Input-Output Analysis as a Tool in Agricultural Marketing Research

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Economists engaged in agricultural marketing research are frequently called on to obtain information on industrial markets for farm products, costs of advertising and packaging these products, and tax outlays by marketing agencies. Besides these essentially descriptive questions, they may also be asked to appraise such analytical problems as the effect of various farm programs on industries processing and distributing farm products and, of particular current interest, the impact of the European Common Market and of proposed foreign trade programs on American farmers and on agricultural marketing agencies. Anyone familiar with Leontief (*9*) [1] input-output economics will readily see that these descriptive and analytical questions—and a host of similar ones—can be organized and studied within the interindustry framework. A review of the literature indicates that agricultural economists have used input-output analysis extensively in production and regional research (7, *10*), but its application to agricultural marketing problems has hardly been explored.[2] The main purposes of this paper are (1) to illustrate a few of the more obvious applications of input-output research to problems in agricultural marketing, and (2) to present a recent special aggregation of the Bureau of Labor Statistics Interindustry Study for 1947 (*5*) which can serve as a benchmark for future work in this area.[3] The aggregation highlights farm sectors and agricultural marketing sectors detailed in the Bureau of Labor Statistics approximately 500-sector model. Description of the tables is limited to the essentials needed for an understanding of the suggested applications. The mathematics underlying the analysis appears in a technical appendix (pages 99–101). **The author expresses his appreciation to Allen Paul and Frank deLeeuw for their helpful comments.**

INPUT-OUTPUT economics comprises (1) the construction of a descriptive transactions table which shows the dollar amount of purchases by each "industry" from each other "industry" in some given period; and (2) input-output *analysis* which attempts to "convert" this descriptive table to a "predictive" tool. These two aspects of input-output research should be distinguished. Controversy rages about the usefulness of this type of research as a predictive tool, *not* about the usefulness of the descriptive transactions table. (See pp. 102–111 for tables referred to in this paper.)

Rejection of input-output analysis should not automatically result in rejection of the descriptive value of the transactions table. In agricultural marketing research, for example, the transactions table can be a very useful supplement to descriptive aggregative series on the total marketing bill for domestic farm food products, the market basket, and the farm share.[4] It can also supplement information on output, productivity, prices, and hourly earnings currently available for the food marketing sector. More broadly, it supplements other descriptive statistics on national income and money flows. Even if we are skeptical about the input-output framework as a predictive tool, we may want it for descriptive purposes.[5]

In effect, the Leontief input-output model simply organizes within an integrated framework much fact-finding that agricultural marketing economists do piecemeal. These organized data can then be used to anticipate "answers" to a broad array of descriptive and analytical questions—at least for a first approximation.

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[1] Italic numbers in parentheses refer to Literature Cited, page 101.

[2] For a notable exception, see Davis and Goldberg (*3*).

[3] The U.S. Department of Commerce and the U.S. Department of Agriculture are currently constructing an input-output matrix for 1958 based on recent census data. This latest effort of the U.S. Department of Agriculture will up-date the earlier estimates for farming sectors for 1955 made by Robert Masucci and others in the Department (*11*).

[4] For definitions of statistics on the marketing bill, the market basket, and the farm share as used by the U.S. Dept. Agr., see Mktg. and Trans. Situation (*15*).

[5] For evaluation of the Leontief input-output model see Nat. Bur. Econ. Res. (*12*); see particularly the chapter by Carl F. Christ, "A Review of Input-Output Analysis," pp. 137–171, and the comment on Christ's paper by Milton Friedman, pp. 171–174.

Interindustry Transactions

Description

Table 1 shows intersector flows of goods and services in *producers'* prices (that is, sellers' prices) by industry of origin and destination. It is divided into two main sections: (1) The processing or intermediate sectors which purchase goods and services in order to carry out their own production for sale to either (a) other intermediate sectors for further processing, or (b) final demand sectors; and (2) the final demand, or autonomous, sectors which make autonomous or independent demands on the intermediate sectors.

Purchases by autonomous sectors (consumption, investment, and others) are recorded in the columns on the right side of the table and, except for competitive imports and inventory depletions, charges against these sectors (wages and salaries, proprietors' income, property income, depreciation, taxes, and so on) are recorded at the bottom of the table.

Competitive imports (imports which are "highly" substitutable for products made in continental United States) and inventory depletions, which are charges against the respective autonomous sectors, are shown on the right side of the table and the entries are prefixed with minus signs. This means that gross domestic output, the last column in the table, measures the value of *current domestic* product.

Reading across a row of table 1 we see, for the sector named at the beginning of the row, its intrasector transactions, its deliveries to other processing sectors, and its deliveries to autonomous sectors in 1947. Thus, in 1947, the meat packing industry sold $110.1 million of its gross output to itself, its sales to poultry-dressing plants were $1.0 million, its sales to canning, preserving and freezing were $37.5 million. Looking at the meat packing sector's sales to the autonomous sector, $7,840.7 million—or three-fourths of its total gross output—went for household consumption; sales for export were $306.6 million, compared with $125.8 million in competitive imports.

Reading down the columns of table 1 we see the purchases—or inputs—of each sector. Returning to the previous illustration, the meat packing sector purchased $7,870.8 million in meat animals from the farm sector, $2.4 million from the poultry and eggs sector, intrasector purchases were $110.1 million, and so on. Looking at the charges against final demand, the meat packing sector had outlays of $137.9 million for Federal taxes, $16.4 million for State and local taxes, and $1,404.9 million for wages and salaries, profits, depreciation, proprietors' income, property income, and other charges.

Total dollar purchases (including profits and taxes) are defined equal to total dollar sales, thus gross domestic outlay (column total) is equal to gross domestic output (row total) for each of the intermediate sectors separately. For the autonomous sectors, column and row totals are *not* equal for each individual sector; the *sum* of the columns for all final demand sectors combined is equal to the combined sum of the rows. This sum is roughly equal to Gross National Product.

The dollar transactions shown in table 1 are all in producers'—not purchasers'—prices; retail charges, wholesale charges, transportation charges, and other distribution costs required to distribute the goods from the producer (seller) to the purchaser are entered as explicit purchases (inputs) by the purchasing sector. This means that purchases of the meat packing sector of $7,870.8 million in meat animals from the farm sector are in farm prices; the charges for transporting and wholesaling the live animals between the farm gate and the meat packing plant are shown in the transactions table as purchases by the meat packing sector from the transportation sector and from the wholesale trade sector. Similarly, sales of "finished" commodities by processors are *not* traced through wholesale and retail trade and therefore are not treated as inputs into the wholesale and retail sectors. Use of this flow process would cause products to lose their identity once they "passed through" a distributive sector.

The treatment of transportation, wholesale, and retail margins in the input-output model should perhaps be amplified. Margins can be looked at from the costs side as the sum of labor costs, capital costs, and so on in distributing goods, or from the expenditures side as the value of output of distributive services. (This is, of course, analogous to the income and expenditures approaches in national income accounting.) Agricultural economists generally focus attention on the cost side.[6] The input-output framework, on the other

[6] For several exceptions to this, see Daly (*2*) and Fourt (*6*).

hand, treats transportation, wholesale and retail margins as *output* of these distributive sectors implicitly valued in "base" period prices. That is, the wholesaling and retailing margins shown in table 1 are defined as the value of the 1947 output of these distributive sectors in 1947 dollars. This explicit construction of output of distributive sectors makes the input-output framework especially useful in agricultural marketing research.

The broad aggregation of the distributive sectors in the BLS Interindustry Study hampers somewhat its use in agricultural marketing research. A further breakdown of transportation, wholesale trade, and retail trade by food and nonfood commodities would enable agricultural market research workers to study costs of nonfarm inputs in food distribution as well as in food manufacturing. Though this disaggregation was not done in the BLS Interindustry Study for 1947, it should be at least as feasible with available data as it was in some of the breakdowns actually made.

