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The Farm Food Marketing Bill and Its Components

**ECONOMIC RESEARCH SERVICE
U.S. DEPARTMENT OF AGRICULTURE**

PREFACE

Various legislative and economic groups concerned with agricultural policy have long been interested in the relation between charges for marketing farm foods and payments to the farmer. A marked decline in these payments relative to consumer expenditures for farm-originated foods since World War II has focused attention on the need for additional information to analyze past and future trends in marketing costs.

The data in this report were developed as part of the U.S. Department of Agriculture's (USDA's) continuing investigation of costs for marketing food. These data will supplement other series published by Government agencies in the evaluation of performance in the food marketing sector. Other investigations of related problems in the food marketing sector include the following, by William H. Waldorf: Output of Factories Processing Farm Food Products in the United States, 1908-58 (Tech. Bul. 1223); Output Per Man-Hour in Factories Processing Farm Food Products (Tech. Bul. 1243); Demand for Manufactured Food, Manufacturers' Services, and Farm Products in Food Manufacturing (Tech. Bul. 1317); Demand for Manufacturers' Services for Bakery Products and Fruits and Vegetables (Jour. Amer. Statis. Assoc. 60); and, by Waldorf and Gale, Output Per Man-Hour in Distribution of Farm Food Products (Tech. Bul. 1335).

William H. Waldorf, formerly with the Economic Research Service, USDA, and now with the Office of Business Economics, U.S. Department of Commerce, conceived the idea of the project and provided valuable supervisory assistance in its completion. Jeannette Findlay of the Marketing Economics Division, Economic Research Service, computed the estimates for 1929 and 1935 and assisted in making estimates for other years.

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SUMMARY

Consumer expenditures for food products originating from domestic farms were estimated at \$78 billion in 1965. Payments to agencies for marketing these products were \$52 billion and returns to farmers were \$26 billion.

The total marketing bill of \$49 billion in 1963 was made up of the following agency components: Processors, \$19 billion; retailers (including eating places), \$22 billion; and assemblers, transportation agencies, and wholesalers, \$8 billion (the latest available data).

The total increase in the marketing bill from 1929 to 1963 was caused by growth in the volume of food handled and in unit marketing charges. Larger volume accounted for 42 percent of the total increase, and higher unit charges for 58 percent. Volume of food marketed increased faster than population and total consumption; the number of farm families declined during 1929-63, and those remaining produced less of their own food. As a result, a greater proportion of the population was acquiring its food supply through the marketing system. Some of the increased volume represented increased consumption of food per capita. The rise in charges per unit of food was due to higher prices of these marketing services and a net increase in services per unit.

Of the various groups of commodities, fruits and vegetables had the largest marketing bill in 1963; the meat products group ranked second; and bakery and cereal products third. While the importance of meat products and fruits and vegetables increased during the 1929-63 period, that of bakery and cereal products and poultry and eggs declined. Poultry and eggs had the smallest marketing bill of all the commodity groups throughout 1929-63.

Shifts in the relative importance among marketing agencies were also important. Retailers (including eating places) accounted for 44 percent of the total marketing bill in 1963, about the same as in 1929. The processing bill, on the other hand, increased from 34 percent of the total bill in 1929 to 39 percent in 1963. The remainder--the bill for assembly, transportation, and wholesaling--increased more slowly than the total bill; it declined from 23 percent of the total to 17 percent.

The retail share of the bill was relatively stable because of offsetting changes in services offered and prices of these services. The volume of products sold by retailers (including eating places) increased a little faster than the total volume marketed by farmers because of the reduction in direct sales to consumers by farmers, manufacturers, and wholesalers. The proportion of food handled by restaurants and other eating places increased relative to the proportion handled by retail stores. The marketing charge per unit of food sold by eating places went up much faster than the unit charge by retail stores. Marketing charges per unit for all retailers increased more slowly than total unit marketing charges between 1929 and 1963.

The volume of products processed and the unit processing charge increased faster than the total volume of foods marketed and total unit marketing charges during 1929-58. There was a substantial shift from fresh to processed fruits and vegetables, from nonfactory to factory slaughter, and from consumer purchases of flour to purchases of bakery products. The relative importance of fresh eggs declined, while that of dressed poultry increased.

The share of assembly and wholesale agencies declined, mainly because of more direct marketing by farmers and manufacturers. Prior to World War II, several

agencies often handled farm products before they reached manufacturers or consumers. Since that time, shorter channels have become more common. Some smaller handlers have consolidated or have gone out of business; the remaining assemblers are larger and generally lower cost operators. All of these factors have led to lower assembly charges. The proportion of manufacturers' direct sales to retailers increased during 1929-63, bypassing some of the traditional wholesalers. Undoubtedly, this shorter channel resulted in some savings, though much of the marketing charge formerly attributed to wholesale agencies was later included in the processing or retailing bills as these agencies absorbed some of the traditional wholesale functions.

Among all commodity groups, unit marketing charges for poultry products and miscellaneous products increased less than the average for all foods. Volumes of meat, poultry, and miscellaneous groups rose faster than the average for all groups combined, while volumes of dairy products, fruits and vegetables, and bakery and cereal products rose more slowly than the average.

The farmer's share of consumer expenditures declined from 42 percent in 1929 to 32 percent in 1963, although it had risen to 46 percent in 1947. The slower increase in farm prices relative to unit marketing charges during 1929-63 was partly offset by a shift from consumption of products with a low farm share to products with a high share. During 1939-47, practically all farm prices rose considerably faster than corresponding unit marketing charges. After 1947, marketing charges rose steadily; farm prices declined about 20 percent during 1951-59 and remained relatively stable during 1960-64.

THE FARM FOOD MARKETING BILL AND ITS COMPONENTS

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INTRODUCTION

Between 1947 and 1965 consumer expenditures for domestic farm foods rose from \$41.9 billion to \$77.6 billion, an increase of 85 percent (table 1). ^{1/} Farmers received about 17 percent of the increase, while marketing agencies received 83 percent.

The increasing gap between the proportion of consumer expenditures returned to farmers and to marketing agencies has stimulated interest in the comparative performances of the marketing sector, the farm sector, and the whole economy.

Interest in the supply-demand structure for marketing services as well as for farm products also has been strong. Several studies have dealt with demand for all marketing services (6, 7, 12), and three studies have focused on the demand for processing services (68, 69, 70). Although some limited work has been done on specified services for individual products, completion of analyses for individual commodities and for separate functions of the marketing system has been difficult because of insufficient data. Measures of output and productivity for food processing and distribution have been published (66, 67, 69).

Statistics in this report for the farm food marketing bill provide new data for analyzing some of the commodity and agency components of the food marketing system. These data, together with data from other sources, will facilitate more analyses of changes taking place in the marketing sector and of their relationship to changes in other sectors of the economy. Estimates presented here for 1929, 1935, and 1939 are intended as indicators of long-term trends, while data for 1947-65 reflect year-to-year changes. As more sources of data emerge, these statistics will be refined and supplemented with additional detail, better measures of performance, and more adequate analyses of the forces involved in the supply of and demand for marketing services.

History of the Farm-Food Marketing Bill Statistics

Annual marketing bill statistics were introduced in 1945 with the publication of data for 1913-43 (36, p. 42). The basic data used in constructing the series at that time were cash receipts for commodity groups and an appropriate farmer's share of the retail cost. ^{2/} The estimated farm value of each food product group based on cash receipts was divided by the farmer's share to obtain an estimate of the

^{1/} Consumer expenditures for farm foods are less than personal consumption expenditures for food as reported by the U.S. Department of Commerce (63, Nov. 1965). See Appendix A, table 24, and (37, Aug. 1963). (Underscored numbers in parentheses refer to items in the Bibliography, p. 34).

^{2/} The farmer's share for farm food products and cash receipts for farm products are published by USDA (37, 47).

Table 1.--Total marketing bill, farm value, and civilian expenditures for domestic farm food products bought by civilians, United States, 1947-65 1/

Year	Marketing bill <u>2/</u>	Farm value <u>3/</u>	Civilian expenditures <u>4/</u>	Farm share
	Mil. dol.	Mil. dol.	Mil. dol.	Pct.
1947.....	22,643	19,294	41,937	46
1948.....	24,934	19,872	44,806	44
1949.....	25,955	17,416	43,371	40
1950.....	25,938	18,053	43,991	41
1951.....	28,703	20,550	49,253	42
1952.....	30,511	20,422	50,933	40
1953.....	31,522	19,490	51,012	38
1954.....	32,318	18,824	51,152	37
1955.....	34,378	18,749	53,127	35
1956.....	36,302	19,246	55,548	35
1957.....	37,888	20,405	58,293	35
1958.....	39,549	21,445	60,994	35
1959.....	42,202	20,916	63,118	33
1960.....	44,150	21,699	65,849	33
1961.....	45,101	22,043	67,144	33
1962.....	46,891	22,424	69,315	32
1963.....	48,945	22,574	71,519	32
1964.....	51,188	23,352	74,540	31
1965 <u>5/</u>	52,109	25,506	77,615	33

1/ Data for 1960 and later years include Alaska and Hawaii.

2/ The difference between civilian expenditures and farm value.

3/ Payments to farmers (less imputed value of byproducts) for the quantities of raw farm products equivalent to the products purchased by consumers.

4/ Market value of food products derived from products produced on domestic farms and purchased by civilian consumers. Imports and seafoods are not included.

5/ Preliminary.

Source: Table 28.

retail store value. 3/ The "farm-retail marketing bill" was the difference between the retail store value and the farm value. This farm-retail bill was only an approximation of total marketing charges because it assumed that all food purchased was sold through retail stores. Later, similar marketing bill data were published for six commodity groups (37, Dec. 1945 and Sept. 1947).

3/ These farmers' shares--part of the market basket statistics--are for fixed types and quantities of food bought by urban consumers in a specified base period. They do not reflect changes caused by shifts among products and shifts between purchases in eating places and retail stores, but they do reflect some changes in distribution services that affect retail prices. The market basket has been revised periodically to reflect changes in the distribution of population, changes in types of stores, and introduction of new products. See (41, 52) for more detailed explanations.

The method of estimating the marketing bill was modified in 1955, and data were revised back to 1940. 4/ The method adopted at that time, which is the one still used to derive the current annual interpolating series, relies mainly on farm and retail prices and quantities of individual commodities. 5/ The multiplication of quantities of individual commodities by unit farm values and retail prices, and the subtraction of total farm value from retail value, are believed to provide a more accurate estimate of the marketing bill than the method used before 1955. In addition, the price-quantity method uses more detailed calculations, which also help make the estimates more accurate.

In 1957 these statistics on the farm-retail marketing bill were supplemented with estimates of the total marketing bill for farm foods. Estimates of this total bill were derived by adding to the farm-retail bill the additional cost incurred on those quantities purchased in eating places and by deducting an allowance for the lower prices of quantities sold through channels other than retail stores. This series, published annually in the Marketing and Transportation Situation, had two drawbacks: It was not available (1) by commodity group or (2) by marketing agency.

The series presented in this report replaces those total marketing bill statistics and supplies annual estimates by commodity group for 1947-65 and estimates by agency in 7 census years, 1929-63 (tables 26, 27, 28, Appendix B).

Totals for intercensal years, 1947-65, were derived by interpolation (ratios to linear trend), using the annual series. Consumer expenditures, the farm value, and the marketing bill for 1959-65 were extrapolated by the same series. Data for agencies were estimated only for census years. Agency data for 1963 were based on preliminary census data.

Commodity flow estimates for census years 1929, 1935, and 1939 are also presented in this report; the method of estimation was the same as in postwar census years, but the quality of the data was subject to more uncertainty. These prewar data were not integrated with the annual series because the two series might not be comparable.

The commodity flow method used to derive data in census years is a conceptually superior method because it incorporates the effects of changes in marketing channels, changes in gross margins for specific agencies, changes in services offered, and the introduction of new products (Appendix C). However, the data often are not precise. The price-quantity method provides an alternative estimate in benchmark years and an interpolating series for other years.

Several major cost components have been estimated for the total farm food marketing bill. These are labor costs, intercity rail and truck transportation,

4/ Numerous minor revisions were made between 1945 and 1955, and each publication of data showed revised estimates back to 1913. One such revision was made by Been (4).

For years prior to 1940, the series based on cash receipts from product groups were not revised in 1955. For several product groups the two estimates were significantly different. These differences were reconciled by linking the prewar and postwar series (for the years 1939-47). Estimates of the total bill for 1939 were \$13.8 and \$15.0 billion by the old and new methods, respectively; in 1947 they were \$15.9 and \$18.0 billion. The published estimates were \$13.8 billion in 1939 and \$18.0 billion in 1947.

5/ The procedure of inflating the farm value by the farmer's share is still used to estimate the retail cost of several commodities.

corporate profits, advertising, depreciation, and taxes. 6/ These items accounted for about 72 percent of the total bill in 1965. The rest of the bill was for packaging materials, fuel and power, supplies, intercity waterway and air transportation, and other miscellaneous items. No precise estimates of these items are available. Estimates of the percentage distribution of some of these cost components were made for 1939, but the data were related to the market basket of food and not the marketing bill. Most of the estimates were expressed as a proportion of the retail store cost of various commodity groups (4, 5, 16, 34, 73).

Some of the data for product groups have been updated in recent years and other studies have been conducted for individual products. 7/ Other marketing bill estimates have been made for all food products and for all farm products. 8/

Most of the discussion in this report emphasizes data for census years 1929, 1935, 1939, 1947, 1954, 1958, and 1963 because more data are available for those years and they highlight the long-term trends. The data for 1963 are preliminary and some of the analytical data are not yet available for that year.

Definitions

Consumer expenditures for farm food products are divided into two major components: Payments to farmers and payments to the marketing system. The marketing bill for farm-originated food products represents total charges for all marketing services performed between sale of a product by the farmer and purchase by the consumer. It includes only charges for marketing products consumed by civilians in this country; it excludes marketing charges for imported foods, seafoods, other foods not produced on domestic farms, exported products, and alcoholic beverages.

Agencies performing marketing services have been separated into three major groups: Processors; retailers; and assemblers, wholesalers, and transportation agencies. Particular functions and specified agencies may not coincide exactly. For example, livestock slaughter carried on in wholesale and retail trade is covered by the wholesale and retail marketing bills, whereas slaughter in meatpacking plants is covered by the processors' bill. Similarly, the distribution of bakery products by bakery manufacturers to stores, eating places, and homes is included in the processors' bill. Thus, charges are related to the agency performing the specific services.

Data have been developed for six product groups:

Meat products.--Fresh, cured, and canned meat, sausage, lard, and edible byproducts; also, meat slaughtered in wholesale and retail establishments and that sold from farm slaughter.

Dairy products.--Butter, cheese, canned milk, dried milk (for human food), ice cream, miscellaneous manufactured dairy products, fluid milk and cream products, and farm-churned butter sold.

6/ Labor and transportation costs are available for all years since 1929; corporate profits since 1939; and the other items for 1947-49 and 1960-62. See MTS-162 (37).

7/ For example, see (15, 21, 43, 50, 72). For an extensive bibliography up to 1956, see (41, p. 139).

8/ The bill for all food includes charges for marketing fish and imported food (8). The bill for all farm products is available only for selected postwar years; the data are not entirely comparable between years (10, 25). See also MTS-154 (37).

Poultry and eggs.--Fresh and frozen chickens, turkeys, and other poultry (except frozen specialty items), canned poultry, fresh eggs, and processed eggs.

Fruits and vegetables.--Fresh, dried, canned, and frozen fruits and vegetables, canned specialties (spaghetti, baby food, and soups), pickles and sauces, frozen prepared foods, and potato chips.

Bakery and cereal products.--Bakery products (including biscuits, crackers, and cookies), flour (plain, blended, and mixes), corn meal, breakfast cereals, rice, and macaroni products.

Miscellaneous products.--Sugar (domestic), confectionery, soft drinks, wet corn milling products, shortening, margarine, salad oil, salad dressings, peanut butter, sweetening sirups, vinegar and cider, nuts, farm sirups, peanuts, and miscellaneous foods not elsewhere classified.

Individual products are classified according to their finished form at the time of purchase by consumers. Marketing charges for unfinished or intermediate products used in the manufacture of finished products are included in the marketing charges for the finished product. For example, processing costs for sugar and flour used in bakery products are included in the marketing bill for bakery products. Marketing charges for sugar purchased by household consumers are included in the marketing bill for miscellaneous products. Flour bought by consumers is included in the bakery and cereal products group. Commodities sold in the form of meals maintain their identity. For example, sugar used in bakery products prepared in a restaurant is included in the sugar part of the miscellaneous products group.

