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Balance Sheet of Agriculture—Meaning, Conceptual Limitations, and Uses

By Roy J. Burroughs

Social accounting is so new that only a few specialists are fully aware of the associated conceptual problems or the popular confusions that may result from applying the terminology of accounting for private enterprise to given sectors or to the whole of the national economy. This article endeavors to clarify the meaning, conceptual limitations, and uses, of one of the first products of social accounting, namely, the Balance Sheet of Agriculture.

THE BALANCE SHEET of Agriculture has become a widely quoted and frequently used annual series for the period from 1940.[1] Misuses sometimes arise from a lack of general understanding of its meaning. This article is intended to clarify the meaning, conceptual limitations, and appropriate uses of the Balance Sheet of Agriculture (shortened to BSA hereafter) and to suggest how it may be made more useful.

The misuses of the BSA arise in part from the double purpose that has characterized its preparation and use. On one hand, it has served to represent the financial condition of the whole of agriculture as a single industry; on the other, it includes elements that reflect the financial circumstances of people—of families or households whose members have a connection with agriculture as operators of farms, or as residents of farms, or merely as landlords of leased land. Although it includes more elements than would properly be included in a balance sheet for the industry as such, it is too limited to reflect adequately the aggregate financial circumstances of households living on farms. Nor does it give a clue as to the diversity of financial circumstances of farm firms and of individual households. Some items, for example, United States savings bonds, reveal some of the liquid savings of farm families as a group. It is, therefore, proper to use the BSA to discuss these savings with reference to farm operators and other farm families taken collectively. It is not proper to assume that the individual families with the savings are the same as those with the indebtedness which also is reported. The contrary is more likely to be the case.

As this dual purpose of coverage and use tends to confuse the unwary, it is well at the outset to consider in some detail the meaning and coverage of the BSA.

Definition and Coverage

BSA is an Aggregate

The BSA arrays the aggregate assets and claims of agriculture in the conventional American accounting form: Assets on the left or above, claims on the right or below (table 1). Although it is intended to summarize the financial position of farms and farmers as a consolidated balance sheet would do, it is not a consolidated balance sheet strictly speaking. For a true consolidated balance sheet, separate accounts from each farm firm in the country would be required. But such farm accounts either are lacking or are unavailable so it is necessary to make statistical estimates of each type of item that is entered in the BSA. Also, in a true consolidated balance sheet debts of one farmer to another would cancel out but this is not the case here. It is a global estimate, not a consolidation.

[1] Its first appearance was in the IMPACT OF THE WAR ON THE FINANCIAL STRUCTURE OF AGRICULTURE. Bureau of Agricultural Economics, Sept. 1944 [Processed]: printed as U. S. Department of Agriculture Misc. Pub. No. 567, Aug. 1945. THE BALANCE SHEETS OF AGRICULTURE FOR 1945, 1946, 1947, and 1948 were Misc. Pubs. 558, 583, 620, 642, and 672 respectively. The 1949 Balance Sheet is U. S. Department of Agriculture Information Bulletin 1. Forecasted 1950 figures are reported in address by Sherman E. Johnson, 27th Annual Outlook Conference, U. S. Dept. Agr., November 3, 1949. Since this article was prepared, preliminary data for 1949 Income and the January 1, 1950, Balance Sheet have become available and minor revisions have been made for 1949 (BAE release of Feb. 17, 1950). Final figures are not yet ready. Inasmuch as the data in this article are illustrative only, they are left as originally written.

TABLE 1.—*Comparative balance sheet of agriculture, United States, Jan. 1, 1940, 1945, 1948, and 1949* [1]