Applications

For agricultural marketing research perhaps the most obvious application of table 1 is in the study of markets for raw farm products and for processed farm products. Reading across the row of the grain-mill products sector, for example, shows the dependence of this sector's sales—and consequently the sales of farm grains—on *direct* purchases by intermediate sectors; less than a fifth of the gross output of the sector was delivered to households for consumption.

A second application of table 1 is to be found in the detailed breakdown of costs underlying the marketing bill for farm foods that it shows. Thus, in 1947, the meat packing sector purchased $54.9 million from the packaging supplies sector whereas the canning, preserving, and freezing (except fish) sector purchased $359.2 million. A more detailed breakdown of inputs would show outlays for advertising by sector. This detail is actually given in the BLS study, but it is subsumed in the sector labeled "Communications, business and personal services" in our aggregation.

There has been some discussion in the literature on the concept of the Farm-Food Marketing Bill. (*13*) The question is whether a more "net" concept than is now being used might not be better for studying problems of resource allocation. The sum of the rows showing sector payments to Federal, State, and local governments, gross capital formation, and payments to households (rows 101, 102, 103, and 105) is a measure of "value added" in production of the sector named at the top of the column. Thus, this table lends itself to considering various concepts of the marketing bill. We could, for example, estimate the value added (that is, factor requirements in 1947 prices) by each sector in order to deliver a dollar in meat products to households.

Direct Purchases

Table 2 shows the direct purchases of inputs per dollar of output for each intermediate sector; that is, it shows the unit costs structure for each processing sector in 1947. For example, payments by the meat packing sector to the farm sector for meat animals accounted for 76.07 cents of every dollar of sales by the meat packing industry, intrasector purchases accounted for about 1 cent of every dollar of sales, and so on.

Table 2 is derived from table 1 (after some modification) by dividing the transactions in each column by gross current domestic output of the particular sector named at the head of the column. We see that the 76.07 cents figure quoted for the meat packing sector was essentially obtained by dividing that sector's dollar purchases of meat animals ($7,871 million) by the gross output of the meat packing sector ($10,346 million) shown in table 1.

The descriptive uses of table 2 for agricultural marketing research are fairly evident. The table shows the relative importance of costs (in 1947) for different inputs within each marketing sector. Also, it shows the "farm share" of the *wholesale* dollar by agricultural processing sector. (If the distribution sectors were less aggregated the "farm share" of the *retail* dollar could also be readily computed along with a detailed breakdown of costs by distributive sectors in the "market share.")

Input-output analysis—that is, "converting" table 2 from a purely descriptive to an analytical tool—rests on the critical simplifying assumption that the ratios ("coefficients of production") shown in the table are fixed. These ratios are viewed as reflecting physical input requirements per unit of output, expressed in 1947 prices; and changes in these unit requirements are assumed to be small enough so that they can be neglected in short-run analysis. This means, it assumes that for the fore-

casting period considered, unit "physical" input requirements remain essentially unchanged regardless of changes in the level of output or in relative prices of inputs. Given this critical assumption and the quality of data available for constructing the transactions table, even short-term predictions based on the input-output framework should at best be regarded only as first approximations.[7] For long-term projections, the input-output tables can be used as a "base" and supplemented with other information on trends, in "production coefficients," and so on. For some purposes these approximations may be "good enough"; for many others they will probably be the best we can get with limited budget and time; but they are at best first approximations.

Since the purpose of this paper is to illustrate applications of input-output economics in agricultural marketing research, we shall assume the validity of fixed coefficients for expository purposes and describe some "potential" analytical applications of input-output analysis.

Direct and Indirect Requirements

Description

Table 2 shows direct requirements only; one of the more interesting and important uses of input-output economics is to measure indirect requirements. The meaning of indirect requirements can perhaps most easily—and intuitively— be understood by illustration, with the use of table 2.

Table 2 shows that, in 1947, $1 of gross output in the grain-mill products sector was accompanied by $0.06342 in intrasector transactions. This means that in order to deliver $1 of output outside of this processing sector (for example, for household consumption), and to allow for these intrasector transactions, the grain-mill products sector had to have a *gross* output of *at least* $1.06342. Other entries in this column show that for each $1 of output, this sector purchased $0.34183 from the food grain sector, $0.11959 from the feed grain sector, and so on. Hence, in order for the grain-mill products sector to produce $1.06342 in gross output, it purchased $0.36351 (1.06342×0.34183) from the food grain sector, $0.12717 (1.06342×0.11959) from the feed grain sector and so on.

Turning to the next stage, table 2 shows that in the food grain sector $1 in gross output is accompanied by $0.06774 in intra-industry transactions, $0.07515 in purchases from the feed grain sector, $0.00690 in purchases from the grain-mill sector and so on. Thus, in order to supply the grain-mill products sector with $0.36351 in feed grains and so on, so that the grain-mill products sector could in turn deliver $1 in output outside the processing sectors, the food grain sector had $0.02462 (0.36351×0.6774) in intrasector transactions, it purchased $0.02732 (0.36351×0.07515) from the feed grain sector, $0.00251 (0.36351×0.00690) from the grain-mill products sector, and so on. (This pro-rata allocation is, of course, another critical assumption; particularly critical because of the level of aggregation used in table 2.) Similarly, by looking at the coefficients of the feed grain sector in table 2, we see that intrasector transactions in the feed grain sector were $0.01209 (0.12717×0.09504), purchases from the grain-mill sector were $0.00092 (0.12717×0.00720) and so on.

Adding the figures through these stages shows that in order to deliver the $1 in output to the final demand sector, the grain-mill products sector had a gross output of *at least* $1.06685 (1.06342+0.00251+0.00092), the food grain sector had a gross output of *at least* $0.38813 (0.36351+0.024624), the feed grain sector had a gross output of *at least* $0.16658 (0.12717+0.02732+0.01209), and so on. This iterative process can, of course, be carried through further stages. Also, the figures as computed are related to deliveries outside the processing sectors and include intrasector transactions; they can be related to total production, including intrasector transactions, or to total production, excluding intrasector transactions (*14*).

Table 3 summarizes the combined direct and indirect requirements from each sector to support shipments from the intermediate sectors to the final demand sectors. It is the *transpose* of the inverse of the matrix obtained by subtracting the coefficient matrix (table 2) from the identity matrix.[8] Reading across a row of table 3, we see the direct and indirect requirements on each sector in order to ship $1 in gross output to a

[7] For a brief review and bibliography of tests of the validity of the input-output model, see Chenery and Clark (*1*).

[8] For a simplified discussion of the relationship between the iterative process and the simultaneous solution of a system of equations, see Dorfman, Samuelson, and Solow (*4*).

final demand sector. Thus, in order for the meat packing sector to deliver $1 in gross output to the household sector, $0.878810 is required in meat animals from the farm sector, $0.000001 in poultry and eggs from the farm sector and so on. Similarly, in order for the canning, preserving, and freezing (excluding fish) sector to ship $1 in gross output to households, industries engaged in manufacturing packaging materials had to produce $0.18 in gross output, both directly and indirectly.

Reading down the columns of table 3 shows the dependence of each sector on the activity of other sectors. Thus, in the column for the meat packing sector we see that for $1 in gross output shipped outside the intermediate sectors by the meat animals sector, $0.000003 is required from the meat packing sector; for $1 in gross output shipped by the poultry and eggs sector, $0.000173 is required from the meat packing sector; and so on. If we mark out a submatrix, say sectors 11 through 28, we can see the intradependence of these agricultural marketing industries.