Estimates of consumer expenditures for farm food products include all purchases by civilian consumers of food derived from domestic farm products; for example, purchases from retail stores, away-from-home eating places, wholesalers, manufacturers, and farmers. They also include the value of food furnished civilian employees (mainly those in eating places), travelers, students, hospital patients, and institutional inmates.

The farm value represents payments to farmers for the farm products equivalent to the products sold to consumers. The product classification is the same as that mentioned above. For example, the farm value of sugar used in bakery products is included in the farm value of bakery products, while the farm value of sugar bought by households is in the miscellaneous products group.

CONSUMER EXPENDITURES

Total consumer expenditures and the marketing bill for domestic farm food products, as estimated in this study, increased faster than the farm value during 1929-63 (table 2). Each of the three declined sharply between 1929 and 1935, a period that encompassed part of the Great Depression. By 1939, each had increased, but none had reached its 1929 level. From 1939 to 1947, consumer expenditures increased 174 percent, farm value went up 260 percent, and the marketing bill rose 128 percent, mainly as a result of price increases during and after World War II. During 1939-47, the BLS Wholesale Price Index for the United States rose 92 percent while the Consumer Price Index increased 61 percent. Food consumption per person also increased. Farmers lost ground between 1947 and 1954, both absolutely and relatively, as the marketing bill went up 43 percent and the farm value declined 2 percent.

Between 1954 and 1963, both the farm value and the marketing bill increased, but the bill increased faster. The farm value accounted for 18 percent of this increase and the marketing bill for 82 percent.

Consumer expenditures for domestic farm food products did not rise as fast as disposable income during 1929-63 (table 3). These expenditures represented about 22 percent of disposable income in 1929 and 18 percent in 1963. This percentage reached a high in 1947 when expenditures were about 25 percent of income.

Table 2.--Domestic farm food products: Consumer expenditures, farm value, marketing bill, and percentage farm share, selected years, 1929-63

Year	Consumer expenditures	Farm value	Marketing bill	Farm share
	Million dollars	Million dollars	Million dollars	Percent
1929.....	17,960	7,497	10,463	41.7
1935.....	13,815	5,193	8,622	37.6
1939.....	15,294	5,363	9,930	35.1
1947.....	41,937	19,294	22,643	46.0
1954.....	51,140	18,824	32,316	36.8
1958.....	60,994	21,445	39,549	35.2
1963.....	71,519	22,574	48,945	31.6

Source: Table 26.

Table 3.--Personal disposable income and percentages spent by consumers for domestic farm foods and for all foods, selected years, 1929-63

Years	Disposable income <u>1/</u>	Expenditures as percentages of disposable income	
		For farm foods only <u>2/</u>	For all foods <u>3/</u>
	Million dollars	Percent	Percent
1929.....	83,262	21.6	23.4
1935.....	58,517	23.6	23.3
1939.....	70,329	21.7	22.3
1947.....	169,833	24.7	25.7
1954.....	257,445	19.9	22.0
1958.....	318,826	19.1	20.9
1963.....	403,832	17.7	18.9

1/ From U.S. Department of Commerce data (63, Aug. 1965).

2/ Does not include expenditures for imported food, seafoods, other nonfarm foods, or food produced and consumed on farms. See table 26 for dollar expenditures.

3/ Derived from U.S. Department of Commerce data on personal consumption expenditures for food. Also, see (37, Feb. 1966, p. 13).

There were some changes in the relative importance of the various product groups in consumer expenditures (table 4). The importance of meat products, fruits and vegetables, and miscellaneous products all increased during 1929-58, while that of the other three groups declined.

Table 4.--Distribution of consumer expenditures for farm foods, by commodity groups, selected years, 1929-63

Commodity group	Percentage of total consumer expenditures							Average farm share 1/
	1929	1935	1939	1947	1954	1958	1963	
	-----Percent-----							
Meat products.....	24.6	22.1	24.4	30.5	28.6	28.6	27.8	50
Dairy products.....	21.1	20.7	20.0	19.0	19.1	18.8	17.7	44
Poultry and eggs.....	10.6	10.0	8.8	9.5	8.8	8.4	7.3	61
Fruits and vegetables.....	19.7	20.4	22.0	18.1	20.1	21.2	21.9	29
Bakery and cereal products..	17.1	19.0	16.4	14.1	14.5	14.4	15.0	20
Miscellaneous products.....	6.9	7.8	8.4	8.8	8.9	8.6	10.3	21
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	39

1/ Farm value as a percentage of consumer expenditures. The percentages shown here are simple averages of farm shares for the selected years 1929-58.

MARKETING BILL

Variations in the marketing bill result from (1) changes in volume of products handled; (2) changes in marketing services per unit of product; (3) changes in prices of marketing services; and (4) shifts between commodities with different quantities and kinds of services per unit.

Let us first divide these factors into two groups: Volume of products marketed and charges per unit marketed (table 5). Between 1929 and 1963, the volume of food products increased 94 percent, compared with a rise of 54 percent in population (table 6). ^{9/} Much of the increase in the quantity of food marketed per person is explained by an outmigration of the farm population. ^{10/} In addition, many farmers now purchase a larger proportion of their food rather than produce it on the farm. One estimate indicated that home production supplied 20 percent of civilian consumption in the mid-1930's; in 1959, it supplied only 7 percent (^{9/}, page 24). Consumption per person also increased between 1929 and 1963.

^{9/} An index of volume of farm food products moving through the marketing system was estimated by deflating the total farm value index by a farm price index. Then an index of unit marketing charges was estimated by dividing the volume index into the index of total marketing charges. The farm price index was constructed by weighting the price index for individual groups of commodities by their relative importance in 1929. An alternative volume index, constructed by weighting quantities of individual products by constant farm price weights, increased about 65 percent between 1929 and 1958 compared with the 74 percent shown in table 5.

^{10/} Farm population was 25 percent of civilian population in 1929 and 10 percent in 1958; it also declined in absolute terms.

Table 5.--Farm food products: Index numbers of farm prices, total farm value, value of farm food marketed, total marketing bill, unit marketing charges, and farm-retail spread, selected years, 1929-63

Year	Farm price 1/	Farm value 2/	Volume of farm food 3/	Marketing bill 4/	Unit marketing charges 5/	Farm-retail spread 6/
-----Index-----						
1929..:	100	100	100	100	100	100
1935..:	77	69	90	82	92	79
1939..:	65	72	110	95	86	78
1947..:	182	257	141	216	153	122
1954..:	160	251	157	309	196	155
1958..:	166	286	173	378	219	174
1963 7/:	155	301	194	468	241	184

1/ Series constructed by weighting farm price indexes for individual groups of food products by their relative importance in 1929.

2/ The index of farm value of domestic farm food products sold to civilian consumers (table 26).

3/ Ratio of the farm value index to farm price index.

4/ Total marketing charges for all domestic farm food products sold to civilian consumers (table 26).

5/ Ratio of marketing bill index to volume index; measures changes in charges per unit of food marketed.

6/ The farm-retail spread of the market basket of farm foods. See (53).

7/ Preliminary.

Table 6.--Total and per capita volume of farm food marketed, population, and per capita consumption of farm food, selected years, 1929-63

Year	Total volume of food marketed 1/	Food marketed per person 2/	Population 3/	Consumption per person 4/
-----Index-----				
1929.....:	100	100	100	100
1935.....:	90	86	104	96
1939.....:	110	102	108	103
1947.....:	141	120	117	112
1954.....:	157	121	131	111
1958.....:	173	123	141	109
1963 5/...:	194	126	153	112

1/ Total farm value deflated by an index of farm prices (table 5).

2/ Index of volume divided by index of population.

3/ Total population excluding armed forces overseas (51, 1962, p. 671).

4/ Quantities of foods consumed weighted by retail prices (53).

5/ Preliminary.

Unit marketing charges increased 141 percent during 1929-63. The farm-retail spread series for the market basket of farm food rose about 84 percent during that same time. The difference between these two increases can be attributed to two factors: (1) The farm-retail spread series reflects prices of marketing services required to market food through retail stores. The unit marketing charge series also reflects the price of services furnished by eating places.

(2) The quantity of services per unit of food and the commodity mix are held constant in the farm-retail spread series, while they are allowed to vary in the unit marketing charge series. Changes in services per unit of food include shifts from less processed to more processed foods, and from food purchased in retail stores to food purchased in eating places. Adequate data are not available to measure changes in prices of services and changes in services per unit precisely, but rough estimates indicate that the price went up about 90 percent during 1929-58 and that services per unit went up about 10 to 15 percent.

Unit marketing charges and volume accounted for 58 percent and 42 percent, respectively, of the total increase in the marketing bill between 1929 and 1963. ^{11/} Between 1929 and 1935, the declines in volume and in unit marketing charges contributed equally to the decrease in the total marketing bill. Marketing charges accounted for the major part of the increase between 1939 and 1958. Unit marketing charges increased about 10 percent between 1958 and 1963, and volume increased 12 percent.

FARM VALUE

Payments to farmers for farm foods consumed in this country have shown more erratic fluctuations than the marketing bill. The main reason has been the larger variation in supplies of agricultural products than in supplies of marketing services. Farmers face a relatively steady and inelastic demand for their products, but supplies vary from year to year, causing fluctuations in prices. The supply and demand structure for marketing services changes little from year to year, so prices of these services do not show such wide variations.

Farm value decreased from 1929 to 1935 mainly because of the 33-percent decline in per capita income which brought about a reduction in consumer demand. By 1939 income had risen 17 percent above the 1935 level, but the farm value increased much less. Between 1939 and 1947, consumer demand picked up strongly and exerted an upward pressure on prices. Increased income, the war effort, and a net migration to urban areas all contributed to greater demand for purchased food and services. After the war, continued high prices for farm products induced farmers to expand output. Introduction of new methods of production and greater capital investment also helped to increase output faster than demand could absorb it at constant prices. From 1948 to 1957, the large supplies depressed farm prices of food products except for a brief spurt during the Korean conflict. These declining prices were responsible for the small decline in the total farm value between 1947 and 1954, despite increases in the volume of food marketed. The farm value went up about 14 percent from 1954 to 1958 as a result of a 2-percent increase in prices and an 11-percent increase in volume. Between 1958 and 1963, an 8-percent decrease in farm prices was more than offset by an increase in volume of products marketed, causing a 5-percent rise in the farm value. The marketing bill rose 22 percent during 1954-58 and 24 percent during 1958-63.

^{11/} Volume alone accounted for 37 percent and marketing charges alone for 53 percent; the interaction accounted for the other 10 percent and was allocated equally between the other two components.

Some of the 1947-63 drop in prices received by farmers for food products was offset by improved productivity. Since 1947, output per man-hour has increased faster in agriculture than in food marketing. ^{12/} Thus, three factors explain the slower increase in the farm value than in the marketing bill: Faster increases in productivity in agriculture than in marketing, increased amount of marketing services per unit of food, and faster increase in supply than in demand for food products.

FARMER'S SHARE

The farm share of consumer expenditures was about 35 percent in 1958 (the same as in 1939) compared with about 42 percent in 1929 (table 2). It declined to 32 percent in 1963. The 1947 percentage (46) was the largest for any year covered by this study. ^{13/} The decrease by 1963 was the result of a slower increase in farm prices during 1929-63 than in unit marketing charges. An offsetting factor that tended to raise the farm share was the increase in the importance of meat products which had a relatively high farm share (table 4). The meat products group accounted for 25 percent of consumer expenditures in 1929 and 28 percent in 1963. The farm share for meat was near 50 percent in most years. On the other hand, bakery and cereal products, with a farm share of 20 percent, declined from 17 percent of consumer expenditures in 1929 to 15 percent in 1963. Another factor that led to a decrease in the farm share was the decline in the amount of marketing performed by farmers, such as selling directly to consumers, delivering products to a processor, and on-farm production of butter, cream, and meat.

Besides the long-term downward trend, the farm share also experienced wide cyclical swings during 1929-63. During 1929-35, farm prices declined more than unit marketing charges because:

1. Supply of farm products did not decrease as much as consumer demand.
2. Labor costs and other operating costs of marketing firms were more resistant to decreases than farm value.

After reaching the high levels of the 1940's, the farm share declined quite rapidly in the 1950's. Farm prices of many food products were lower in 1958 than in the late forties and early fifties. Meanwhile, marketing charges increased in nearly every year of the 1950's.

In summary, the farm value declined more than the marketing bill during the 1930's, and increased faster than the marketing bill during most of the 1940's. Since 1947 the marketing bill has risen faster. From 1929 to 1963, the farm value rose 201 percent; the marketing bill increased 368 percent; and consumer expenditures

^{12/} Waldorf indicated an increase of 2.7 percent per year for food processing (67, p. 10); the postwar rate of increase in distribution was 2.4 percent (69). The rate of increase for all food marketing was between 2.7 and 2.4. Output per man-hour in agriculture increased more than 6 percent per year during 1947-58 (67, p. 19). Some of this large increase resulted from the substitution of capital for labor.

^{13/} The farm share of the annual market basket series was 53 percent in 1945, the highest annual average on record. For other measures of the farmer's share, see Ogren (24). The farm share for the previously published annual series reached a high in 1943-44.

increased 298 percent. The farm value as a percentage of consumer expenditures declined from 42 percent in 1929 to 32 percent in 1963.

UNIT MARKETING CHARGES

Marketing charges per unit of food handled were estimated for processors, wholesalers, and retailers (including eating places) (table 7). ^{14/} Processing charges per unit of farm food processed increased 133 percent during 1929-63; wholesalers' charges per unit purchased increased 118 percent; and retailers' charges per unit sold increased 128 percent. Total unit marketing charges increased 141 percent. The total is an aggregate figure, which reflects unit charges for all agencies, and also includes changes caused by shifts among product groups.

Table 7.--Unit marketing charges for farm food products marketed by selected agencies and wholesale price index, selected years, 1929-63

Year	Processors <u>1/</u>	Wholesalers <u>2/</u>	Retailers <u>3/</u>	All farm food <u>4/</u>	Wholesale price index <u>5/</u>
----- Index -----					
1929	100	100	100	100	100
1935	96	91	85	92	85
1939	86	87	80	86	89
1947	170	154	134	153	146
1954	202	183	170	196	175
1958	232	203	187	219	192
1963 <u>6/</u> ..	233	218	228	241	195

^{1/} Processing margin per unit of raw farm product processed.

^{2/} Wholesale margin per unit of product purchased.

^{3/} Retail margin (including eating places) per unit of product sold. Tips and retail taxes are not included.

^{4/} Average marketing charges per unit of farm products sold by farmers, including charges for some agencies not shown separately.

^{5/} BLS Wholesale Price Index excluding processed foods and farm products (49, p. 558)

^{6/} Preliminary.

THE MARKETING BILL FOR PRODUCT GROUPS

The marketing bill for farm food products is for the following major groups: Meat products, dairy products, poultry products, fruits and vegetables, bakery and cereal products, and miscellaneous products.

The total marketing bill increased 368 percent between 1929 and 1963 (table 8). Miscellaneous products showed the largest increase among the product groups.

^{14/} Physical volumes handled were derived by deflating purchases or sales depending on the prices available; the unit charge for an agency group was the marketing bill for the agency divided by the volume. Thus, the increases for each agency are not strictly comparable.

Table 8.--The marketing bill for farm food products, selected years, 1929-63

Product group	1929	1935	1939	1947	1954	1958	1963
	Index						
Total	100	82	95	216	309	378	468
Meat products	100	74	90	248	345	414	528
Dairy products	100	79	87	207	298	354	403
Poultry and eggs	100	83	85	181	261	314	361
Fruits and vegetables .	100	87	110	216	329	431	526
Bakery and cereal	100	88	88	176	252	309	384
Miscellaneous	100	86	112	291	378	437	613

Source: Table 26.

It was followed closely by fruits and vegetables and meat products. The poultry and eggs, and bakery and cereal products groups showed the smallest increases. During 1958-63, the marketing bill increased 23 percent; miscellaneous products, fruits and vegetables, and poultry and eggs groups increased the fastest.

Fruits and vegetables accounted for 25 percent of the total marketing bill in 1963 (table 9, fig. 1). Meat products had the next largest bill and accounted for 23 percent of the total. Poultry and eggs, the smallest group, accounted for only 5 percent.

The meat products group had by far the greatest share of both consumer expenditures and total farm value in 1963. The farm value of meat was about 37 percent of the total compared with 21 percent for dairy products, the next largest group. Consumer expenditures for meat products accounted for 28 percent of the total, considerably more than the next most important group, fruits and vegetables. Consumer expenditures for poultry and eggs in 1963 were the smallest of any major group.