Item	1940	1945	1948	1949	Net change 1940–49		Net change 1948–49	
ASSETS	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*	*Percent*	*Million dollars*	*Percent*
Physical assets:								
Real estate	33, 642	46, 389	62, 813	65, 168	31, 562	+94	2, 355	+4
Non-real estate:								
Livestock	5, 133	9, 012	[2] 13, 384	14, 697	9, 564	+186	1, 313	+10
Machinery and equipment	[2] 3, 118	[2] 6, 114	[2] 9, 069	11, 114	7, 996	+256	2, 045	+23
Crops, stored on and off farms [3]	2, 645	[2] 6, 396	[2] 8, 789	8, 475	5, 830	+220	−314	−4
Household equipment [4]	4, 275	4, 232	5, 415	6, 000	1, 725	+40	585	+11
Financial assets:								
Deposits and currency	3, 900	10, 800	[2] 15, 300	14, 800	10, 900	+279	−500	−3
United States savings bonds	249	[2] 3, 714	[2] 4, 781	5, 024	4, 775	+1, 918	243	+5
Investment in cooperatives	826	1, 264	[2] 1, 858	2, 036	1, 210	+146	178	+10
Total	[2] 53, 788	[2] 87, 921	[2] 121, 409	127, 314	73, 526	+137	5, 905	+5
CLAIMS								
Liabilities:								
Real-estate debt	6, 586	4, 933	4, 882	5, 108	−1, 478	−22	226	+5
Non-real-estate debt:								
To principal institutions								
Excluding loans held or guaranteed by Commodity Credit Corporation	[2] 1, 504	[2] 1, 622	2, 302	2, 714	1, 210	+80	412	+18
Loans held or guaranteed by Commodity Credit Corporation	445	683	[2] 84	1, 152	707	+159	1, 068	+1, 271
To others [5]	1, 500	1, 100	1, 800	2, 200	700	+47	400	+22
Total	[2] 10, 035	[2] 8, 338	[2] 9, 068	11, 174	1, 139	+11	2, 106	+23
Proprietors' equities	[2] 43, 753	[2] 79, 583	[2] 112, 341	116, 140	72, 387	+165	3, 799	+3
Total	[2] 53, 788	[2] 87, 921	[2] 121, 409	127, 314	73, 526	+137	5, 905	+5

[1] The margin of error of the estimates varies with the items.
[2] Revised.
[3] Includes all crops held on farms and crops held in bonded warehouses as security for Commodity Credit Corporation loans. The latter on Jan. 1, 1949, totaled 804.2 million dollars.
[4] Estimated valuation for 1940 plus purchases minus depreciation.
[5] Tentative. Includes individuals, merchants, dealers, and other miscellaneous lenders.

Covers Many Facets of Agriculture

The BSA pictures agriculture as though it were one vast firm. Yet the coverage is not limited to farm enterprises as such. Physical assets like the dwelling, household equipment, the family automobile, and financial assets like bank deposits, that would be appropriate for a balance sheet of farm households, are identified in the BSA with the agricultural industry. Farmers' equities in their own cooperative credit associations and marketing, purchasing, and public service associations are included. United States savings bonds and household equipment of families living on farms are intended to be included whether or not the families make their living from farming. All financial and other assets of farm operators for which data can be obtained are included whether the operators be owners or tenants.

Consistent with the conception of agriculture as a single enterprise or firm, the claims recorded by the BSA include the rights of creditors, owner- and tenant-operators, and landlords. The types of claims held by creditors are diverse. Real estate mortgages represent the largest single type of claim. The non-real-estate debts of farmers reported by institutional lenders often include both operating and personal credit. Included also are the loans held or guaranteed by the Commodity Credit Corporation. In general, except in case of fraud, these loans are without recourse on farmers who often view the transactions as sales of commodities to the Government. Only if prices rise above the loan support

price do farmers have any incentive to pay off the loans to recover possession of the commodities. Besides these claims of institutional lenders are those of noninstitutional lenders—merchants, dealers, professional men, etc. For these, few data exist. All obligations of farm operators are intended to be included but the obligations of farm residents who are not operators are intended to be excluded.

The types of proprietors who hold equities also are diverse. Among the equity holders are landowners such as farming corporations, financial institutions, and governmental bodies, as well as owner- and tenant-operators and nonoperating individual landlords. Indeed, any public land reported in the Census of Agriculture implicitly has a contra value among the proprietary equities reported in the BSA. All levels of government, then, are represented among the proprietors.

