | $\begin{gathered} 1950 \\ \text { revision } \end{gathered}$ | $\begin{array}{c\|} 1959 \\ \text { revision } \end{array}$ |
| Farm production-Con. Dressed boards. | Percent | Percent <br> (. 13) | Percent (.36) |
| Dressed No. 2 and better- |  | $(.13)$ .07 | $(.36)$ .20 |
| Under No. 2 |  | . 06 | . 16 |
| Shiplap, common pine--- | (. 36$)$ | (.15) |  |
| No. 2 and better <br> Under No. 2 | .22 <br> .14 | +.09 |  |
| Drop siding-- | (. 73 ) | (.13) | (.09) |
| Pine, C and better | . 20 | . 04 | . 05 |
| Pine, under C | . 18 | . 03 |  |
| Fir, C and better-.--- | . 22 | . 04 | 04 |
| Fir, under C Flooring, yellow pine, B | . 13 | . 02 |  |
| and B, |  |  | 07 |
| Shingles, wood. | 2. 46 | . 14 | . 06 |
| Windows, barn | . 12 | . 03 |  |
| Shingles, asphalt |  | . 02 | 16 |
| Roofing, composition | 04 | . 07 | 13 |
| Insulating board |  |  | 07 |
| Paint, exterior house | . 69 | . 31 | ${ }^{27}$ |
| Cement, portland. | . 20 | . 12 | . 33 |
| Concrete blocks |  |  | . 43 |
| Linseed oil. |  | 03 |  |
| Brick, common | . 20 | . 07 |  |
| Nails | . 13 | . 06 | . 26 |
| Roofing, galvanized | . 10 | . 16 | . 60 |
| Iron pipe, galvanized_-- |  | . 10 | . 14 |
| Domestic water system jet type $1 / 2 \mathrm{hp}$ motor and tank |  |  | 28 |
| Windmills | . 07 | . 03 |  |
| Fencing: |  |  |  |
| Barbed wire, 2 pt.--- | . 25 | . 15 | . 13 |
| Barbed wire, 4 pt... |  | . 14 | 19 |
| Field and stock fencing |  | 27 | . 41 |
| Poultry netting | . 52 | . 09 |  |
| Fence posts, steel.--- | . 28 | . 05 | . 16 |
| Farme posts, wood | . 21 | .08 .09 | . 24 |
| Farm gates | . 21 | . 09 |  |
| Boards, rough, No. 2 and better $\qquad$ |  |  | . 08 |
| Boards, rough, under |  |  | 04 |
| Fertilizer | 1.70 | 1. 90 | 3. 76 |
| Mixed fertilizer | (1.17) | (1.07) | (2.37) |
| 0-14-14- |  |  | . 02 |
| 2-12-12 |  | . 06 | 09 |
| 3-9-6 |  | . 05 | 09 |
| 3-9-9 |  | . 04 | 09 |
| 3-12-6 |  | . 03 | 04 |
| 3-12-12 | . 79 | 17 | 30 |
| 4-8-6 |  | . 02 | 04 |
| 4-8-8 |  | . 03 | 04 |
| 4-10-6 |  | . 04 | . 06 |
| 4-10-7. |  | . 04 | 09 |
| 4-12-12 |  | . 03 | 11 |
| 4-16-16 |  | . 08 | 19 |
| 5-10-5 |  | . 08 | 15 |
| $5-10-10$ | . 38 | . 12 | 29 |
| 5-20-20 |  |  | 15 |

Table 6.-Prices paid, interest, taxes, and wage rates: Item coverage and relative importance of each commodity and service, Dec. 15, 1958-Con.

| Group and commodity | Relative importance |  |  |
| :---: | :---: | :---: | :---: |
|  | Old index | $\begin{aligned} & 1950 \\ & \text { revision } \end{aligned}$ | $\begin{gathered} 1959 \\ \text { revision } \end{gathered}$ |
| Farm production-Con. Fertilizer-Con. |  |  |  |
| Mixed fertilizer-Con. | Percent | Percent | Percent |
|  |  |  |  |
| 6-10-4 |  | . 02 | 10 |
| 6-12-12 |  | . 02 | $0{ }^{-}$ |
| $8-16-16$ |  |  | 04 |
| $8-8-8$ |  | 03 | 05 |
| 8-24-8 |  | 02 |  |
| 8-32-0 |  | 01 |  |
| $10-10-10$ |  | 09 | 20 |
| 10-20-0 |  | . 02 |  |
| Fertilizer materi | 47) | (.62) | (1.06) |
| Sodium nitrate. | . 12 | . 06 | . 11 |
| Sulphate of ammonia- | . 04 | . 04 | . 09 |
| Ammonium nitrate.-- |  | . 12 | . 27 |
| Ammonium nitratelimestone mixture |  | 04 | . 06 |
| Anhydrous ammonia- |  | . 08 | . 20 |
| Ammonium phate, $16-20$ |  | . 06 | . 09 |
| Superphosphate: 0 |  |  |  |
| 18 percent $\mathrm{F}_{2} \mathrm{O}_{5}$ 20 percent $\mathrm{P}_{2} \mathrm{O}_{3}$ | 30 | . 02 | 08 |
| 42 percent ${ }^{2}{ }_{2} 0_{5}$ | 30 | . 02 |  |
| 45 percent $\mathrm{P}_{2} 0_{5}$ |  | . 02 | 05 |
| Phosphate rock |  | . 05 | 05 |
| Muriate of potash_--- 01 . 05 . 06 |  |  |  |
| Agricultural limestone | . 06 | . 21 | . 29 |
| Gypsum (land plas-ter) |  |  |  |
| Seed_------------------1.-1. 10 10-1. 40 2. 21 |  |  |  |
| Potatoes | . 10 | 19 | . 22 |
| Soybeans-------------------- 13 - 15 |  |  |  |
|  |  |  |  |
| Hybrid corn |  | . 21 | 04 |
| Grain sorghum---------------------------------------------- 0 |  |  |  |
|  |  |  |  |
| Barley |  | . 06 | . 07 |
| Wheat-------------------------- 14 - 14 |  |  |  |
| Rye---------------------------------- . 05 . 03 |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Alfalfa, common | . 25 | (8) 08 | . 03 |
| Alfalfa, other improved <br> variations |  |  |  |
|  |  |  |  |
| Clover, red_--------------    <br> Clover, .31 .10 .09 |  |  |  |
|  |  |  | 02 |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Lespedeza, Korean_---------- . 03 . 05 |  |  |  |
| $\begin{array}{llll}\text { Timothy------------- } & .19 & .06 & .03 \\ \text { Kentucky bluegrass.-- } & .15 & .02 & .01\end{array}$ |  |  |  |
|  |  |  |  |
| Common ryegrass_------------ . 01 . 03 |  |  |  |
| Tall Fescue (Alta-Ken- <br>  |  |  |  |
|  |  |  |  |

${ }^{8}$ Less than 0.005 percent.

Table 6.-Prices paid, interest, taxes, and wage rates: Item coverage and relative importance of each commodity and service, Dec. 15, 1958-Con.

| Group and commodity | Relative importance |  |  |
| :---: | :---: | :---: | :---: |
|  | $\begin{aligned} & \text { Old } \\ & \text { index } \end{aligned}$ | $\begin{aligned} & 1950 \\ & \text { revision } \end{aligned}$ | $\begin{gathered} 1959 \\ \text { fevision } \end{gathered}$ |
| Farm production-Con. Seed-Con. | Percent | Percent | Percent |
| Austrian winter peas. |  | . 01 |  |
| Vetch, hairy |  | . 01 | . 02 |
| Taxes-- | 10. 4 | 4. 0 | 2. 28 |
| Interest | 4.1 | 14. 7 | 1. 16 |
| Total | 100. 0 | 100.0 | 100. 0 |

agricultural marketing service

With respect to the first point, the logic of the linking procedure was discussed at some length in the 1950 paper (6). The logical problems involved in this phase of the problem have been developed more fully in the literature- $(3,4$, and 5)-and are not reviewed here, except to reaffirm the logic that accurate measures of price trends are not possible over long periods if constant weights are used. The literature amply demonstrates this fact. On the other hand, farmers' purchasing patterns probably change rather slowly, so that annual changes of weight are probably not necessary to preserve reasonably accurate measurement of price changes over a relatively short period.