Applications

The traditional and probably most important use conceived for input-output analysis is to show the effect of a change in final demand on the gross output of individual sectors. This can be illustrated for the grain-mill products sector with the use of table 3. Column 15 of table 3 shows the total requirements of each sector on the grain-mill products sector in order for the purchasing sector to deliver $1 for final demand. If we "apply" this column to the bill of goods demanded by the household sector in 1947 (table 1), we find that both direct and indirect requirements on the grain-mill products sector totaled $3,317.2 million. Comparing this figure with the figure for direct delivery to households ($993.5 million) shown in table 1 indicates that indirect requirements on the grain-mill products sector were $2,323.7 million, or 70 percent of the total. The same procedure can, of course, be applied to other sectors individually, or to all sectors simultaneously.

Closely related to applications already noted is the use of input-output analysis to study the effect of a change in final demand on resource requirements. If data on unit-man-hour requirements (man-hours per unit of gross output) by sector are available, we can apply these to the inverse matrix in order to estimate the change in man-hour requirements resulting from a change in final demand. If each of the coefficients in table 3, column 15 were multiplied by man-hour requirements per $1 of gross output in the grain-mill products sector in 1947; and if to these figures we applied the end-product deliveries to the household sector in 1947, the result would show estimates of the man-hours required in the grain-mill products sector in order to meet each item in the 1947 household bill of goods. For example, the first entry in the grain-mill column would be an estimate of the man-hours in the grain-mill industry needed to meet the 1947 final demand for meat animals after tracing through all the direct and indirect requirements. The inverse can also be used to derive approximate "labor intensities" or "employment multipliers" by sector which could be used in studies of industrial location for rural development.

An analysis similar to that for man-hour requirements can be done for any limited resource (waterpower, fuel, and so on) or for total factor inputs (value added). Each of these analyses would of course require additional simplifying assumptions, and probably adjustments, based on a knowledge of the sectors studied; these empirical questions must be carefully considered by researchers.

All of the applications that have been discussed for a national model apply also to regional input-output models, except that regional models can also be used to study interregional as well as interindustry flows of goods and services. Because of lack of regional data, many agricultural economists engaged in regional input-output studies have had to rely on input coefficients computed from the BLS Interindustry Study for the country as a whole. While this introduces an additional tenuous assumption, it does suggest that work on the national level may be a stimulus to regional efforts. The "ultimate" model, as one might guess, would be a national input-output table that showed interregional as well as interindustry flow (*8*).

Technical Appendix—The Mathematical Model

The economy is treated as comprising $(n+1)$ sectors; n of these are intermediate or processing sectors and the remaining sector is the final de-

mand or autonomous sector. The technical difference between the intermediate and autonomous sectors is that we assume, at least as a first approximation, that while we can establish a simple structural connection among the intermediate sectors, the autonomous "bill of goods" has no such simple restriction on its relations to other sectors.

Let the gross output of the i^{th} sector in any given period be X_i. Some or all of this output will be sold to intermediate sectors (including the i^{th}, itself) for further processing; let the quantity sold by the i^{th} sector to the j^{th} sector be X_{ij}. The other part of the output of the i^{th} sector will be sold to the final demand sector; let this quantity be Y_i. Then our n relations are as follows:

$$
\begin{aligned}
X_1 &= X_{11}+X_{12}+X_{13}+\ldots\ldots+X_{1n}+Y_1 \\
X_2 &= X_{21}+X_{22}+X_{23}+\ldots\ldots+X_{2n}+Y_2 \\
&\vdots \\
X_n &= X_{n1}+X_{n2}+X_{n3}+\ldots\ldots+X_{nn}+Y_n
\end{aligned}
\tag{1}
$$

Table 1, the transactions table, consists of these n relations, plus payments to the final demand sector.

In order to "convert" this descriptive table to an analytical tool, we assume that the purchase of any given intermediate sector from another intermediate sector is a function of the output of the purchasing sector and—more critically—that we can approximate this functional relationship by assuming proportionality—i.e., fixed coefficients between the sector's inputs and its output. That is, the purchases of the j^{th} sector from the i^{th} sector, X_{ij}, is proportional to the output of the j^{th} sector. Thus,

$$\frac{X_{ij}}{X_j}=a_{ij}$$

or

$$X_{ij}=a_{ij}X_j \tag{2}$$

From equations (1) and (2) we have,

$$
\begin{aligned}
X_1 &= a_{11}X_1+a_{12}X_2+\ldots\ldots+a_{1n}X_n+Y_1 \\
X_2 &= a_{21}X_1+a_{22}X_2+\ldots\ldots+a_{2n}X_n+Y_2 \\
&\vdots \\
X_n &= a_{n1}X_1+a_{n2}X_2+\ldots\ldots+a_{nn}X_n+Y_n
\end{aligned}
\tag{3}
$$

or in matrix notation

$$x=Ax+y \tag{4}$$

where,

$$A=\begin{bmatrix} a_{11} & a_{12} & \ldots\ldots & a_{1n} \\ a_{21} & a_{22} & \ldots\ldots & a_{2n} \\ \vdots & & & \\ a_{n1} & a_{n2} & \ldots\ldots & a_{nn} \end{bmatrix}$$

$$x=\begin{bmatrix} X_1 \\ X_2 \\ \vdots \\ X_n \end{bmatrix} \qquad y=\begin{bmatrix} Y_1 \\ Y_2 \\ \vdots \\ Y_n \end{bmatrix}$$

The direct purchases table (table 2), is, of course, the matrix A. To find the output for each sector necessary to meet a bill of final demand, we solve (4) for x. The result is,

$$x=(I-A)^{-1}y \tag{5}$$

where I is the identity matrix and $(I-A)^{-1}$ is the inverse of the identity matrix minus the coefficient matrix. Table 3 is the transpose of this inverse matrix. (The matrix was transposed in order to facilitate computation of inner products with a desk computer.) It shows for each sector both its direct and indirect requirements per unit of gross output.

To study, say, man-hour requirements by sector in order to meet a bill of final demand, we assume a fixed unit man-hour requirement by sector. That is,

$$\frac{M_i}{X_i}=k_{ii}$$

or

$$M_i=k_{ii}X_i \qquad (i=1, 2, \ldots\ldots n) \tag{6}$$

where M_i is the number of man-hours employed

in the production of X_i, and k_{ii} shows unit man-hour requirements in production in X_i. In matrix notation,

$$m=Kx \tag{7}$$

where,

$$K=\begin{bmatrix} k_{11} & 0 & 0 \ldots\ldots 0 \\ 0 & k_{22} & 0 \ldots\ldots 0 \\ 0 & 0 & 0 \ldots\ldots 0 \\ \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \quad\quad 0k_{nn} \end{bmatrix}$$

$$m=\begin{bmatrix} M_1 \\ M_2 \\ \cdot \\ \cdot \\ \cdot \\ \cdot \\ \cdot \\ M_n \end{bmatrix}$$

Substituting (5) in (7),

$$m=K(I-A)^{-1}y \tag{8}$$

In general, we can follow the same procedure for any limited resource—if we are willing to assume proportionality.

