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*DEVELOPMENTS  
IN MARKETING  
SPREADS FOR  
AGRICULTURAL  
PRODUCTS IN*

1965

Economic Research Service  
U. S. Department of Agriculture

(Reprinted from Hearings Before the Subcommittee  
of the Committee on Appropriations, United States  
House of Representatives, Eighty-Ninth Congress  
Second Session)

## PREFACE

The Congress in 1955 directed the Department of Agriculture to make special studies of spreads between prices paid by consumers and those received by farmers. The reports published in 1965 and early 1966 are summarized in this report, which was prepared for the Subcommittees of the Committees on Appropriations of the House of Representatives and of the United States Senate.

Nine similar reports summarize the results of earlier studies: Special Margins and Costs Studies, Marketing Research Report No. 187, April 1957; Special Studies of Marketing Costs and Practices, Marketing Research Report No. 240, October 1958; Developments in Marketing Spreads for Agricultural Products in 1958, AMS-316, June 1959; Developments in Marketing Spreads for Agricultural Products in 1959, AMS-374, May 1960; Developments in Marketing Spreads for Agricultural Products in 1960, ERS-14(1961), July 1961; Developments in Marketing Spreads for Agricultural Products in 1961, ERS-14(1962), October 1962; Developments in Marketing Spreads for Agricultural Products in 1962, ERS-14(1963), August 1963; Developments in Marketing Spreads for Agricultural Products in 1963, ERS-14(1964), August 1964; Developments in Marketing Spreads for Agricultural Products in 1964, ERS-14(1965), August 1965.

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July 1966



## DEVELOPMENTS IN MARKETING SPREADS FOR AGRICULTURAL PRODUCTS IN 1965

### HIGHLIGHTS

1. The farm food marketing bill totaled \$48 billion in 1965. Total costs of marketing farm foods consumed by U.S. domestic civilian consumers have increased steadily since the end of World War II. The 1965 total was more than double (up 113 percent) the 1947-49 average of \$22.5 billion (fig. 1).
2. During this same period--1947-49 to 1965--farmers' receipts for these food products rose from \$18.3 to \$24.5 billion, an increase of only one-third (fig. 1). Of the \$6.2 billion increase, about \$2 billion came in 1965.
3. The continued rise in the marketing bill has come from three factors: (a) larger volume of food marketed; (b) more processing and other marketing services; and (c) higher costs per unit of food marketed.
4. There have been significant gains in marketing efficiency, especially in recent years. These gains have saved many billions of dollars in possible added food costs to consumers. Between 1947-49 and 1965, hourly earnings of labor costs per unit of food market rose less than 30 percent (fig. 6).
5. Labor costs make up the largest single element in the food marketing bill. However, the percentage increase in other costs factors such as capital costs and advertising have been much greater than the rise in labor costs in the post-World War II period (fig. 2).
6. Despite increases in food prices and the purchase of more services with food, consumers are spending a declining portion of their income for food (fig. 7). The percentage has declined from 25.7 in 1947 to 18.3 in 1965.
7. Higher marketing charges combined with declining farm prices since 1947 pushed the farmer's share of the consumer's retail food dollar to a near record low in 1963 and 1964 (fig. 3). The farmer's share in 1965, however, rose about 2 to 39 cents to interrupt the longtime downward trend (fig. 4). Higher prices to farmers in 1965 contributed most to this change.
8. In 1965, major public attention centered on changes in prices and price spreads for beef, bread, potatoes, and several other fruits and vegetables. Beef prices rose sharply in early 1965. As is customary during rising prices, the spread between farm and retail prices for beef declined, but by the end of the year the spread almost equaled the 1964 average (fig. 9). The retail price of bread has risen steadily since World War II. Price increases have been entirely the result of factors other than the cost of farm ingredients (fig. 10). Further details on price spreads for these and other commodities are given on pages 10-16.
9. The spread between retail cost of representative cotton products and the farm value of lint cotton used in their production increased in 1965 for the third consecutive year (fig. 11). The farmer's return amounted to 13 percent of consumers' expenditures in 1965, down slightly from earlier years.
10. Consumer expenditures for tobacco products continued to rise in 1964 (latest available data) but at a lower rate than in the past 2 years (fig. 12). The farmer's share of the consumer's tobacco dollar dropped to about 10 cents in 1964.

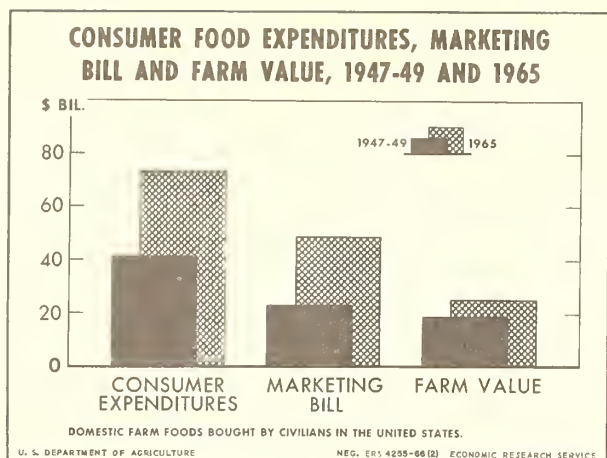


Figure 1

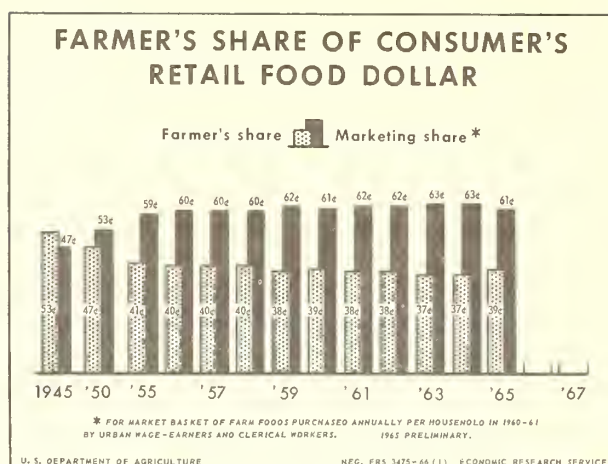


Figure 4

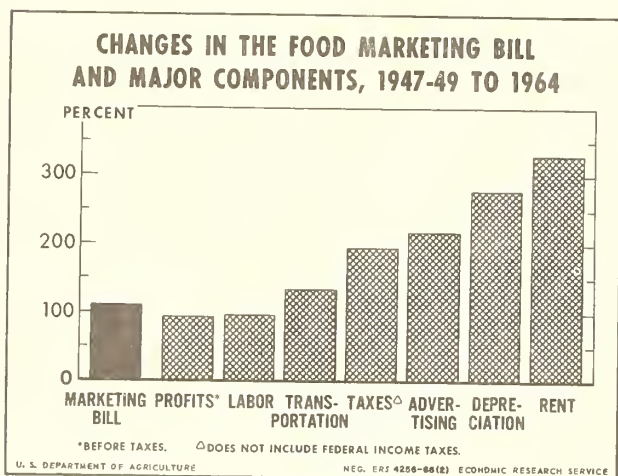


Figure 2

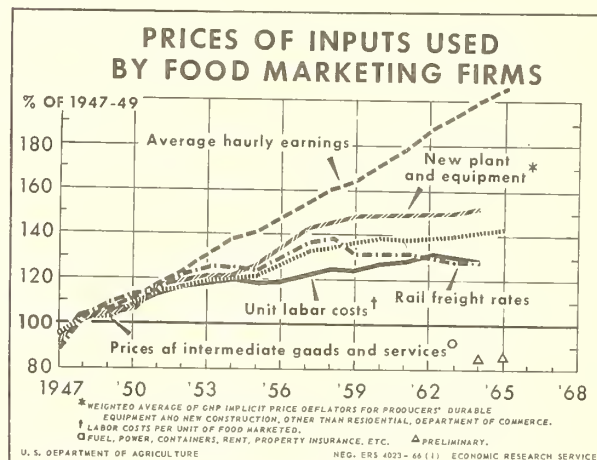


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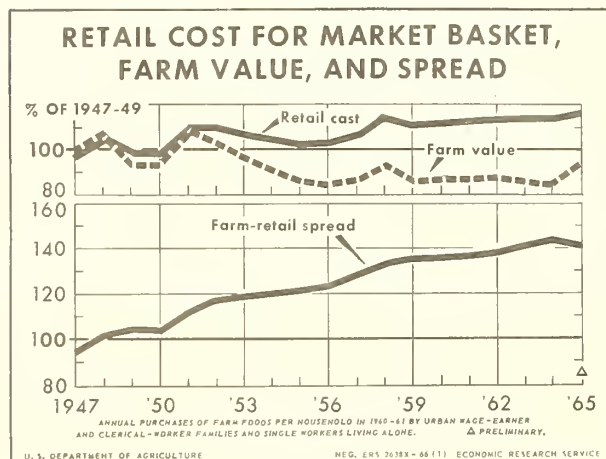