Because of the considerable share of meat products in consumer expenditures and farm value, any large change for this group would have a significant effect on the totals for all foods. For example, a 5-percent increase in the farm value of meat products would increase the farm value of all foods by 2 percent. The same increase would also raise consumer expenditures for meat by 2 percent if marketing charges did not change. Wide fluctuations in the farm share for meat can also lead to smaller but significant fluctuations in the share for all foods.

Fruits and vegetables have the largest marketing bill. Transportation and handling charges are high because of the highly perishable and bulky nature of the fresh products. In addition, a large part of the volume is produced in specialized producing areas that are distant from many of the large consumer markets. Processed fruits and vegetables require relatively large margins to cover processing and packaging costs.

The bakery and cereal products group has one of the lowest farm shares. A comparison of its contribution to total consumer expenditures for farm foods (14 percent) and to the total farm value (7 percent) illustrates how important marketing charges are for this group; they accounted for 18 percent of the total marketing bill in 1963. Many of the finished products in this group are in highly processed form and so require relatively large unit margins to cover the costs of processing.

Table 9.--Share of marketing bill, farm value, and consumer expenditures accounted for by specified product groups, 1963 ^{1/}

Product group	Marketing bill	Farm value	Consumer expenditures
	Percent	Percent	Percent
Total	100.0	100.0	100.0
Meat products	23.2	37.5	27.8
Dairy products	16.3	20.7	17.7
Poultry and eggs	5.1	12.2	7.3
Fruits and vegetables	24.6	16.1	21.9
Bakery and cereal products..	18.7	7.0	15.0
Miscellaneous products	12.1	6.5	10.3

^{1/} For domestic farm food products sold to civilian consumers.

Source: Table 26.

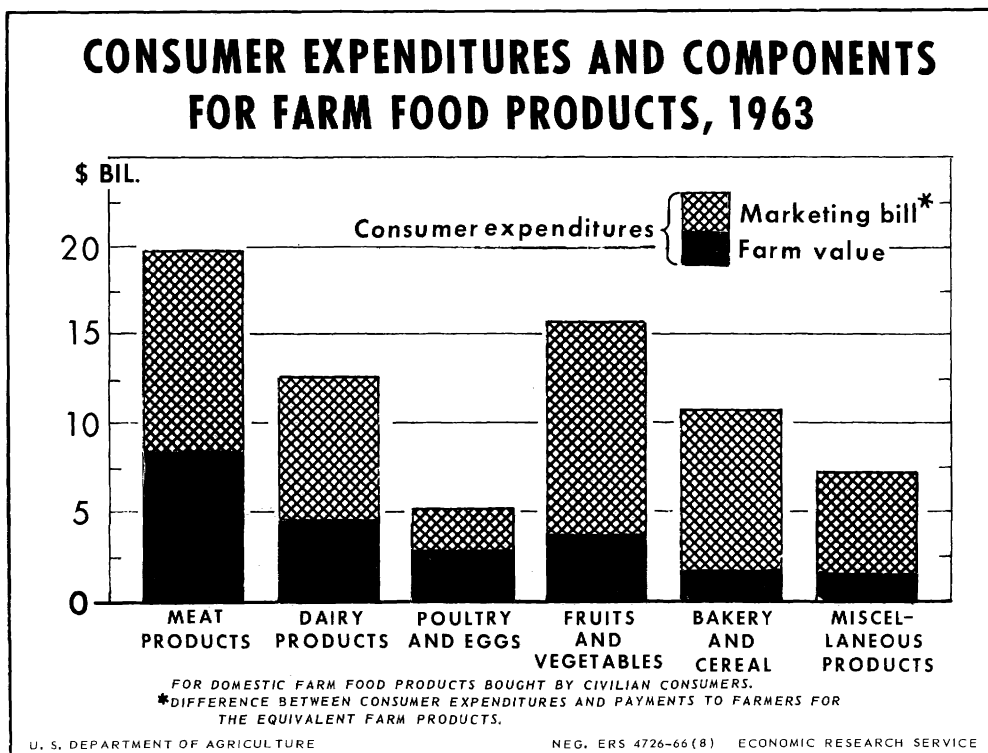


Figure 1

Poultry and eggs on the other hand had the highest farm share of any group. In general, most poultry products undergo little processing. This explains why this group accounts for a small part of the total marketing bill and consumer expenditures and a high share of the farm value.

Between 1929 and 1963, the importance of the various product groups in the total marketing bill shifted (table 10, fig. 2). In 1929, the bakery and cereal group had the largest marketing bill of any group. It was followed closely by fruits and

Table 10.--Relative importance of commodity groups in the marketing bill, selected years, 1929-63 1/

Product group	1929	1935	1939	1947	1954	1958	1963 <u>2/</u>
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Meat products.....	20.6	18.4	19.6	23.6	23.1	22.5	23.2
Dairy products.....	18.9	18.0	17.2	18.0	18.2	17.7	16.3
Poultry and eggs.....	6.6	6.7	5.9	5.5	5.5	5.4	5.1
Fruits and vegetables:	21.9	23.0	25.3	21.9	23.3	25.0	24.6
Bakery and cereal....	22.8	24.3	21.1	18.6	18.6	18.7	18.7
Miscellaneous.....	9.2	9.6	10.9	12.4	11.3	10.7	12.1

1/ Total marketing charges for domestic farm food products sold to civilian consumers.

2/ Preliminary.

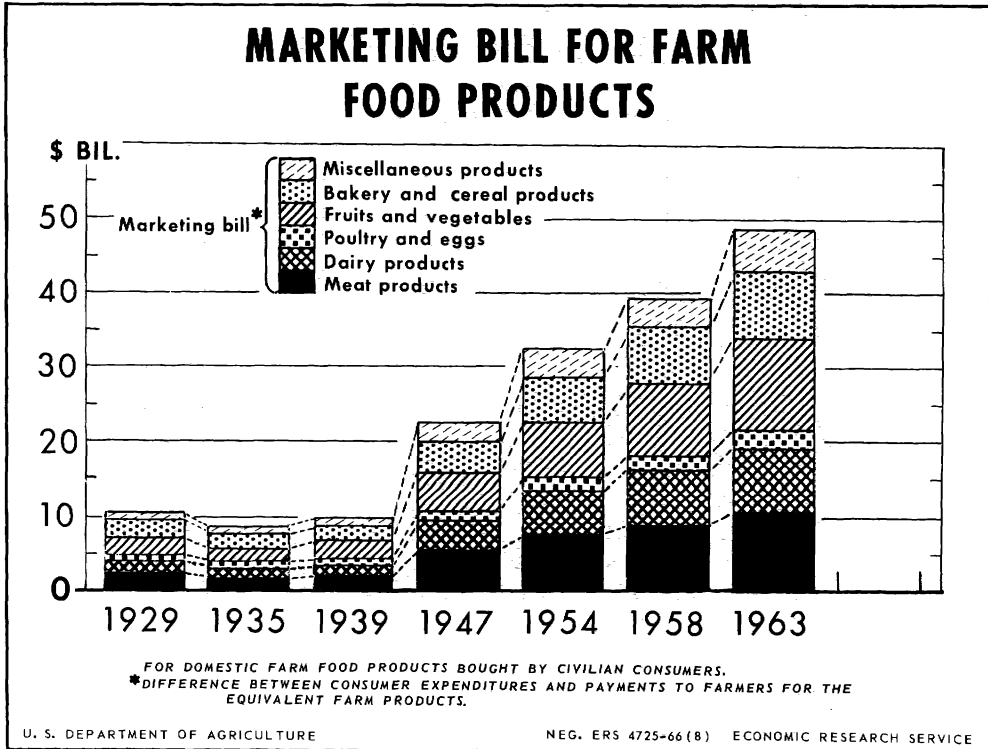


Figure 2

vegetables and meat product groups. By 1963, fruits and vegetables had gained the lead and meat was second. During the same period, bakery and cereal products slipped from 23 percent of the total marketing bill to 19 percent; fruits and vegetables increased from 22 percent to 25 percent; and meat rose from 21 to 23 percent.

Both volume and unit marketing charges contributed to the increased relative importance of the meat products group between 1929 and 1963. Volume of meat marketed increased faster than the average for all food marketed (table 11). The unit marketing charge for meat products increased 144 percent, while the average unit marketing charge for all farm food increased 141 percent (table 12).

The volume of fruit and vegetable products increased less than the average for all other product groups between 1929 and 1958, although the unit marketing

Table 11.--Volume of farm foods marketed for domestic civilian consumption by product group, selected years, 1929-63 1/

Product group	1929	1935	1939	1947	1954	1958	1963 <u>2/</u>
	----- Index -----						
Total	100	90	110	141	157	173	194
Meat products	100	75	114	158	171	179	216
Dairy products	100	100	109	126	143	158	167
Poultry and eggs	100	91	110	167	207	230	248
Fruits and vegetables .:	100	100	108	134	143	158	171
Bakery and cereal	100	93	98	109	104	117	122
Miscellaneous	100	114	117	129	196	266	365

1/ Volume index was derived as the quotient of an index of total farm value divided by an index of farm prices.

2/ Preliminary.

Table 12.--Unit marketing charges for farm food products, selected years, 1929-63 1/

Product group	1929	1935	1939	1947	1954	1958	1963 <u>2/</u>
	----- Index -----						
Total	100	91	86	152	196	219	241
Meat products	100	98	79	157	202	231	244
Dairy products	100	79	79	165	208	224	241
Poultry and eggs	100	91	77	109	126	136	145
Fruits and vegetables .:	100	86	101	162	231	272	307
Bakery and cereal	100	94	90	161	242	265	314
Miscellaneous	100	75	96	225	192	164	168

1/ The indexes of unit marketing charges were derived as the quotient of an index of the total marketing bill to an index of volume marketed.

2/ Preliminary.

charge for this group increased more than for any other group except bakery and cereal products. Much of this increase in unit marketing charges was caused by a shift from fresh to processed products, which usually have higher unit margins.

Poultry and eggs had the second largest increase in volume between 1929 and 1963, and the smallest increase in unit charges. Large increases in marketings of frying chickens and turkeys were mainly responsible for the rise in volume. Unit marketing charges for both poultry and eggs rose less than the average unit charge for all farm foods. During 1947-63, the poultry unit charge went up 33 percent compared with 58 percent for all products.

Trends in the bakery and cereal products group were nearly opposite to those of the poultry group. Volume increased the least, while the increase in unit marketing charges was larger than for any other group.

The miscellaneous group showed the largest increase in volume marketed, mainly as a result of expanded use of shortening, margarine, and other oil products. However, slowly rising unit charges tempered the increase in the marketing bill for this group.

THE MARKETING BILL FOR SELECTED MARKETING AGENCIES

The total difference between consumer expenditures for farm foods and the corresponding farm value is the sum of charges made by the various marketing agencies. These agencies include assemblers, processors, transportation agencies, wholesalers, retail stores, and away-from-home eating places.

Retailers (including away-from-home eating places) accounted for more than \$22 billion of the \$49 billion total bill in 1963 (table 13). Processors accounted for about \$19 billion, and the remaining \$8 billion was divided among assemblers, transportation agencies, and wholesalers.

Table 13.--Marketing bill for farm foods, by marketing agency, and agency shares of the total bill, selected years, 1929-63

Year	Total	Processors		Assemblers, transportation agencies, and wholesalers		Retailers (including eating places)	
		Mil. dol.	Pct.	Mil. dol.	Pct.	Mil. dol.	Pct.
1929	10,463	3,529	34	2,439	23	4,495	43
1935	8,622	3,032	35	1,970	23	3,620	42
1939	9,930	3,429	35	2,316	23	4,185	42
1947	22,643	8,218	36	4,655	21	9,770	43
1954	32,316	12,297	38	6,298	19	13,721	43
1958	39,549	15,832	40	7,122	18	16,595	42
1963 ^{1/}	48,945	19,031	39	8,209	17	21,705	44

^{1/} Preliminary.

Source: Table 29.

Processors

The processors' share increased from 34 percent in 1929 to 39 percent in 1963 (table 13) mainly because of growth in unit processing charges and in the quantity of processed foods. According to Waldorf, the volume of factory processing increased faster than farm marketings in every decade during 1910-58 (66, p. 6). Other evidence indicates that the price of processing services went up relative to the farm-retail spread during 1929-58. 15/

Part of the increase in processing services has resulted from shifts among commodities. For example, per capita consumption increased much faster for processed fruits and vegetables than for fresh products. Also the percentage of animals slaughtered on farms and in wholesale and retail establishments, as well as the percentage of fluid milk bottled and sold by farmers, declined. These changes tended to increase the processors' share and decrease the share to farmers, wholesalers, and retailers.

In recent years, there has been a substantial increase in the use of partially prepared foods such as frozen meat pies, frozen french-fried potatoes, warm-and-serve dinners, and refrigerated bakery products. Even so, these products have not become important enough to affect the processor's total bill significantly. If the trend continues for the next several years, however, they may make a substantial addition. 16/

Retailers

Retailers (including away-from-home eating places) accounted for 44 percent of the marketing bill in 1963, about the same as in 1929. The relative stability of the retailer's share was surprising considering the vast changes that have taken place in retail distribution since 1929.

Other data indicated that the importance of the total retail store bill declined from 1929 to 1963, while that of the bill for away-from-home eating increased. The proportion of food sold through eating places increased during 1929-63, and it is likely that their percentage markup increased more than that of retail stores. According to Burk (8), the market value of food handled in away-from-home eating places represented 24 percent of the value of all food marketed in 1958 compared with 21 percent in 1929. During the same period, the value of this food, in terms of retail store prices, increased from 15 percent to 17 percent of the total (8, pp. 91-92). During 1953-63, the BLS price index of food at home increased 7 percent, compared with a 27-percent increase for food away from home.

The number of retail stores declined sharply between 1929 and 1963 (table 14). The volume of sales (in 1958 dollars) increased 203 percent, while the number of employees rose 90 percent. During 1929-63, productivity (measured in terms

15/ Waldorf (68, Appendix C, table 14) benchmarked index; the deflated index increased 16 percent. The market basket farm-retail spread (deflated) increased 3 percent. The price of all marketing services including away-from-home eating increased faster than the farm-retail spread.

16/ The effect of added processing services on margins of selected processed foods was studied by Badger (2). See Waldorf (68) for discussion of demand for processing services in relation to income and prices of services.

Table 14.--Number, employees, and sales of retail food stores, selected years, 1929-63 ^{1/}

Year	Number of stores	Paid employees	Sales	
			Current dollars	1958 dollars ^{2/}
	Thousands	Thousands	Million dollars	Million dollars
1929	478	669	10,277	18,618
1935	523	679	7,907	18,916
1939	551	717	9,568	24,162
1948	500	924	29,438	33,605
1954	384	1,026	39,762	42,210
1958	356	1,184	49,022	49,022
1963	319	1,274	57,079	56,346

^{1/} Derived from data reported in the Census of Business (54) Data for 1929-48 were adjusted to exclude fluid milk dealers. Retail bakeries with baking on the premises were included for 1948-63, but not for 1929-39. In 1948, 16,000 of these stores had 68,000 employees and sales of \$562 million.

^{2/} Sales in 1958 dollars are sales in current dollars deflated by the BLS retail price index for food at home.

of sales per employee, in 1958 dollars) increased nearly 60 percent. ^{17/} Total output of retail store services per unit of food probably declined because of the shift from clerk service to self-service, from neighborhood stores to shopping centers, and from credit and delivery to cash and carry. The decline in these services was partially offset by increases in some other services such as greater selection of products, more comfortable stores, parking lots, and other important though less obvious changes. In addition, retail chainstores absorbed some of the distribution services formerly provided by wholesalers and processors.

Productivity in eating places (as measured by sales per employee) has not kept pace with that in retail stores, although the restaurant and institutional feeding industries have become much more efficient in food preparation. During 1929-63, the structure of the restaurant industry did not change as much as that of the retail food store industry. The importance of independent retail stores declined sharply, while that of independent eating places declined only slightly.

The continued importance of small eating places indicated that size alone was not a great advantage in the eating-place industry. If there had been many technological innovations advantageous to the larger firms, the larger incorporated eating places would have become much more important. Perhaps demand for away-from-home eating is not sufficient to stimulate innovations which would improve output per employee as much as in other industries, or perhaps the nature of this industry is not conducive to large-scale technological innovation. The eating-place industry in some respects is similar to service industries which have not improved productivity as rapidly as trade industries.