In general, the ownership units intended to be covered are those identified in the Census of Agriculture. The Census defines a farm as an area of 3 or more acres in agricultural use operated as a unit. Areas of less than 3 acres are included if they produce $250 or more of agricultural products. The term "agricultural use" covers the usual crop and livestock production and other activities, as apiaries, mushroom cellars, greenhouses, and nurseries, which are less easily recognized as farms. But these nontypical activities have only a minor influence on the real-estate valuations shown in the BSA even though the base value reported by each Census of Agriculture would include these nontypical cases. Moreover, the method of measuring year-to-year changes of real-estate valuation is based only on average per acre prices of typical agricultural land. Public lands used under a lease are included but land used under a grazing permit (specifying merely the number of head of animals to be grazed) is not included in the base figures of the Census. Institutional farms—those of schools, prisons, etc.—are included to the extent of actual agricultural uses. Country estates are included if there is agricultural production. Heretofore, houses and households on farms, even though occupied by nonfarmers, have been classed as "farm." Indications are that, for the 1950 Census, houses rented for cash without land other than yard or garden will be classed as "rural nonfarm" even though they may be situated on real estate that is used for farming.

What, then, is "agriculture" to which the BSA applies? Agriculture is implicitly defined by the BSA not only to be the process of producing plants or animals and their products for sale or farm family use in keeping with the industry concept but also other activities in keeping with the household concept. Activities associated with the household concept are various: Farmers invest in cooperative marketing and credit organizations and in shelter and furniture for the farm family; they provide transportation in the farm truck and the family automobile, and manage the financial resources of the farm family including certain funds and some investments not required in farming.

Valuation in Current Prices

The BSA is set up in terms of current prices in any year. Conceptually it is impossible to express aggregate data of this character in terms of "original cost," "proven investment," or any similar book value that uses historical cost. Such devices may be suitable for private accounting but not for social accounting. Little significance would attach to a sum composed of original investments made over many years by existing owners of farming assets. What is useful is an expression of the aggregate wealth of agriculture as of a given time or in terms of prices of a given period. Individual items of wealth are then additive, and the totals may be added to or compared with data for other sectors of the economy.

Values of the BSA supposedly reflect market prices of items to "willing buyers and willing sellers" for use in a "going concern." The whole of agriculture is personified as a "going concern." Market valuations reflect depreciation, obsolescence, and changing demands for products. Even more important, market valuations reflect changes in the general price level. Neither original cost nor liquidation values are used.

Each asset presents a special problem in valuation. In general, the physical assets are valued at current market prices as reported by the Census and other sources. Census base figures are adjusted from year to year by changes in market prices and quantity. As an exception, for lack of another basis, household equipment is valued in terms of estimated average cost from 1936 to 1940 plus purchases each year since, and minus depreciation during each year. Invest-

ments in cooperatives are valued at book values. Investments in United States savings bonds are at cost-plus accruals. Of course such a liquid asset causes no particular problem of valuation—only a problem of statistical estimating of the amount involved.

Valuation in Constant Prices

The BSA also is expressed in 1940 prices and thus shows the effect of changes from year to year in the quantity of assets apart from changes attributed to prices (table 2). Any other base year might have been chosen for this purpose but 1940 is the last prewar year. It constitutes more nearly a prewar "norm" than any other year. It also is the first year in the annual BSA series. The effect of the conversion of a series of balance sheets to 1940 prices is to obtain a measure of changes in physical quantities that are statistically weighted by the prices of each commodity in the base year. If values of physical assets in constant prices have risen, aggregate physical quantities have risen—granted the use of prices in a base year as statistical weights.

Conceptual Limitations

The foregoing description of the definition and coverage of the BSA has suggested many of the conceptual limitations of the series. These limitations apply to the use of the BSA for presenting the financial situation of the agricultural sector of the economy either as a whole or in segments and for reflecting the situation of the households associated with farms either in the aggregate or with respect to the distribution of individual cases.

Not being considered in this article are the inadequacies associated with the compilation and manipulation of the statistical series of the individual items of the BSA.[2]

[2] See Appendix, IMPACT OF WAR ON FINANCIAL STRUCTURE OF AGRICULTURE, U. S. Dept. Agr. Misc. Pub. 567, Aug. 1945; TOSTLEBE, ALVIN S. ESTIMATE OF SERIES E BOND PURCHASES BY FARMERS. Jour. Amer. Statis. Assoc. Sept. 1945; BURROUGHS, ROY J. THE AGRICULTURAL SEGMENT OF THE NATIONAL BALANCE SHEET, to appear in Volume Twelve by National Conference on Income and Wealth. (In press.)

Ideal Objectives

The aggregate balance sheet is a phase of social accounting—the measurement of national wealth. The individual balance sheets of households or farm enterprises are social statistics of great value in discerning and interpreting details of data that aggregate balance sheets leave concealed.