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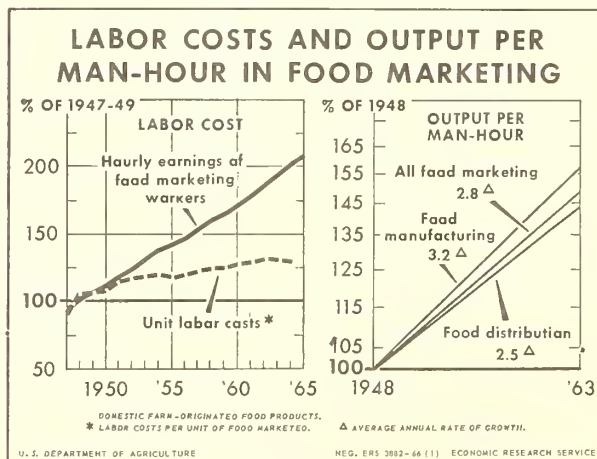


Figure 6

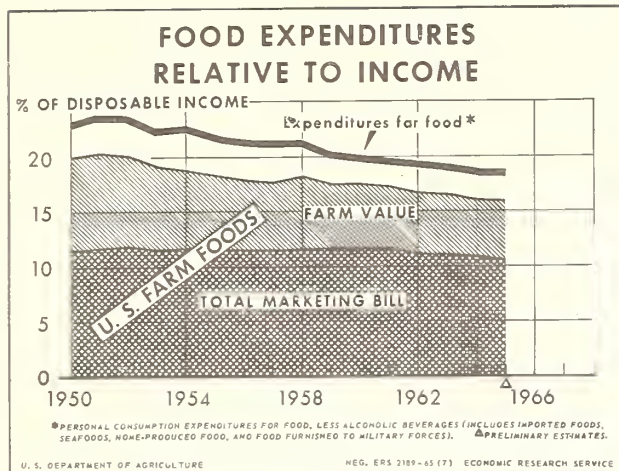


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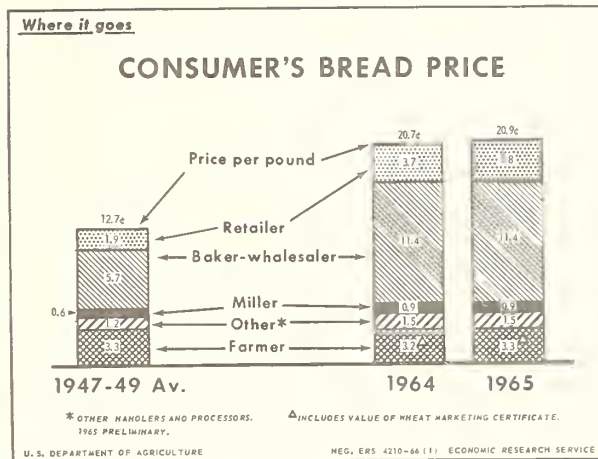


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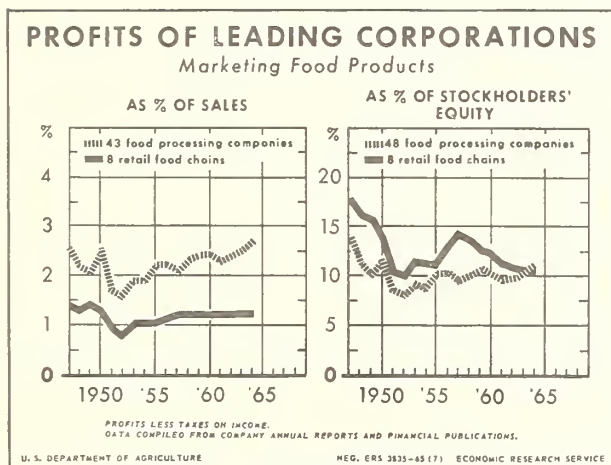


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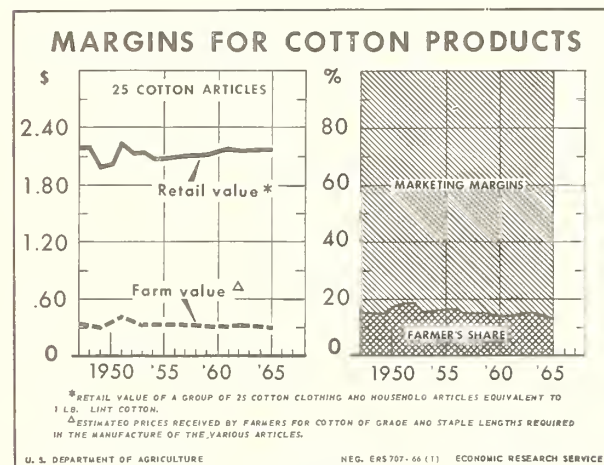


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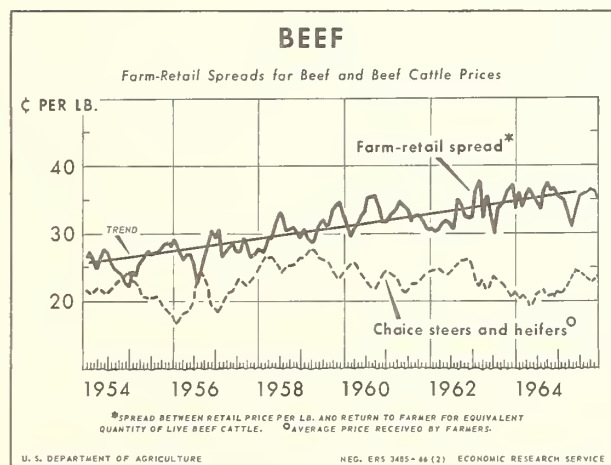


Figure 9

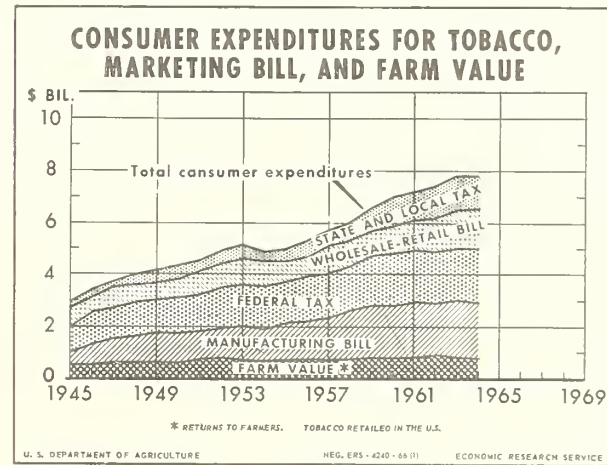


Figure 12

## THE FOOD MARKETING BILL

The total bill for marketing farm-originated foods to U.S. consumers was \$48.2 billion in 1965, up about 2 percent from 1964 but below the average annual increase during the last 10 years. In this period, growth in volume along with more services accounted for around three-fifths of the increase. Higher marketing charges accounted for the remainder.

The 1963 and 1964 increases in the labor cost component of the marketing bill can be attributed solely to growth in volume of products handled, since unit labor costs declined (fig. 6). Improvements in technology, in marketing facilities, and in labor and management skills have resulted in increased output per man-hour. This increased productivity has held down the rise in unit and total labor costs generated by higher wage rates. As a result, total labor costs in 1964 were less than twice as large as in 1947-49, although the total marketing bill had more than doubled (fig. 2).