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TABLE 1.—*Interindustry transactions in 1947*—FARM PRODUCTS

(All figures in millions of dollars)

Sector No.	Sector	Meat animals	Poultry and eggs	Farm dairy products	Food grains	Oil-bearing crops	Fruits and vegetables	Other farm food products	Cotton	Tobacco	Feeds, other farm nonfood products
		1	2	3	4	5	6	7	8	9	10
	INTERMEDIATE SECTORS										
	Farm products:										
1	Meat animals	1, 196. 5									
2	Poultry and eggs		308. 0								
3	Farm dairy products	130. 0									
4	Food grains	82. 7	183. 0		224. 8						
5	Oil-bearing crops	2. 6				93. 0					
6	Fruits and vegetables	79. 5	. 2				121. 4				
7	Other farm food products							3. 7			
8	Cotton	7. 9		7. 9					27. 4		
9	Tobacco										
10	Feeds and other farm nonfood products	3, 760. 8	1, 100. 5	1, 784. 9	249. 4	56. 4	116. 4	18. 0	141. 0	20. 4	907. 6
	Manufactured farm products:										
11	Meat packing										
12	Poultry dressing plants										
13	Processed dairy products										
14	Canning, preserving, freezing (excluding fish)										
15	Grain-mill products	310. 9	1, 285. 6	540. 5	22. 9	6. 1	15. 7	3. 8	6. 2	. 7	68. 8
16	Bakery products										
17	Vegetable oils	108. 1	14. 9	53. 3							11. 8
18	Sugar	4. 2		12. 9							
19	Other manufactured farm foods		4. 6	9. 0							
20	Tobacco manufactures										
21	Textile mill products								4. 0	8. 2	31. 6
22	Apparel				2. 2	1. 1	33. 9	. 2			6. 9
23	Other manufactured farm nonfoods	6. 6	3. 2	23. 7							1. 8
	Trade, services and other sectors:										
24	Wholesale trade	73. 4	103. 9	50. 2	64. 1	12. 2	62. 4	7. 3	20. 0	5. 9	138. 8
25	Retail trade	135. 2	235. 0	125. 6	50. 6	15. 8	58. 1	7. 5	21. 4	5. 6	189. 2
26	Eating and drinking places										
27	Warehousing and storage	11. 8	3. 1	2. 1	1. 1	. 1	. 8	(*)	. 5	. 1	2. 0
28	Transportation	302. 8	133. 5	123. 6	45. 9	8. 9	75. 8	3. 8	16. 6	6. 8	213. 1
29	Packaging supplies			29. 9			133. 8				1. 6
30	Communication, business, and personal services	274. 6	61. 3	146. 6	512. 9	163. 5	159. 3	39. 9	301. 8	86. 5	1, 239. 7
31	Coal, gas, and electric power	5. 6	16. 5	25. 6	2. 2		3. 8			. 6	7. 1
32	Construction	8. 8	20. 0	97. 8	21. 5	7. 0	4. 2	2. 6	12. 0	35. 8	24. 1
33	All other sectors	76. 5	30. 1	94. 5	162. 3	53. 0	257. 4	26. 3	111. 9	45. 3	660. 9
	FINAL DEMAND SECTORS										
100	Foreign trade (noncompetitive imports)										1. 5
101	Federal Government	30. 7	6. 8	15. 5	45. 4	6. 7	28. 2	4. 0	28. 2	4. 6	88. 7
102	State and local government	90. 3	31. 1	50. 7	66. 2	14. 0	69. 5	8. 3	29. 4	7. 1	189. 3
103	Gross capital formation										
105	Households	2, 868. 5	322. 5	1, 868. 5	1, 847. 3	622. 8	2, 871. 7	185. 0	1, 521. 0	656. 7	5, 766. 2
106	Gross domestic outlays	9, 568. 1	3, 864. 1	5, 063. 0	3, 318. 6	1, 060. 6	4, 012. 4	310. 4	2, 242. 2	884. 2	9, 550. 2

TABLE 1.—*Interindustry transactions in 1947*—Continued—MANUFACTURED FARM PRODUCTS

(All figures in millions of dollars)

Sector No.	Meat packing	Poultry dressing plants	Processed dairy products	Canning, preserving, freezing (excluding fish)	Grain-mill products	Bakery products	Vegetable oils	Sugar	Other manufactured farm foods	Tobacco manufactures	Textile mill products	Apparel	Other manufactured farm nonfoods
	11	12	13	14	15	16	17	18	19	20	21	22	23
INTERMEDIATE SECTORS													
1	7,870.8												46.7
2	2.4	295.0	17.6	26.7		17.1			181.3				
3		9.8	1,929.2			19.9			5.8				
4					1,826.7				(*)				12.5
5					25.1	1.8	671.3		92.0				136.5
6			20.0	719.0	2.8	13.2			39.3				57.4
7			9.5			5.8		180.4	49.5	1.6			.5
8							290.9				1,419.6	18.1	
9										796.9			
10	21.6			5.4	639.1		(*)		303.4		586.7		279.7
11	110.1	1.0		37.5	31.4	109.3	0.7	.2	71.7		35.3		741.1
12	(*)	61.0	10.8	.3	.5	(*)	(*)	(*)	37.0			5.2	.1
13	.2	10.5	353.5	2.4	14.8	93.7	(*)	(*)	42.5				.4
14	23.4	.7	5.6	34.1	12.7	47.9	.1	.2	38.5				4.9
15	1.8	1.3		20.3	338.9	692.5	29.5	.3	91.0				54.8
16	.5	.4	5.0	3.8	5.4	.3	(*)	.1	11.5				1.2
17	15.1			41.4	246.4	19.1	24.0		711.3		29.7		31.5
18	5.4	(*)	58.6	78.7	30.6	109.0	(*)	684.7	222.8	4.3			6.9
19	13.7	35.2	75.1	149.1	97.3	365.6	178.4	.4	495.6	10.4	30.6		46.8
20										838.0			
21			.8						.9		1,230.9	3,766.0	91.0
22	7.0				184.1		8.9	10.7	2.3		7.4	1,738.8	6.0
23	17.6	.1	8.2	.9	161.6	.1	43.1	(*)	19.5		35.0	50.9	1,444.2
24	95.6	30.4	61.5	20.3	54.2	53.4	67.0	10.8	75.3	38.7	223.7	364.6	80.8
25	.6	.1	.8	.2	.5	2.9		(*)	.3		(*)		.5
26													
27	28.1	.2	1.9	1.9	9.2	3.3	3.5	.6	5.1	.2	22.6	1.6	4.6
28	159.6	5.4	61.8	45.0	295.4	92.7	30.3	25.0	146.4	36.5	155.2	89.3	143.4
29	54.9	1.6	151.5	359.2	36.8	123.4	5.6	10.2	293.3	115.8	83.9	49.1	328.6
30	86.3	5.1	67.2	103.1	122.3	113.5	15.1	18.2	238.5	106.0	163.9	271.8	265.2
31	29.6	1.7	27.5	13.5	21.7	25.2	9.5	13.2	23.6	4.4	107.0	35.7	40.2
32	18.4	.8	12.5	7.9	6.3	10.1	1.5	5.0	11.0	1.0	28.0	11.2	22.9
33	224.3	8.4	51.3	87.4	272.7	39.5	78.2	19.6	167.6	72.4	918.2	906.7	603.8
FINAL DEMAND SECTORS													
100									821.3	(*)	111.0	77.9	3.8
101	137.9	7.9	80.8	85.2	135.0	118.1	73.0	24.5	224.8	83.3	537.7	457.4	411.9
102	16.4	.9	19.2	13.0	13.4	17.8	4.3	6.2	23.9	7.4	56.3	34.3	43.3
103													
105	1,404.9	70.3	616.7	607.9	759.3	1,266.7	201.5	170.1	1,201.1	447.0	3,674.3	4,682.7	2,471.0
106	10,346.4	547.5	3,646.6	2,464.2	5,343.9	3,352.2	1,737.0	1,180.4	5,567.1	2,564.0	9,457.4	12,561.6	7,382.1

*Less than $500,000.