As a working compromise, the use of fixed weights over the near half century covered by the index has been rejected because of the bias arising from the use of fixed weights over a long period. Instead, the total period has been divided into shorter periods as nearly homogeneous as the availability of data permits. Indexes have been prepared for each period, using the most representative weights available; and finally these units or links have been chained together, thus maintaining weights reasonably representative of the period at all times, and yet relating the price comparisons to the reference period chosen. For these indexes, the base reference period is, by law, the 5 -year period 1910-14.

Conceptually then, the 1959 revision (since September 1952) may be described as:

$$
I_{i}=\frac{\sum_{1 / 5} p_{j=135} \sum_{j=1910} q_{24-20}}{\Sigma p, q_{24-20}} \cdot \frac{\boldsymbol{\Sigma} p_{552} q_{37-11}}{\boldsymbol{\sum} p_{m 35} q_{37-41}} \cdot \frac{\boldsymbol{\sum} p_{i} q_{55}}{\boldsymbol{\sum} p_{52} q_{55}}
$$

Where " $I_{i}$ " denotes the Index for any date (i) after September 1952; " $m 35$ " denotes March 1935; and " $s 52$ " denotes September 1952. The " $q$ 's" here represent total quantity weights for each commodity, including all imputations, both direct and indirect.

It would be possible, of course, to compute the index directly from the above formula, with the subgroup indexes derived from the several partial sums for the commodities in the respective subgroups. Actually, it has seemed simpler to compute separate indexes for each commodity group index, and to combine the several group indexes with percentage weights which are the proportion of total expenditures represented by the commodity group, including all imputations, for the weight base period. In this form of computation, the quantity weights used as multipliers for the price series reflect only the direct imputations, that is, imputations for commodities assigned to the particular price series. The indirect imputations are taken care of in the determination of the percentage weights for combining the group indexes. (Examples of indirect imputations for the living group are medical expenses and personal insurance, and for the production group, custom work and marketing charges, as already discussed.)

The combination of the group indexes by percentage weights must be made in terms of the indexes computed on the same base period as that from which the weights are derived, and then converted to the 1910-14 reference date. For a proof see (6). When handled in this manner the resulting index is mathematically equivalent to the formula presented earlier in this section.

With respect to the second point under the head of "Formula and Method of Computation" (p. 51 ), it is frequently necessary to substitute one price series for another, owing to changes in usage or marketing practices; for, as a result of an expansion of the price collection program, new price series may become available.

Table 7.-Prices paid indexes: Quantity weights computed from weight base data for the pre-1950 index, the 1950, and the 1959 revisions ${ }^{1}$

| Item and unit | Quantity weight ${ }^{2}$ |  |  |
| :---: | :---: | :---: | :---: |
|  | 1924-29 | 1937-41 | 1955 |
| Food and tobacco: Meat: | Number | Number | Number |
| Round steak | 76. 74 | 45.1 | 38.3 |
| Hamburger (beef) |  | 20. 9 | 46. 7 |
| Chuck roast-- |  |  | 22.3 |
| Frying chicken Bologna |  | 26. 8 | 28.9 4 43. 7 |
| Frankfurters |  |  | 26. 4 |
| Bacon, sliced Ham, whole (not sliced) | 14. 679 | 23.1 | 45. 2 |
| Ham, whole (not sliced) |  | 10.3 | 26. 3 |
| Pork chops | 37.57 | 10. 2 | 14. 8 |
| Pork sausage Fresh frozen haddock |  | 8.1 | 19. 1 |
| Salmon, pink ( $16-\mathrm{oz}$. can) |  | 37.4 | 14. 7 |
| Fats and oils: |  |  |  |
| Lard---------.--- | 22.0 | 46.3 | 44.4 |
| Vegetable shortening Margarine------ |  | 18. 8 | 51. 6 |
| Margarine--- |  | 20.2 | 51.0 |
| Mailk, fluid --.- |  | 34. 5 | 137. 0 |
| Evaporated milk |  | 27. 0 | ${ }^{158.8}$ |
| Butter-- | 28. 04 | 26. 6 | 27.9 |
| Cheese, American | 10.0 | 21.2 | 36. 1 |
| Ice Cream. Eggs |  | 4.9 | 33. 3 |
| Cereal and bakery products: |  | 4. 9 | 19.6 |
| Flour-...- | 36.0 | 23. 5 | 18. 2 |
| Bread, white | 79.5 | 207. 0 | 358. 0 |
| Soda crackers | 91. | 30. 1 | 54. 5 |
| Cornflakes. | 91. 0 | 172.0 20.3 | 105. 39 |
| Rolled oats. | 31. 0 | 39. 6 | 33. 0 |
| Baking powder | 7. 330 | 32.4 | 41. 1 |
| Rice---- | 20.6 | 25.0 | 26. 3 |
| Vegetables: |  |  |  |
| Catsup--. |  |  | 37.3 |
| Corn, canned |  | 44. 5 | 61. 0 |
| Peas, canned |  | 21. 7 | 58. 0 |
| Beans, navy - |  | 46. 9 | 48. 9 |
| Cabbage |  | 72.5 | 146. 0 |
| Lettuce. |  | 27. 2 | 69.0 |
| Tomatoes, fresh |  | 33.1 | 22. 9 |
| Fruit: Apples, fresh |  |  |  |
| Apples, fresh | 172. 19 | 184.0 52.1 | 71. 7 |
| Oranges, 216's | 8. 2 | 30. 8 | 40.1 |
| Peaches. |  |  | 37.6 |
| Pineapples, sliced, Hawaiian |  |  | 25. 2 |
| Lemons, 360's | 5. 599 | 5. 3 |  |
| Sweets: Sugar | 38.878 | 19.8 | 26.0 |
| Sirup, table | 38. 878 | 81. 0 | 67. 8 |
| Candy, nonchocolate, without nuts |  | 9.3 | 30.1 |
| Beverages: <br> Coffee, ground | 39.0 | 53.0 |  |
| Instant coffee. | 39.0 |  | 5. 38 |
| Tea, Orange Pekoe | 5. 3 | 3.2 | 4. 42 |
| Cola drinks, $10-12 \mathrm{oz}$ |  |  | 44.5 |
| Beer, 10-12 oz....... |  |  | 13. 4 |
| Tobacco: <br> Smoking tobacco |  |  |  |
| Cigarettes |  | 43. 7 | 183. 0 |
| Salt. | 228.2 |  |  |

## See footnotes at end of table.

Table 7.-Prices paid indexes: Quantity weights computed from weight base data for the pre-1950 index the 1950, and the 1959 revisions-Continued ${ }^{1}$


[^4]Table 7.-Prices paid indexes: Quantity weights computed from weight base data for the pre-1950 index, the 1950, and the 1959 revisions-Continued ${ }^{1}$


## See footnotes at end of table.

Table 7.-Prices paid indexes: Quantity weights computed from weight base data for the pre-1950 index, the 1950, and the 1959 revisions-Continued ${ }^{1}$


## See footnotes at end of table.

Table 7.-Prices paid indexes: Quantity weights computed from weight base data for the pre-1950 index, the 1950, and the 1959 revisions-Continued ${ }^{1}$


[^5]Table 7.-Prices paid indexes: Quantity weights computed from weight base data for the pre-1950 index, the 1950, and the 1959 revisions-Continued ${ }^{1}$


## See footnotes at end of table.

Table 7.-Prices paid indexes: Quantity weights computed from weight base data for the pre-1950 index, the 1950, and the 1959 revisions-Continued ${ }^{1}$