^{17/} These data tend to understate the increase in sales per worker because they do not include proprietors and unpaid family workers whose numbers declined between 1929 and 1958. Output per man-hour increased even faster than per employee since hours per employee declined substantially. See Waldorf and Gale (69) for estimates of productivity in food distribution.

Assemblers, Wholesalers, and Transportation Agencies

Marketing charges for other distribution services such as assembly, transportation, and wholesaling increased more slowly than the total marketing bill for all farm foods marketed. 18/ The bill for these agencies increased 237 percent from 1929 to 1963 while the total increased 368 percent. Some of the principal factors contributing to this slower increase have been a reduction in the services performed by assemblers, more efficient wholesale operations, and assumption of some wholesale functions by retailers. Expansion of some transportation services, such as length-of-haul, refrigeration, and faster handling tended to raise total transportation charges.

Assembly of many farm products has been streamlined considerably in the past 30 years (33). Much of the milk is now hauled in bulk directly to factories, eliminating the costly handling of milk cans. The number of country milk receiving plants also declined. 19/ More meat animals moved direct from farm or feedlot to packer in 1958 than in 1929, bypassing some agents that used to be involved in livestock marketing. The decline in numbers of marketing agencies also has been important in the marketing of eggs and chickens.

According to the 1958 Census of Business, the number of assemblers of all farm products declined from 31,810 in 1929 to 14,096 in 1958. The decrease in the number of assemblers overstates the decline of the assembly functions because other types of business assumed some of these functions. Total sales by assemblers increased about 120 percent (54, 1958, Vol. III, p. 4), although the farm value of food products increased 188 percent; this indicates that assemblers are handling less of the farm production than formerly.

The number of food and grocery wholesale establishments and their sales expanded significantly between 1929 and 1963 (table 15). Total adjusted sales increased 160 percent, while consumer expenditures for farm food went up 298 percent. 20/ The wholesale price index for processed foods increased 86 percent, indicating that much of the rise in wholesale sales was due to higher prices. Other data show that agents and brokers handling food products increased their share of wholesaling; about 70 percent of their sales were to other wholesalers and to manufacturers in 1963.

In summary, increases in the retailers' bill (the largest component of the total marketing bill) contributed most to the rise in the total marketing bill between 1929 and 1963 (45 percent), but the processors' bill showed the largest percentage increase. Assemblers, transportation agencies, and wholesalers accounted for 15 percent of the total rise and had the smallest percentage increase.

MARKETING BILLS FOR PRODUCT GROUPS--THEIR COMPONENTS

The total marketing bill increased 368 percent from 1929 to 1963. The bill for three groups--meat products, fruits and vegetables, and miscellaneous products--

18/ Wholesale and transportation charges for intermediate manufactured foods used in other manufactured products are not included in this part of the bill. They are included in the processor bill.

19/ In 1935, 3,619 cream stations were reported; only 411 were reported in 1963 (54).

20/ Wholesaler sales were adjusted to eliminate sales between wholesalers (double wholesaling). Before adjustment, sales increased 182 percent. Another important factor which retarded wholesale sales was the increase in direct selling from one manufacturer to another.

Table 15.--Number and sales of food wholesalers, selected years, 1929-63 1/

Year	Establishments	Total sales	
		Total	Adjusted <u>2/</u>
	Number	Million dollars	Million dollars
1929.....	27,777	13,946	12,164
1935.....	29,062	7,731	6,681
1939.....	28,855	8,604	6,864
1948.....	33,489	24,364	19,789
1954.....	34,026	31,649	24,560
1958.....	33,848	35,706	27,672
1963.....	31,386	39,375	31,587

1/ Data are for merchant wholesalers and manufacturers' sales branches which sell food products. Those specializing in food raw materials such as grain and livestock are excluded. Data for agents and brokers are not included because data are not closely comparable among years.

2/ Adjusted to exclude sales to other wholesalers (double wholesaling). This is an estimate of sales to firms outside the wholesale sector. Data derived from the Census of Wholesale Trade (54).

increased faster than the total, and that for the other three groups increased more slowly (see table 8). Changes in the components of the bill for the individual product groups were often markedly different from changes in the total bill (see table 26).

Meat Products

The marketing bill for meat products increased 428 percent between 1929 and 1963, the second largest increase among the commodity groups. Although the processing bill went up the fastest of the three components, the retail bill accounted for the largest part of the total increase. In 1929, processing accounted for 22 percent of the total bill for meat products, and retailing for 55 percent. By 1963, these proportions had risen to 27 percent and 58 percent, respectively. The bill for assemblers, wholesalers, and transportation agencies increased the least; their proportion of the total meat products bill declined from 22 percent to 15 percent.

The decline for livestock assemblers and meat wholesalers has been apparent for some time. Shorter channels and greater efficiency in the assembly of livestock have kept total assembly costs from increasing as rapidly as other components of the bill. According to Bjorka, assembly agencies accounted for about 9 percent of the total farm-retail spread for meat products in 1939 (5). Other data show that livestock marketing accounted for only 5 percent of the total spread in 1959 (72, p. 3).

Part of the relative decline in the wholesale share of this bill can be attributed to the decline of packer branch houses. These branches handled 47 percent of the packer sales in 1929, but in 1963 they handled only 14 percent. The share of independent wholesalers declined from 1929 to 1948, but has increased a little in recent years. The decline in meat wholesaling accompanied an increase in direct sales from packers to retail stores, although this trend may have been reversed in more recent years.

The increase in the functions performed by retailers (such as performing part of their own wholesale operations) was partly responsible for the rise in the bill for retailers. This retail bill was affected by larger volumes, increased costs of performing services, and the added cost of services formerly performed by wholesalers. Efficiency in handling meat in retail stores probably improved less than efficiency in handling groceries. Although self-service meat counters are now in common use, much hand labor is still required in preparing meat for sale.

The shift from cured meats and other processed meats to fresh meats also was an important factor. 21/ Handling cured meats at the retail store level lends itself quite well to self-service. On the other hand, fresh meats require extensive cutting, boning, and trimming, most of which is done by hand. Thus, the labor cost and the total retail meat margin increased because of the shift in the product mix. This increase was partly offset by improved efficiency and the introduction of mechanized equipment, where feasible.

Dairy Products

During 1929-63, total marketing charges for dairy products increased 303 percent--somewhat less than for all farm products. Increases in the components of the marketing bill followed the same pattern as for meat products. The processor bill increased the most and the wholesale bill the least. For this group, the processing margin was the largest component.

The rising importance of fluid milk products and the increase in the unit marketing charge for these products helped push the total bill upward. 22/ Concurrently, shift from home delivery of milk to purchases in retail stores tended to slow the increase in the bill. 23/ The decline in direct sales by farmers to consumers also added to the marketing bill. Whereas direct sales accounted for about 40 percent of the farm value of fluid milk and cream in 1929, they accounted for only 10 percent by 1958. This meant that the marketing system had to handle a larger share of distribution services. 24/

Butter played a major role in the slower-than-average increase for manufactured dairy products. Between 1929 and 1963, per capita civilian consumption of butter declined 60 percent, and that of all milk including butter (on a milkfat equivalent basis) declined 23 percent. 25/ Because of the importance of butter in the group, substitutions of vegetable oils for butter were primarily responsible for the smaller-than-average increase in the marketing bill for all dairy products. The farm-retail price spread for butter increased about 25 percent from 1929 to 1963, compared with an increase of 105 percent for all dairy products (41, 45, 52).

21/ According to Waldorf, meat processing services per unit of farm raw material declined from 1929 to 1958 (66, p. 12).

22/ The processor bill for fluid milk includes charges for distribution services by the processors to homes and stores, and charges for some wholesale services.

23/ According to the U.S. Bureau of Labor Statistics (BLS), the 1963 average price of milk delivered to homes was about 7 percent above the retail store price.

24/ The quantity of milk sold directly to consumers was 30 percent of the total in 1929 and 5 percent in 1958.

25/ Per capita consumption of dairy products on a retail product weight basis was about 2 percent less in 1963 than in 1929, though it was considerably higher in some intervening years. There was a substantial decline in milkfat consumption and an increase in solids not fat (53).

Poultry Products

The marketing bill increased less for poultry products than for any other major product group. Several factors were responsible for the slow increase: (1) Per capita consumption of eggs declined, especially after 1952, (2) efficiency in assembling eggs and poultry and in dressing poultry increased significantly, and (3) per unit processing and distribution costs for poultry meat were held down by economies made possible by large volume and specialization.

Unlike most other commodity groups, the retailer bill for poultry and eggs increased less than the wholesaler, transportation, and assembler bill during 1929-63. Gains in efficiency in the wholesaling and transportation of poultry and eggs did not keep pace with those in assembling and processing. The increase in the transportation bill was attributed partly to longer hauls of eggs and poultry. Thirty years ago, poultry meat production was largely for local markets and distances to markets were shorter. In recent years, broiler production has become concentrated in a few specialized areas and the dressed products are transported to distant markets. This trend has been less pronounced for eggs.

The average farm-retail spread for poultry rose about 49 percent between 1929 and 1963, although the general price level increased nearly 80 percent. Apparently, the effects of greater volume, shift to younger chickens, and improved efficiency partly offset rising costs. The farm-retail spread for eggs increased 37 percent between 1929 and 1963, also considerably less than the 84-percent increase for all farm food products.

Fruits and Vegetables

The total bill for marketing fruits and vegetables increased 426 percent between 1929 and 1963, the third largest increase among the product groups. The processor bill increased partly in response to the shift from fresh to processed products. Per capita consumption of fresh fruits and vegetables (including potatoes and sweet potatoes) declined rather sharply during the last three decades, while consumption of the processed products increased. This meant that the fruit and vegetable processing industry not only had to keep pace with population, but had to supply the increased demand resulting from changes in consumer preferences.

Improved technology in canning and freezing of fruits and vegetables provided greater convenience, availability, and quality than was offered by fresh products; this probably induced consumers to make the switch from fresh to processed products. Frozen fruits, vegetables, and prepared foods accounted for nearly 25 percent of consumer expenditures for the processed products in 1958; 30 years ago this industry was hardly recognizable. ^{26/} Since 1958, frozen foods have become even more prominent. The most popular frozen fruits and vegetables are orange juice, strawberries, potatoes, and peas. A shift from home canned to commercially processed products resulted from greater efficiency in factory canning, the decline in rural population, increases in income, and the rise in the number of women in the labor force.

^{26/} Prepared foods include foods such as frozen dinners, baked products, and pot pies. These items accounted for about one-third of manufacturers' shipments of frozen fruits, vegetables, and prepared foods in 1958. Seafoods, meat, and poultry are not included in this group.

In addition, rural families formerly supplied a considerable portion of their fruits and vegetables from home gardens. Many migrated to cities and towns and switched to commercial sources of supply; they also changed their consumption habits to include more processed products than they did when living in rural areas.

The retail bill did not rise as fast as the processor bill because the total volume of all fruits and vegetables moving through retail channels was not affected by the increase in processing. Moreover, retail markups are higher for fresh than for processed fruits and vegetables. Thus, the shift from fresh to processed products dampened the growth in retail charges, while processing charges were increasing rapidly. However, the absorption of some warehousing functions by some retailers tended to raise the retail bill and reduce the wholesale bill. Retail chains often purchase canned foods directly from manufacturers for delivery to their own warehouses. This direct buying of processed fruits and vegetables increased dramatically between 1929 and 1947. Since that time the trend has leveled off.

The bill for assembly, transportation, and wholesaling also was less important because of the shift to processed products. Transportation costs were lower for processed fruits and vegetables than for fresh products, though the saving was not as great for frozen as for canned products. Wholesale charges tended to be lower for processed products because a larger share bypassed the wholesaler. Assembly margins were considerably lower for products used in processing than for those used for fresh market because products for processing generally were hauled directly from field to processor. The cost of packing fresh fruits and vegetables was included in assembly, which also caused a higher assembler margin than for processed products.

The fruits and vegetables group illustrates the effect of additional marketing services on the farm share. This share has always been higher for fresh than for processed products. The difference is explained by the more extensive marketing services involved in the processed items and by the higher farm prices for fresh items. Thus, a shift from fresh to processed products would reduce the farmer's share for all fruits and vegetables. From 1929 to 1958, the farm value of fresh fruits and vegetables, as a percentage of the farm value of the total fruits and vegetables group, declined from 85 to 61 percent (table 16). The farmer's share for each of the two subgroups also declined; this factor also caused a decrease in the farm share for the total group (table 17). But the share for the total group declined more than the share of either subgroup because of the shift from the unprocessed products with a relatively high farm share to the processed products with a relatively low farm share. Farm prices of processed and fresh products do not necessarily move together, so the farm share could be affected by changes in relative prices alone.

Bakery and Cereal Products

Total marketing charges for the bakery and cereal products group had next to the smallest rate of increase among the product groups (poultry products increased the least). The farm-retail price spread for bakery and cereal products more than doubled from 1929 to 1963, a much faster rise than the average for all farm food (41). The volume of these products, however, increased much less than the volume of all foods. The net result was the relatively small increase in the bill for this group.

Bakery products contributed over 70 percent of the total dollar increase in the marketing bill for the bakery and cereal products group during 1929-63, but the

Table 16.--Fruits and vegetables: Relative importance of fresh and processed subgroups in the farm value of the total group, selected years, 1929-58

Year	Total group	Fresh products	Processed products ^{1/}
	Percent	Percent	Percent
1929.....	100	85	15
1935.....	100	80	20
1939.....	100	80	20
1947.....	100	76	24
1954.....	100	66	34
1958.....	100	61	39

^{1/} Processed products include canned spaghetti, soups, other specialty items, frozen prepared foods, and potato chips, in addition to the traditional processed fruits and vegetables.

Table 17.--Fruits and vegetables: Farm value as a percentage of consumer expenditures, selected years, 1929-58 ^{1/}

Year	All fruits and vegetables	Fresh and dried fruits and vegetables	Processed fruits and vegetables
	Percent	Percent	Percent
1929.....	35	41	20
1935.....	30	33	21
1939.....	26	29	17
1947.....	35	41	24
1954.....	27	30	22
1958.....	24	29	18

^{1/} For farm food products sold to civilian consumers. Processed fruits and vegetables include canned soups, spaghetti, other specialty items, frozen prepared foods, and potato chips, in addition to the traditional processed fruits and vegetables.

rate of growth among grain mill products was a little higher than that for bakery products. The rapid growth in the bill for breakfast cereals, macaroni products, baking mixes, and rice overshadowed the slow growth for family flour. Bakery products accounted for 58 percent of the farm value of bakery and cereal products in 1963 compared with 46 percent in 1929. Nearly all of this increase came after 1947. Part of the expansion reflects the shift from baking in homes, restaurants, and institutions to factory baking.

Processing charges increased the fastest of any components of the total bill for the bakery and cereal group. Additional processing services per unit, as well as higher prices of services and expanded volume, contributed to the higher bill for processing. The reduction in the amount of home-delivered bakery products tended to retard the rapid growth in this bill.

The retailing bill for bakery and cereal products went up less than the total bill. Of the three component bills, the bill for assembly, transportation, and wholesaling increased the least.

Data for bread give an indication of the changes in unit spreads for bakery products and flour (table 18). 27/ Between 1947 and 1963, the farm-retail spread for bread increased 115 percent. The spread between the wholesale price and the price to consumers increased 147 percent, while the spread for baking and distribution to retail stores rose 133 percent. The spread for flour milling went up 43 percent. Comparison of this last increase with the 53-percent expansion in the farm-retail spread for white flour shows that the distribution spread for flour rose from 1947 to 1958 (53).

Increases in the production of blended and prepared flours contributed significantly to the bill for grain mill products. The quantity of plain wheat flour purchased for home use declined by more than one-third from 1939 to 1958, while purchases of blended and prepared flour mixes increased about 45 percent. 28/ The processing margins for these types of flour are higher because additional services are involved. Thus, the replacement of plain flour by mixes tended to increase the bill for all flour products because the marketing cost for mixes was higher than for plain flour. The increase in the bill for blended flours and mixes did not completely offset the reduction for plain flour, so the total for flour rose.

Per capita consumption of breakfast cereals declined during 1929-63, but the unit farm-retail spreads increased more than the average for all foods. The result was a larger increase in total marketing charges for these products than for the bakery and cereal group as a whole.