TABLE 1.—*Interindustry transactions in 1947*—Continued—TRADE, SERVICES, AND OTHER SECTORS

(All figures in millions of dollars)

Sector No.	Wholesale trade 24	Retail trade 25	Eating and drinking places 26	Housing and storage 27	Transportation 28	Packaging supplies 29	Communication, business and personal services 30	Coal, gas and electric power 31	Construction 32	All other sectors 33
INTERMEDIATE SECTORS										
1										1.0
2			357.6		1.1		0.5			38.5
3			165.5		1.2		.5			42.2
4										12.6
5										2.0
6			261.5		2.1		.8			42.5
7										
8										68.8
9										9.1
10			7.2	8.0	.1	5.9			92.1	342.6
11			704.5		5.3		2.1	0.1		152.5
12	8.5		57.9		2.3	(*)	.9			9.8
13			590.3		4.9	7.8	1.9			128.6
14	1.6		367.4		2.8	.2	1.2	(*)		45.0
15	1.5		95.2		.8	.3	1.0	(*)		62.1
16	(*)		267.3		2.5	(*)	1.0			47.7
17	.7					19.8		(*)	.1	419.1
18			56.3		(*)	.5	(*)	.3	.1	132.0
19	6.3		281.4		2.2	23.2	2.7	1.0	1.4	257.3
20	(*)				.2			.2		29.3
21	13.9	13.3			15.9	52.8	33.6	2.2	47.2	1,390.3
22	8.6	10.3	21.3		3.3	19.5	15.0	.1	1.1	339.4
23	1.1	1.5	986.1		11.6	1.9	35.2	.4	.5	1,021.9
24	69.7	115.1	1,058.2	2.6	200.2	240.6	504.3	39.8	1,315.9	2,318.7
25	70.1	109.7	18.1	1.0	143.9	.1	95.5	1.5	1,199.0	163.3
26					11.5					151.6
27	.6	1.4	9.5	1.6	134.8	3.4	4.3	(*)	7.0	31.2
28	45.4	390.8	342.6	27.8	968.4	368.7	170.1	185.8	1,262.2	3,883.0
29	298.5	462.8	92.0	6.1	10.1	1,874.4	114.5	2.7	271.2	5,087.9
30	2,025.9	4,590.8	881.9	36.5	1,068.7	177.5	5,889.8	147.1	1,481.3	3,787.1
31	88.0	399.0	219.3	16.3	533.4	167.4	526.5	1,271.9	30.3	1,997.4
32	29.3	151.9	75.0	9.2	1,244.3	42.3	4,059.0	263.1		667.2
33	1,085.5	1,207.2	599.4	23.7	1,997.6	3,404.1	6,774.6	1,109.7	10,946.1	52,093.0
FINAL DEMAND SECTORS										
100					357.9		36.0			38.8
101	1,415.3	1,274.7	1,099.7	29.0	1,358.5	525.9	1,607.1	528.5		5,517.2
102	235.8	987.7	315.6	26.4	654.5	57.2	4,239.9	518.9		1,081.7
103										
105	10,819.0	16,523.5	4,590.9	352.9	12,581.7	3,880.8	37,569.1	5,173.7		67,935.6
106	16,225.5	26,239.7	13,521.8	541.2	21,321.8	10,874.2	61,686.4	9,246.6	16,655.5	149,348.0

TABLE 1.—*Interindustry transactions 1947*—Continued—FINAL DEMAND SECTORS

(All figures in millions of dollars)

Sector No.	Foreign trade		Federal Government	State and local government	Gross private capital formation	Inventory changes				Households	Gross domestic output
						Additions		Depletions			
	Exports	Competitive imports				Producing sector	All other sectors	Producing sector	All other sectors		
	100		101	102	103	104				105	106
INTERMEDIATE SECTORS											
1	3.7	−15.3		0.3			45.9	−550.3		968.8	9,568.1
2	21.3	−4.9	50.9	4.7			17.8	−28.5	−32.5	2,589.5	3,864.1
3	1.3		19.8	6.5			.1			2,731.2	5,063.0
4	602.1	−3.3				160.9	214.8		−9.3	11.1	3,318.6
5	44.5	−159.4	33.4			131.8	72.9		−94.3	7.4	1,060.6
6	161.3	−145.0	75.1	6.5			4.2	−96.8	−3.3	2,650.7	4,012.4
7	4.5	−42.0					4.1			92.8	310.4
8	394.3	−50.0	22.0			47.6	60.7		−73.0		2,242.2
9	88.2	−.2					192.0	−198.5	−3.3		884.2
10	363.4	−421.7	.3	1.1	21.1		47.0	−1,276.8	−228.4	597.0	9,550.2
11	306.6	−125.8	215.4	19.4		112.6	10.5		−35.2	7,840.7	10,346.4
12	9.0	−6.3	21.1	3.6		16.5	15.3			294.0	547.5
13	253.8	−15.1	110.3	7.1		11.9	8.5		−16.6	2,035.2	3,646.6
14	142.3	−174.2	43.8	4.2		128.3	8.9	−2.2	−28.2	1,755.0	2,464.2
15	766.0	−9.6	39.9	1.3		28.7	1.3	(*)	−129.0	993.5	5,343.9
16	7.8	−.1	.4	5.6		10.4			−31.5	3,012.9	3,352.2
17	63.8	−87.1	8.3			13.6	2.1		−10.0		1,737.0
18	33.3	−798.7	32.8	1.3		40.8		−3.2	−17.1	483.9	1,180.4
19	175.7	−54.4	40.7	5.6		37.2	28.8	−7.7	−62.5	3,316.4	5,567.1
20	220.9	−132.5				47.7	49.8	−.5	−.6	1,484.5	2,564.0
21	955.6	−151.5	231.2	1.8	20.9	39.6	181.9	−5.7	−113.9	1,594.9	9,457.4
22	335.5	−92.1	119.5	37.5	.1	95.4	117.4	(*)	−50.6	9,570.8	12,561.6
23	150.4	−186.6	31.0	8.2	17.4	112.5	158.0		−78.7	3,293.2	7,382.1
24	1,050.7		42.4	26.6	1,258.8		114.9			6,152.5	16,225.5
25				5.4	1,041.5					22,540.7	26,239.7
26										13,358.7	13,521.8
27	25.2		1.9	.4	2.0		3.2			210.3	541.2
28	2,295.9	251.2	542.7	63.8	363.0		106.4			7,837.2	21,321.8
29	333.6	−393.9	86.0	51.5	59.8	78.7	54.3		−98.6	703.4	10,874.2
30	175.7	−55.9	295.0	271.4	1,399.3		.1			34,951.9	61,686.4
31	368.3	−7.1	39.2	164.3		3.3	31.7		−21.7	3,004.9	9,246.6
32											6,911.7
33	7,454.3	−2,817.5	4,390.4	9,024.6	29,263.1	981.4	1,884.6	−198.3	−1,293.8	26,193.8	159,091.8
FINAL DEMAND SECTORS											
100			1,507.0	40.1			2.0			825.2	3,822.5
101	898.8		1,579.2	41.6	240.1		60.7			28,422.9	47,236.1
102	.7			315.8	7.9		4.5			5,120.9	14,379.8
103											
105	914.0		23,406.2	5,698.7	232.3					3,375.0	229,066.1
106	18,621.9	−5,699.0	32,985.9	15,818.9	33,927.3	2,125.9	3,504.4	−2,368.5	−2,432.1	198,020.9	726,189.4

*Less than $500,000.