## See footnotes at end of table.

Table 7.-Prices paid indexes: Quantity weights computed from weight base data for the pre-1950 index, the 1950, and the 1959 revisions-Continued ${ }^{1}$

| Item and unit | Quantity weight ${ }^{2}$ |  |  |
| :---: | :---: | :---: | :---: |
|  | 1924-29 | 1937-41 | 1955 |
| Farm machinery-Continued <br> Planting and fertilizing machinery-Continued <br> Number <br> Number <br> Number <br> Manure spreaders: <br>  <br> .05724 <br> ---------------1 <br> ----------- |  |  |  |
|  |  |  |  |
|  |  |  |  |
| 95 bu . PTO- |  | . 00357 | . 00442 |
| 140 bu. PTO |  | . 00214 | 00265 |
| Harvesting and processing machines: <br> Combines, self-propelled: |  |  |  |
|  |  |  |  |
|  |  |  |  |
| 12 ft - 14 ft - |  | . 00142 | . 00164 |
| Combines, tractor drawn: 00050 |  |  | 00150 |
| Auxiliary engine..-- |  | . 00259 | 00523 |
| PTO $5-6 \mathrm{ft}$ PTO $7-9 \mathrm{ft}$ | . 057557 | . 0097 | . 00567 |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Less tractor |  |  | . 000258 |
| Forage harvester: Pickup PTO |  | 0015 |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Baler, hay, pickup, auxiliary engine.---.-. Hammer mill | . 00386 | . 00119 | . 0118 |
| Hammer mill----------------------------------10---02866 0134 |  |  |  |
|  |  |  |  |
| Dairy mam separators, $551-850 \mathrm{lb}$ capacity ---.-.------ do-.-- . 09728 . 0193 |  |  |  |
| Milk coolers: |  |  |  |
|  |  |  | 00234 |
|  |  |  | . 0561 |
| Stationary milker, pumper installed | 1833 | . 0116 |  |
| Other farm machines: |  |  |  |
|  |  | . 0802 | . 124 |
|  |  | . 0243 | . 0324 |
| Power sprayers .-.---------1---1--- |  | . 0263 | . 0304 |
| Grain elevator, portable, double chain: 28 ft |  |  |  |
| 34 ft 40 |  |  | . 00958 |
| $40 \mathrm{ft}$ |  |  | . 00505 |
|  |  |  |  |
| Building materials: <br> Framing lumber: |  |  |  |
|  |  | . 0389 | . 0431 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| No. 2 and better | . 0780 | + 0482 | . 0574 |
| Boards: |  |  |  |
|  |  |  |  |
|  |  |  | . 06604 |

See footnotes at end of table.

Table 7.-Prices paid indexes: Quantity weights computed from weight base data for the pre-1950 index,



See footnotes at end of table.

Table 7.-Prices paid indexes: Quantity weights computed from weight base data for the pre-1950 index, the 1950, and the 1959 revisions-Continued ${ }^{1}$


## See footnotes at end of table.

Table 7.-Prices paid indexes: Quantity weights computed from weight base data for the pre-1950 index, 0 the 1950, and the 1959 revisions-Continued ${ }^{1}$

|  |
| ---: | :---: | :---: | :---: | :---: |

Table 7.-Prices paid indexes: Quantity weights computed from weight base data for the pre-1950 index, the 1950, and the 1959 revisions-Continued ${ }^{1}$
the 1950, and the 1959 revisions-Continued ${ }^{1}$
${ }^{1}$ Equivalent quantities purchased annually derived by dividing value of average annual purchases for item indicated, plus the imputed value of similar items not priced by the average price paid by farmers in the years shown.
${ }_{2}$ Purchases per farm family for family living items and per farm for production goods; quantities for 1924-29 and for 1937-41 differ from those carried in earlier publications where item specifications have changed, or changes in imputations have occurred due to variation in commodity price coverage.
${ }^{3} 141 / 2$-oz. cans.
It has been customary in the past to make such substitutions as necessary from time to time, and this has continued in the recent revision. Such shifts are made without affecting the index as of the date of a change, by maintaining the aggregate involved at the same value as before the change. For example, instant coffee was added in March 1958, when this item first appeared on the food price inquiry. Previously, the weight for this item and for coffee substitutes as well, was assigned to bean or ground coffee, this being the only prices paid series available. Handled on this basis, the annual expenditures for coffee, instant coffee, and coffee substitutes would buy 45.6 pounds of bean or ground coffee in 1955. At March 1958 prices, this quantity cost $\$ 41.54$.
The 1955 Food Consumption Survey indicated that expenditures for instant coffee amounted to approximately a seventh of the expenditures for bean and ground coffee, with the popularity of instant coffee continuing to increase since that time. Accordingly, 16 percent of the $\$ 41.54$ annual expenditure or $\$ 6.67$, was assigned to instant coffee in March 1958. Using the price of $\$ 1.24$ per 6ounce jar then current, the $\$ 6.67$ allocation was equivalent to the cost of 5.38 jars of instant. This then became the "instant" quantity weight. Dividing the remaining expenditure (\$41.54$\$ 6.67$ ) by the 91.1 -cent price of ground or bean coffee provides the new quantity weight of 38.3 pounds presently used for this item. Table 8 summarizes the computations involved.

[^6]Table 8.-Quantity weight revisions involved in the introduction of instant coffee series, March 1958

| Commodity and unit | Weight | $\begin{gathered} \text { Price } \\ \text { per } \\ \text { unit } \end{gathered}$ | $\underset{\text { ture }}{\text { Expendi- }}$ |
| :---: | :---: | :---: | :---: |
| From: Coffee, per pound_ | $\begin{gathered} \text { Units } \\ \text { 45. } 6 \end{gathered}$ | Dollars <br> . 911 | Dollars $\text { 41. } 54$ |
| To: Coffee, per pound | 38.3 | . 911 | 34. 87 |
| Instant coffee, peras 6 -oz. jar | 5. 38 | 1. 24 |  |
| Total |  |  | 41. 54 |

It is important to note that the introduction of instant coffee prices made no change in the food index, at the time. Through imputation, 45.6 pounds of ground coffee contributed an expenditure of $\$ 41.54$ to the food aggregate prior to the introduction of instant in March 1958. Upon its introduction, the cost of 38.3 pounds of ground coffee and 5.38 jars of instant coffee likewise added up to $\$ 41.54$ on that date. Thereafter, fluctuations in the price of both instant and ground coffee determine the changes in the cost of coffee in computing the food index, whereas these changes were governed solely by the movement of ground coffee prices theretofore.

The necessity of the third point under the head of "Formula and Method of Computation" (p. 51) is obvious and does not require comment beyond the procedural steps already outlined as to method of imputation.

## Link Date

The question of when the new weights should be

even effect in the index was, of course, a crucial one. It will be recalled that the old weighting pattern was based upon surveys representing conditions at the beginning and at the end of the period 1937-41. There followed a severe World War with its numerous economic disturbances and dislocations, with a subsequent partial adjustment to peacetime and the later uneasy expansion during the Korean affair. It seems very doubtful that the 1937-41 weighting pattern really continued to represent farm purchase patterns during all these disturbing times.

There is a clear indication, of course, that by 1955 the pattern of farmers' expenditures had changed very materially (table 1). On the other hand, there is much evidence to indicate that 1955 conditions began to exist during, or immediately after, World War II. A study of the relations displayed by the two major components of the index, namely, prices paid for commodities bought for living and prices paid for commodities bought for production, shows that these two indexes followed a generally similar course from the middle 1930's until 1952, but that after 1952 they diverged rery sharply. The production group of commodles dropped sharply during the next year or so and has since remained at a considerably lower level than the living group, which remained at about the 1952 level for some years. Recently, both groups have moved upward, but the living group has remained at the higher level.

The expenditure survey was made in early 1956 and related to the year 1955. This year was characteristic of the period after the production group of commodities had fallen below the living group. Moreover, post-Korean adjustments had largely been worked out by then. Consequently, it was concluded that the 1955 weights were representative of conditions from about 1952 forward, or at any rate that they were more representative of conditions from 1952 forward than were the 193741 weights; therefore, the new weights were made effective in 1952, that is, the new index was linked to the old index in 1952, the particular month of September being selected since this was the date that the group indexes for farm family living and for production goods were at the same level.