Another major component of the food marketing bill, cost of transportation, increased slightly in 1964. Lower freight rates since 1958, particularly for rail transportation, have permitted the handling of larger volumes at a reduced rate per unit. Since 1947-49, the rate of increase in total transportation costs has exceeded that of the total marketing bill (fig. 2). Cost of transportation accounted for about 11 percent of the marketing bill in 1964, up almost 2 percentage points since 1947-49.

Costs of depreciation, rent, and interest have increased faster than the volume of food marketed, particularly in recent years (fig. 2). With capital costs per unit of product marketed rising sharply since 1947-49, they have become more significant charges in the marketing bill.

Also, business taxes and cost of repairs, bad debts, and contributions continue to account for a substantially greater share of food marketing cost.

Advertising investments by food marketing firms have become a major cost item in the last decade (table 1). With investments of almost \$1.5 billion in 1964, food marketing firms were spending at a level more than three times their 1947-49 expenditures (fig. 2).

Prices of containers and packing materials have been reasonably stable in the 1960's. Estimates are not available for total cost of containers and packaging material used by food marketing firms. However, this appears to be a marketing cost that has risen sharply in recent years because of more and fancier packaging.

Before-tax profits earned by corporations marketing farm food products were up 12 percent in 1964 compared with 1963. This was the largest increase since 1955. Reductions in corporate income tax and investment tax credit contributed to the rise in after-tax profits in 1964. Corporate profits (before taxes) have increased at a slower rate than the total marketing bill since 1947-49; however, profits have increased more rapidly than the total bill in recent years.

### Labor Costs

Earnings of food marketing employees and total labor costs continue to rise. Total cost of labor in 1964 was up 3 percent from 1963, accounting for approximately 44 percent of the total 1964 food marketing bill.

Table 1.--Selected costs of food marketing firms, 1947-49 average, annual 1962, 1963, and 1964

Item	Food marketing firms 1/			
	1947-49 average	1962	1963 2/	1964 2/
-----Million dollars-----				
Advertising.....	459	1,346	1,400	1,461
Depreciation.....	394	1,379	1,431	1,493
Interest.....	70	231	239	249
Business taxes 3/.....	426	1,168	1,211	1,261
Rent.....	223	897	925	960
Repairs, bad debts, and contributions....	295	744	766	791
Total.....	1,867	5,765	5,972	6,215

1/ Includes food processors, retail food stores, and merchant wholesalers of groceries and related products.

2/ Preliminary estimates.

3/ Includes property, social security, unemployment insurance, State income and franchise taxes, license fees, etc., but does not include Federal income tax.

Source: Estimates based on Statistics of Income, U.S. Internal Revenue Service, and Census data.

These cost relationships appear to have been substantially the same in 1965 as in 1964.

Hourly earnings of food marketing firm employees continued to rise in 1965 adding to the total cost of labor as a component of the food marketing bill (table 2). Hourly earnings have risen steadily since World War II. At \$2.31 per hour, earnings in 1965 were 8 cents above a year earlier.

Change in earnings of workers in the food and kindred products industries between 1964 and 1965 generally conformed to that for all industry. Labor costs in food manufacturing averaged \$2.43 per hour compared with \$2.61 in all manufacturing. Both were up 3 percent from 1964.

Earnings of retail food store employees rose 4 percent in 1965 while those of all retail trade rose 3 percent. Hourly earnings of retail food store employees at \$2.05 per hour remained slightly higher than for all retail trade. Earnings of workers in the wholesale food trade rose 5 percent in 1965 compared with 3 percent in all wholesale trade. However, at \$2.39 per hour, earnings remained below the \$2.60 per hour for all wholesale trade.

Improvements in productivity help offset increased labor cost.--

Unit labor cost lower in 1964.--

Increased output per man-hour since World War II has kept labor cost per unit of food marketed from rising as much as hourly earnings. For example, cost per unit of product rose only 8 percent between 1954 and 1964 compared with a 45-percent rise in hourly earnings (including fringe benefits) of food marketing employees. Actually, unit labor cost, after trending upward steadily since 1947, declined in 1963 and 1964 (table 2).

Table 2.--Average hourly earnings and labor costs and profits per unit of product for marketing farm food products, United States, 1947-64 1/

(Index numbers 1957-59=100)

Year	Hourly earnings <u>2/</u>	Unit labor cost <u>3/</u>
1947.....	58	74
1948.....	63	84
1949.....	67	86
1950.....	69	86
1951.....	74	92
1952.....	77	94
1953.....	82	96
1954.....	87	97
1955.....	89	96
1956.....	92	96
1957.....	97	98
1958.....	100	101
1959.....	103	101
1960.....	108	103
1961.....	112	104
1962.....	117	107
1963.....	121	106
1964 <u>4/</u> .....	126	105

1/ For domestic farm-originated foods bought by civilian consumers in this country. Beginning with 1960, these estimates are for 50 States.

2/ Hourly earnings estimated by dividing total labor cost by total man-hours for all workers. These data include proprietors and family workers not receiving stated remuneration. They also include supplements to wages and salaries.

3/ Unit labor cost is the quotient of the indexes of total labor cost and of volume of farm food products marketed to civilian consumers. The index of farm food products marketed was constructed by weighting the quantities sold by 1957-59 average retail prices.

4/ Preliminary.

Source: Data for 1939-46 were published in the Marketing and Transportation Situation, MTS-154, Aug. 1964; and in the reprint ERS-20 (1964).

Output per man-hour of employees in food manufacturing increased about 56 percent from 1947-49 to 1963, an average rate of 3.2 percent annually (fig. 6). Current measures of output per man-hour are not available for the various segments of food distribution--retailing, wholesaling, and away-from-home eating. For all food distribution there was an average annual increase of 2.5 percent in output per man-hour during 1948-58. There are strong indications that this rate has accelerated since 1958. For all food marketing, the rate of increase has averaged 2.8 percent annually since 1948.

Many factors have contributed to growth in productivity as measured by output per man-hour. One of the most important has been technological improvements in facilities, equipment, and processes. Technology has contributed to increased productivity in all food marketing, but its impact has probably been strongest in food processing. However, in all food marketing industries, increased output per man-hour has been accompanied by large expenditures for new plants, warehouses, and stores as well as supporting facilities and equipment.

Improvements in the quality of labor and management also have contributed much to growth in productivity. Quality of labor has been raised through education, training, and experience. Management, through better use of information and with the assistance of computers, has been able to realize considerable savings in cost. Also, economies of scale have probably contributed significantly to postwar growth of output per man-hour.

### Transportation Charges

Rail freight rates decline. Truck rates appear stable. Transportation charges per unit marketed lowered by new ratemaking principles and new equipment.--

The bill for moving farm-originated food products by truck and rail was \$5.1 billion in 1964, up \$0.1 billion from 1963. Cost of these services represented about 11 percent of the total marketing bill in 1964, about the same proportion as in 1953, but above the 1947-49 average. This relative stability in recent years has been made possible by declining rail freight rates. In contrast to the trend in price of most other inputs used by marketing firms, freight rates have declined since 1958 and are now over 5 percent below the 1957-59 average (fig. 5).

The downward trend in rail freight rates is expected to continue with reductions on a selective basis as in the past. Many rail rate changes have been made to meet truck, barge, and ship competition. Truck rates for interstate movements of unmanufactured farm products are unregulated and generally unpublished. However, it appears that the relatively stable truck rates of recent years will continue.

Railroads, particularly in recent years, are adopting new types of equipment and new ratemaking principles in an attempt to increase their share of the increased transportation job of the Nation. These developments have had and will continue to have a significant impact on food marketing costs.

### Other Food Marketing Bill Components

All other marketing charges (that is, other than labor and transportation charges and corporate profits) accounted for almost 40 percent of the food marketing bill in 1964. Many of the items included in this category have become increasingly important cost factors in food marketing in recent years.