The significance of the limitations of the BSA as now constituted may be understood best by reference to ideal objectives for the array of financial data. These may be listed as follows:

Possible Types of Balance Sheets for Agriculture

A. Aggregate balance sheets
  1. Industry of agriculture by
    a. United States total
    b. Geographic groupings
      1. State
      2. Type of farming
      3. Other
    c. Other groupings
      1. Tenure
      2. Size of farm
      3. Gross income
      4. Other characteristics
  2. Households on farms viewed as an aggregate by
    a. United States total
    b. Geographic groupings
    c. Other groupings
      1. Tenure
      2. Net worth classes
      3. Other

B. Distribution of individual farms and households
  1. Individual households by
    a. Net worth
    b. Total assets controlled
    c. Types of assets held
    d. Tenure
    e. Other characteristics
  2. Individual farm enterprises (firms) by
    a. Size of farm
    b. Total assets
    c. Tenure of principal portion of acreage
    d. Significant ratios
    e. Other

TABLE 2.—*Balance sheet of agriculture with physical assets valued at 1940 prices, Jan. 1, 1940, 1945, 1948, and 1949*

Item	1940	1945	1948	1949
ASSETS				
	Million dollars	*Million dollars*	*Million dollars*	*Million dollars*
Physical assets (1940 prices):				
Real estate	33, 642	[1] 33, 642	[1] 33, 642	[1] 33, 642
Non-real estate:				
Livestock	5, 133	5, 606	[2] 4, 913	4, 847
Machinery and equipment	[2] 3, 118	[2] 4, 011	[2] 5, 022	5, 749
Crops, stored on and off farms	2, 645	3, 162	[2] 2, 482	3, 399
Household equipment [3]	4, 275	4, 232	5, 415	6, 000
Financial assets (actual value):				
Deposits and currency	3, 900	10, 800	[2] 15, 300	14, 800
United States savings bonds	249	3, 714	[2] 4, 781	5, 024
Investments in cooperatives	826	1, 264	[2] 1, 858	2, 036
Total	[2] 53, 788	[2] 66, 431	[2] 73, 413	75, 497
CLAIMS				
Liabilities (outstanding amount):				
Real-estate debt	6, 586	4, 933	4, 882	5, 108
Non-real-estate debt:				
To principal institutions:				
Excluding loans held or guaranteed by Commodity Credit Corporation	[2] 1, 504	[2] 1, 622	2, 302	2, 714
Loans held or guaranteed by Commodity Credit Corporation	445	683	[2] 84	1, 152
To others	[2] 1, 500	[2] 1, 100	1, 800	2, 200
Equities (residual balance)	[2] 43, 753	[2] 58, 093	[2] 64, 345	64, 323
Total	[2] 53, 788	[2] 66, 431	[2] 73, 413	75, 497

[1] 1940 valuation of farm land and buildings.
[2] Revised.
[3] Not deflated. Estimated valuation for 1940, plus purchases, minus depreciation.

The first ideal objective according to this listing would be to prepare an aggregate balance sheet for agriculture solely as an industry. Personal and household elements would be eliminated. Having such an aggregate for the country as a whole, it would then be possible to obtain similar aggregate balance sheets for each State, or each type-of-farming area, or for other geographic areas. Then, too, industrial balance sheets in aggregate terms could be prepared for any stratum of the industry such as farms classified according to tenure, size, gross income, or other characteristic.

The next ideal objective would be to prepare an aggregate balance sheet of farm households. One of the intangible assets to be included would be the equity of farm households in farm enterprises. Moreover, financial assets, furnishings, perhaps dwellings located on farms, and all personal assets not heretofore mentioned would be listed as assets of households. Having such an aggregate for the country as a whole, it then might be desirable to obtain aggregate balance sheets for geographic areas and for strata of farm households such as for tenure classes, net worth classes, and other characteristics.

Next, for a complete analysis of the situation of farm peoples, balance sheets of individual households or families are needed. These, if obtained from a sufficient sample, could provide much or all the data for the aggregate balance sheet of agriculture and the aggregate balance sheet of farm households. But a more valuable use for individual balance sheets would be to provide a basis for learning distribution of farm households by such classes as net worth, total assets controlled, types of assets held, tenure, and other characteristics.

