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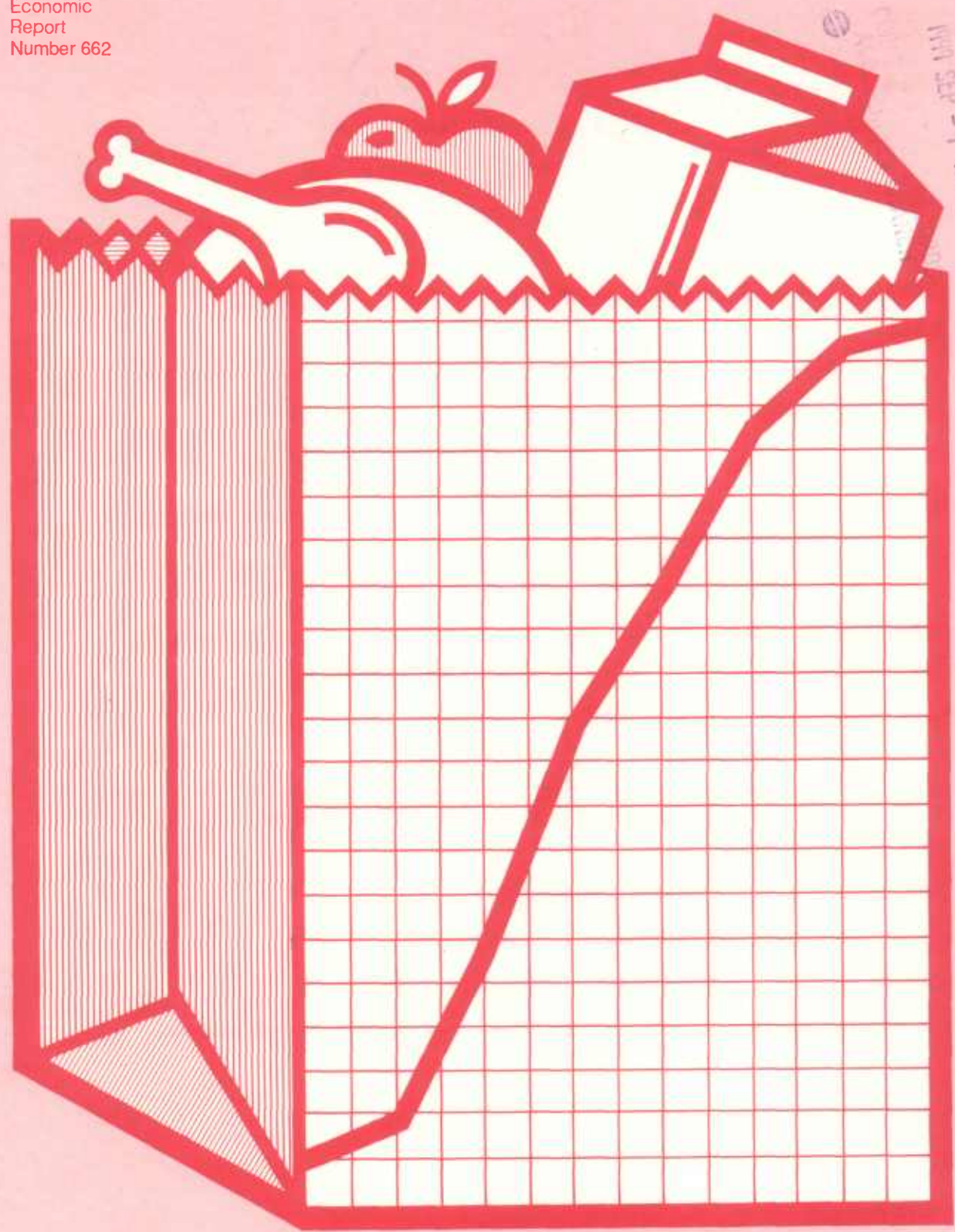
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Food Cost Review, 1991

Denis Dunham



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Abstract

Food prices, as measured by the Consumer Price Index (CPI), increased 2.9 percent in 1991, half the 1990 price increase of 5.8 percent. Higher charges for processing and distribution mainly accounted for the price increase. The farm-to-retail price spread of USDA's market basket of foods rose 6.7 percent, partly reflecting higher prices of inputs, such as labor and energy, that the food industry used. The prices farmers received for commodities, as measured by the farm value of USDA's market basket of foods, declined 6.2 percent. The farm value share of the food dollar spent in grocery stores in 1991 was 27 percent, down from 30 percent in 1990.