Miscellaneous Products

The miscellaneous products group contains several diverse products: Fats and oils, sugar, confectionery products, soft drinks, flavorings and sirups, tree nuts, and other miscellaneous products. Its marketing bill was next to the smallest of the product groups, even though it increased more than for any other group. 29/

A few selected statistics show the general trend for some of the products in this group. Total utilization of fats and oils in shortening, cooking oils, and margarine increased 132 percent between 1929 and 1958. 30/ This amounted to more than a

27/ Bread margins data were obtained from Spreads in Farm-Retail Spreads of White Bread (50) and similar preceding publications.

28/ Plain flour is that destined for sale without further commercial processing, and includes flour used in households and restaurants. It excludes flour used in commercial bakeries and in prepared mixes.

29/ It was difficult to determine the causes of the increase because several variables were responsible for the changes. Heterogeneous groups with divergent trends were involved. Also, the importance of sugar, one of the principal products, varied as the proportion of domestic production changed. This changing proportion also affected the bills for confectionery products, soft drinks, flavorings, and other miscellaneous products. Bakery products and processed fruits and vegetables also were affected by imported sugar, but the impact was much less for those groups. Some fats and oils were imported, but these were relatively minor in food products, especially in more recent years.

30/ See FOS-222, Mar. 1964, p. 30 (49).

Table 18.--White bread: Farm-retail spread and its components for a 1-pound loaf of bread, 1947-63 1/

Year	Farm-retail spread <u>2/</u>	Retail spread <u>3/</u>	Baking-wholesaling spread <u>4/</u>	Miller's flour spread <u>5/</u>	Other spreads <u>6/</u>
	Cents	Cents	Cents	Cents	Cents
1947.....	8.2	1.5	4.9	.7	1.1
1948.....	9.7	1.9	6.0	.6	1.2
1949.....	10.3	2.3	6.3	.5	1.2
1950.....	10.5	2.1	6.7	.6	1.1
1951.....	11.6	2.2	7.5	.6	1.3
1952.....	12.0	2.4	7.8	.6	1.1
1953.....	12.4	2.3	8.1	.6	1.4
1954.....	13.0	2.2	8.6	.6	1.6
1955.....	13.6	2.2	9.2	.6	1.6
1956.....	14.0	2.1	9.7	.7	1.4
1957.....	14.8	2.7	9.9	.8	1.4
1958.....	15.6	2.7	10.5	.8	1.6
1959.....	16.1	2.6	11.2	.8	1.5
1960.....	16.6	3.0	11.2	.9	1.5
1961.....	17.0	3.3	11.3	1.0	1.4
1962.....	17.1	3.5	11.1	1.0	1.5
1963.....	17.6	3.7	11.4	1.0	1.5

1/ Data obtained from Spreads in Farm-Retail Prices of White Bread (50) and similar preceding publications. However, farm-retail, retail, and baking-wholesaling spreads have been revised since this publication was issued.

2/ Difference between retail store price of 1-pound loaf and the farm value of equivalent quantities of farm products used in its manufacture.

3/ Difference between wholesale and retail prices. 4/ Difference between the wholesale price and cost of ingredients to the baker. 5/ Difference between the cost of wheat and the mill sales value of flour. 6/ Charges for transporting, handling, and storing all ingredients and processing ingredients other than flour.

60-percent expansion in per capita consumption. (This increase was offset by a decrease in butter consumption.) The farm-retail spread for vegetable shortening increased 47 percent (41, 45, table 106).

Per capita consumption of all sugar and sirup products was about the same in 1963 as in 1929. Consumption of domestic sugar increased sharply between 1929 and 1939; there was a slight decrease in this percentage from 1939 to 1958. 31/ The increase was mainly the result of gains in domestic sugar beet production. The farm-retail spread for beet sugar increased about 70 percent between 1929 and 1958.

Wet corn milling products were also important in the miscellaneous group, but their importance was less in 1958 than in 1929. Only finished products were

31/ The domestic portion increased sharply after 1959 as a result of the addition of Hawaii as a State in 1960 and the increase in mainland cane and beet area quotas after 1960 when the Cuban quota was abolished.

included; increasing proportions of corn oil, corn sugar, corn sirup, and corn starch are used as ingredients in other products. Gluten feed, gluten meal, and other wet corn byproducts were not included in the food marketing bill.

CHANNELS OF TRADE

Marketing channels for domestic food products changed significantly between 1929 and 1958. The most important channel for manufactured foods in 1958 was: Processor to wholesaler to retailer to consumer. Part of the farm products moved through assemblers to manufacturers, while the rest went directly from farmers to manufacturers. Most nonmanufactured foods moved through the following channel: Farmer to assembler to wholesaler to retailer to consumer. Some of the intermediaries were bypassed by direct sales; the most important direct channels were direct sales by manufacturers to retailers, by assemblers to retailers, and by farmers to consumers.

Direct Sales by Farmers

Direct sales by farmers to consumers, retailers, and wholesalers decreased relative to total farm sales between 1929 and 1958. ^{32/} These sales were important for some individual groups of foods during the period. For example, direct sales of fluid milk and cream to consumers represented about 5 percent of the farm value of all dairy products in 1958; in 1929 they accounted for about 20 percent. Nearly 10 percent of the farm value of meat products was derived from sales to wholesalers and retailers; this percentage was somewhat less than in 1929. This channel includes both farm dressed meat and sales of animals slaughtered in wholesale and retail establishments. Eggs, poultry, and fresh fruits and vegetables were the only other products for which direct sales were significant.

Assembly

No estimates of the volume of products moving through assemblers were made. One indication of the relative decline of assemblers is the number of establishments and sales reported in the Census of Business (table 19). ^{33/} Cash receipts from farming increased 230 percent between 1929 and 1963, while sales by assemblers increased only 140 percent. The number of assembly establishments declined 56 percent. Another indication of the relative decline of the assembler was the decrease in the assembler bill as a percentage of the total bill--from 7 percent in 1929 to 3 percent in 1963 (table 28). The data indicate a 9-percent increase in assembler sales between 1958 and 1963, a reversal of the 1948-58 trend.

The decline in relative importance of the assembly bill was largest for dairy products and fruits and vegetables.

Distribution of Manufacturers' Sales

The distribution of manufacturers' sales to wholesalers, retailers, and consumers changed considerably from 1929 to 1958. In 1929, 36 percent was sold directly to

^{32/} Sales to assemblers are not included in direct sales to wholesalers.

^{33/} These data include only those establishments that buy mainly from farmers in production areas. Some merchant wholesalers and agents also perform assembly functions, especially for livestock and grain.

Table 19.--Establishments and sales of assemblers of farm products, and farmers' cash receipts, selected years, 1929-63

Year	Establishments <u>1/</u>	Sales <u>1/</u>	Farmers' cash receipts <u>2/</u>
	Number	Million dollars	Million dollars
1929.....	31,810	4,084	11,312
1939.....	22,508	2,114	7,872
1948.....	16,787	9,920	30,227
1954.....	13,255	9,051	29,953
1958.....	14,096	8,999	33,405
1963.....	14,110	9,820	37,253

1/ 1958 Census of Business, Vol. III, p. 4, table C (54).

2/ Agricultural Statistics, 1962, p. 566 (51).

retailers. By 1947, this channel accounted for 44 percent and remained at this level through 1958. One of the big factors in this rise was the increase for meat products (72). But there is some evidence that the upward trend in direct sales of meat to retailers has leveled off in recent years.

The increase in the percentage of manufacturers' direct sales to retailers was less spectacular for processed fruits and vegetables than for meat. In recent years, the rising trend of direct sales of processed fruits and vegetables has slowed down. To save significantly on direct purchases from manufacturers, a retailer must buy in large lots. With increases in the number of grocery items and the number of brands carried, the average turnover rate for particular brands has been reduced. It is probably as profitable to buy many slower moving items in smaller lots from a local distributor or branch house as to deal directly with the manufacturer. This system also may allow the chain organization to hold down the size of its warehouse and the amount of investment in special facilities, such as freezer space. Wholesalers have improved their services in recent years and have been able to assure retailers of more adequate supplies than formerly. In addition, wholesalers have been able to lower unit costs because many of their customers have larger retail stores and buy in larger lots than in earlier years.

After World War II, cooperative and voluntary chains improved their position. As a result, the growth of corporate chains slowed down. Since the cooperative and voluntary chains obtained most of their supplies from cooperating or sponsoring wholesalers, direct sales by manufacturers did not grow as rapidly as they would have if these chains had not become important.

The growth in the proportion of manufacturers' sales direct to retailers was accompanied by a decline in the proportion sold to wholesalers--from 52 percent in 1929 to 46 percent in 1958. From 1929 to 1958, there was a 21-percent increase in the number of wholesale establishments; sales of these establishments increased about 168 percent. Most of the sales increase was caused by higher wholesale prices (table 20). Sales increased about 21 percent during 1958-63, while wholesale prices of processed foods declined 2 percent.

Direct sales by manufacturers to consumers declined from 12 percent in 1929 to 10 percent in 1958. The major commodities involved in this channel were fluid

Table 20.--Food wholesalers: Number of establishments and sales, selected years, 1929-63

Year	Merchant wholesalers			Manufacturers' branches and offices		
	Establish- ments 1/	Total sales 1/	Net sales 2/	Establish- ments 1/	Total sales 1/	Net sales 2/
	Number	Million dollars	Million dollars	Number	Million dollars	Million dollars
1929	23,623	10,086	8,975	4,154	3,860	3,189
1935	25,422	5,150	4,571	3,640	2,581	2,110
1939	24,768	5,703	4,893	4,087	2,901	1,971
1948	29,252	16,682	14,083	4,237	8,921	6,539
1954	29,795	22,058	17,491	4,231	9,591	7,069
1958	30,022	25,201	20,062	3,826	10,505	7,610
1963	29,290	30,854	25,645	3,435	12,326	8,131
	Agents and brokers			Total wholesalers		
	Establish- ments 1/	Total sales 1/	Net sales 2/	Establish- ments	Total sales	Net sales
	Number	Million dollars	Million dollars	Number	Million dollars	Million dollars
1929	3,958	3,396	1,393	31,735	17,342	13,557
1935	3,724	2,575	954	32,786	10,306	7,635
1939	4,016	2,816	859	32,871	11,420	7,723
1948	4,326	7,265	2,640	37,815	32,868	23,262
1954	4,056	9,729	3,287	38,082	41,378	27,847
1958	4,559	10,801	3,644	38,407	46,507	31,316
1963	4,397	13,093	6,035	37,122	56,273	39,811

1/ From Census of Business, Wholesale Trade (54). Merchant wholesalers include general line grocery, specialty line grocery, farm products (edible, except fluid milk dealers in 1929-48), confectionery, and meat wholesalers; manufacturers' sales branches and sales offices and agents and brokers include similar lines of trade. Assemblers are not included.

2/ Net sales are total sales less sales to other wholesalers. Some of the net sales in 1954 and 1958 were derived from data obtained in the 1948 Census of Business. Some totals for 1929 were estimated.

milk and cream, confectionery products, and bakery products. The percentage of fluid milk sales made directly to consumers declined sharply between 1929 and 1958. The percentage of bakery products sold directly to consumers did not change greatly from 1929 to 1958. This percentage varied widely among different types of bakery manufacturers. Retail shops with baking facilities on the premises sold most of their output to consumers, while biscuit and cracker manufacturers made few direct sales to consumers. Bakers of bread and related products, the largest segment of the industry, sold about 15 percent of output directly. For confectionery products, there was no significant trend in the percentage of direct sales. Most of these sales were in retail shops which made confectionery products on the premises.

Distribution of Wholesalers' Sales

Wholesalers sold products mainly to retail stores, eating places, and consumers. Sales to consumers accounted for about 1 or 2 percent of wholesalers' sales throughout the 1929-58 period. The percentage of sales made to eating places increased from 23 percent in 1929 to 25 percent in 1958, although it had declined to 19 percent in 1935. Sales to retailers accounted for 76 percent of wholesalers' sales in 1929 and 73 percent in 1958. The increase in the percentage of wholesalers' sales to eating places and the decrease in the proportion to retail stores resulted from (1) an increase in volume of food sold through eating places and (2) a shift by retailers to direct purchases from manufacturers.

Eating Places and Retail Stores

The relative importance of eating places as marketers of food increased from 1929 to 1958. 34/ The number of establishments, number of employees, and total sales all increased faster for eating places than for retail food stores (table 21). The number of eating places increased 67 percent from 1929 to 1963, while retail food stores declined 33 percent. Sales of eating places went up 555 percent, compared with a 455-percent increase for retail food stores. The number of paid employees in eating places increased 212 percent from 1929 to 1963; those in food stores increased 95 percent. 35/ Thus, sales per paid employee rose 89 percent in eating places, compared with 163 percent in food stores. These trends continued during 1958-63. The consumer price index for food increased 83 percent during 1929-58. 36/

General stores were the major type of nonfood store which sold food. It was estimated that food made up about three-fifths of their sales in 1929, and that these stores accounted for about one-tenth of all food sold in retail stores. By 1948

34/ Hospitals, schools, travel agencies, and institutions are also included in the marketing bill of eating places.

35/ Estimates of the number of full-time equivalent employees (including unpaid family workers and proprietors), regardless of type of store, indicate an increase of 6 percent from 1929 to 1963 for retail stores and 126 percent for away-from-home eating places. The estimated number of unpaid family workers decreased more in food stores than in eating places.

36/ Sales per employee are not an accurate measure of productivity because of differences in price levels and the amount of services performed. However, the wide difference between the rates of increase in sales per employee leaves little doubt that productivity in retail stores increased faster than in eating places, even after adjustment for differences in rising price trends and differences in the quantity of services performed.

Table 21.--Establishments, sales, and paid employees in retail food trade, selected years, 1929-63

Year	Food stores 1/			Eating Places		
	Establish- ments	Sales	Paid employees	Establish- ments	Sales	Paid employees
	Thou.	Mil. dol.	Thou.	Thou.	Mil. dol.	Thou.
1929....:	478	10,277	652	134	2,125	478
1935....:	523	7,907	679	153	1,667	496
1939....:	551	9,568	717	170	2,135	595
1948....:	500	29,438	924	194	6,468	968
1954....:	384	39,762	1,026	195	8,731	1,056
1958....:	356	49,022	1,184	230	11,038	1,313
1963....:	319	57,079	1,274	224	13,919	1,490

1/ Fluid milk dealers were excluded in 1929-48. Data for 1948-63 include some retail bakeries with baking on the premises, which were not included in earlier years. In 1948, there were 16,000 of these bakeries with sales of \$562 million and 68,000 paid employees.

Source: Census of Business, retail trade for each year (54).

(the latest data available), their sales of food accounted for about 45 percent of their total sales and for only about 2 percent of retail store sales of food. Since 1948, these percentages have undoubtedly declined further. Sales of general stores declined nearly 60 percent during 1929-58, while sales of food stores increased rapidly. 37/

Changes in the importance of food handled by institutions, such as schools, hospitals, and governmental institutions, were not clear cut. According to Burk (8, pp. 42 and 92), the value of food furnished employees, students, and inmates amounted to about 3 percent of all food expenditures in both 1929 and 1958. Apparently, this estimate did not include the value of food handled in public schools, which amounted to about \$1 billion in 1958 (1, p. 13). 38/ Since food served in public schools increased relative to total food consumption, it would seem that the institutional market, including schools, grew relative to the total food market. Another estimate of this institutional market was contained in a report by the National Restaurant Association (23). According to that estimate, the wholesale value of food served by institutions, hospitals, schools, colleges, and airlines was \$1.5 billion. 39/ This amounted to about \$2.6 billion after allowance was made for preparation and serving.

37/ In 1963, food sales in general merchandise stores, which include general stores, were 13 percent of total sales of those stores.

38/ The wholesale value of food served in public schools in 1958 was \$0.6 billion, which was approximately equivalent to \$1.0 billion after preparation. The value of this food was included in the value of meals sold in eating places.

39/ Food served in "group quarters" was excluded because it was thought that military purchases were the major component. Other estimates of military purchases approximated the total for "group quarters." Note also that the National Restaurant Association estimate for schools was considerably less than the \$0.6 billion mentioned above.

MARKUPS IN FOOD MARKETING

The farmer's share of the consumer's food dollar declined between 1929 and 1958; this meant that the percentage markup of civilian expenditures over the farm value increased. Markups (ratio of sales to cost of food purchased) for the three major agencies--processors, wholesalers, and retailers--were higher in 1958 than in 1929; this increase indicates that marketing charges rose faster than the cost of food materials (table 22). Increases in markup rates were not steady during 1929-58. In 1939, when farm prices were relatively low, the rates were about the same as in 1958. The markups were higher in 1932-33 when the farmer's share reached extremely low levels. Data were not available for measuring the components of the marketing bill in those years. In 1947, farm prices were near record-high levels and the markups were the lowest for any year shown. During the war years 1942-45, the farmer's share reached a peak, so the markup rates were lowest at that time. Price controls kept wholesale and retail prices from increasing as fast as farm prices. Government payments to marketing agencies also helped keep marketing charges down during the war.