As of December 1958, the revised index was 295 as compared to 308 for the unrevised index, or 4.2 percent lower.

## The Index of Prices Received by Farmers

The 1959 revision of the Index of Prices Received by Farmers also maintains the same general pattern as that of the 1950 revision. The principal changes accomplished in the revision were:

1. Revision of weights.
2. Linkage of the new index to the old as of September 1952.
3. Revision of weighting and pricing system for vegetables and for noncitrus fruit.
As in the case of the Parity Index, the revised Index of Prices Received by Farmers retains the same major commodity groups and general structure as the previous index (6). Shifts in commodity coverage were inconsequential as indicated later.

## Basis for Weights in the 1959 Revision

The basic data for determining the weighting pattern for the Index of Prices Received by Farmers derive from the official estimates of production, marketing, and sales of farm products which result from the regular data collecting procedures of the Department. In this respect, the situation is different from that of the Parity Index, in which case, though price data are collected currently, quantity data, particularly for living expenditures, are for the most part available only at intervals, usually as a result of a special survey.

In choosing a representative period of marketings and prices for farm products, no year or average of years is entirely free of all "abnormalities." It was desirable to have the weighting pattern represent current conditions of marketings and prices, and in this respect the average for the period 1953-57 seemed quite suitable. This period included some years in which crop and livestock production was curtailed by drought and some years which were very favorable for both crop and livestock production. The effect of warinflated prices was not especially important during this period. A further consideration in choosing the 1953-57 weight base period was the fact
that it centered on 1955 -the year for which weights were available for the revised index of prices paid by farmers.
Perhaps the most significant change in the weighting pattern is an improvement in handling fruit and commercial vegetables.
More particularly, in the index as computed prior to the January 1959 revision, for commercial vegetables and for the noncitrus fruits, quantity weights and prices represented only that portion sold for fresh market. However, in computing the percentage weights for combining these indexes into the all-crops index, the value of all sales (fresh and processing) was included. In the revised index, quantity weights represent total marketing (fresh and processing). Monthly prices represent a weighted average computed by applying the 5 -year average percent sold fresh to the current fresh market price and the comparable 5-year average percent sold for processing applied to the current season average price for sales for processing. This procedure provides a means of reflecting both the fresh and processing portions of these crops and by so doing tends to reduce the seasonal variation in these indexes.

## Selection of Commodities

As a general rule, all commodities were included in the index if suitable price and marketing data were available and if the average value of marketings during the 5 years 1953-57 represented 1 percent or more of the total value of commodities in the subgroup index. There are 12 subgroup indexes. As a result of this review, the revised coverage included 55 comodities representing about 93 percent of the total value of marketings in the years 1953-57. In effect, only two commodities were added-green peas for processing and asparagus. A third commodity-tanger-ines-had formerly been included in combination with oranges, but was continued as a separate commodity.

## Handling Short Marketing Season Items

Current monthly price estimates for most commodities in the index are available. For some index items, however, the crop moves within a relatively short season. These present special prob-
lems of technique, and require consideration of price measurement both with respect to changes between years and within years. Such cro sometimes present individual problems, and the method of handling seeks to resolve such problems as far as possible, recognizing that no method is likely to be fully satisfactory.
Tobacco is one such special crop, comprising a wide variety of types with widely varying marketing periods. The price used in the index each month is an average of the current prices for the types being sold currently, and the most recent season average prices for types not being currently marketed, the price for each type being weighted by estimated production.

In the case of peaches, pears, strawberries, asparagus, cantaloups, and watermelons the price for the last month of the season's marketing is used each month until the new crop starts to market. For most of these crops the interval in which there are no sales is relatively short, and it was decided to use the price in the last month of active marketing rather than the season average price during the months of no sale. The use of the season average during the months of no sales would generally result in an index adjustment in the month following the end of the marketing season and another in the month when the ne crop started marketing. The present procedu requires an adjustment only at the beginning of the crop season.

## Formula and Computation

The formula of the Index of Prices Received by Farmers is similar to that of the Index of Prices Paid, Interest, Taxes, and Wage Rates. Also the general method of computation is similar. The Index of Prices Received however, has a broader weight-base period, 1953-57 instead of 1955.

Average marketings multiplied by average prices for the 1953-57 weight base period provide base aggregates (price $\times$ quantity). Similar aggregates were computed for each month, using 1953-57 average marketings and current monthly prices. The current monthly group aggregate divided by the 5 -year average aggregate yields the monthly index on the base $1953-57=100$.

In the tabulation at the top of page 73, for purposes of illustration, are the price and marketing data for the food grains index.

| Commodity | Unit | Average quantity sold 1953-57 | $\begin{gathered} \text { Average } \\ \text { price } \\ 1953-57 \end{gathered}$ | Average aggregate 1953-57 | Average price January 1959 | $\begin{aligned} & \text { Aggregate } \\ & \text { January } \\ & 1959 \end{aligned}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Wheat <br> Rye <br> Rice--- | Bushel.-------- | (1) <br> Millions 913 17 52 | (2) <br> Dollars $\begin{aligned} & \text { 2. } 00 \\ & \text { 1. } 12 \end{aligned}$ $\text { 4. } 93$ | $\begin{aligned} & \stackrel{(3)}{(1)} \times(2) \\ & 1,826.0 \\ & 19.0 \\ & 256.4 \end{aligned}$ | (4) <br> Dollars $\text { 1. }{ }_{067}$ $\begin{array}{r} .967 \\ 4.85 \end{array}$ | $\begin{aligned} & \stackrel{(5)}{(1)} \times(4) \\ & 1,561.2 \\ & 16.4 \\ & 252.2 \end{aligned}$ |
| Food grains aggregate |  |  |  | 2, 101. 4 | --------- | 1,829. 8 |

Index, January $1959(1953-57=100)=\frac{1,829.8}{2,101.4}=87.1$.

The monthly group indexes so computed are combined into an all crops index (eight subgroups) and an all livestock and livestock products index (four subgroups), using percentage weights derived from average value of marketings during the period 1953-57. Group percentage weights were computed using income from marketings, including, as appropriate, income from commodities not included in the index.
For example, the food grains index includes only wheat, rye, and rice but in computing the percentage weight for this subgroup index the income from buckwheat was added to that of the three commodities included in the index. A similar procedure, as appropriate, was used for each of the subgroups. These weights were used to combine the several crop subgroup indexes into an all crops index on the base $1953-57=100$. A similar procedure was used to compute the livestock and livestock products and the all commodity index. The income from marketing data, and the derived weights are shown in table 9. Quantity weights are presented in table 10.
The revised weights (1953-57), as compared with 1937-41, give relatively greater importance to the crops index and correspondingly decreased importance to the livestock and livestock products index. The effect of this change is that with the crops index declining at a relatively greater rate than the livestock and products index since the September 1952 link date, and with the increased weight given the crops index, the all commodities index on the revised basis was 0.8 percent below the unrevised index as of December 1958. These revisions had the effect of reducing the 1949-58

10-year average index of prices received by farmers, as adjusted to include an allowance for unredeemed loans and other supplemental payments, from 258 to 256 . This had the effect of increasing adjusted base prices 0.8 percent as of January 1959.

As previously noted, the revised Index of Prices Paid, Including Interest, Taxes, and Farm Wage Rates, was 4.2 percent below the unrevised index. The net result was to lower parity prices of commodities on the modernized formula about 3.4 percent.