Finally, from such individual household balance sheets it might be possible to extract data on individual balance sheets of farm firms, omitting the personal and household elements. Then distributions of farm firms by various financial or other characteristics would be possible.

TABLE 3.—*Percentage distribution of farms by acreage, 1945* [1]

Acreage	Percent	Cumulative	
		Percent down	Percent up
Under 10 acres	10. 1	10. 1	100. 0
10–29 acres	16. 1	26. 2	89. 9
30–49 acres	12. 1	38. 3	73. 8
50–69 acres	8. 1	46. 4	61. 7
70–99 acres	11. 7	58. 1	53. 6
100–139 acres	10. 8	68. 9	41. 9
140–179 acres	9. 7	78. 6	31. 1
180–219 acres	4. 8	83. 4	21. 4
220–259 acres	3. 6	87. 0	16. 6
260–499 acres	8. 1	95. 1	13. 0
500–999 acres	3. 0	98. 0	4. 9
1,000 acres and over	1. 9	100. 0	1. 9

[1] U. S. Bureau of the Census, Census of Agriculture: 1945, Farms and Farm Characteristics by Size of Farm, table C, p. XXXII.

TABLE 4.—*Percentage distribution of farms by value of product, 1944* [1]

Value of product	Percent	Cumulative	
		Percent down	Percent up
$0–$249	9. 5	9. 5	100. 0
$250–$399	7. 4	16. 9	90. 5
$400–$599	8. 8	25. 7	83. 1
$600–$999	13. 3	39. 0	74. 3
$1,000–$1,499	12. 3	51. 3	61. 0
$1,500–$2,499	15. 5	66. 8	48. 7
$2,500–$3,999	12. 7	79. 5	33. 2
$4,000–$5,999	8. 8	88. 3	20. 5
$6,000–$9,999	6. 8	95. 1	11. 7
$10,000–$39,999	4. 5	99. 6	4. 9
$40,000 and over	0. 4	100. 0	0. 4

[1] U. S. Bureau of the Census, Census of Agriculture: 1945, Farms and Farm Characteristics by Value of Products, table C, p. XXIV.

Heterogeneity of Coverage

The conceptual limitations of the BSA as now constituted arise in part from the heterogeneity of coverage: The admixture of farm and household items, the uncertain delimitation of the boundary between farm and nonfarm assets, and the inclusion among the proprietary equity holders of such diverse types as owner- and tenant-operators, nonoperating individual landlords, corporate owners, and governmental units.

The BSA possesses the limitations of an aggregate. Circumstances of individual farmers are not revealed. Some are tenants, others are not. Some have large farms, others have small. Some have large gross farm incomes, others have small. Some are nominally farmers merely because anyone living on a farm, as defined by the Census, is included in the farm population, even though his occupation may not be farming.

Farming enterprises with a very wide range of acreage are included. The percentage distribution of farms by size classes in 1945 was reported by the Census as shown in table 3. The percentage distribution by value of product in 1944 reveals an even greater range (table 4). Some of these "farms" are in fact country estates; others are part-time operations of nonfarm workers; some are units of a multiple farm like a plantation.

Assets Not Necessarily Security for Loans

Another limitation of the aggregate form of the BSA is its implication that any assets shown are security for any debts shown. In fact the farmers owing the debts may be the ones with the least liquid assets. The cash, although at times exceeding the debts, may be entirely unavailable to pay the debts.

BSA Not Representative of Typical Farmer

There is an implication in the BSA that the financial condition of a typical farmer could be obtained by dividing the assets or claims by the number of farms. But of course the presence among the equity holders of owners and tenants, operators and landlords, individuals and corporations, private persons and governments, preclude any such average. Besides the BSA is the aggregate of firms and not of operators or individuals. A single farm may have two or more types of proprietors represented among the equity holders: tenant-operator, individual landlord, and possibly a governmental landlord of leased public land.

Even if the proprietors were all owner-operators, an average obtained by dividing the BSA by the number of farms would not reveal the typical farmer. This is because the distribution of indi-

vidual farmers by financial condition presumably is bimodal; that is, the farmers who owe the bulk of the debts probably are not the ones with the bulk of the financial assets. The farmers owing the bulk of the debts also might control more than average amounts of physical assets. Hence any average of all cases would produce a nontypical and unmeaningful figure. An over-all average can stand for a typical case only when the distribution has a single center of concentration.