#### Plant and equipment

Prices of new equipment edge higher and construction costs continue to rise. Expenditures for plant and equipment in food manufacturing in 1965 are 12 percent above 1964.--

Increased expenditures appear to be needed to provide capacity to meet increased demand under optimum cost conditions.--

Prices of new equipment continued to edge higher in 1965 and construction costs continued to rise (fig. 5). From 1947-49 to 1965, prices of new plant and equipment rose an average of 55 percent. These higher costs and expansion in plant construction have boosted capital expenditures of food-marketing firms. Plant and equipment expenditures by food manufacturing firms are estimated at \$1.2 billion in 1965, up

12 percent from 1964. Capital expenditures by operating retail food stores for new facilities amounted to \$824 million in 1963, compared with \$673 million in 1958. Expenditures by firms operating eating places totaled \$475 million in 1963. Expenditures by railroads and other transportation firms for plant and equipment to meet increased demand for transportation services have risen sharply in the last few years.

Among the factors stimulating expenditures in plant and equipment are (1) expanding markets, (2) innovations in cost-reducing equipment and facilities, (3) development of new products, and (4) need to reduce unit costs to remain competitive. Other factors favoring greater investment in plant and equipment are increased cash flow and the substitution of accelerated for straight-line depreciation, a decrease in the length of life of physical assets allowed by the Treasury in calculating depreciation, and the investment tax credit.

Surveys conducted in 1965 show that a sizable segment of firms in the food industry were operating at capacity or with inadequate capacity for needs in the near future. Since production costs per unit are likely to rise as firms push from optimum to maximum capacity, pressure for price increases are likely in an industry experiencing a shortage of capacity. These conditions are likely to encourage plant capacity expansion resulting in increased investments in plant and equipment.

#### Depreciation Charges

Depreciation charges have increased faster than the total marketing bill since 1947-49. --

Depreciation charges for food marketing firms in 1964 were almost four times as large as in 1947-49 (table 1 and fig. 2). Charges were up 4 percent from 1963. Factors causing the sharp rise in depreciation charges in recent years included replacement of largely or completely depreciated assets with new or more costly ones, growth in the total volume of depreciable assets, rises in costs or assets, and increase in depreciation rates per dollar of assets. Depreciation rates have risen in response to more rapid obsolescence, decreases in service life of assets, and adoption of accelerated depreciation rates.

#### Interest Payments

Rising interest rates and growth in borrowed capital continue to raise interest payments by food marketing firms. Total interest paid by food marketing firms in 1964 was more than three times the 1947-49 average and about 4 percent above 1963 (table 1). Increased payments reflect a rising interest rate and heavier borrowing of capital. Highgrade, long-term corporate bonds had yields averaging 4.45 percent in 1965, up from 4.4 in 1964, indicating the rate on new long-term loans rose about the same amount. Short-term bank loans to businesses in major cities average 5 percent in September 1965, up slightly from a year earlier. With higher interest rates in effect and continued growth in borrowed capital, the upward trend in interest costs is expected to continue.

#### Rental Costs and other Services

Greater use of leased plant and equipment raises rental costs of food marketing firms. Rental rates, property insurance, and prices of other services associated with property averaged over 2 percent higher in 1965 than in 1964. Rental payments

alone were four times higher than in 1947-49 (table 1). While higher rental rates were a major factor, greater use of leased plant and equipment appears to have contributed substantially to the rise in total expenditures for rent.

### Advertising Expenditures

Advertising is now a major component of food marketing bill. Food processors are heaviest investors in advertising. In 1964 food marketing firms spent almost \$1.5 billion for advertising--more than for interest, rent, or business taxes (table 1). Advertising expenditures also exceeded corporate profits after income taxes. Expenditures in 1964 were up more than 4 percent from 1963 and were more than three times as large as in 1947-49. Higher media rates were probably a major reason for increased cost during 1964 as well as in other recent years. However, more extensive advertising and the support of many new products have combined in the last decade to push advertising investments by the food industry to record levels. Advertising costs are now a major component in the food marketing bill.

### Corporate Profits

Corporate profits in 1964 showed largest increase since 1955. Reduction in corporate income tax a factor.--

Profit as a percentage of sales varies considerably among segments of the marketing industry.--

Total profits after taxes of corporations distributing food accounted for 3 percent of the total marketing bill in 1964. This was a smaller percentage than in 1947-49, but generally a larger percentage than in the last 10 years. These profits do not include profits of unincorporated firms.

After-tax profits of firms manufacturing food products were 14 percent greater in the first 3 quarters of 1965 than in the same period of 1964, according to a joint report of the Federal Trade Commission and the Securities and Exchange Commission. However, as a percentage of sales, they averaged about the same in both years. The ratio of after-tax profits to stockholders' equity averaged 10.6 percent in the first 3 quarters of 1965, compared with 9.9 percent in the same period of 1964.

After-tax profits of nine leading meatpacking companies declined from 1 percent of sales in 1964 to about 0.6 percent in 1965 (fiscal year ending October 31). Total profits by these firms in 1965 averaged 37 percent lower than in 1964.

Despite considerable variation among types of firms, profit ratios of leading corporations manufacturing food products have been higher in recent years than in the early 1950's (fig. 8). After-tax profits of 43 of these corporations averaged 2.5 percent of sales in 1960-64 compared with 1.9 in 1950-54 and 2.3 in 1947-49. Profit as a percentage of stockholder's equity showed a comparable rise between 1950-54 and 1960-64.

Profits as a percentage of sales appear to have been fairly stable between 1957 and 1964 for retail food chains. Eight leading chains reported profits averaging 1.2 percent of sales in both periods. However, profits as a percentage of stockholder's equity dropped from 14.2 to 10.7 percent in the same period.

## SPECIAL STUDIES OF PRICING AND MARKETING SPREADS

Food prices attracted wide attention in 1965. The Marketing Economics Division received an unusually large number of requests for information from Members of Congress, news media, and the public. Many of these inquiries concerned rising prices for meat, potatoes, and some fresh vegetables. Others sought information regarding the impact of proposed Government programs on retail prices of bread. In answering these requests, the Marketing Economics Division made much use of information gathered in its continuing studies of pricing and marketing spreads. In recent years, emphasis has been given to studies of pricing and marketing of beef, wheat products, cotton, and some fresh fruits and vegetables. Findings of these studies have been widely disseminated to improve the public understanding of marketing functions and costs.

Some of these findings are presented in the following pages.

### Pork

Rising pork prices highlighted changes occurring in meat prices in 1965. A 9-percent decrease in the production of pork in the first 11 months of 1965 compared with the same period of 1964 was reflected in lower marketings. Price rises were particularly sharp in the late spring and late fall.

Rising prices of hogs boosted the farm value of pork (the return to the farmer for the quantity of live hog equivalent to 1 pound of pork at retail) to an average of 37.1 cents per retail pound, almost 40 percent higher than in 1964 and the highest since 1954 (fig. 13).

The wholesale price averaged 24 percent higher in 1965 than in 1964, and the retail price was up 14 percent. The retail price average of 64.3 cents per pound in 1965 was the highest on record.

Since the retail price rose more slowly than the farm value in 1965, the spread between the two decreased. The farm-retail spread averaged 27.2 cents per retail pound, 8 percent less than in 1964 and the smallest spread since 1956. The wholesale-retail segment of the spread decreased 11 percent and the farm-wholesale segment, 5 percent. The wholesale-retail spread decreased in 1964 and 1965, but it remained 10 percent wider in 1965 than in 1955. The farm-wholesale spread, however, has shown no definite trend.

### Beef

Prices farmers received for beef cattle in 1965 also rose during the spring and again in December. Production of beef in the first 11 months of 1965 was 2 percent larger than in the like period of 1964. This increase, however, was not sufficient to maintain per capita beef consumption at the record 100 pounds achieved in 1964. Prices of beef and beef cattle were further strengthened by the rapid rise in pork prices.

The farm value of Choice beef averaged 46.9 cents per retail pound in 1965, up 11 percent from 1964 and 14 percent higher than in 1955 (fig. 14).