## Link Date

With the decision to link the Parity Index in September 1952 it appeared desirable to link the Prices Received Index as of the same date so as to maintain the parallel structure of the two indexes. This presented a small technical problem in that the Crop and Livestock components of the revised index were at somewhat different levels. This required a slight modification in the linking factor for the Crop and Livestock Components to insure that their range would always include the total index. The adjustment in the link factors for the Crop and Livestock Components was about a tenth of 1 percent. The total index computed on a 1953-57 base is linked directly to the previous index so as to relate the change since 1952 to the change as indicated by the combined Index and thus maintains precisely the formula indicated on page 58. ${ }^{4}$

[^7]Table 9.-Group weights for index of prices received by farmers ${ }^{1}$

| Commodity group | 1924-29 weights |  |  | 1937-41 weights |  |  | 1953-57 weights |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Average cash receipts | Percent weights of - |  | Average cash receipts | Percent weights of - |  | Average cash receipts | Percent weights of - |  |
|  |  | Groups | Total |  | Groups | Total |  | Groups | Total |
| Crops: | Thousand dollars | Percent | Percent | Thousand dollars | Percent |  | Thousand dollars |  |  |
| Food grains | 885, 705 | 18. 6 | 8. 9 | 551, 935 | 16. 6 | $7.0$ | 2, 161, 788 | Percent | Percent 7.9 |
| Feed grains and hay | 742, 830 | 15. 6 | 7. 5 | 526, 683 | 15. 9 | 6. 7 | 2, 488, 492 | 20. 1 | 9. 1 |
| Cotton. | 1,370, 443 | 28. 9 | 13. 9 | 654, 504 | 19.7 | 8.3 | 2, 282, 890 | 18. 5 | 8. 4 |
| Tobacco | 255, 171 | 5. 4 | 2. 6 | 290, 254 | 8. 8 | 3. 7 | 1, 121, 863 | 9. 1 | 4. 1 |
| Oil-bearing crop | 233, 619 | 4. 9 | 2. 3 | 237, 943 | 7. 2 | 3. 1 | 1, 335, 961 | 10. 8 | 4. 9 |
| Fruit_-.-.-.-.- | 595, 722 | 12. 5 | 6. 0 | 456, 339 | 13. 8 | 5. 8 | 1, 296, 471 | 10. 5 | 4. 7 |
| Commercial veget | 345, 674 | 7. 3 | 3. 5 | 376, 764 | 11. 4 | 4. 8 | 1, 137, 337 | 9. 2 | 4. 2 |
| Other vegetables--.-.-.-- Total | 322, 188 | 6. 8 | 3. 3 | 217, 993 | 6. 6 | 2.8 | 530, 587 | 4. 3 | 1. 9 |
| Total crop subgroups | 4, 751, 352 | 100.0 |  | 3, 312, 415 | 100. 0 |  | 12, 355, 389 | 100.0 |  |
| Other crops---- Total crops | 5, 192, 703 |  | 48. 0 | 3, 699, 827 |  | 42. 2 | 13, 2750,590 |  | 45. 2 |
| Livestock and products: | 5, 102, 703 |  |  | 3, 699, 827 |  | 42.2 | 13, 630, 979 |  |  |
| Meat animals. | 2, 801, 103 | 50.2 | 26.1 | 2, 487, 043 | 49.6 | 28. 6 | 8, 688, 741 | 53.0 | 29.1 |
| Dairy products | 1, 627, 643 | 29. 1 | 15. 1 | 1, 535, 881 | 30.6 | 17. 7 | 4, 373,259 | 26. 7 | 14. 6 |
| Poultry and egg | 1, 060, 591 | 19. 0 | 9. 9 | 881, 886 | 17. 6 | 10. 2 | 3, 204, 531 | 19.5 | 10.7 |
| Wool | 96, 555 | 1. 7 | . 9 | 110, 655 | 2. 2 | 1. 3 | 132, 966 | 8 | . 4 |
| Total livestock and products subgroups | 5, 585, 892 | 100.0 |  | 5, 015, 465 | 100.0 |  | 16, 399, 497 | 100. 0 |  |
| Other livestock and products- Total livestock and | 39, 791 |  |  | 44, 417 |  |  | 156, 044 |  |  |
| Total livestock and products. | 5, 625, 683 |  | 52.0 | 5, 059, 882 |  | 57.8 | 16, 555, 541 |  | 54. 8 |
| All farm products | 10, 818, 386 |  | 100.0 | 8, 759, 709 |  | 100. 0 | 30, 186, 520 |  | 100. 0 |

${ }^{1}$ For combining the various subgroup indexes into an all-crop, an all-livestock and livestock products, and an all-commodity index, weights are percentages based on average cash receipts received by farmers for the 3 periods 1924-29, 1937-41, and 1953-57.

Table 10.-Index of prices received by farmers: Annual average quantity of each commodity sold during weight base periods ${ }^{1}$


See footnotes at end of table.

Table 10.-Index of prices received by farmers: Annual average quantity of each commodity sold during weight base periods ${ }^{1}$-Continued

|  | Commodity | 1924-29 | 1937-41 | 1953-57 |
| :---: | :---: | :---: | :---: | :---: |
|  |  | Millions | Millions | Millions $3.4$ |
| Asparagus,-- |  | 2.1- | 6. $2-$ | 11. 8 |
| Cabbage ${ }^{4}$--- |  | 18. 0 | 24.0 | 24. 4 |
| Carrots ${ }^{6}$ |  | 3. 0 | 10.3 | 15.0 4.8 |
| Celery |  | 3. 4 | 10. 9 | 14.8 |
| Onions-- |  | 12. 4 | 17. 1 | 23. 1 |
| Lettuce |  | 11.3 | 16. 9 | 32.7 |
| Sweet corn ${ }^{4}$ |  |  | 7. 9 | 42.5 |
| Broccoli ${ }^{6}$ |  |  | 1. 0 | 2. 1 |
| Cucumbers ${ }^{\text {4 }}$ |  |  | 3. 0 | 10. 6 |
| Cantaloups -- |  |  | 11. 3 | 12. 7 |
| Watermelons |  |  | 22. 5 |  |
| Peppers, green |  |  | 2. 4 | 3. 2 |
| Spinach ${ }^{4}$ - |  | 2. 1 | 3. 6 | 4. 4 |
| Tomatoes ${ }^{\text {a }}$ |  |  |  |  |
| Green peas ${ }^{7}$ |  | 1.2 | 2.8 145 | 9.7 196 |
| Potatoes-.-- |  | 140 | 145 | 196 |
| Sweet potatoes |  | 13 9 | 15 | 16 |
| Cattle..-.-.-- |  | 153 | 157 | 288 |
| Calves |  | 16 | 18 | 40 |
| Sheep- |  | 3 | 5 | $\stackrel{3}{16}$ |
| Lambs_ |  | 15 |  |  |
| Hogs-- |  |  |  |  |
| Milk, wholesale |  | 288 3,018 | $\begin{array}{r}151 \\ 2,910 \\ \hline 1\end{array}$ | 1, 265 |
| Milk, retail- |  | 3, 018 | 2, 1,910 | 1, 265 |
| Butterfat, in cr |  | 1,359 1,563 | 1, 1,815 | 4,993 |
| Eggs.... |  | 2, 390 | 2, 548 | 4, 494 |
| Turkeys |  |  | 436 | 1,163 |
| Wool ${ }^{3}$ |  |  |  |  |

Quantities used for weighting monthly prices during the period for which weight base is effective-1924-29 weights effective January 1910-December 1934; 1937-41 weights effective January 1935 through August 1952; 1953-57 weights effective September 1952 to date.
${ }^{2}$ Louisiana only 1924-29. United States 1937-41 and 1953-57.

## Areas in Need of Additional Price Coverage

The Index of Prices Received is based on price series representing about 93 percent of receipts from sale of farm products. Of the approximately 7 percent of cash receipts from commodities not specifically covered, livestock and products accounted for nearly 1 percent, and crops for about 6 percent. Within the crops group the most important commodities not covered are the forest, nursery, and greenhouse products which represent nearly 3 percent of total sales or 21 percent of the crop items not covered. Although fragmentary data regarding marketings and prices are available for these products they are not adequate for index purposes.

Fruit and nut crops, accounting for between 1
${ }^{3}$ Price relative with 1910-14 base used for computation of index.
index.
41924 - 29 and 1937-41 fresh use. 1953-57 fresh and processing.
${ }^{5}$ Included with oranges in 1924-29 and 1937-41.