The financial status of some proprietary classes with interests in agriculture is more fully represented in the data of the BSA than is the situation of others. The degree of representation varies from item to item. Thus, in the case of bank deposits, all the deposits of farm operators are included and presumably to some extent the deposits of those nonfarm residents who own farms and who draw income therefrom. Whether they are represented would depend on the reporting practice of each sample bank that makes the estimates for no uniform definition of farm deposits has been given.

In principle, data on savings bonds represent ownership by persons living on farms—persons who vary from subsistence farmers in "mountain hollows" to wealthy estate owners on the Hudson River who commute daily to Wall Street. In practice, bonds of the wealthy probably are less fully represented than are those of other income groups because the well-to-do are more likely to buy them in urban financial centers so the purchases would escape inclusion in rural statistics.

The ownership of physical assets is divided among owner- and tenant-operators and their families, resident nonoperating landlords, and nonresident landlords including industrial corporations, financial institutions, and governmental units at all levels. It would be an impracticable statistical chore to report separately the physical assets according to these various claimants. Then would come the determination of gross versus net claims of proprietors since creditors as well as proprietors have rights in the assets.

The liabilities involve further anomalies from the viewpoint of distinguishing the debts of different types of farm households. The mortgage debt is that of all farm owners whether operators or landlords. Farm operators also may owe nonfarm mortgage obligations; such debts are inapplicable to an industrial balance sheet but would be included in the debts of farm households. On the other hand the nonfarm debts of landlords might be included in a balance sheet of farm households if they lived on farms. The question of definition arises, What is a farm household for the purpose involved?

The non-real-estate debts of farm operators, whether or not they arise from farming operations, are intended to be included. Not all such debts can be identified statistically, however. On the other hand, the non-real-estate debts of nonoperator landlords incurred in connection with farming may or may not be reported, depending on whether banks classify such loans as agricultural. If a loan is obtained by such a landlord from a noninstitutional source, it would surely escape inclusion.

These illustrations clearly indicate that the BSA cannot be considered fully representative of the typical commercial farmer. A balance sheet of an industry can suggest only in a very general way, or perhaps indicate with respect to particular items, the financial situation of households that depend on that industry for a living or that use the real estate of that industry as a place of residence.

Variations in Methods of Valuation

The system of valuation varies somewhat from item to item as has been mentioned. This fact reduces the usefulness of the BSA as a balance sheet of an industrial or a household sector of the economy. The methods of evaluating household equipment and investments in cooperatives are departures from the general practice in the BSA of evaluating items on a current market basis. Even the items that are reported in terms of current prices have statistical idiosyncracies that arise from the necessity of using available data of varying quality and coverage.

The conversion of values to a 1940 basis entails individual problems in the case of specific items. Problems of weighting are important. Financial assets and liabilities are left untreated and thus remain on a contract-price basis regardless of changes in the price level.

The main limitation of this device of converting values for a series of years to a base year is the unpredictable effect of changing from base year 1940 to another. Instead of valuing a fixed

basket of commodities at various prices from time to time, the BSA in 1940 prices does the reverse: it values a changing list of commodities at constant prices. Now if the prices are understood to be weights, as well as a common denominator making possible the summation of unlike measures of various commodities, one can compare year-to-year changes in physical amount. Were a different base year than 1940 chosen, the prices used for weights would be different. In some instances the effect of changing base years—and the resulting weights—is to reverse the direction of change. Whether values in constant prices of a given class of assets shall have risen or fallen from 1940 to 1948 may depend on whether 1940 or 1948 is chosen as the base year. Any manipulation of data, such as selecting average prices for a decade as a base, does not avoid this problem of weights; it merely makes the weights more difficult to interpret. But the presence of limitations does not prevent the understanding use of the stabilized balance sheet. The dangers of misuses are merely increased.

Proprietary Equities a Residual

Equities are the difference between assets and liabilities. This residual at any one moment shows the rights of all the different classes of proprietors. It is not the net worth of farmers because many nonfarmers are concerned.