Table 22.--Selected markup rates in marketing farm food products,
selected years, 1929-58 ^{1/}

Year	Processors ^{2/}	Wholesalers ^{3/}	Retailers ^{4/}	Total, all agencies ^{5/}
:	<u>Ratio</u>	<u>Ratio</u>	<u>Ratio</u>	<u>Ratio</u>
1929.....:	1.67	1.16	1.37	2.40
1935.....:	1.82	1.18	1.39	2.66
1939.....:	1.89	1.20	1.41	2.85
1947.....:	1.58	1.15	1.32	2.17
1954.....:	1.81	1.17	1.38	2.71
1958.....:	1.90	1.18	1.41	2.83

^{1/} These are ratios of agency sales to agency purchases, commonly known as markup rates (MR). They may be converted to gross margins (GM) as a percentage of sales by the identity: $GM = \frac{MR - 1.00}{MR}$, where $GM = \frac{\text{Margin} = \text{Sales} - \text{Cost}}{\text{Sales}}$ and $MR = \frac{\text{Sales} = \text{Margin} + \text{Costs}}{\text{Cost}}$

^{2/} Includes wholesale and transportation charges between processors for intermediate products.

^{3/} The ratio of sales (excluding sales to other wholesalers) to purchases (excluding purchases from other wholesalers).

^{4/} Includes both retail stores and eating places.

^{5/} The total markup is the ratio of total consumer expenditures for farm food products to the farm value, and is equal to reciprocal of the farm share.

The percentage markup for manufacturers increased more than that of any other group between 1929 and 1958. After 1947 decreases in prices received by farmers reduced their costs for raw materials. Their markups also included labor costs (which constituted a large proportion of their operating expenses) and costs of large quantities of purchased manufactured products such as containers and packaging materials. Since labor, packaging, and other operating costs increased more than

costs of the raw farm products, the markups increased substantially. ^{40/} Another factor contributing to the increase in the manufacturers' markup was the shift to products with larger markups. Processed fruits and vegetables and miscellaneous products, which had some of the largest markups, increased in relative importance. However, bakery products, which also have relatively large percentage markups, declined in importance.

The wholesalers' markup increased between 1929 and 1939 as farm prices declined, receded to a level slightly below the 1929 level by 1947, and rose gradually from 1947 to 1958. These changes were smaller than those for processors because (1) wholesalers occupied a more advanced position in the marketing process--so changes in farm prices did not affect their purchases as greatly, and (2) the wholesale margin was relatively small.

Retailers feel the effects of changes in farm prices less than any other marketing agency. For example, if the farm value of a retailer's purchases were 50 percent, a 10-percent decrease in farm prices would reduce his cost by only 5 percent. This same decrease in farm prices would affect wholesale costs by more than 5 percent because the farm value would be a larger proportion of the wholesaler's purchase price.

Retail percentage markups (including those of eating places) increased more than wholesale markups as the result of several factors:

1. In recent years added services in retail food stores tended to increase their markups.
2. Markups for eating places rose relative to retail store markups.
3. The larger proportion of food sold through eating places increased the average retail markup.

The effect of these factors was partly offset by the shift from small clerk-service stores to self-service supermarkets which tended to reduce the average markup of retail food stores.

The average markup for all marketing agencies showed wider fluctuations than markups of manufacturers, wholesalers, or retailers because the farm value was the base for computing the average markup. Marketing costs in general rose and fell less than farm prices, and often there was no apparent correlation between the two. Both were affected by the Great Depression; farm prices rose faster than marketing charges during 1940-47. Marketing costs rose almost steadily after 1947, while farm prices generally declined. So the net result was an increase in the markup between 1929 and 1958.

^{40/} The BLS Wholesale Price Index for all commodities, except farm products and processed foods, increased 92 percent during 1929-58, while the wholesale price index of farm products increased 62 percent. Average hourly earnings of production workers in nondurable manufacturing industries increased 364 percent between 1932 and 1958. Much of this latter increase was offset by improved productivity.

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APPENDIX A: COMPARISON WITH RELATED SERIES

Personal Consumption Expenditures

Consumer expenditures for farm foods are less than personal consumption expenditures (P.C.E.) for food and beverages as reported by the U.S. Department of Commerce (63).

The farm food series excludes imported foods, seafoods, food furnished military personnel, and alcoholic beverages; P.C.E. includes these items. Categories of expenditures included in the farm food series, but excluded from P.C.E. categories, are: Food costs included in other charges such as meals served airline passengers and meals served hospital patients; food furnished by Government agencies to schools, needy persons, and inmates of institutions; and meals purchased as a business expense.

Adequate data are not available for a precise reconciliation of the two series.

Table 23 shows a comparison of the P.C.E. for food and beverages and consumer expenditures for farm food.

Value Added by Manufacturers

Changes in the processors' marketing bill did not always correspond closely with changes in value added reported in the Census of Manufactures for similar product groups (table 24). The differences between them are accounted for by the inclusion in the processors' bill of purchased materials such as packaging materials, containers, supplies, fuel, power, and other miscellaneous items which are excluded from value added. There also were differences in the products covered by the processors' bill and the products covered by the census value added. For a few industries such as fluid milk and dressed poultry, the census coverage was inadequate in most years; the commodity flow coverage for these industries was more complete. At least part of the divergence between 1947 and 1954 was caused by the change to "adjusted value added" by the census in 1954.

Table 23.--Comparison of personal consumption expenditures for food and beverages and consumer expenditures for farm foods, selected years, 1929-63

Year	Personal consumption expenditures for food and beverages 1/	Consumer expenditures for farm foods 2/
	<u>Million dollars</u>	<u>Million dollars</u>
1929.....	19,544	17,960
1935.....	16,190	13,815
1939.....	19,149	15,294
1947.....	52,345	41,937
1954.....	65,402	51,152
1958.....	76,381	60,994
1963.....	88,173	71,519

1/ From Survey of Current Business, November 1965 (63). 2/ Table 28.

Table 24.--Comparison of food processors' marketing bill and value added, selected years, 1929-63

Year	Food processor marketing bill 1/	Index (1929=100)	Value added 2/	Index (1929=100)	Ratio of processor bill to value added
	Million dollars		Million dollars		
1929.....	3,529	100	2,998	100	1.18
1935.....	3,032	86	2,169	72	1.40
1939.....	3,429	97	2,748	92	1.25
1947.....	8,218	233	6,852	229	1.20
1954.....	12,297	348	10,867	362	1.13
1958.....	15,832	449	14,242	475	1.11
1963.....	19,031	539	17,667	589	1.08

1/ Difference between the value of manufactured farm food products sold by processors and the cost of the raw farm products estimated in this report.

2/ From 1958 Census of Manufactures, Vol. II, Part 1, pp. 20-21 (55), value added by operating manufacturing establishments; excludes nonfood products such as feeds, manufactured ice, chocolate and cocoa, grease and tallow, and alcoholic beverages, which are also excluded from the food processors' bill.

Markups from Other Sources

Independent estimates of percentage markup rates on purchases were rather limited. Perhaps the most comprehensive survey of retail margins was made by Harold Barger for selected years 1869-1947 (3). Other sources included the Harvard Business School data for chain stores (13) and studies conducted by The Progressive Grocer (26, 31) (table 25).

The commodity flow estimates of the percentage markup for retail stores increased from 1929 to 1939, while Barger's estimate declined. Although unit marketing costs declined from 1929 to 1939, it does not seem likely that they decreased more than

Table 25.--Comparison of average markup rates for retail food stores, selected years, 1929-62 1/

Year	Commodity flow <u>2/</u>	Barger <u>3/</u>	Harvard chain studies <u>4/</u>	Progressive Grocer <u>5/</u>
1929	0.274	0.258	---	---
1935	.293	---	---	---
1939	.293	.243	---	---
1947	.194	.225	---	---
1950	---	---	---	0.223
1954	.237	---	---	.218
1955	---	---	0.221	---
1957	---	---	.256	.242
1958	.237	---	.258	---
1959	---	---	.269	.279
1962	---	---	---	.250

1/ Markup rate is defined as the ratio of total margin to cost of goods purchased for resale. These can be converted to margins as a percentage of sales by the formula: $100 \times \frac{MR}{1.0 + MR} = MS$ where MR = markup rate and MS = margin as a percentage of sales price.

2/ Estimates computed by ERS for this report.

3/ Derived from Barger (3, p. 81). Margins for grocery stores, meat stores, and candy stores weighted together by the sales of each.

4/ Derived from (13, 1955 and 1958 issues).

5/ From studies conducted by The Progressive Grocer (27-31). The data were for different stores in different areas of the country in each of the five studies. Thus, data are not strictly comparable from year to year.

the unit cost of food purchased by retailers as his estimates would imply. ERS estimates show that the farmer's share declined from 42 percent in 1929 to 38 percent in 1939.

Barger estimated that the markup for grocery wholesalers was about 19 percent of purchases in 1939 (includes adjustment for double wholesaling) and that it did not vary in other years. The estimate in this study was about 20 percent for all wholesalers in that year, but it was lower in all other years.

For restaurants and eating places, Barger's markup rose from 119 percent in 1929 to 138 percent in 1947. The markup in this report rose from 92 percent to 107 percent during 1929-47; increased to 119 percent in 1954; and to 123 percent in 1958. Estimates by the National Restaurant Association were 127 percent in 1954 and 133 percent in 1958 (23, p. 17).

Another series on retail markups by food retailers (including eating places) was published by the Department of Commerce (in 63, July 1942, p. 16) for 1929-39. These are shown below, together with the commodity flow estimates:

Year	Commodity flow	Manufactured food	Nonmanufactured food
	Ratio to cost	Ratio to cost	Ratio to cost
1929	0.373	0.335	0.361
1935	.386	.342	.399
1939	.407	.353	.439

Unit Retailing Charges Compared with Census Data

A comparison between commodity flow charges per unit of food sold by retailers (including eating places) shown in table 7 and payroll per unit for retailers derived from the Census of Business is presented below:

Year	Retail charges per unit (commodity flow)	Payroll per unit (census)
	<u>1929=100</u>	<u>1929=100</u>
1929.....	100	100
1935.....	85	87
1939.....	80	82
1947.....	134	134
1948.....	---	146
1954.....	170	179
1958.....	187	197

Payroll per unit was estimated by dividing an index of total payroll by an index of volume handled. The volume index was estimated by deflating food store sales, as reported by the Census of Business (54), by a retail price index.

These two series, unit charges and unit payroll, were not entirely independent because estimates of the total retail charge for the prewar years were derived partly from the payroll data reported in the census. Payroll per unit in 1947 was estimated from 1948 census data and extrapolated to 1947 by the 1947-48 trend in average hourly earnings reported by BLS for retail food stores.

Unit charges for food sold at the retail store level were compared with unit payroll for food stores reported in the Census of Business:

Year	Unit charges by retail store: (commodity flow)	Unit payroll of retail food stores (census)
	<u>1929=100</u>	<u>1929=100</u>
1929.....	100	100
1935.....	83	85
1939.....	76	76
1947.....	111	119
1948.....	---	130
1954.....	144	154
1958.....	156	164

APPENDIX B: THE ESTIMATES

Table 26.--Components of consumer expenditures for farm-originated food products, selected years, 1929-63

Year	Consumer	Farm	Marketing bill			
	expenditures	value	Total	Processor	Wholesaler, transportation, assembly	Retailer
	<u>1/</u>	<u>2/</u>		<u>3/</u>	<u>4/</u>	<u>5/</u>
	Mil. dol.	Mil. dol.	Mil. dol.	Mil. dol.	Mil. dol.	Mil. dol.
All farm food:						
1929	17,960	7,497	10,463	3,529	2,439	4,495
1935	13,815	5,193	8,622	3,032	1,970	3,620
1939	15,294	5,363	9,930	3,429	2,316	4,185
1947	41,937	19,294	22,643	8,218	4,655	9,770
1954	51,140	18,824	32,316	12,297	6,298	13,721
1958	60,994	21,445	39,549	15,832	7,122	16,595
1963 <u>6/</u>	71,519	22,574	48,945	19,031	8,209	21,075
Meat products:						
1929	4,441	2,285	2,156	483	482	1,191
1935	3,044	1,450	1,594	392	369	833
1939	3,731	1,789	1,942	422	367	1,153
1947	12,805	7,464	5,341	1,482	701	3,158
1954	14,662	7,223	7,439	2,041	1,178	4,220
1958	17,468	8,535	8,933	2,505	1,365	5,063
1963 <u>6/</u>	19,847	8,467	11,380	3,065	1,660	6,655
Dairy products:						
1929	3,781	1,807	1,974	873	375	726
1935	2,864	1,307	1,557	709	289	559
1939	3,059	1,347	1,712	819	299	594
1947	7,952	3,869	4,083	1,807	615	1,661
1954	9,763	3,886	5,877	2,951	685	2,241
1958	11,450	4,463	6,987	3,665	783	2,539
1963 <u>6/</u>	12,626	4,667	7,959	3,926	906	3,127
Poultry and eggs:						
1929	1,911	1,221	690	87	184	419
1935	1,383	814	569	64	142	363
1939	1,343	759	584	63	162	359
1947	3,972	2,721	1,251	132	422	696
1954	4,454	2,651	1,803	187	620	996
1958	5,072	2,908	2,164	247	656	1,261
1963 <u>6/</u>	5,241	2,753	2,488	279	671	1,538
Fruits and vegetables:						
1929	3,533	1,244	2,289	411	841	1,037
1935	2,819	840	1,979	333	738	908
1939	3,369	860	2,509	435	972	1,102
1947	7,598	2,646	4,952	963	2,059	1,930
1954	10,278	2,743	7,535	1,771	2,609	3,155
1958	12,950	3,085	9,865	2,736	2,894	4,235
1963 <u>6/</u>	15,670	3,635	12,035	3,477	3,148	5,410

Continued--

Table 26.--Components of consumer expenditures for farm-originated food products, selected years, 1929-63--Continued

Year	Consumer expenditures 1/	Farm value 2/	Marketing bill			
			Total	Processor 3/	Wholesaler, transportation, assembly 4/	Retailer 5/
	Mil. dol.	Mil. dol.	Mil. dol.	Mil. dol.	Mil. dol.	Mil. dol.
Bakery and cereal products:						
1929	3,063	674	2,389	1,189	446	754
1935	2,623	527	2,096	1,121	320	655
1939	2,509	410	2,099	1,181	370	548
1947	5,925	1,717	4,208	2,582	502	1,124
1954	7,425	1,406	6,019	3,576	754	1,689
1958	8,791	1,409	7,382	4,514	932	1,936
1963 6/	10,754	1,590	9,164	5,423	1,183	2,558
Bakery products:						
1929	2,100	308	1,792	969	289	534
1935	1,794	242	1,552	868	205	479
1939	1,812	209	1,603	978	256	369
1947	4,070	876	3,194	2,144	312	738
1954	5,380	860	4,520	3,008	514	998
1958	6,149	797	5,352	3,651	589	1,112
1963 6/	7,708	925	6,783	4,440	768	1,575
Grain mill products:						
1929	963	366	597	220	157	220
1935	829	285	544	253	115	176
1939	697	201	496	203	114	179
1947	1,855	841	1,014	438	190	386
1954	2,045	546	1,499	568	240	691
1958	2,642	612	2,030	863	343	824
1963 6/	3,046	665	2,381	995	386	1,000
Miscellaneous products:						
1929	1,231	266	965	486	112	367
1935	1,082	255	827	413	112	302
1939	1,283	199	1,084	509	146	429
1947	3,685	877	2,808	1,250	357	1,201
1954	4,558	915	3,643	1,711	454	1,418
1958	5,262	1,045	4,217	2,165	491	1,561
1963 6/	7,381	1,462	5,919	2,863	634	2,422

1/ Civilian expenditures for domestic farm food products; imported foods, seafoods, and other foods of nonfarm origin are excluded.

2/ The farm value is the payment to farmers for the products equivalent to those sold to consumers, less imputed values of inedible byproducts.

3/ Includes cost of materials, supplies, containers, and minor food ingredients; also includes distribution charges (including transportation) between manufacturers for intermediate products such as flour used in bakery products.

4/ Excludes transportation and distribution charges for intermediate products used in other foods.

5/ Includes margins, retail taxes, and tips for retail store and away-from-home eating places.