- 1924-29 fresh use; 1937-41 and 1953-57 fresh and processing.
${ }^{7}$ 1924-29 and 1937-41 fresh use. 1953-57 processing.
and 2 percent of total sales, represent the group of next importance not specifically included in the index. Within this group grape crops are the most important-accounting for nearly a third of the fruit and nut crops not specifically covered. Monthly price data are not available for these crops. Sugar beets, which accounted for just under half of 1 percent of total sales, were the only other single crop of importance not included. Again, monthly price data are not available. In the case of livestock and products there was no single commodity of any significance not included in the index.

It has already been observed that for some areas of farm expenditures it has never been possible to collect the price information necessary to have
all important farm costs represented directly in the index. As a consequence, these price areas have for many years been imputed more or less directly to commodity price series actually in the index. Thus, medical, dental, and hospital expenditures have never been represented by price data. In both the 1950 and 1959 revisions at any rate, the weight of these expenditures was imputed to the Living Index generally. However, medical, dental, and hospital expenses amounted to about 7.4 percent of all living expenditures in 1955 ; personal insurance amounted to 2.6 percent; recreation to 2.1 percent. These are the areas of family living that are in greatest need of being covered by specific price series.
Machine hire and custom work amounted to 2.8 percent of all production expenditures in 1955 ; marketing expenses for crops and livestock, 2.5 percent; cash rent and irrigation, 2.6 percent; insurance, about 0.8 percent.

None of the above have ever been represented by price series, since the collection of the necessary price data has not been possible. The filling of these blindspots would comprise the greatest single improvement in the Parity Index. There are, in addition, several areas within existing index commodity groups that are in need of additional price series. These include fuel (notably L.P. gas), marketing containers, insecticides and pesticides, and machinery repair and maintenance in the prices paid index. Forest products (veneer logs, posts, stumpage, ties) and floral, nursery, and greenhouse products are the chief items missing from a complete accounting for the price factor of farm income. These needs have been set forth previously (16).

## In Conclusion

The revised indexes, together with the ones they replace, are presented in table 11, on an annual basis, and the revised indexes, monthly, insofar as available, 1910 to the present, in tables 12 and 13. Figure 2 presents the revised indexes, together with the Parity Ratio, over the span of a half century-lacking 2 years.

It is believed that the 1959 revisions of the Index of Prices Received by Farmers and the Parity Index achieve distinctly improved measures of the major price relationships affecting agriculture.

The Parity Index, in particular, had become biased upward as a result of the use of old 1937 weights beyond the period for which they w representative. It is unfortunate, therefore, that the necessary surveys to update the index could not have been made earlier so that the interval between weight-base periods might not have been so long as from 1941 to 1955.
In any event, for the first time in a quarter of a century the Parity Index now is computed with contemporary weights. It is to be hoped that in the future, the intervals between weight bases may be shorter, and that the weighting patterns for both indexes may be kept more nearly current than in the past.

One further point may be mentioned. The two indexes are the only major indexes prepared by the Federal Government for which the base period is nearly a half century in the past. Rather clearly, the numerous dynamic drives in American life and changing economic organization complicate the making of price or other comparisons over any such period with a high degree of precision. Many products now used widely throughout agriculture were just beginning to be thought of in 1910-14. Similarly, products then in common use are now little more than museum pieces. Means for $c$ lecting statistics were far less developed then than now, and data of nearly all kinds were far more scarce.
Methods of marketing have changed, pricing points and procedures have shifted, and the structure of production and marketing has changed. Technology has brought profound changes into every aspect of agriculture, as in every other phase of American life. In fact, few aspects of life either in the city or country are more than roughly comparable with their counterparts a half century earlier.
All these changes have laid a heavy burden upon index numbers which have for their object the measurement of price changes over long periods. Accordingly, from the point of view of techniques of price measurement, an updating not only of the weight pattern of these indexes, but of the reference point as well, would simplify considerably the problem of price measurement in the future.

## FARMERS' PRICES



Figure 2

Table 11.-Index of prices received and prices paid, interest, taxes, and wage rates, and the parity ratio revised and unrevised, 1952-58, annual averages

| Year | Prices received |  | Prices paid, interest, taxes, and wage rates |  | Parity ratio |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Revised | Unrevised | Revised | Unrevised | Revised | Unrevised |
| 1952 | 288 | 288 | 287 | 287 | 100 | 100 |
| 1953 | 255 | 258 | 277 | 279 | 92 | 92 |
| 1954 | 246 | 249 | 277 | 281 | 89 | 89 |
| 1955 | 232 | 236 | 276 | 281 | 84 | 84 |
| 1956 | 230 | 235 | 278 | 285 | 83 | 82 |
| 1957 | 235 | 242 | 286 | 295 | 82 | 82 |
| 1958 | 250 | 255 | 293 | 305 | 85 | 84 |