Wholesale and retail prices of Choice beef generally rose more slowly than the farm value. Retail prices averaged 81.7 cents per pound in 1965, about 5 percent

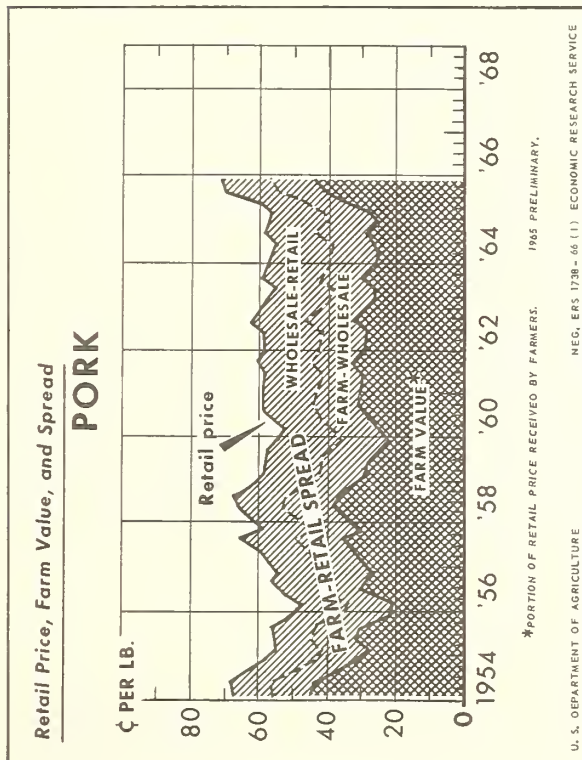


Figure 13

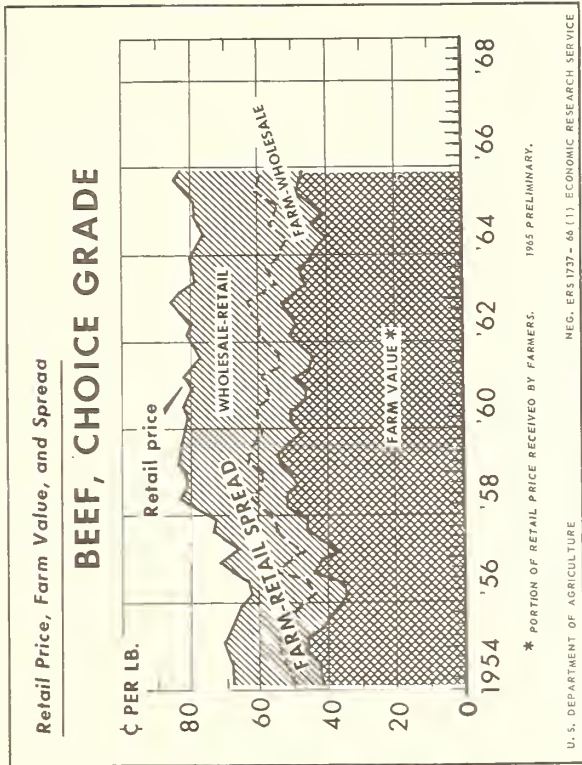


Figure 14

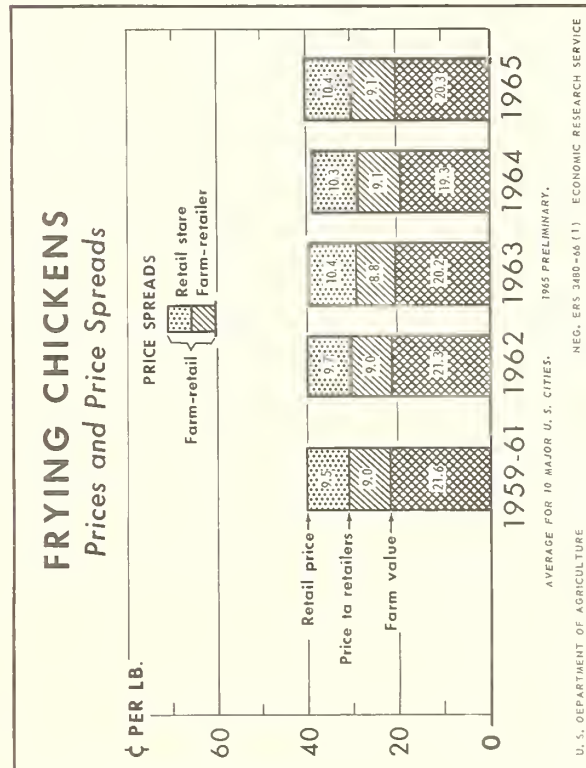


Figure 15

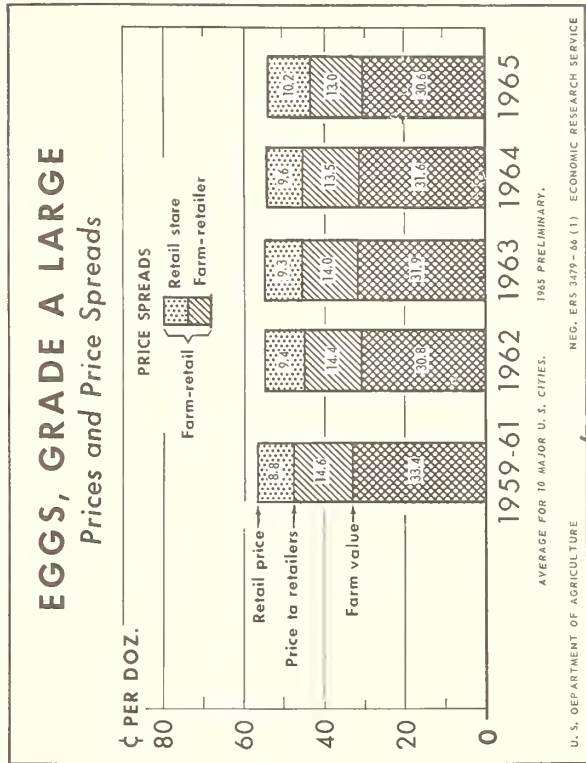


Figure 16

higher than in 1964, but 1 percent below the annual average in 1962. Wholesale prices averaged 7 percent higher in 1965 than in 1964.

The spread between the retail price and farm value averaged 34.8 cents in 1965 compared with the record 35.4 cents in 1964 (fig. 9). Most of the decrease was in the farm-wholesale segment. The wholesale-retail segment decreased less than 1 percent. The decrease in the farm-retail spread was only the second in 10 years; the other was in 1962. During this period, the farm-retail spread increased at an average rate of about 1 cent per year.

### Chickens and Eggs

Frying chickens.--Prices for ready-to-cook frying chickens in 10 major cities increased at all market levels from 1964 to 1965 (fig. 15). The retail price averaged 39.8 cents per pound in 1965 compared with 38.7 cents in 1964 and 40.1 cents in 1959-61.

Higher prices for frying chickens resulted largely from decreased supplies of red meat and generally higher prices for meat products. Prices of frying chickens rose despite a production increase of about 7 percent over 1964. This growth in production of frying chickens resulted in an increase in per capita consumption from 27.5 pounds in 1964 to an estimated 29.4 pounds in 1965, another record high.

Farm-retail price spreads on ready-to-cook, grade A frying chickens in these 10 cities increased slightly to an average of 19.5 cents per retail pound in 1965 from 19.4 cents in 1964 and 18.5 cents in 1959-61. The retail store spread increased by 0.1 cent while the farm-retailer spread remained the same.

The farmer's share of the retail price of frying chickens in the 10 cities averaged 51.0 percent in 1965--up 1.1 percentage points from a year ago but down 2.9 percentage points from 1959-61.

Eggs.--Retail prices of large eggs of grade A or better quality in 10 major cities in the United States averaged 53.8 cents per dozen in 1965, almost a cent below the 1964 price (fig. 16) and 3.0 cents lower than the 1959-61 average price. Prices at the other market levels were from 1.0 to 1.5 cents lower in 1965 than in 1964. The production of eggs in the United States was about the same during these 2 years--around 179 million cases. Thus, production of eggs did not keep pace with the population growth, and per capita consumption declined from 314 eggs in 1964 to 309 in 1965.

The farmer's share of the retail price for large eggs in 10 cities averaged 56.9 percent--down 0.9 percentage point from 1964.