6/ Preliminary.

Detail may not add to total because of rounding.

Table 27.--Components of consumer expenditures, all farm food products, selected years, 1929-63

Year	Consumer expenditures 1/	Farm value 2/	Total marketing bill :	Marketing bill components						
				Assembly 3/	Processors 4/		Transportation 6/	Wholesaler :	Retailer :	Eating places :
	Mil. dol.	Mil. dol.	Mil. dol.	Mil. dol.	Mil. dol.	Mil. dol.	Mil. dol.	Mil. dol.	Mil. dol.	Mil. dol.
1929	17,960	7,497	10,463	713	323	3,206	652	1,074	2,769	1,726
1935	13,815	5,193	8,622	509	320	2,712	615	846	2,386	1,234
1939	15,294	5,363	9,930	557	347	3,082	715	1,044	2,555	1,630
1947	41,937	19,294	22,643	1,290	869	7,349	1,162	2,203	4,984	4,786
1954	51,140	18,823	32,317	1,584	1,041	11,256	1,727	2,988	7,118	6,603
1958	60,994	21,445	39,549	1,547	1,209	15,832	1,911	3,664	8,648	7,946
1963 7/	71,519	22,574	48,945	1,700	---	8/ 19,031	2,110	4,399	11,485	10,220

1/ Civilian expenditures for domestic farm food products; excluded are imported foods, seafoods, and other foods of nonfarm origin.

2/ The farm value is the payment to farmers for the products equivalent to those sold to consumers. The imputed values of inedible byproducts are not included.

3/ Assembly margin includes some transportation from farm to processor, packing of fresh fruits and vegetables, and other handling charges for the raw farm products.

4/ Indirect processing includes the processing and distribution (including transportation) of intermediate food products used in other food products. For example, this category includes charges for transportation and wholesaling of flour used in bakery products, as well as for milling grain into flour.

5/ Direct processing pertains only to the processing of the final product such as processing flour, sugar, and other ingredients into bakery products. Processing charges also include the cost of minor food ingredients, packaging, supplies, fuel, and power.

6/ Transportation charges are only for the finished products destined for consumers. Transportation from farm to manufacturer or assembler is part of the farm value or is included in the assembly bill. Transportation of intermediate products such as sugar used in bakery products is included in indirect processors' bill.

7/ Data for 1963 are preliminary.

8/ Direct processing bill in 1963 also includes indirect processing.

Detail may not add to total because of rounding.

Table 28.--The total marketing bill, farm value, and consumer expenditures, by commodity groups, for domestic farm food products bought by civilians, United States, 1947-65 ^{1/}

Year	All farm foods			Meat products			Dairy products			Poultry and eggs		
	Market- ing	Farm value	Expend- itures	Market- ing	Farm value	Expend- itures	Market- ing	Farm value	Expend- itures	Market- ing	Farm value	Expend- itures
	bill	value	itures	bill	value	itures	bill	value	itures	bill	value	itures
	Mil. dol.	Mil. dol.	Mil. dol.	Mil. dol.	Mil. dol.	Mil. dol.	Mil. dol.	Mil. dol.	Mil. dol.	Mil. dol.	Mil. dol.	Mil. dol.
1947 ...	22,643	19,294	41,937	5,341	7,464	12,805	4,083	3,869	7,952	1,251	2,721	3,972
1948 ...	24,936	19,869	44,805	5,773	7,679	13,452	4,588	4,226	8,814	1,362	3,041	4,403
1949 ...	25,985	17,386	43,371	5,911	6,680	12,591	4,435	3,613	8,048	1,452	2,799	4,251
1950 ...	25,960	18,032	43,992	5,979	7,373	13,352	4,501	3,656	8,157	1,485	2,579	4,064
1951 ...	28,740	20,512	49,252	6,406	8,083	14,489	5,161	4,174	9,335	1,743	3,258	5,001
1952 ...	30,519	20,413	50,932	7,072	7,711	14,783	5,482	4,429	9,911	1,761	3,036	4,797
1953 ...	31,553	19,460	51,013	7,373	7,197	14,570	5,649	4,061	9,710	1,754	3,202	4,956
1954 ...	32,316	18,824	51,140	7,439	7,223	14,662	5,877	3,886	9,763	1,803	2,651	4,454
1955 ...	34,378	18,749	53,127	8,152	6,647	14,799	6,224	4,077	10,301	1,755	2,825	4,580
1956 ...	36,302	19,246	55,548	8,506	6,633	15,139	6,510	4,321	10,831	1,935	2,775	4,710
1957 ...	37,888	20,405	58,293	8,829	7,546	16,375	6,767	4,435	11,202	1,976	2,710	4,686
1958 ...	39,549	21,445	60,994	8,933	8,535	17,468	6,987	4,463	11,450	2,164	2,908	5,072
1959 ...	42,202	20,916	63,118	9,945	8,029	17,974	7,308	4,541	11,849	2,197	2,555	4,752
1960 ...	44,150	21,699	65,849	10,182	8,170	18,352	7,484	4,625	12,109	2,160	2,842	5,002
1961 ...	45,101	22,043	67,144	10,271	8,321	18,592	7,602	4,648	12,250	2,385	2,668	5,053
1962 ...	46,891	22,424	69,315	10,501	8,732	19,233	7,838	4,612	12,450	2,405	2,683	5,088
1963 ...	48,945	22,574	71,519	11,380	8,467	19,847	7,959	4,667	12,626	2,488	2,753	5,241
1964 ...	51,188	23,352	74,540	12,301	8,523	20,824	8,102	4,812	12,914	2,587	2,766	5,353
1965 ^{2/}	52,109	25,506	77,615	11,841	9,944	21,785	8,268	4,923	13,191	2,732	2,937	5,667
	Fruits and vegetables			Grain mill products			Bakery products ^{3/}			Miscellaneous		
1947 ...	4,952	2,646	7,598	1,014	841	1,855	3,194	876	4,070	2,808	877	3,685
1948 ...	5,235	2,454	7,689	1,186	765	1,951	3,734	848	4,582	3,058	856	3,914
1949 ...	5,690	2,335	8,025	1,244	622	1,866	4,070	728	4,798	3,183	609	3,792
1950 ...	5,630	2,278	7,908	1,234	637	1,871	4,055	761	4,816	3,076	748	3,824
1951 ...	6,440	2,649	9,089	1,336	666	2,002	4,397	859	5,256	3,257	823	4,080
1952 ...	7,082	3,008	10,090	1,394	637	2,031	4,532	811	5,343	3,196	781	3,977
1953 ...	7,336	2,737	10,073	1,433	590	2,023	4,596	834	5,430	3,412	839	4,251
1954 ...	7,535	2,743	10,278	1,499	546	2,045	4,520	860	5,380	3,643	915	4,558
1955 ...	8,274	2,844	11,118	1,577	561	2,138	4,661	819	5,480	3,735	976	4,711
1956 ...	8,805	3,064	11,869	1,671	583	2,254	4,736	829	5,565	4,139	1,041	5,180
1957 ...	9,198	3,211	12,409	1,820	615	2,435	5,276	837	6,113	4,022	1,051	5,073
1958 ...	9,865	3,085	12,950	2,030	612	2,642	5,352	797	6,149	4,217	1,045	5,262
1959 ...	10,240	3,355	13,595	2,069	590	2,659	5,843	772	6,615	4,600	1,074	5,674
1960 ...	10,998	3,475	14,473	2,147	603	2,750	6,033	797	6,830	5,146	1,187	6,333
1961 ...	11,164	3,557	14,721	2,210	615	2,825	6,168	861	7,029	5,301	1,373	6,674
1962 ...	11,837	3,554	15,391	2,261	666	2,927	6,471	890	7,361	5,578	1,287	6,865
1963 ...	12,035	3,635	15,670	2,381	665	3,046	6,783	925	7,708	5,919	1,462	7,381
1964 ...	12,390	4,090	16,480	2,513	690	3,203	6,989	947	7,936	6,306	1,524	7,830
1965 ^{2/}	12,811	4,331	17,142	2,644	732	3,376	7,221	1,004	8,225	6,592	1,635	8,227

^{1/} Expenditures represent the market value to consumers of all domestic farm foods bought by civilian consumers in this country. Farm value is adjusted to eliminate imputed value of nonfood byproducts. The marketing bill is the difference between the farm value and expenditures.

^{2/} Preliminary estimates.

^{3/} Farm value of bakery products group includes farm values of flour, milk, eggs, fruit, lard, vegetable shortening, and sugar used in bakery products. Farm values of these ingredients are not included in farm values of other product groups.

Beginning with 1960, estimates in this table are for 50 States.

APPENDIX C: METHODOLOGY

The commodity flow estimates of consumer expenditures, the farm value, and the marketing bill for domestic farm food products were derived by two general methods. ^{41/} For one group of commodities--manufactured farm foods--the starting point was manufacturers' shipments of finished commodities (table 29). A second group--nonmanufactured farm foods--had farm sales as its starting point (table 30).

The first group consisted entirely of manufactured foods destined for final consumption. Transportation charges were added to the manufacturer value; then the sales were distributed to various channels of trade. Wholesaler margins were added and their sales distributed. Retailer margins were added and direct consumer purchases from the various channels were added to obtain total consumer expenditures.

The gross farm value for most manufactured commodities was derived by converting the quantity of each finished product shipped to an equivalent quantity of farm-produced raw materials and multiplying by a farm price. This gross value was adjusted to a net farm value by eliminating the imputed farm value of nonfood byproducts, imports, and exports. A cost to the manufacturer was obtained by a similar method and the assembly charge was the difference between the cost to manufacturer and the farm value. The manufacturing bill was the difference between the value of shipments and the cost to manufacturers.

For nonmanufactured foods, the second group, various marketing charges were added successively to the farm value to arrive at consumer expenditures. ^{42/} At each step, sales of a particular product were allocated to the appropriate distribution channels.

Manufactured Foods

Value of Shipments

The Office of Business Economics, U.S. Department of Commerce, allocated the value of shipments of food products reported in the Census of Manufactures between finished and unfinished products in 1947, 1954, and 1958 and made their estimates available for use in this study. The Department of Commerce published similar estimates for 1939 and earlier years (⁵⁶).

We made further adjustments to eliminate the value of imported foods and nonfarm foods, mainly sugar and seafoods. Other imported foods excluded were chocolate and cocoa products, coffee, pineapple, gum, and spices. Excise taxes on sugar were included in the value of manufactured products.

Transportation

Transportation charges for the finished products were estimated by multiplying the value of shipments for each commodity by a corresponding ratio of transportation

^{41/} These methods are essentially the same as those described by Simon Kuznets (¹⁸) and by the U.S. Department of Commerce (⁵⁸, p. 106).

^{42/} Because of special problems, estimates for two manufactured foods, milk and poultry, were made by the second method (table 29). Nonmanufactured commodities included fresh and dried fruits and vegetables; eggs; meat sold from animals slaughtered by farmers, wholesalers, and retailers; and some minor food commodities.

Table 29.--Manufactured farm foods: Commodity flow from farm value to consumer expenditures, 1958

Item	Value :(Million dollars)
	:
1. Farm value.....	17,171
2. Subtract: Consumer purchases from farmers <u>1</u> /.....	233
3. Subtract: Retail purchases from farmers <u>1</u> /.....	29
4. Equals farm value of products to be processed.....	16,909
5. Add: Assembly bill.....	681
6. Equals: Cost to processor, first stage.....	17,590
7. Add: Bill of first stage processor.....	1,209
8. Equals: Cost to processor, second stage.....	18,799
9. Add: Bill of second stage processor.....	14,623
10. Equals: Value of manufacturers' output.....	33,422
11. Add: Transportation bill.....	1,103
12. Equals: Manufacturers' sales (includes transportation).....	34,525
a. To wholesalers.....	15,970
b. To retailers.....	15,143
c. To consumers.....	3,412
13. Wholesalers' purchases from manufacturers (12a).....	15,970
14. Add: Wholesalers' bill.....	2,550
15. Equals: Wholesalers' sales.....	18,520
a. To eating places.....	4,881
b. To retailers.....	13,185
c. To consumers.....	454
16. Retailers' purchases.....	28,357
a. From farmers (3).....	29
b. From manufacturers (12b).....	15,143
c. From wholesalers (15b).....	13,185
17. Add: Retail bill.....	6,389
18. Equals: Consumer purchases from retailers.....	34,746
19. Purchases by eating places (15a).....	4,881
20. Add: Eating place bill.....	6,033
21. Equals: Consumer purchases from eating places.....	10,914
22. Total consumer purchases (excluding taxes and tips), (2+12c+15c+18+21).....	49,759
23. Add: Taxes and tips.....	897
24. Equals: Total consumer expenditures (including taxes and tips):	50,656
25. Subtract: Farm value (1).....	17,171
26. Equals: Total marketing bill.....	33,485
27. Total marketing bill (5+7+9+11+14+17+20+23).....	33,485
	:

1/ Sales of fluid milk and cream and fresh poultry by farmers to consumers and retailers.

Table 30.--Nonmanufactured farm foods: Commodity flow from farm value to consumer expenditures, 1958

Item	Value (Million dollars)
1. Farm value.....	4,385
a. To assemblers.....	3,230
b. To wholesalers.....	803
c. To retailers.....	281
d. To consumers.....	71
2. Farm sales to assemblers (1a).....	3,230
3. Add: Assembly bill.....	866
4. Equals: Value of assembler shipments.....	4,096
5. Add: Transportation bill.....	808
6. Equals: Assembler sales (including transportation).....	4,904
a. To wholesalers.....	3,940
b. To retailers.....	964
7. Wholesalers' purchases.....	4,743
a. From farmers (1b).....	803
b. From assemblers (6a).....	3,940
8. Add: Wholesale bill.....	1,082
9. Equals: Wholesale sales.....	5,825
a. To eating places.....	1,101
b. To retailers.....	4,687
c. To consumers.....	37
10. Retail store purchases.....	5,932
a. From farmers (1c).....	281
b. From assemblers (6b).....	964
c. From wholesalers (10b).....	4,687
11. Add: Retail bill.....	1,730
12. Equals: Consumer purchases from retail stores.....	7,662
13. Purchases by eating places (9a).....	1,101
14. Add: Eating places bill.....	1,324
15. Equals: Consumer purchases from eating places.....	2,425
16. Total consumer purchases excluding taxes and tips (1d+9c+12+15):	10,195
17. Add: Taxes and tips.....	203
18. Equals: Total consumer expenditures (including taxes and tips):	10,398
19. Subtract farm value (1).....	4,385
20. Equals: Total marketing bill.....	6,013
21. Total marketing bill (3+5+8+11+14+17).....	6,013

revenue to wholesale value per ton. Freight revenue per ton originating was derived from data published by the Interstate Commerce Commission (ICC) (64). In 1958 revenue per ton for rail and truck were weighted together to obtain an estimated average. The weights for trucks were based on the tonnage reported by the ICC in (65) and in (64). The 1958 tonnage for trucks probably is understated, so the average rates may be biased in favor of railroad rates. Statistics for trucks were not available before 1956, so rail revenues were assumed to be representative.

The ICC usually computes revenue per ton originating or terminating-- whichever is larger--because the larger tonnage is more representative of the amount actually hauled by the railroad. Revenue per ton originated for each commodity was used in this report because it was more convenient for use with the manufacturers' value. For some commodities there is an overstatement of the revenue per ton because the amount originated was smaller than the amount terminated. It was assumed that this overstatement would at least partly offset the omission of transportation charges on other than class I railroads and also cover special service charges made by transportation agencies. The number of commodities for which revenue per ton was available was limited, so substitutions of rates for similar products were used wherever necessary when computing the ratio of revenue to value.

Value per ton was derived from Census of Manufactures data on product shipments wherever possible. A few commodities required estimates from scattered sources.

The ratio of revenue per ton to value per ton was multiplied by the total manufacturers' value to estimate total transportation charges. For bakery products and fluid milk delivered directly to consumers, the transportation charge was omitted. It was assumed that the manufacturers' value of these products included the distribution charge.

Distribution of Manufacturers' Sales

Transportation charges were added to the value of shipments and the result was total value of shipments including transportation. This value was then distributed to wholesalers, retailers, exports, and consumers. 43/ The value sold to these various channels was obtained by applying percentages to the total value including transportation. The percentages for 1929-39 and 1958 were based on data published by the Bureau of the Census. 44/ For 1947 and 1954, estimates were derived from many sources of data; for example, (44, 60, 63).