ALL FARM PRODUCTS
$[1910-14=100]$

| Year | Jan. 15 | Feb. 15 | Mar. 15 | Apr. 15 | $\underset{15}{\text { May }}$ | June 15 | $\begin{gathered} \text { July } \\ 15 \end{gathered}$ | Aug. 15 | Sept. 15 | Oct. 15 | Nov. 15 | Dec. $15$ | Average |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1910 | 107 | 105 | 107 | 106 | 104 | 104 | 102 | 100 | 103 | 102 | 101 | 101 | 104 |
| 1911 | 100 | 97 | 94 | 92 | 92 | 93 | 95 | 95 | 95 | 93 | 93 | 95 | 94 |
| 1912 | 96 | 97 | 98 | 102 | 103 | 101 | 99 | 98 | 98 | 100 | 98 | 98 | 99 |
| 1913 | 97 | 98 | 99 | 99 | 98 | 100 | 100 | 101 | 105 | 108 | 108 | 106 | 102 |
| 1914 | 105 | 105 | 104 | 103 | 103 | 102 | 102 | 101 | 100 | 97 | 97 | 98 | 101 |
| 1915 | 99 | 99 | 97 | 99 | 101 | 99 | 97 | 95 | 97 | 102 | 102 | 102 | 99 |
| 1916 | 105 | 107 | 108 | 109 | 110 | 111 | 113 | 119 | 127 | 133 | 141 | 142 | 119 |
| 1917 | 143 | 150 | 156 | 173 | 183 | 185 | 184 | 185 | 188 | 194 | 194 | 197 | 178 |
| 1918 | 201 | 204 | 202 | 202 | 201 | 198 | 202 | 209 | 217 | 215 | 211 | 213 | 206 |
| 1919 | 209 | 200 | 203 | 213 | 220 | 220 | 227 | 227 | 217 | 219 | 227 | 227 | 217 |
| 1920 | 229 | 229 | 229 | 235 | 236 | 233 | 227 | 211 | 201 | 187 | 168 | 148 | 211 |
| 1921 | 141 | 129 | 127 | 118 | 114 | 112 | 116 | 121 | 125 | 131 | 129 | 126 | 124 |
| 1922 | 119 | 127 | 129 | 128 | 133 | 134 | 132 | 127 | 127 | 133 | 139 | 143 | 131 |
| 1923 | 143 | 143 | 143 | 144 | 141 | 139 | 136 | 134 | 141 | 144 | 147 | 147 | 142 |
| 1924 | 147 | 145 | 138 | 140 | 138 | 136 | 138 | 146 | 140 | 147 | 147 | 151 | 143 |
| 1925 | 157 | 155 | 159 | 155 | 154 | 157 | 159 | 159 | 153 | 156 | 156 | 155 | 156 |
| 1926 | 154 | 154 | 149 | 151 | 149 | 146 | 141 | 140 | 143 | 139 | 140 | 138 | 145 |
| 1927 | 137 | 137 | 134 | 134 | 136 | 137 | 136 | 140 | 148 | 149 | 149 | 149 | 140 |
| 1928 | 148 | 145 | 147 | 150 | 155 | 150 | 151 | 145 | 149 | 148 | 146 | 148 | 148 |
| 1929 | 145 | 148 | 148 | 147 | 144 | 145 | 150 | 151 | 149 | 149 | 147 | 147 | 148 |
| 1930 | 145 | 141 | 136 | 137 | 133 | 128 | 117 | 115 | 119 | 114 | 110 | 104 | 125 |
| 1931 | 100 | 95 | 97 | 97 | 90 | 85 | 84 | 82 | 80 | 76 | 80 | 76 | 87 |
| 1932 | 71 | 68 | 70 | 68 | 63 | 59 | 63 | 65 | 66 | 63 | 63 | 62 | 65 |
| 1933 | 59 | 54 | 56 | 60 | 70 | 71 | 83 | 78 | 78 | 78 | 80 | 77 | 70 |
| 1934 | 76 | 83 | 84 | 82 | 82 | 84 | 86 | 95 | 101 | 100 | 101 | 101 | 90 |
| 1935 | 108 | 112 | 112 | 114 | 111 | 106 | 104 | 105 | 106 | 108 | 108 | 113 | 10 |
| 1936 | 109 | 111 | 107 | 108 | 107 | 109 | 115 | 121 | 121 | 119 | 119 | 123 |  |
| 1937 | 127 | 128 | 132 | 132 | 130 | 125 | 126 | 122 | 119 | 113 | 109 | 107 | 122 |
| 1938 | 104 | 99 | 99 | 97 | 95 | 95 | 97 | 93 | 95 | 94 | 96 | 99 | 97 |
| 1939 | 96 | 95 | 95 | 94 | 93 | 91 | 91 | 90 | 99 | 99 | 100 | 99 | 95 |
| 1940 | 101 | 104 | 103 | 103 | 101 | 96 | 97 | 95 | 98 | 100 | 102 | 104 | 100 |
| 1941 | 108 | 107 | 108 | 114 | 115 | 120 | 126 | 130 | 139 | 137 | 136 | 142 | 124 |
| 1942 | 148 | 150 | 151 | 154 | 154 | 154 | 156 | 160 | 164 | 168 | 170 | 176 | 159 |
| $1943{ }^{1}$ | 183 | 187 | 194 | 196 | 194 | 194 | 192 | 193 | 194 | 197 | 196 | 199 | 193 |
| $1944{ }^{1}$ | 201 | 198 | 200 | 199 | 198 | 196 | 193 | 192 | 195 | 195 | 197 | 202 | 197 |
| $1945{ }^{1}$ | 206 | 203 | 205 | 208 | 205 | 209 | 208 | 206 | 202 | 206 | 210 | 213 | 207 |
| $1946{ }^{1}$ | 214 | 213 | 215 | 217 | 218 | 222 | 243 | 248 | 244 | 271 | 263 | 262 | 236 |
| 1947 | 256 | 260 | 279 | 273 | 267 | 265 | 271 | 274 | 286 | 287 | 289 | 304 | 276 |
| 1948 | 310 | 283 | 286 | 292 | 290 | 294 | 297 | 290 | 289 | 274 | 269 | 268 | 287 |
| 1949 | 267 | 257 | 262 | 258 | 255 | 249 | 244 | 243 | 248 | 242 | 237 | 237 | 250 |
| 1950 | 235 | 239 | 241 | 245 | 250 | 249 | 261 | 267 | 274 | 268 | 276 | 289 | 258 |
| 1951 | 301 | 313 | 311 | 312 | 306 | 300 | 294 | 291 | 292 | 297 | 303 | 306 | 302 |
| $1952{ }^{2}$ | 299 | 293 | 291 | 292 | 291 | 290 | 292 | 294 | 288 | 280 | 275 | 267 | 288 |
| $1953{ }^{2}$ | 266 | 261 | 261 | 257 | 259 | 251 | 254 | 251 | 253 | 246 | 246 | 250 | 255 |
| $1954{ }^{2}$ | 254 | 254 | 252 | 253 | 252 | 244 | 243 | 246 | 242 | 237 | 237 | 234 | 246 |
| $1955{ }^{2}$ | 238 | 240 | 240 | 241 | 236 | 235 | 232 | 229 | 231 | 227 | 222 | 219 | 232 |
| $1956{ }^{2}$ | 222 | 222 | 224 | 229 | 235 | 238 | 237 | 234 | 233 | 230 | 229 | 229 | 230 |
| $1957{ }^{2}$ | 231 | 229 | 230 | 232 | 233 | 233 | 239 | 242 | 240 | 236 | 235 | 237 | 235 |
| $1958{ }^{\text {3 }}$ | 241 | 245 | 257 | 257 | 256 | 250 | 250 | 248 | 255 | 249 | 247 | 244 | 250 |
| 1959 | 245 | 243 | 244 | 244 | 245 | 242 |  |  |  |  |  |  |  |

[^8]Table 13.-Index numbers of prices paid by farmers for commodities, interest, taxes, and wage rates, United States, 1910-59 ${ }^{1}$
[1910-14 = 100]