The farm-to-retailer spread (the difference between the price received by the farmer and the price paid by the retailer) decreased 0.5 cent in 1965, continuing a decline beginning in 1963. This spread varied considerably by cities, with the largest spread in Cleveland and the smallest spread in San Francisco. An increase of 0.6 cent in the retail store segment of the farm-retail spread more than offset the drop in the farm-to-retailer segment.

### Bread

The retail price of white bread increased 0.2 cent in 1965 to an average of 20.9 cents for a 1-pound loaf (fig. 10). This is a continuation of the upward trend extending back to World War II. The 1965 average price was 8.2 cents above the 1947-49 average of 12.7 cents.

Returns to farmers for the farm-produced ingredients in a 1-pound loaf of white bread averaged 3.3 cents last year, up 0.1 cent from 1964, and the same as the 1947-49 average. Wheat accounted for 2.7 cents of the farm value of these ingredients in 1965, the same as in 1947-49. Returns to farmers include the value of the domestic marketing certificate beginning in July 1964. This made up 0.9 cent of the returns to farmers through June 1965, and 1.0 cent beginning July 1, 1965. The farmer's share of the retail price of bread was only 16 percent in 1965--up 1 percentage point from 1964, but down from 26 percent in 1947-49.

The spread between the retail price and the return to farmers averaged 17.6 cents per loaf in 1965, up 0.1 cent from 1964 and up 8.2 cents from 1947-49. Wholesale bakers received a gross spread of 11.4 cents per pound loaf of white bread in 1965, the same as in the 2 previous years. Retailers received a spread of 3.8 cents--up 0.1 cent from the 2 previous years. Both the spread for wholesale-bakers and that for the retailers were double the 1947-49 averages (fig. 10). The miller's spread amounted to 0.9 cent in both 1964 and 1965 compared with 0.6 cent in 1947-49. The combined bill for transporting, handling, and storing all ingredients and for processing ingredients other than flour ("other" in figure 10) averaged 1.5 cents in 1965. This was the same as in the 3 preceding years, but 0.3 cent above 1947-49. Wholesale bakers received a large proportion of the retail price of bread because resources used to convert ingredients into bread and to distribute it are greater than those used to produce raw materials and convert them into ingredients used in bread production.

### Potatoes

Prices of potatoes at all market levels averaged much higher in the 1964-65 season than in the preceding year (table 3). Prices rose sharply because of small fall potato crops in the Midwestern and Western States in 1964. The total production of fall potatoes in all areas was 13 percent smaller in 1964 than in 1963. Stocks of potatoes on January 1, 1965, were down 16 percent from a year earlier and were the smallest since 1958. Stocks of frozen french-fried potatoes were slightly larger than on January 1, 1964. The 1965 winter, spring, and early summer crops exceeded those of 1964, but did not make up for the short supply of fall potatoes.

Retail prices of Maine potatoes in New York during 1964-65 season averaged more than 50 percent higher than in the previous season, although the 1964 crop in Maine and other Northwestern States was as large as the 1963 crop. Retail prices of Maine round white potatoes increased considerably more than wholesale prices, so the retail store spread averaged nearly 50 percent wider in 1964-65 than in 1963-64. Returns to the grower-packer doubled. The spread between the wholesale price and the grower-packer returns decreased slightly.

Retail prices of Western Russets did not increase as much as prices of Maine potatoes although supplies were sharply reduced. Prices, however, averaged a fifth higher than in the 1963-64 season. Marketing spreads for Western Russet potatoes also reacted differently. The retail store spread decreased 6 percent from 1963-64 to 1964-65, but the shipping point-to-retail spread increased about 8 percent. Returns to the grower-packer about doubled.

Retail prices of California long white potatoes marketed in the spring and summer averaged 27 percent higher in Chicago in 1965 than in 1964. However, retail prices dropped sharply in August 1965 as a result of increased supplies from the late summer crop.

Table 3.--Potatoes, Maine round white, Western Russet, and California long white: Prices and marketing spreads per 100 pounds for sales in New York City and Chicago, 1962-65, and by months May-December 1965 1/

Type and season	Price per 100 pounds		Marketing spreads				Grower- packer returns	
	Retail	Wholesale	Retail store	Shipping point- retail	Dol.	Pct.	Dol.	Pct.
					Dol.	Pct.	Dol.	Pct.
<u>Maine round white--New York <u>2/</u></u>								
1962-63.....	7.09	2.66	4.43	63	1.22	17	1.44	20
1963-64.....	6.10	2.90	3.20	52	1.20	20	1.70	28
1964-65.....	9.37	4.65	4.72	51	1.17	12	3.48	37
1965								
November.....	6.77	3.00	3.77	56	1.00	14	2.00	30
December.....	---	---	---	---	---	---	---	---
<u>Western Russet--New York <u>3/</u></u>								
1962-63.....	10.80	4.86	5.94	55	2.21	20	2.65	25
1963-64.....	11.18	5.09	6.09	55	2.51	22	2.58	23
1964-65.....	13.56	7.82	5.74	42	2.70	20	5.12	38
1965								
September <u>4/</u> .....	11.65	5.30	6.35	54	2.54	22	2.76	24
October <u>4/</u> .....	11.55	5.00	6.55	57	2.09	18	2.91	25
November <u>5/</u> .....	11.44	5.30	6.14	54	2.41	21	2.89	25
December <u>5/</u> .....	---	---	---	---	---	---	---	---
<u>California long white--</u>								
<u>Chicago <u>6/</u></u>								
1963.....	9.48	4.03	5.43	57	1.69	18	2.34	25
1964.....	11.95	6.29	5.66	47	2.53	21	3.76	32
1965.....	15.23	8.37	6.86	45	2.65	17	5.72	38
1965								
May.....	15.81	7.60	8.21	52	2.35	15	5.25	33
June.....	14.88	8.25	6.63	44	2.94	20	5.31	36
July.....	16.11	9.85	6.26	39	2.67	17	7.18	44
August.....	13.14	4.25	8.89	68	.86	6	3.39	26

1/ U.S. No. 1 size A, 1-percent allowance for waste and loss for 1962-63 through 1964-65, 4 percent allowance for 1965-66 season.

2/ Sales in New York City, season, November through April.

3/ Sales in New York City, season, September through April.

4/ From Washington.

5/ From Idaho.

6/ Sales in Chicago, season, May through August.

For California long white potatoes, both the retail store and shipping point-to-retail spreads increased, although the increase in the latter was minor. The grower-packer return averaged 52 percent higher in 1965 than in 1964.

The U.S. fall potato crop was 24 percent larger in 1965 than in 1964. Retail prices last fall were much lower than a year earlier, and grower-packer returns were down sharply. Marketing spreads also were down for Maine round white potatoes, and the shipping point-to-retail spread was down for Western Russets.

## Cotton

The spread between the retail cost of representative cotton clothing and house-furnishings and the farm value of lint cotton used in their manufacture increased in 1965 for the third consecutive year. The retail cost of these items, equivalent to 1 pound of lint cotton, averaged \$2.17 in 1965, the same as in 1963 and 1964 (fig. 11), but the 1965 farm-retail spread was 2 cents less than in 1964, and 3 cents less than in 1963. The 1965 farm value of 1 pound of lint cotton used in the manufacture of these items averaged 29 cents, and the farm-retail spread was \$1.88. This spread does not include Federal payments made through issuance of payment-in-kind certificates to domestic users of eligible U.S. raw upland cotton. From April 1964 through July 1965, this payment was 6.5 cents per pound of raw cotton; beginning in August 1965, the payment was 5.75 cents.

The farmer's return amounted to 13 percent of the retail cost of the representative cotton items in 1965, compared with slightly more than 14 percent in 1964 and 15 percent in 1963 and 1962.

Preliminary reports indicate that labor costs took at least half the consumer's cotton dollar. Wage rates have continued to increase at almost all levels of the cotton and textile industries. In 1965, hourly earnings of textile mill employees averaged \$1.87, compared with \$1.79 in 1964 and \$1.38 in 1955. Hourly earnings for employees in the apparel manufacturing industries averaged \$1.83 in 1965, compared with \$1.79 in 1964 and \$1.37 in 1955.