TABLE 2.—*Direct purchases in 1947*—FARM PRODUCTS

Sector No.	Sector	Meat animals	Poultry and eggs	Farm dairy products	Food grains	Oil-bearing crops	Fruits and vegetables	Other farm food products	Cotton	Tobacco	Feed crops and other farm nonfood products
		1	2	3	4	5	6	7	8	9	10
	Farm products:										
1	Meat animals	0. 12505									
2	Poultry and eggs		0. 07971								
3	Farm dairy products	. 01359									
4	Food grains	. 00864	. 04736		0. 06774						
5	Oil-bearing crops	. 00027				0. 08769					
6	Fruits and vegetables	. 00831	. 00005				0. 03026				
7	Other farm food products							0. 01192			
8	Cotton	. 00083		0. 00156					0. 01222		
9	Tobacco										
10	Feeds and other farm nonfood products	. 39306	. 28480	. 35254	. 07515	. 05318	. 02901	. 05799	. 06289	0. 02307	0. 09504
	Manufactured farm products:										
11	Meat packing										
12	Poultry dressing plants										
13	Processed dairy products										
14	Canning, preserving, freezing (excluding fish)										
15	Grain-mill products	. 03249	. 33270	. 10676	. 00690	. 00575	. 00391	. 01224	. 00277	. 00079	. 00720
16	Bakery										
17	Vegetable oils	. 01130	. 00396	. 01053							. 00124
18	Sugar	. 00044		. 00255							
19	Other manufactured farm foods		. 00119	. 00178							
20	Tobacco manufactures										
21	Textile mill products								. 00178	. 00927	. 00331
22	Apparel				. 00066	. 00104	. 00845	. 00064			. 00072
23	Other manufactured farm nonfoods	. 00069	. 00083	. 00468							. 00019
	Trade, Services and Other Sectors:										
24	Wholesale trade	. 00767	. 02689	. 00992	. 01932	. 01150	. 01555	. 02352	. 00892	. 00667	. 01453
25	Retail trade	. 01413	. 06082	. 02481	. 01525	. 01490	. 01448	. 02416	. 00954	. 00633	. 01981
26	Eating and drinking places										
27	Warehousing and storage	. 01023	. 00080	. 00042	. 00033	. 00009	. 00020	(*)	. 00022	. 00011	. 00021
28	Transportation	. 03165	. 03455	. 02441	. 01383	. 00839	. 01889	. 01224	. 00740	. 00769	. 02231
29	Packaging supplies			. 00591			. 03335				00017
30	Communication, business, and personal services	. 02870	. 01586	. 02896	. 15455	. 15416	. 03970	. 12854	. 13460	. 09783	. 12981
31	Coal, gas and electric power	. 00058	. 00427	. 00506	. 00066		. 00095			. 00068	. 00074
32	All other sectors	. 00800	. 00779	. 01866	. 04891	. 04997	. 06415	. 08473	. 04991	. 05123	. 06920

*Less than 0.000005.

TABLE 2.—*Direct Purchases in 1947*—Continued—MANUFACTURED FARM PRODUCTS

Sector No.	Meat packing	Poultry dressing plants	Processed dairy products	Canning, preserving, freezing (excluding fish)	Grain-mill products	Bakery products	Vegetable oils	Sugar	Other manufactured farm foods	Tobacco manufactures	Textile mill products	Apparel	Other manufactured farm nonfoods
	11	12	13	14	15	16	17	18	19	20	21	22	23
1	0. 76073												0. 00633
2	. 00023	0. 53881	0. 00483	0. 01084		0. 00510			0. 03257				
3		. 01790	. 52904			. 00594			. 00104				
4					0. 34183				(*)				. 00169
5					. 00470	. 00054	0. 38647		. 01653				. 01849
6			. 00548		. 00052	. 00394			. 00706				. 00778
7			. 00260	. 29178		. 00173		0. 15283	. 00889	0. 00062			. 00007
8							. 16747				0. 15010	0. 00144	
9										. 31080			
10	. 00209			. 00219	. 11959		(*)		. 05450		. 06204		. 03789
11	. 01064	. 00183		. 01522	. 00588	. 03260	. 00040	. 00017	. 01288		. 00373		. 10039
12	(*)	. 11142	. 00296	. 00012	. 00009	(*)	(*)	(*)	. 00665			. 00041	. 00001
13	. 00002	. 01918	. 09694	. 00097	. 00277	. 02795	(*)	(*)	. 00763				. 00005
14	. 00226	. 00128	. 00154	. 01384	. 00238	. 01429	. 00006	. 00017	. 00692				. 00066
15	. 00017	. 00237		. 00824	. 06342	. 20658	. 01698	. 00025	. 01635				. 00742
16	. 00005	. 00073	. 00137	. 00154	. 00101	. 00262	(*)	. 00008	. 00207				. 00016
17	. 00146			. 01680	. 04611	. 00570	. 02205		. 12777		. 00314		. 00427
18	. 00052	(*)	. 01607	. 03194	. 00573	. 03252	(*)	. 58006	. 04002	. 00168			. 00094
19	. 00132	. 06429	. 02060	. 06051	. 01821	. 10906	. 10271	. 00034	. 08902	. 00406	. 00324		. 00634
20										. 32941			
21			. 00022						. 00016		. 13087	. 29980	. 01233
22	. 00068				. 03445		. 00512	. 00906	. 00041		. 00078	. 13938	. 00081
23	. 00170	. 00018	. 00225	. 00036	. 03024	. 00003	. 02481	(*)	. 00350		. 00370	. 00405	. 19707
24	. 00924	. 05553	. 01686	. 00824	. 01014	. 01593	. 03857	. 00915	. 01353	. 01509	. 02365	. 02902	. 01094
25	. 00006	. 00018	. 00022	. 00008	. 00009	. 00086		(*)	. 00005		(*)		. 00007
26													
27	. 00272	. 00037	. 00052	. 00077	. 00172	. 00098	. 00202	. 00051	. 00092	. 00008	. 00239	. 00013	. 00062
28	. 01543	. 00986	. 01695	. 01826	. 05528	. 02765	. 01744	. 02118	. 02630	. 01424	. 01641	. 00711	. 01942
29	. 00531	. 00292	. 04155	. 14577	. 00689	. 03681	. 00322	. 00864	. 05268	. 04516	. 00887	. 00391	. 04451
30	. 00834	. 00932	. 01843	. 04184	. 02289	. 03385	. 00869	. 01542	. 04284	. 04134	. 01733	. 02164	. 03592
31	. 00286	. 00310	. 00754	. 00548	. 00406	. 00752	. 00547	. 01118	. 00424	. 00172	. 01131	. 00284	. 00545
32	. 02168	. 01534	. 01407	. 03547	. 05103	. 01178	. 04502	. 01660	. 03010	. 02824	. 09486	. 07218	. 08179

*Less than 0.000005.