| Year | January | $\begin{gathered} \text { Febru- } \\ \text { ary } \end{gathered}$ | March | April | May | June | July | August | September | October | $\begin{gathered} \text { No- } \\ \text { vem } \end{gathered}$ ber | Decem ber | $\begin{aligned} & \text { Aver- } \\ & \text { age } \end{aligned}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1910 |  |  |  |  |  |  |  |  |  |  |  |  | 97 |
| 1911 |  |  |  |  |  |  |  |  |  |  |  |  | 98 |
| 1912 |  |  |  |  |  |  |  |  |  |  |  |  | 101 |
| 1913-- |  |  |  |  |  |  |  |  |  |  |  |  | 101 |
| 1914--- |  |  |  |  |  |  |  |  |  |  |  |  | 103 |
| 1915 |  |  |  |  |  |  |  |  |  |  |  |  | 105 |
| 1916 |  |  |  |  |  |  |  |  |  |  |  |  | 116 |
| 1917 |  |  |  |  |  |  |  |  |  |  |  |  | 148 |
| 1918 |  |  |  |  |  |  |  |  |  |  |  |  | 173 |
| 1919 |  |  |  |  |  |  |  |  |  |  |  |  | 197 |
| 1920 |  |  |  |  |  |  |  |  |  |  |  |  | 214 |
| 1921 |  |  |  |  |  |  |  |  |  |  |  |  | 155 |
| 1922 |  |  |  |  |  |  |  |  |  |  |  |  | 151 |
| 1923 |  |  | $158$ |  |  | 159 159 |  |  | 160 |  |  |  | 159 160 |
| 1924 |  |  | $160$ |  |  | 159 |  |  | 160 |  |  | 161 | 160 |
| 1925 |  |  | 165 |  |  | 164 |  |  | 163 |  |  | 162 | 164 |
| 1926 |  |  | 161 |  |  | 162 |  |  | 160 |  |  | 159 | 160 |
| 1927 |  |  | 159 |  |  | 159 |  |  | 159 |  |  | 159 | 159 |
| 1928 |  |  | 162 |  |  | 164 |  |  | 162 |  |  | 161 | 162 |
|  |  |  |  |  |  | 161 |  |  | 160 |  |  |  | 160 |
| 1930 |  |  | 157 |  |  | 154 |  |  | 150 |  |  | 144 | 151 |
| 1931 |  |  | 138 |  |  | 132 |  |  | 126 |  |  | 122 | 130 |
| 1932 |  |  | 117 |  |  | 112 |  |  | 110 |  |  | 107 | 112 |
| 1933 |  |  | 118 |  |  | 118 |  |  | 112 |  |  | 115 | 109 |
|  |  |  | 118 |  |  |  |  |  |  |  |  | 123 | 120 |
|  |  |  | 125 |  |  | 125 |  |  | 123 |  |  | 123 | 124 |
| $\begin{array}{r} 936 \\ 1937 \end{array}$ |  |  | 122 |  |  | 122 |  |  | 126 |  |  | 127 | 124 |
| 1938 | 127 | 127 | 126 | 125 | 125 | 125 | 124 | 123 | 122 | 122 | 122 | 123 | 121 |
| 1939 | 123 | 123 | 122 | 123 | 123 | 122 | 122 | 121 | 123 | 123 | 123 | 123 | 123 |
| 1940 | 124 | 124 | 125 | 125 | 125 | 123 | 123 | 123 | 123 | 123 | 124 | 124 | 124 |
| 1941 | 126 | 126 | 126 | 128 | 129 | 130 | 133 | 135 | 137 | 139 | 140 | 142 | 133 |
| 1942 | 144 | 146 | 148 | 150 | 151 | 152 | 153 | 154 | 154 | 157 | 158 | 159 | 152 |
| 1943 | 162 | 164 | 166 | 169 | 171 | 172 | 172 | 173 | 172 | 175 | 175 | 177 | 171 |
| 1944 | 178 | 180 | 180 | 182 | 182 | 182 | 183 | 183 | 183 | 184 | 184 | 185 | 182 |
| 1945 | 187 | 188 | 188 | 190 | 190 | 190 | 190 | 190 | 190 | 191 | 191 | 192 | 190 |
| 1946 | 194 | 195 | 196 | 198 | 200 | 203 | 211 | 214 | 213 | 220 | 225 | 224 | 208 |
| 1947 | 227 | 229 | 234 | 237 | 237 | 238 | 240 |  | 245 | 247 | 249 | 253 | 240 |
| 1948 | 262 | 257 | 258 | 261 | 262 | 263 | 263 | 261 | 260 | 258 | 258 | 257 | 260 |
| 1949 | 256 | 253 | 256 | 255 | 254 | 253 | 251 | 249 | 249 | 247 | 246 | 247 | 251 |
| 1950 | 249 | 249 | 250 | 251 | 254 | 255 | 257 | 258 | 261 | 262 | 264 | 266 | 256 |
| 1951 | 273 | 277 | 281 | 284 | 284 | 283 | 283 | 283 | 283 | 284 | 285 | 285 | 282 |
| 1952 | 288 | 289 | 289 | 290 | 290 | 288 | 287 | 288 | 286 | 283 | 282 | 281 | 287 |
| 1953 | 282 | 280 | 279 | $\stackrel{278}{279}$ | 278 | $\stackrel{274}{ }$ | ${ }_{2}^{276}$ | 277 | ${ }_{2}^{275}$ | 274 | 274 | 275 | 277 |
| 1954 | 278 | 278 | 279 | 279 | 280 | 278 | 276 | 277 | 277 | 276 | 276 | 275 | 277 |
| 1955 | 278 | 278 | 279 | 278 | 277 | 277 | 275 | 274 | 273 | 274 | 274 | 272 | 276 |
| 1956 | 274 | 274 | 275 | 277 | 278 | 278 | 279 | 280 | 280 | 280 | 281 | 281 | 278 |
| 1957 | 284 | 285 | 286 | 286 | $\stackrel{287}{ }$ | ${ }_{2}^{284}$ | 286 | ${ }_{293}^{286}$ | 286 294 | $\stackrel{287}{294}$ | ${ }_{2}^{287}$ | 288 | ${ }_{293}^{286}$ |
| 1958 | 290 | 291 | 293 | $\stackrel{294}{ }$ | 295 | 294 | 293 | 293 | 294 | 294 | 294 | 295 | 293 |
| 1959 | 298 | 297 | 298 | 299 | 299 | 298 |  |  |  |  |  |  |  |

${ }^{1}$ The Parity Index, as revised January 1959.

## Literature Cited

(1) Black, John David, and Mudgett, Bruce D. 1938. index numbers. Social Science Research Council. Scope and Method Series. Bull. $10: 35-39$.
(2) Clayton, C. F.
1926. index numbers of the prices of farm products. Journal of Farm Economics. 8:347-355.
(3) Fisher, Irving
1922. the making of index numbers. Boston, Houghton-Mifflin.
(4) Mudgett, B. D.
1951. index numbers. John Wiley \& Sons, Inc., New York.
(5) Persons, Warren M.
the construction of index numbers.
(6) Stauber, B. R., Koffsky, N. M., and Randall, C. Kyle
1950. the revised price indexes. Agricultural Economic Research. Vol. II, No. 2.
(7) U.S. Congress
1959. department of agriculture appropriations for 1960. Hearings before the Subcommittee on appropriations, House of Representatives, 86th Congress, 1st sess, Part 1.
(8) U.S. Agricultural Marketing Service agricultural prices. January 1954.
(9) U.S. Agricultural Marketing Service and U.S. Agricultural Research Service 1956. Food consumption of households in the untted states
(10) U.S. Bureau of Agricultural Economics 1928. index numbers of prices farmers pay for commodities purchased, 1910-28. 24 pp . Washington, D.C. (Processed.)
(11) U.S. Bureau of Agricultural Economics 1933. index numbers of prices farmer pay for commodities purchasel $1910-32.9 \mathrm{pp}$. Washington, D.C. (Processed.)
(12) U.S. Bureau of Agricultural Economics 1934. index numbers of prices, wage rates, taxes, and interest payable by farmers, 1910-34. 5 pp . chart. Washington, D.C. (Processed.)
(13) U.S. Bureau of Agricultural Economics 1934-35. index numbers of prices received by farmers for farm products, 1910-35. (Processed.)
(14) U.S. Bureau of Agricultural Economics 1935. index numbers of prices paid by farmers for commodities 1910-35. 28 pp . Washington, D.C. (Processed.)
(15) U.S. Bureau of Agricultural Economics 1944 and 1949 , index of prices received by farmers, 1910-48 (data added in 1949.) (Processed.
(16) U.S. Department of Agriculture
1957. agricultural prices and parity. Agricultural Handbook 118. Major Statistical Series of the U.S.D.A., Vol. I.
(17) U.S. Department of Agriculture
1921. prices of farm products in the united states. U.S. Department of Agriculture Bull. 999.
(18) U.S. Department of Agriculture and U.S.

Department of Commerce
1956. farmers' expenditures for farm living and production. Vol. III, pt. II, 1954. Census of Agriculture.
(19) U.S. Department of Agriculture and U.S. Department of Commerce
1958. FARMERS' EXPENDITURES BY REGIONS. U.S.D.A. Statistical Bulletin No. 224.


[^0]:    ${ }^{1}$ Numbers in parentheses refer to Literature Cited, p. 80.

[^1]:    ${ }^{2}$ Basic quantity weights are changed when pricing specifications are revised; when one commodity price series is substituted for another, or when a portion of the weight is assigned to a new item as new price series become available. These shifts are not confined to the base period or the period covered by the revision. For example, 16 percent of the weight for ground or bean coffee was assigned to a new price series for instant coffee in March 1958.

[^2]:    ${ }^{3}$ Not all commodities could be added in 1952, as several new series did not begin till after that date, and several did not begin until 1958.

[^3]:    ${ }^{1}$ Weight for stationary milker installations assigned to single milker units because of the lack of data on stationary installations.
    ${ }_{2}$ Entire weight for over 22 percent superphosphate assigned to 45 percent, the item for which most returns have been tabulated in recent years. Data not available to show distribution of purchases as between 42 and 45 percent superphosphate.

[^4]:    See footnotes at end of table.

[^5]:    See footnotes at end of table.

[^6]:    ${ }^{4}$ Includes one-half of the gasoline used for the automobile.
    ${ }^{5}$ Includes gasoline gallonage equivalent of expenditure for L.P. gas used in the household.
    ${ }_{6}$ Costs for rotary hoes and pulverizers imputed to this item.
    ${ }^{7}$ No price series available for baling wire; therefore the expenditure for it was imputed to barbed wire.
    ${ }^{8}$ No series available for tobacco canvas; therefore, the expenditure for it was imputed to muslin.

[^7]:    ${ }^{4}$ With, of course $q_{53-57}$ instead of $q_{85}$ representing quantity weights.

[^8]:    ${ }^{1}$ Average per unit production payments made on butterfat, milk, beef cattle, sheep, and lambs are included for period October 1943-June 1946 inclusive.
    ${ }^{2}$ Revised January 1959.
    ${ }^{3}$ Revised May 1959.