The meaning of changes in the amount of equity from year to year is not readily interpreted. The equity, being a residual, is affected by many types of transactions. The original investment of persons with a proprietary interest in agriculture is reflected. Earned accumulations retained in agriculture or in the form of household or financial assets and losses suffered are reflected. Moreover, each transfer of capital to agriculture from other sectors of the economy, and conversely each withdrawal from agriculture, has an impact on equities. If owner-operators sell to persons who had been nonfarmers, real estate assets in the BSA remain the same. Too, the chances are that machinery and motor equipment will remain on the same or some other farm. But the number of head of livestock may change. Some may be slaughtered. The seller of the farm may retire from farming and withdraw deposits from local banks. The newcomer may bring either more or less deposits than the retiring farmer had. The same is true of United States savings bonds but the methods of deriving this series is such that the amount reported would not be influenced by such two-way exchanges of population between rural and urban areas.

The predominant source of changes in equities of proprietors in recent years has been the write-up of assets, especially of real estate, in keeping with higher prices. Capital gains and losses are not earned income but they affect the balance sheet in much the same way as accumulations or losses from operations. The practical difficulty of distinguishing additions to equity based on the price factor from those based on reinvested earnings has given rise to popular misconceptions of the true meaning of changes in the equities. They are changes on net balance but they arise from a variety of sources.

Bridge Needed Between BSA and Income Data

The difficulty of effecting a reconciliation with data for farm income is a further conceptual limitation of the BSA. An aggregate balance sheet for either the agricultural or the farm household sector of the economy ideally should have identical coverage with income data for the respective sector. The coverage of BSA and income data are somewhat different. Thus the BSA includes United States savings bonds and time deposits but income data do not include interest on these assets. The BSA includes household equipment and motor vehicles but the computations of net income omit from expenses the depreciation on household equipment and half or more of the depreciation on family automobiles.

The BSA includes commodities held under repurchase agreements of the Commodity Credit Corporation with assets while the corresponding loans are classed with debts of farmers. Yet the income data add loan proceeds to cash receipts from farm marketings. The logic of the balance sheet would be to defer the inclusion of these receipts with income until after the loan transaction had been terminated and the commodities sold to the Government. The logic of the income statement would be to exclude the CCC items from both the assets and the claims of the BSA. The latter usually is more realistic though not necessarily so acceptable from a legal viewpoint.

Articulation of the BSA with income data is not readily achieved because many transactions that affect the BSA do not affect estimates of income and the data that are available are not sufficient to fill the gap. In the absence of a system that would account for all money transactions, reconciliation is impossible. Of course some data are available. Net changes in debt position during an accounting period can be ascertained within certain limits. Capital gains and losses resulting from price fluctuations can be estimated directly with the use of price indexes. Outlays of machinery and motor vehicles are partly reflected in the net-income figures, and estimates can be obtained from the outlays not so included. Payments of Federal income taxes are estimated each year but less is known about State income taxes. Estimates are available for at least a part of the nonfarm income received by farmers but the estimates are based on very limited data. Available estimates for outlays on building materials and construction labor likewise are based on too few data.

Data for many other transactions are seldom available in sufficient degree to explain those changes in the BSA that are not accounted for by existing data. Estimates of the amounts of cash payments and cash receipts in the case of many investment transactions, such as the purchase and sale of farms and of nonfarm properties by farmers, and for the most part transfers of goods by those moving to farms or those moving away from farms, are not available. Nor are expenditures on consumption goods known. Some capital transactions do not involve cash; rather they involve transfers of other goods and even more often affect the claims; but such deals usually escape statistical reporting.

Thus a bridge is needed to articulate the BSA and the income statements for agriculture. This bridge is an accounting for money flows and other capital transactions. Some work has been done on money flows by Morris A. Copeland and associates of the Board of Governors of the Federal Reserve System and Cornell University under the sponsorship of the National Bureau of Economic Research but much pioneer work remains.

What the Balance Sheet of Agriculture Does

The BSA is a tool for social accounting. It contributes to the measurement of the status and changes in the agricultural sector of the economy. It contributes to an understanding of the interrelationships of the agricultural and nonagricultural activities of the economy. It covers in part the farm portion of the household sector of the economy.