After-tax profits of corporations manufacturing textile mill products averaged 3.8 percent of sales in the first three quarters of 1965 compared with 2.9 percent in the corresponding period of 1964. After-tax profits of corporations manufacturing apparel and other finished products averaged 2.2 percent of sales in the first three quarters of 1965 and 2.1 percent in the same period of 1964. This level of profits is expected to continue into 1966.

Mill margins, the difference between the value of cloth obtainable from a pound of cotton and the price of 1 pound of cotton used in its manufacture, widened from 26.92 cents in December 1963 to 35.22 cents in December 1964 and 38.77 cents in December 1965. The December 1964 and 1965 estimates of mill margins include the value of payment-in-kind certificates.

Expenditures for plant and equipment by textile mills continued to rise sharply in 1965, reaching an annual rate (seasonally adjusted) of \$1,150 million by the fourth quarter. This is \$200 million greater than the rate a year earlier, and is almost double the annual expenditure for plant and equipment in 1962.

## Tobacco Products

Expenditures for tobacco products continued to rise in 1964 but at a lower rate than in the past 2 years (fig. 12). Expenditures for cigarettes declined slightly in 1964, but still accounted for 88 percent of the total spent for tobacco products. Per capita consumption of cigarettes by persons 18 years and older (including overseas forces) fell to 4,196 in 1964 from a record high of 4,345 in 1963. Per capita consumption in 1965 appears to have been only slightly below the 1963 record.

Each consumer dollar spent for tobacco products was distributed as follows:

(In cents)

	1945	1964
Tobacco grower.....	15.8	9.9
Manufacturer.....	18.6	27.4
Distributor.....	23.2	19.6
State and local taxes.....	6.0	16.6
Federal taxes.....	36.4	26.5
Total.....	100.0	100.0

State and local taxes on tobacco products have increased sharply, accounting for \$1.3 billion in 1964, compared with only \$172 million in 1945. During this same period, Federal taxes rose from \$1.0 to \$2.1 billion.

Manufacturing and distribution charges in 1964 held at the record high level of a year earlier. These marketing functions took a substantially larger share of the consumer's dollar than in 1945.

Between 1945 and 1964, consumers increased their expenditures for tobacco products by about 172 percent, but farm value rose only 70 percent. Tobacco growers received less than 10 cents of each consumer dollar spent for tobacco products in 1964. This totaled \$772 million in 1964, compared with \$454 million in 1945.

Contributing to the decline in the grower's share of the consumer's tobacco dollar is the fact that the amount of tobacco required to produce a cigarette has declined substantially since the mid-1950's. Cigarettes have become smaller in diameter; the length has been shortened by use of filter; and reconstituted sheet permits more complete utilization of tobacco. Fluffy tobacco gives more fill to cigarettes, and more accuracy in weighing cigarettes on the production line requires use of less tobacco.

#### PROJECTS TO IMPROVE EFFICIENCY IN MARKETING

Efficiency studies have become critically important as marketing costs continue to increase. The effects of rising food marketing costs are felt throughout the marketing system and indeed the entire economy. Farmers, in times of rising marketing costs, often bear the initial brunt of cost increases because they cannot readily adjust their production. Upward cost pressures have historically predominated and appear likely to continue for the foreseeable future. Thus farm income can be influenced directly by the ability of the marketing system to reduce or hold the line on costs.

All consumers are eventually affected by rising marketing costs because of the higher prices they must pay for food. Higher food prices create especially serious problems among the nearly 20 percent of the Nation's families with annual incomes of less than \$3,000 per year. In addition to the effect of price rises on the diets of these families, farm income is affected because of decreased demand resulting from their lower purchasing power.

The cost of food is the largest weighted item in the consumer price index. It has an important influence on wage contracts and the general inflationary problem that concerns our society. Marketing efficiency studies, and lower marketing costs, therefore benefit all segments of society from the producer to the consumer.

### Continuing Need for Efficiency Research

Innovations in technology are constantly being made in the marketing system. For example, new technology in meat packing has revolutionized the industry. Shifts in livestock slaughter from large centralized meat packing centers to small interior plants have raised a number of new questions concerning efficiency in the performance of marketing functions. What are the most efficient methods and equipment for transporting meat products in a different form from decentralized plants to urban centers? What are the most efficient types of markets to serve the needs of buyers and sellers under the new slaughter arrangements? A continuing program of market research is required to answer these questions. The Marketing Economics Division has underway a number of cost efficiency studies in marketing livestock, meats, and meat products. These studies are directed to developing ways of reducing marketing margins through improving the physical efficiency of marketing facilities and processing plants.

### Contribution of Scientific Techniques to Improved Marketing Management

Opportunities for improving marketing efficiency exist at all levels of the distribution system from production centers to the retail store and among all types of marketing institutions including both single and multiproduct firms, and packers, shippers, wholesalers, and retailers. Thus, studies on marketing efficiency are aimed both at specific products and particular marketing institutions.

More scientific management including better decisionmaking tools are promising means of improving efficiency among marketing firms. The need for scientific management has increased as food marketing has become more complex. Getting products that require extensive processing from the hands of millions of farmers into the hands of an even larger number of consumers in the form and at prices they are willing to pay presents management with difficult operating problems. For example, most retail food stores now carry more than 6,000 items. Rule of thumb decisions and simple judgments are not adequate to solve such problems as finding the most efficient inventory practices, the most profitable utilization of warehouse and store space and the most appropriate prices and margins. Marketing operations are further complicated by the rapid pace of product technology and the ever-changing product scene. It is estimated that 70 percent of sales today come from products that were not on the market 10 years ago. Thus, as old problems are solved, new ones arise. Marketing firms need better analytical methods and better decisionmaking tools to cope with or bring about efficient adjustments to these manifold problems.

Advances in computer technology are helping to bring more scientific management to marketing firms. They make possible sounder decisionmaking by use of such techniques as linear programming, game theory, and computer simulation. These techniques provide the firm with great potential for improving efficiency, lowering marketing costs and for better allocating the economy's resources. They require, however, detailed cost and performance data which can be obtained only through considerable research effort.

Several studies are underway or nearing completion which demonstrate the contribution of improved management techniques to more efficient marketing. One such study was conducted to develop quantitative techniques to enable formula feed manufacturers to determine the least cost combinations of ingredients consistent with maintaining nutritional requirements. In this study, the costs of using six formulas derived by linear-programing were compared with the costs of formulas actually in use during a 23-week period.

Gross savings from linear-programed formulas averaged \$1.70 per ton. Projection of annual gross savings amounted to \$116,000 on volume of 1,100 tons per week in one firm and \$17,000 on a volume of 235 tons per week in another. The adoption of linear programing alone, however, resulted in sizable fluctuations in rates of ingredient usage causing some complications in scheduling production and inventory control.

As a result, the study was broadened to the development of an inventory and procurement model that considers ingredient availabilities, inventories, and expected sales in determining least-cost formulas. When tested under actual conditions as a complete system, it was operational, promising substantial cost savings in the form of increased sales, lower ingredient costs, and less investment in storage facilities when fully implemented by the industry. Adoption of these techniques by the industry should lead to lower feed costs for farmers and lower meat prices for consumers.

Similar inventory control and procurement techniques have application for food wholesalers. Research is particularly concerned with the development of these techniques--especially for smaller wholesalers who cannot afford the elaborate data processing equipment which is required to use them.

The management science approach has also been used to provide retailers with more complete knowledge for solution of problems involving pricing and margin decisions and reduction of selling costs through better allocation of labor. Analysis of rated work-sampling data established the amount of fixed and variable labor costs connected with the retail processing of selected product groups. The results showed that substantial economies of scale were present both for meat and for most other product groups. Furthermore, significant differences were found to exist in the time required to process different cuts of meat. For example, it took about 7 man-hours to process 1,000 pounds of beef round or beef chuck as compared to 2.3 man-hours for pork loin and only 2.7 man-hours for fresh poultry. This information has important applications in lowering retailing costs by making possible more efficient use of equipment, facilities, and staff, and by better pricing decisions.