TABLE 2.—*Direct purchases*—Continued—TRADE SERVICES AND OTHER SECTORS

Sector No.	Wholesale trade	Retail trade	Eating and drinking places	Warehousing and storage	Transportation	Packaging supplies	Communication, business and personal services	Coal, gas and electric power	All other sectors
	24	25	26	27	28	29	30	31	32
1									0. 00001
2			0. 02645		0. 00005		0. 00001		. 00026
3			. 01224		. 00006		. 00001		. 00028
4									. 00008
5									. 00001
6			. 01934		. 00010		. 00001		. 00028
7									
8									. 00046
9									. 00006
10			. 00053	0. 01478	(*)	0. 00054			. 00229
11			. 05210		. 00025		. 00003	0. 00001	. 00102
12	0. 00052		. 00428		. 00011	(*)	. 00002		. 00007
13			. 04366		. 00023	. 00072	. 00003		. 00086
14	. 00010		. 02717		. 00013	. 00002	. 00002	(*)	. 00030
15	. 00009		. 00704		. 00004	. 00003	(*)	(*)	. 00042
16	(*)		. 01977		. 00012	(*)	. 00002		. 00032
17	. 00004					. 00182		(*)	. 00281
18			. 00416		(*)	. 00005	(*)	. 00003	. 00088
19	. 00039		. 02081		. 00010	. 00213	. 00004	. 00011	. 00172
20	(*)				. 00001			. 00002	. 00020
21	. 00086	0. 00051			. 00075	. 00486	. 00054	. 00024	. 00931
22	. 00053	. 00039	. 00158		. 00016	. 00179	. 00024	. 00001	. 00227
23	. 00007	. 00006	. 07293		. 00054	. 00018	. 00057	. 00004	. 00684
24	. 00430	. 00439	. 07826	. 00480	. 00939	. 02213	. 00818	. 00430	. 01553
25	. 00432	. 00418	. 00134	. 00185	. 00675	. 00001	. 00155	. 00016	. 00109
26					. 00054				. 00102
27	. 00004	. 00005	. 00070	. 00296	. 00632	. 00031	. 00007	(*)	. 00021
28	. 00280	. 01489	. 02534	. 05137	. 04564	. 03391	. 00276	. 02009	. 02600
29	. 01840	. 01764	. 00680	. 01127	. 00047	. 17749	. 00186	. 00029	. 03407
30	. 12486	. 17496	. 06522	. 06744	. 05012	. 01632	. 09548	. 01591	. 02536
31	. 00542	. 01521	. 01622	. 03012	. 02502	. 01539	. 00854	. 13755	. 01337
32	. 06690	. 04601	. 04433	. 04379	. 09369	. 28946	. 10981	. 12001	. 34030

*Less than 0.000005.

TABLE 3.—*Direct and indirect purchases in 1947*—FARM PRODUCTS

Sector No.	Sector	Meat animals	Poultry and eggs	Farm dairy products	Food grains	Oil-bearing crops	Fruits and vegetables	Other farm food products	Cotton	Tobacco	Feed crops and other farm non-food products
		1	2	3	4	5	6	7	8	9	10
	Farm products:										
1	Meat animals	1.142925	0.000001	0.001553	0.001640	0.000581	0.000098	0.000001	0.000237	(*)	0.497597
2	Poultry and eggs	.000151	1.086618	.000007	.147071	.000873	(*)	.000013	.000424	(*)	.394299
3	Farm dairy products	.000050	.000002	1.000002	.041811	.000718	(*)	.000013	.000327	(*)	.405016
4	Food grains	.000001	(*)	(*)	1.072691	.000001	(*)	(*)	.000001	(*)	.008920
5	Oil-bearing crops	.000001	(*)	(*)	.000025	1.096119	(*)	(*)	.000002	(*)	.006542
6	Fruits and vegetables	(*)	(*)	(*)	.000016	(*)	1.031204	(*)	.000006	(*)	.003312
7	Other farm food products	.000001	(*)	(*)	.000485	.000003	(*)	1.012064	.000002	(*)	.006666
8	Cotton	.000001	(*)	(*)	.000011	.000001	(*)	(*)	1.012375	(*)	.007041
9	Tobacco	(*)	(*)	(*)	(*)	(*)	(*)	(*)	.000017	1.000000	.002551
10	Feeds and other farm non-food products	.000001	(*)	(*)	.000031	.000007	(*)	(*)	.000010	(*)	1.105034
	Manufactured farm products:										
11	Meat packing	.878810	.000001	.001194	.001261	.000454	.000075	.000008	.000186	(*)	.382632
12	Poultry dressing plants	.000119	.658924	.003283	.098337	.000993	.000001	.000026	.000437	(*)	.240502
13	Processed dairy products	.000035	.000090	.585832	.024509	.000566	.000063	.000701	.000248	(*)	.237329
14	Canning, preserving, freezing (excluding fish)	.001367	.001220	.000003	.000352	.001146	.000001	.300648	.000457	(*)	.003112
15	Grain-mill products	.000416	.000010	.000018	.391521	.002354	.000001	.000035	.001141	(*)	.144615
16	Bakery	.003103	.000496	.001716	.081325	.007483	.000050	.001851	.002948	(*)	.032977
17	Vegetable oils	.000417	.000419	.000007	.000835	.439869	.000009	.000186	.175964	(*)	.005151
18	Sugar	.000001	(*)	(*)	.000177	.000001	(*)	.368323	.000014	(*)	.002427
19	Other manufactured farm foods	.001298	.003992	.000063	.001359	.063692	.000081	.001766	.024684	(*)	.009608
20	Tobacco manufactures	(*)	(*)	(*)	(*)	.000004	(*)	.000011	.000010	.463472	.001183
21	Textile mill products	.000043	(*)	(*)	.000002	.000019	(*)	(*)	.174846	(*)	.009124
22	Apparel	.000020	(*)	(*)	.000001	.000007	(*)	(*)	.060926	(*)	.003181
23	Other manufactured farm nonfoods	.109968	(*)	.000149	.000217	.002610	.000109	.000002	.000304	(*)	.053139
	Trade, Services and Other Sectors:										
24	Wholesale trade	.000001	.000001	(*)	(*)	(*)	(*)	(*)	.000001	(*)	.000001
25	Retail trade	.000001	(*)	(*)	(*)	.000001	(*)	(*)	.000001	(*)	.000001
26	Eating and drinking places	.005394	.002915	.003794	.000751	.000178	.001996	.000843	.000066	(*)	.005077
27	Warehousing and storage	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	.001638
28	Transportation	(*)	(*)	(*)	(*)	(*)	(*)	(*)	.000001	(*)	.000001
29	Packaging supplies	.000009	(*)	.000001	(*)	.000019	(*)	(*)	.000029	(*)	.000021
30	Communication, business, and personal services	.000003	(*)	(*)	(*)	.000003	(*)	(*)	.000005	(*)	.000006
31	Coal, gas and electric power	.000004	(*)	(*)	(*)	.000003	(*)	(*)	.000005	(*)	.000007
32	All other sectors	.000025	.000001	.000001	.000001	.000021	(*)	.000001	.000036	(*)	.000053

*Less than 0.0000005.

TABLE 3.—*Direct and indirect purchases in 1947*—Continued—MANUFACTURED FARM PRODUCTS