The census data on sales to wholesalers were adjusted for wholesale sales to other manufacturers to make them comparable with finished shipments. This adjustment, based partly on the Census of Business data and partly on other sources, was made because the percentage of manufacturers' sales to wholesalers overstated the percentage of finished products sold to wholesalers. Some of the total sales were sold by wholesalers to other manufacturers for further processing, so the percentage going to wholesalers had to be reduced and percentages going to other channels had to be increased.

In general, the value of finished shipments was on a commodity basis, while the distribution of sales reported by the census was on an industry basis. It was

43/ Wholesalers included manufacturers' sales and branches and offices.

44/ Data for 1929-39 and 1958 were reported in the Census of Business (54) and the Census of Manufactures (55), respectively.

assumed that industry data were representative and could be applied directly to the commodity data. In 1958 the distribution of sales by industry was on a company basis (as opposed to an establishment basis for 1929-39), which made this assumption more risky.

Adjustment for Wholesale Inventories

To obtain the cost of goods sold by wholesalers, it was necessary to adjust manufacturers' sales to wholesalers for changes in inventories held by wholesalers. This adjustment was small; thus, errors in the data would not significantly affect the final results.

The method of adjustment was adapted from Kuznets (18). It was an iterative process in which a ratio of change in stocks (at cost) to cost of wholesale sales was multiplied by manufacturers' sales to wholesalers and the result subtracted (algebraically) from manufacturers' sales to wholesalers.

It can be shown that $S_a = S \left(\frac{1}{1+r} \right)$ where
 S_a = Adjusted sales
 S = Unadjusted sales
 r = Ratio of change in stocks to cost of sales.

Wholesale Bill

The adjustment of manufacturers' sales to wholesalers for changes in wholesale inventories resulted in the cost of goods sold by wholesalers. The next step was to apply a wholesale markup to this cost of goods to get wholesale sales. The difference between wholesale sales and cost was the wholesale marketing bill. 45/

Markups for each commodity were difficult to obtain and often required some subjective judgments. Estimates of wholesale markups were thought to be more reliable than those of retail markups because the Census of Business contained more detail about wholesale trade than retail trade. The major building blocks required for the different kinds of wholesalers were commodity line sales by kind of wholesaler, operating expenses, profits, proprietors' imputed earnings, and percentage of wholesale sales to other wholesalers.

The following procedure was used in estimating the markups:

1. Total sales reported in the Census of Business by commodity line were tabulated for each kind of business selling food products. There were about 25 commodity lines, including a nonfood category; so all sales of a particular business were accounted for.
2. Margins as a percentage of sales were estimated for each of the food wholesalers. Operating expenses as reported in the Census of Business were the major element in this margin. Profits as a percentage of sales were collected from many sources and multiplied by the sales for the particular kind of business to get an estimate of total profits. Proprietor earnings were estimated using census data on number of proprietors and estimated earnings per full-time employee. The total of these three items--

45/ This margin was later adjusted to eliminate wholesale charges for food exported.

operating expenses, profits, and proprietors' earnings--represented the total margin for the particular kind of business. The ratio of this margin to total sales of the kind of business was then computed.

3. The sales of a commodity tabulated in (1) were multiplied by a ratio of margin to sales for the wholesaler specializing in that commodity. For example, meat sales of every wholesaler were multiplied by the margin rate for meat wholesalers. Confectionery sales for every wholesaler were multiplied by the margin rate for confectionery wholesalers. The results gave a first approximation of the margin by commodity and by kind of wholesaler.
4. After this process was completed for all commodities, the dollar margins for each kind of business were added to get an estimate of the total dollar margin for that kind of business. This estimate was compared with the total dollar margin as computed in (2) above. No comparison was made for kinds of business which sold mostly nonfood products.
5. A ratio of the total margin computed in (4) to the total margin in (2) was multiplied by each commodity margin for that kind of business. This adjustment forced the commodity margins for a particular kind of business to add to the total estimated in (2). No adjustment was made for nonfood wholesalers.
6. When the margins for each kind of wholesaler had been adjusted, the margins for a particular commodity were added for all kinds of wholesalers selling that commodity. The result was a total dollar margin for that particular commodity.
7. Commodity sales in (1) were adjusted to exclude sales by wholesalers to other wholesalers. This yielded the amount of sales which were sold to firms outside the wholesale sector. These sales were added to get total net sales by commodity.
8. The markups were computed as the ratio of total commodity net sales to cost (net sales less margin).

Distribution of Wholesalers' Sales

Sales by wholesalers to retailers, to foreign buyers, and to consumers were estimated by using ratios derived from the Census of Business data on sales by class of customer. A weighted average distribution for each commodity was obtained by weighting the percentage distribution for each kind of business by its sales of the commodity. The weighted percentages were then applied to wholesale sales of the commodity which were described in the preceding section.

Allocation of sales to retailers between retail stores and away-from-home eating places was made on the basis of information contained in several publications. First, the estimated total sales value of all food marketed by eating places was taken from Burk (8, p. 92). These estimates were adjusted to the domestic farm food definition by excluding imported foods and seafoods. Next, this value was converted to a wholesale value by the use of eating-place markups. These markups were estimated from data in a few trade publications as well as from data obtained from the Internal Revenue Service (IRS).

Third, the wholesale value of all farm food handled by eating places was allocated to commodity groups by percentage distributions. These distributions were based on studies by the National Restaurant Association (23); Sartorius and Burk (32); and Wenzel's Menu Maker as reported by Sartorius and Burk (32).

The final step in the allocation process was the deduction of the wholesale value of food handled by eating places from wholesale sales to retailers. The residual was wholesale sales to retail stores.

Adjustment for Retail Inventories

Manufacturer and wholesaler sales to retailers were adjusted for changes in retail inventories by the iteration method described for wholesalers. The lack of data was more serious for retailers, however.

The method of deriving the ratio of change in inventories to cost of sales was somewhat different. No ratios could be computed for commodities, so ratios for a retail business specializing in a particular commodity were used for that commodity. Where no such business was available, the ratio for grocery stores was used. These ratios were derived by manipulation of data in the Census of Business (54) on stocks at the end of each year held by warehouses of retail food stores and data in the Monthly Retail Trade Report (59). The warehouse stocks reported in (54) were inflated to include store inventories. Corresponding stocks at the beginning of the year were estimated by using the percentage changes in stocks reported in (59). The difference between the beginning and ending stocks (after price adjustments) for each kind of store was divided by retail sales of that store to obtain the ratio of stocks (at cost) to sales. This ratio was then multiplied by an appropriate retail markup to get a ratio of stocks to cost of goods sold. The last ratio was used in the iteration procedure similar to that described for the adjustment for wholesale inventories. The end result was the estimate of retail purchases which were sold during the year.

Retail Bill

Retail sales of commodities were obtained by inflating the retail cost of goods sold by a retail markup. Limited data on commodity sales and retail operating expenses seriously hampered our efforts at this point. As a result, markups were estimated for only a few commodity groups, and an overall grocery markup was used for several commodities.

The retail markups were estimated by a method patterned after that used in estimating wholesale markups. The Census of Business did not report commodity line sales for retail stores after 1948 and in that year the data were not always adequate for our purposes. 46/ For grocery stores we used a percentage distribution of commodities derived from data published in Food Topics, a trade publication (14). For other kinds of food stores and nonfood stores selling food, we relied on the percentage distributions derived from the 1948 Census of Business. The percentage distributions were applied to total sales of stores as reported in the Census of Business. The result was a table containing sales of food by commodity and by kind of store.

46/ Merchandise line sales, reported in the 1963 Census of Business (54), were published too late for use in this report.

Sales of each commodity for each store were multiplied by a ratio of margin to sales for a store specializing in that commodity. This was the same procedure used in estimating wholesale markups. The ratios of margin to sales were derived principally from some IRS data. Other sources were used to supply data not available from IRS.

After obtaining the first approximation of dollar margins by commodity and kind of store, the added total margin for a store was compared with an "independent" dollar margin estimated for the whole store. This independent margin was derived by multiplying sales by margin rates derived from IRS data. The individual commodity dollar margins were then adjusted and forced to add to the independent dollar margin.

These adjusted margins were then summed for each commodity. The sums were subtracted from total sales to obtain cost of goods sold. The ratio of sales to cost of goods sold was computed for each commodity and applied to estimates of retail purchases, which were described in the previous section, to get retail sales of farm food products. The difference between sales and cost was the retail marketing bill.

The bill for eating places was also estimated by a markup. The markups were derived from several sources (17, 20, 23, 32). The number of different commodity groups was extremely limited. Tips and taxes were estimated and added to retail margins.

Consumer Expenditures

Sales to consumers by manufacturers, wholesalers, retail stores, and eating places were added together to get total consumer expenditures for manufactured farm food products. This total excluded exports, imports, and seafoods.

Adjusted Marketing Bills

The transportation and wholesale bills computed above were adjusted for exports by manufacturers and wholesalers and for changes in wholesale and retail inventories. The retail bill was unaffected by these items. The adjustments were merely reductions in the bills proportional to the value of exports and inventory changes.

Cost to Manufacturer and Processor Bill

Wherever possible, the quantity of finished shipments of a particular commodity was converted to a raw product equivalent and multiplied by an average price paid by processors. The quantities of finished shipments for most products were derived from Census of Manufactures data on product shipments and the Commerce Department's estimates of the value of finished shipments. Factors for converting the finished product to a raw material equivalent were obtained from (38). Average prices paid were derived from data on materials consumed published in the Census of Manufactures, or by adjusting an average farm price to a price paid by manufacturers.

For a few commodities, use of conversion factors was not practical, so we used data on materials consumed which were published in the Census of Manufactures.

Other methods were employed to fit special situations. The crucial elements in the estimates of cost to manufacturer were specification of ingredients, conversion factors, and prices paid by manufacturers for ingredients.

Some products were manufactured from other intermediate products; for example, bakery products made from flour. In these cases, we estimated the cost of raw products (wheat) to the first processor (miller) as well as the ingredients (flour) to the second processor (baker).

The processors' bill was estimated by subtracting the cost to the first processor from the value of finished shipments by the second processor. The manufacturing margin included both the first and second stages of processing, as well as transportation and distribution costs between manufacturers. For a few commodities, first-stage and second-stage processing charges were estimated separately.

Farm Value and Assembly Bill

The gross farm value was estimated by multiplying farm prices times equivalent quantities of raw materials purchased by manufacturers. The net farm value was derived by deducting the value of nonfood byproducts and imported raw materials. Farm prices were those reported by the Statistical Reporting Service of USDA; for example, (39, 42, 44, 48). Calendar year prices were used whenever available; otherwise, seasonal average prices were used to estimate calendar year prices. Prices for specific uses, such as canning, freezing, or fresh market, were used when available. In some cases the prices varied widely for different utilizations. Where specific prices were not available, the U.S. average price received by farmers for all uses of the product was used. This procedure caused a little difficulty in a few cases because prices reported were not representative for the specific utilization or there were lags between the time the farmer sold the product and the time it was used by the manufacturer. This latter problem was especially important for farm products such as grain stored for unknown or varying lengths of time.

The assembly bill was the difference between the cost to manufacturer and the farm value. The small charge per unit of product and the possible errors in prices received by farmers and prices paid by processors made this assembly bill the most erratic component of the marketing bill. Since it was quite small, errors did not seriously damage the reliability of the total bill.

Adjustment of Farm Value and Processor and Assembly Bills

The farm values, processors' bills, and assemblers' bills were all adjusted for exports and changes in inventories. These were proportional adjustments similar to those used for the transportation and wholesale bills.

Total Marketing Bill

The total marketing bill for manufactured foods was the sum of the assembler, processor, transportation, wholesaler, and retailer bills. This sum also equaled the difference between the consumer expenditures and the adjusted farm value.

Nonmanufactured Foods

Farm Value

Nonmanufactured foods included fluid milk and cream; animals slaughtered by farmers, wholesalers, and retailers; eggs; fresh and frozen poultry; fresh fruits and vegetables; and some miscellaneous products. Although estimates for fluid milk and poultry were made by the method for this group, these products are included in table 29 and not in table 30.

The farm value of manufactured foods was estimated by multiplying farm prices times farm quantities marketed and destined for civilian consumption. Quantities consumed on farms where produced, exported, used in nonfood products, or used in manufactured foods were excluded.

The quantities of each commodity were derived from supply and utilization data estimated by USDA (40). Farm prices were also derived from USDA reports; for example (39, 42).

Allocation of farmers' sales to assemblers, wholesalers, retailers, and consumers was based on data from many sources. Percentage distributions were derived from reports of universities, experiment stations, trade organizations, research organizations, and the Federal Government. Usually these were applied to the farm value. The percentages often left much to be desired as national estimates because surveys covered a small geographic area, a limited commodity class, or a short period of time.

Assembly Charges 47/

Assembly charges were derived from many sources. The Census of Business reported operating expenses of assemblers, but the kind of business classifications was not always specific enough for our use. Markups based on the Census data for packers and shippers were used when estimating assembly charges for fresh and dried fruits and vegetables and a few other commodities.

For eggs and poultry the assembly charges were estimated by multiplying a unit charge by the quantity assembled. These unit charges were derived from many publications on costs and margins of marketing these products.

Fluid milk and cream assembly charges were estimated by a somewhat different procedure. Hauling costs for milk (including handling in country plants) were estimated for various fluid milk marketing areas. These unit costs were weighted together to obtain a national estimate of assembly charges per unit of milk. Total assembly charges were then estimated as the product of quantity and unit charge.

47/ Assembly charges included transportation from farmers to the assembler and from farmers to processors of milk and poultry. They excluded transportation from packers and assemblers to wholesalers and transportation for products delivered to assemblers by farmers.

Processing Charges for Fluid Milk and Dressed Poultry

Processing charges per unit of milk were estimated from data reported in (35). These unit margins were multiplied by the quantity processed to get total processing charges.

Two unit margins were computed: one for milk sold at wholesale and the other for milk sold to consumers by processors. Thus, the processing margin for fluid milk includes delivery charges incurred by processors. These unit margins were the weighted average differences between dealers' buying price and retail price delivered to homes in 46 cities. 48/ The processing margins for milk delivered to stores and for milk delivered to homes were weighted together, using BLS weights to calculate U.S. average retail prices.

Processing margins per unit for chickens and turkeys in 1958 were derived from the Census of Manufactures. Since the census data were considered inaccurate for other years, margins reported by several organizations were used. These unit margins were multiplied by the quantity of poultry processed to obtain total processing margins.

Transportation to Wholesalers and Retailers

The transportation bill for nonmanufactured foods was derived by multiplying the value shipped by assemblers and processors times the ratio of freight revenue to value, a method similar to the one described earlier for manufactured foods. The revenue per ton (rail and truck in 1958, rail only in other years) was obtained from ICC data; the value per ton was an estimated assemblers' selling price per ton.

Distribution of Assemblers' Sales

Estimation of assemblers' sales to wholesalers and retailers was based on Census of Business data on sales by class of customer for fresh fruits and vegetables and miscellaneous products. For eggs and poultry (processor sales of poultry), other sources of data were again used.

In the case of fluid milk, the percentage of processors' sales to retailers and consumers was estimated from data obtained from periodic surveys conducted by BLS and from other sources. The allocation between stores and eating places was based on estimates from other miscellaneous sources.

Wholesale and Retail Bills and Consumer Expenditures

Charges for wholesaling and retailing most nonmanufactured foods were estimated by markups, the same procedure used for manufactured foods. For a few commodities a unit charge was estimated and multiplied by quantities purchased by the agency. There was no separate estimate of the wholesale margin for fluid milk.

48/ These unit margins were computed for a representative month during the year as an approximation of the annual average. The city weights were the same as those used by USDA to compute the farm value of fluid milk in the market basket (41, p. 82).

OFFICIAL BUSINESS

Purchases by eating places were estimated by the same methods as those used for manufactured foods; purchases by retail stores were the difference between total wholesale sales to all retailers and eating-place purchases. A markup was applied to retail purchases to arrive at consumer expenditures.

Marketing Bill

The total marketing bill for nonmanufactured foods was the difference between consumer expenditures and the farm value. This difference coincided with the sum of the component bills estimated by the commodity flow procedure,

Combination of Manufactured and Nonmanufactured Foods

After the various components of consumer expenditures had been computed for both the manufactured and nonmanufactured group, the two groups were combined. The results were the estimates of total civilian expenditures (and its components) for domestic farm food products. These estimates for 1929, 1935, 1939, 1947, 1954, 1958, and 1963 are presented in tables 26 and 27. The annual data in table 29 were derived for commodity groups by interpolation (ratio to linear trend) of the 1947, 1954, and 1958 data by the annual series discussed in Appendix A.