This particular study will be carried further to measure the net impact on departmental profits and costs of changes in prices, margins and features of individual cuts of meat. This will provide public policymakers, marketing firms, farmers as well as retailers, with greater understanding of the economics of the retail meat marketing system.

#### Efficiency in Handling Milk Supplies

Increased efficiency results not only from the development of new technology, but also from finding new and better ways of performing old tasks. This was illustrated in a study on the efficiency of different systems of handling the farm supply of milk in selected markets. Milk handling problems are difficult because of the inverse relationship between production and demand. When demand is at its seasonal peak,

production is at its lowest and vice versa. Under the most common procedure individual dealers are responsible for handling their own supply of milk and normally purchase in excess of their immediate requirements for fluid milk to provide for a reserve supply. Farmers usually receive a lower price for milk purchased for reserve purposes. The efficiency of this system of handling was compared with an alternative arrangement in which the supply was centrally coordinated by a producer's cooperative. In each market, when individual dealers were responsible for their own supply, a larger reserve was necessary and costs of handling the surplus milk were greater than when the supply was centrally coordinated.

The volume of milk needed in a central reserve is smaller partly because the larger erratic fluctuations in individual dealers' sales generally result from shifts among dealers and often are offsetting. Coordinated handling avoids needless duplication of processing facilities and makes possible economies of scale not possible for individual dealers. Results of one study showed that central supply coordination and surplus handling in the Oklahoma metropolitan milk market could save over \$400,000 per year compared with the cost if each handler were to perform these functions himself.

For a group of 14 Pittsburgh, Pa., milk handlers processing the excess milk not used as fluid milk, cottage cheese, or ice cream was estimated to be about \$3,000 per day if done by each handler, as compared with \$1,600 if processed by two well-coordinated plants--a savings of more than \$100 per plant per day. Expanding this comparison to include the total Pittsburgh market indicates a potential difference of \$936,000 per year between individual processing and central processing of just the excess supplies. This change would not need to alter the processing or distribution of fluid milk, ice cream, or cottage cheese. These potential gains from supply coordination are external to the plants of individual dealers. Their realization depends upon actions taken by the total group rather than by a specific firm.

Also, the introduction of a centrally coordinated market supply need not decrease intramarket competition among handlers which does not depend upon each handler bearing responsibility for every functional activity from procurement and collection through processing and distribution. In fact, such responsibility may stifle effective competition. Specialization, economies of scale, and less uncertainty lead to greater efficiency. Some handlers could compete more vigorously if they were not hampered by the problems of individual procurement, collection, assembly, and handling of the surplus milk, thereby benefiting both consumers and farmers.

#### Reducing Labor Costs

Another important potential for increasing efficiency and lowering marketing costs is in the area of management and utilization of labor. With labor being one of the major components of the food marketing bill, improving utilization of labor is a major requirement for holding the line on marketing costs. A recent study of labor requirements in southern rice mills indicated an example of the savings that can be made by better organization and utilization of labor. Wide variations were found in labor time used by different mills to perform the same functions. For example, labor requirements for receiving rice by rail varied from 10.0 man-hours per 1,000 hundredweight with hand unloading to 3.7 man-hours when the pneumatic conveyer was used. Labor required to perform the same function in the milling department varied from 59 man-hours per 1,000 hundredweight of rough rice in a small mill to 20 man-hours in a large mill, using essentially the same techniques. Even more

variation in labor requirements was found in the department handling milled rice where total labor requirements per 1,000 hundredweight of rough rice milled varied from as many as 52 man-hours to as few as about 11, depending on methods and techniques used.

Production labor standards were developed for each method used in performing major functions of the rice milling process. If the rice industry attained these standards and maintained them throughout the year, the mills could save about 38 percent of their production labor costs without changing their present methods. If the industry were to use the most efficient methods observed during the study in conjunction with the standards set in this study, there would be a potential saving in production labor of about 50 percent, or about 10 cents per hundredweight of rough rice milled. This would mean savings of about \$7.5 million on the 1965 crop, which is estimated at 75.5 million hundredweight.

The results of this research were well received by the industry and have been discussed by the Rice Miller's Association with its members. Some mills are using the findings of this study as a guide in studying labor organization and efficiency in their plants.

#### Efficiency in Grading and Packing

There are many other areas where increased efficiency can contribute to lower marketing costs. For example, grading, packing, and processing have become more important in marketing as consumers' incomes have grown and the demand for these services has increased. Studies have been undertaken to provide information on costs associated with operation of different sized packaging sheds and processing plants. In addition to showing how costs change with capacity, these studies enable firms to compare their costs with costs of model plants of larger scale to estimate savings that must be made in some way to remain competitive with larger firms. In addition to contributing to lower marketing costs, these studies should be helpful in preserving competition in agricultural industries.

In one study, cost information on grading and packing tomatoes was developed for three model packinghouses of small, medium, and large capacity. Total packing costs per 40-pound carton of tomatoes were 92 cents in the small model packinghouse, 83 cents in the medium sized model, and 81 cents in the large model. In addition, the study pointed out some of the important factors which cause variations in packing costs. These include quality of the tomatoes being packed, type of material used, size of electrical equipment, and length of packing season. In addition the study provided estimates of the capital inputs required to construct each of the three types of model plants. With packing costs being about one-third of the price received for tomatoes, increased efficiency in this area should have a substantial effect on lower marketing costs.

#### Economic Feasibility Research

Efficiency studies on plant size have been useful in evaluating questions on the economic feasibility of locating vegetable processing plants in various areas of the country. This has been of particular interest to the Economic Development Administration, U.S. Department of Commerce, in its program to stimulate the development of industry in economically depressed areas. At the request of the Economic

Development Administration studies have been conducted in Jackson County, Fla.; Chowan County, N.C.; Butler and Ripley Counties, Mo.; and Ravalli County, Mont., to provide needed and useful information for management and investment decisions.

### Other Efficiency Studies

Methods of increasing efficiency are continually being examined in all phases of marketing and at different levels of the distribution system, with research being done on a wide range of both functional and commodity problems.

A segment of dairy marketing research deals with costs, margins, and efficiency of operations. A cooperative regional project in the Northeast is directed at determining the effects of economic, technological, and institutional conditions upon the costs and efficiency of milk assembly, processing, and distribution. Another study is analyzing the factors affecting labor requirements in market preparation of flue-cured tobacco.

A project in the South is aimed at increasing efficiency in the cotton industry to improve the competitive position of cotton. This work is investigating the problems and costs involved in alternative methods of picking cotton, determining the effects of different ginning practices on ginning costs, and investigating the economic performance of cotton lint in the marketing system when harvested by mechanical spindle pickers as compared with mechanical strippers. Other efficiency research includes alternative means of reducing the costs of railroad grain transportation, costs and efficiency in bread distribution, and economics of inventory control and space management in warehousing agricultural products, and costs and economies of scale in marketing turkeys. These studies represent a continuing effort to increase the efficiency of the marketing system and are a broad scale attack on the problem of rising marketing cost.

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#### OTHER DISSEMINATION OF PRICE SPREAD INFORMATION, FEBRUARY 1965 - JANUARY 1966

#### Speeches and Papers

Discussion of Developments in Price Spreads. Speech presented at Columbia University Seminar on the Economics of Distribution, May 1965.

Marketing Costs and Margins: New Perspectives in a Changing Economy. Speech presented at the annual meeting of the American Farm Economics Association, August 1965.

An Economic Interpretation of Wheat, Flour, and Bread Prices. Speech presented at the Fourth National Wheat Utilization Research Conference, November 1965.

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#### Periodicals

The Farm Index. Monthly. In each issue there are sections on marketing and the consumer which summarize in short articles and notes materials from research on price spreads of special interest to these groups.

Service, USDA's Report to Consumers. Service is a monthly newsletter of consumer interest which is designed for those who report to the individual consumer, rather than for mass distribution. It also carries items on costs and new marketing developments of special interest to consumers.

#### Radio Presentations

Interview--Price Spreads for Beef.

#### Television

Interview--Food Containers.

Interview--Hides and Leather.

Statement--Bargains in the Basket.

Statement--Milk and Milk Products in the Nation's Schools.

Interview--Convenience Foods.

#### Exhibits

American Marketing Association Convention.

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