Sector No.	Meat packing	Poultry dressing plants	Processed dairy products	Canning, preserving, freezing (excluding fish)	Grain-mill products	Bakery products	Vegetable oils	Sugar	Other manufactured farm foods	Tobacco manufactures	Textile mill products	Apparel	Other manufactured farm nonfoods
	11	12	13	14	15	16	17	18	19	20	21	22	23
1	0. 000003	(*)	(*)	(*)	0. 004183	(*)	0. 001370	0. 000003	0. 000163	(*)	0. 000027	0. 000018	0. 000023
2	. 000173	(*)	0. 000012	0. 000009	. 386047	0. 000004	. 002002	. 000063	. 001013	(*)	. 000553	. 001547	. 001463
3	. 000058	(*)	. 000004	. 000003	. 114029	. 000001	. 001677	. 000081	. 000437	(*)	. 000176	. 000458	. 000495
4	. 000001	(*)	(*)	(*)	. 000080	(*)	. 000002	(*)	. 000001	(*)	. 000006	. 000003	. 000004
5	. 000001	(*)	(*)	(*)	. 000068	(*)	. 000002	(*)	. 000001	(*)	. 000010	. 000014	. 000004
6	(*)	(*)	(*)	(*)	. 000043	(*)	. 000001	(*)	. 000001	(*)	. 000037	. 000102	. 000001
7	. 000001	(*)	(*)	(*)	. 001323	(*)	. 000008	(*)	. 000004	(*)	. 000007	. 000007	. 000008
8	. 000001	(*)	(*)	(*)	. 000031	(*)	. 000001	(*)	. 000001	(*)	. 000025	. 000001	. 000003
9	(*)	(*)	(*)	(*)	. 000001	(*)	(*)	(*)	(*)	(*)	. 000108	(*)	. 000001
10	. 000001	(*)	(*)	(*)	. 000085	(*)	. 000016	(*)	. 000003	(*)	. 000047	. 000003	. 000004
11	1. 010759	(*)	(*)	. 000023	. 003217	(*)	. 001071	(*)	. 000142	(*)	. 000022	. 000015	. 000039
12	. 000137	1. 125392	. 002398	. 000021	. 234517	. 000004	. 002274	. 000124	. 008682	(*)	. 000337	. 000940	. 000893
13	. 000041	. 000038	1. 107349	. 000019	. 066842	. 000016	. 001316	. 004309	. 002800	(*)	. 000104	. 000269	. 000322
14	. 001572	. 000001	. 000002	1. 014035	. 000941	. 000015	. 002675	. 007780	. 007047	(*)	. 000025	. 000011	. 000020
15	. 000478	(*)	. 000033	. 000026	1. 067779	. 000011	. 005397	. 000172	. 002745	(*)	. 001489	. 004276	. 004041
16	. 003568	. 000009	. 003120	. 001467	. 221788	1. 002632	. 017108	. 008985	. 122422	(*)	. 000311	. 000890	. 000884
17	. 000479	. 000009	. 000010	. 000008	. 002271	. 000002	1. 037848	. 001116	. 117020	(*)	. 000038	. 000077	. 003213
18	. 000001	(*)	(*)	(*)	. 000482	(*)	. 000003	2. 381293	. 000002	(*)	. 000090	. 000255	. 000004
19	. 001493	. 000084	. 000094	. 000078	. 003652	. 000024	. 145584	. 010619	1. 114145	(*)	. 000012	. 000026	. 000416
20	(*)	(*)	(*)	(*)	. 000001	(*)	. 000010	. 000060	. 000069	1. 491224	. 000052	. 000001	. 000001
21	. 000049	(*)	(*)	(*)	. 000006	(*)	. 000044	(*)	. 000046	(*)	1. 150583	. 000002	. 000055
22	. 000023	(*)	(*)	(*)	. 000002	(*)	. 000016	(*)	. 000016	(*)	. 400811	1. 161954	. 000079
23	. 126375	(*)	(*)	. 000004	. 000502	(*)	. 000202	. 000004	. 000113	(*)	. 001773	. 000004	1. 245446
24	. 000001	. 000001	(*)	(*)	(*)	(*)	. 000001	(*)	. 000001	(*)	. 000006	. 000002	. 000003
25	. 000001	(*)	(*)	(*)	(*)	(*)	. 000001	(*)	. 000001	(*)	. 000006	. 000001	. 000004
26	. 006203	. 000049	. 004841	. 002758	. 002007	. 001982	. 000365	. 000179	. 002597	(*)	. 000024	. 000027	. 009089
27	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	. 000001	(*)	. 000001
28	(*)	(*)	(*)	(*)	(*)	(*)	. 000001	(*)	(*)	(*)	. 000003	(*)	. 000002
29	. 000010	(*)	. 000002	(*)	. 000001	(*)	. 000044	. 000002	. 000043	(*)	. 000140	. 000040	. 000046
30	. 000004	(*)	(*)	(*)	(*)	(*)	. 000006	(*)	. 000004	(*)	. 000023	. 000005	. 000017
31	. 000004	(*)	(*)	(*)	(*)	(*)	. 000007	. 000001	. 000005	(*)	. 000025	. 000006	. 000018
32	. 000029	(*)	. 000002	. 000001	. 000001	. 000001	. 000048	. 000004	. 000034	(*)	. 000177	. 000040	. 000130

*Less than 0.0000005.

TABLE 3.—*Direct and indirect purchases in 1947*—Continued—TRADE, SERVICES AND OTHER SECTORS

Sector No.	Wholesale trade	Retail trade	Eating and drinking places	Warehousing and storage	Transportation	Packaging supplies	Communication, business and personal services	Coal, gas and electric power	All other sectors
	24	25	26	27	28	29	30	31	32
1	0. 000864	0. 002621	(*)	0. 000015	0. 005044	0. 000087	0. 076175	0. 000057	0. 018252
2	. 004251	. 007650	(*)	. 000008	. 007395	. 000173	. 087001	. 000154	. 023200
3	. 000936	. 003364	(*)	. 000003	. 004295	. 000182	. 069799	. 000122	. 020119
4	. 002171	. 001664	(*)	(*)	. 001691	. 000174	. 185306	. 000088	. 039042
5	. 001354	. 001656	(*)	(*)	. 000229	. 000176	. 188366	. 000084	. 039847
6	. 001646	. 001507	(*)	(*)	. 002102	. 004242	. 005580	. 000038	. 012918
7	. 002474	. 002472	(*)	(*)	. 001433	. 000170	. 145800	. 000082	. 037504
8	. 000166	. 000114	(*)	(*)	. 000191	. 000141	. 151801	. 000067	. 033081
9	. 000087	. 000069	(*)	(*)	. 000114	. 000041	. 011238	. 000018	. 009689
10	. 001686	. 002201	(*)	(*)	. 002697	. 000171	. 159376	. 000088	. 038284
11	. 000764	. 002015	(*)	. 000039	. 005523	. 000151	. 058705	. 000088	. 017449
12	. 008882	. 004652	(*)	. 000005	. 004653	. 000238	. 054147	. 000141	. 017133
13	. 002453	. 001974	(*)	. 000002	. 004537	. 005747	. 043610	. 000199	. 017184
14	. 001382	. 000749	0. 000001	. 000001	. 003300	. 180167	. 049193	. 000563	. 096854
15	. 002159	. 000894	(*)	. 000019	. 007205	. 000261	. 091565	. 000130	. 028386
16	. 002329	. 000220	(*)	. 000006	. 004864	. 005630	. 025987	. 000164	. 012233
17	. 004778	. 000692	(*)	. 000021	. 002401	. 000949	. 103632	. 000141	. 030185
18	. 001133	. 000900	(*)	. 000002	. 005835	. 000342	. 057213	. 003145	. 021104
19	. 002231	. 000150	(*)	. 000004	. 003503	. 007223	. 022132	. 000125	. 013897
20	. 002337	. 000032	(*)	(*)	. 002339	. 008259	. 012403	. 000078	. 015756
21	. 002802	. 000036	(*)	. 000028	. 002083	. 000229	. 030011	. 001555	. 023402
22	. 004384	. 000013	(*)	. 000010	. 000849	. 000198	. 013747	. 000602	. 021514
23	. 001526	. 000267	(*)	. 000006	. 003321	. 006845	. 013821	. 000143	. 021878
24	1. 004389	. 000046	(*)	(*)	. 000136	. 002393	. 138757	. 000135	. 034359
25	. 000129	1. 004201	(*)	(*)	. 001696	. 002327	. 194391	. 001862	. 040746
26	. 007930	. 000066	1. 000000	. 000001	. 002812	. 000737	. 009509	. 001909	. 009389
27	. 000070	. 000022	(*)	1. 002969	. 005441	. 001413	. 007792	. 003536	. 009313
28	. 000125	. 000071	. 000001	. 000066	1. 047875	. 000069	. 005890	. 003067	. 016453
29	. 003545	. 000007	. 000005	. 000001	. 005795	1. 218019	. 004239	. 003022	. 535814
30	. 000381	. 000019	. 000002	(*)	. 000539	. 000791	1. 106140	. 000399	. 184554
31	. 000383	. 000003	. 000002	(*)	. 003022	. 000879	. 002708	1. 159827	. 211875
32	. 002387	. 000017	. 000016	. 000001	. 004169	. 006302	. 004651	. 002380	1. 519903

*Less than 0.0000005.