Measures Over-all Changes in Agriculture

Those interested in agriculture as a whole can look to the BSA to give a measure of the wealth represented by agricultural assets and the values of the rights of various claimants—creditors and proprietors—to that wealth. By comparing a balance sheet of one period with that of another some aspects of the extent of capital formation or reduction can be ascertained. Thus by reducing the comparative balance sheets to constant prices of a base year, an idea may be gained of whether the capital changes are the consequence of accumulations or disappearance of real goods or merely changes that result from rising or falling prices in which the items of the balance sheet are measured. Changes in dollar terms are given and changes in real terms are suggested.

The BSA may be used in connection with other data to suggest the relation of debts to the real products required for their repayment. The purchasing power of financial assets and changes therein often are of real significance, especially when financial circumstances of farm households are being considered.

Shows Changes in Relative Importance of Asset and Claim Items

The relative importance of the items in the balance sheet is readily indicated by the BSA. How does real estate compare in value with livestock, machinery, or other assets? How does real-estate mortgage debt compare with non-real-estate debt? How does it compare with the value of real estate? How do liabilities compare with equities? How is the relative importance of the different items changing from year to year? Do the changes signify a trend associated with improvements in technology or merely those associated with the "dance of the dollar?" Is there any evidence of capital savings as well as labor savings in the trend of technology? These and many other questions of interpretation can be raised by the BSA and, if related to other pertinent information, often can be answered.

Permits Comparisons with Rest of Economy

Besides giving cross-sectional pictures of agriculture at various points of time, the BSA provides a means of comparing agriculture with other segments or with the whole of the national economy. When business men meet they ask, "How are you doing?" They mean: Is the business earning a favorable return? Are assets increasing more rapidly than liabilities? Are a sufficient part of the assets in liquid form? Business consultants, economists, and Government administrators, ask similar questions of the economy as a whole and of its industrial sectors. Data of the balance sheet and income statement help to provide answers.

The National Conference on Income and Wealth, sponsored by the National Bureau of Economic Research and representing many business, college, and governmental economists, is working toward the development of a national balance sheet. Similar undertakings are being made in other countries. Sector balance sheets for industries, governments, and households must first be available for consolidation before a national balance sheet is made. When this has been done the BSA may be used for studies of inter-sector claims and for comparisons of changes in agriculture with changes in other parts of the economy. The direction of the inter-sector balance of payments also may be suggested. Together with data on income and transactions, money flows within agriculture and between agriculture and other parts of the economy, can be more readily traced.

Offers Improved Understanding of Economic Order

End product of such an analysis should be: An improved understanding of how our economic system is operating; a knowledge of its weak points; a recognition of the danger signals which if heeded may prevent economic distress of individuals or avoid general depression; a judgment concerning the results of efforts to stabilize the economy; a conclusion concerning whether price supports are keeping the agricultural investment intact in a period of falling employment; and how much capital formation or reduction is resulting from efforts to increase output. These and many related issues must be analyzed by those who are concerned with the operations of our economic system. The BSA is one aid in such an analysis.

How To Make the BSA More Useful

The Balance Sheet of Agriculture would serve more purposes and would be more readily understood if two collateral fields of research were more fully developed. One, already discussed, is that pertaining to money and capital transactions which are not covered by existing estimates. The other is the preparation of balance sheets for different sectors of agriculture in which data for agriculture as an industry are clearly separated in principle from data for farm households.

Two types of sector research are possible.[3] One would provide aggregate balance sheets of agriculture or of households, as the case may be, by geographic areas as the one Cox and Waite have prepared for the State of Minnesota.[4] The other type would provide distributions (on one hand of farm firms and on the other of households of farm operators) according to size of investment, net worth, financial assets, ratios of one item to another, and other elements of financial status according to tenure, location, etc. Such a study is now in progress in the State of Virginia where the Virginia Polytechnic Institute, the Federal Reserve Bank of Richmond, and the Virginia Bankers Association, are surveying farm operators.

An extension of such studies to other States and to various types-of-farming areas would provide data for more detailed interpretation than is now possible with the Balance Sheet of Agriculture alone. The BSA would become far more meaningful if the variations, which the aggregate data fail to reveal, were fully analyzed. The composition of the Balance Sheet of Agriculture is as important as the global estimate that is now available.

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[3] Both types of studies could be based on a single survey.

[4] Cox, Rex W. and Waite, Warren C. FINANCIAL STRUCTURE OF MINNESOTA AGRICULTURE. Minn. Agr. Expt. Sta. Bul. 402. March 1949.