Keywords: Retail food prices, farm-to-retail price spread, farm value share, food marketing costs, food spending, profit, productivity.

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Summary

Consumers paid 2.9-percent higher prices for food in 1991, as measured by the Consumer Price Index (CPI). This percentage increase was half the 1990 price increase and the smallest since 1985. Between the two major components of the food index, grocery store prices rose the least, advancing 2.6 percent, down from 6.5 percent in 1990. Restaurant meal prices went up 3.4 percent, fractionally less than a year earlier. The rise in food prices in 1991 mainly reflected increases in food processing and distribution costs.

The farm value of USDA's market basket of foods, based on prices farmers received for commodities, declined 6.2 percent, largely reflecting lower prices for livestock and milk. With this large decline, the 1991 farm value of food was only about 6 percent higher than a decade earlier.

The 1991 farm value averaged 27 percent of the retail cost for a market basket of food purchased in grocery stores, down from 30 percent in 1990. This decline was caused by abundant food supplies that held down farm prices, while rising processing and distributing charges boosted retail prices. These opposing forces also lowered the average farm share from 37 percent to 30 percent during the 1980's.

The farm-to-retail price spread rose 6.7 percent in 1991, partly reflecting higher prices of marketing inputs, including labor, packaging, and advertising, and larger industry profit margins. In addition, there was probably greater use of some inputs per unit of output. For instance, hours worked in food retailing have increased, reflecting more service departments in supermarkets, such as instore bakeries and delicatessens. After-tax profits of food retailers averaged 1.1 percent of sales in 1991, unchanged from the previous year.

Consumers spent \$462 billion for food produced on U.S. farms in 1991, about 3 percent more than in 1990. This amount includes purchases of farm foods in grocery stores, about 61 percent of total consumer food expenditures, and at away-from-home eating places. About 22 percent of last year's food spending went back to farmers, who received about \$101 billion for food commodities. This share is lower than the 27-percent farm value share for the market basket of foods because it includes the much lower 14-percent farm share for away-from-home food spending.

For food--	<u>1990</u>	<u>1991</u>
	<u>Billion dollars</u>	
Consumers spent...	450	462
Marketing bill was...	344	361
Farmers got...	106	101

The remaining \$361 billion--the marketing bill--went to the food industry for handling, processing, and retailing foodstuffs after they left the farm. The marketing bill rose \$17 billion in 1991. Direct labor costs for food marketing represented 45 percent of the marketing bill. Other principal costs were packaging and containers, transportation, advertising, and energy.

Although the dollar amount spent for food continues to rise, food spending as a percentage of disposable personal income declined over the past decade. In 1991, personal expenditures for food, as estimated by the Economic Research Service, were 11.6 percent of personal disposable income, down from 11.9 percent 5 years earlier and 13.2 percent in 1981.

Food Cost Review, 1991

Denis Dunham

Introduction

Consumers, farmers, and legislators want to know what causes food prices to change. These concerned parties are also interested in the difference between what farmers get for the food they sell and how much consumers pay for that food, commonly referred to as the farm-to-retail price spread. To answer these concerns, Congress has directed the U.S. Department of Agriculture (USDA) to measure price spreads for food originating on farms.

This report presents USDA's findings for 1991, including answers to the following questions:

- How much did food prices rise in 1991? Why?
- How much of the retail food price does the farm value represent?
- How did farm-to-retail price spreads change last year, both for a market basket of food and for such food groups as meat and dairy products?
- How have recent developments affected food industry costs, profit margins, and productivity?
- Finally, how much did Americans spend for farm-produced food, and how were these dollars divided among costs of producing and marketing food?

Retail Food Prices

The rise in retail food prices slowed dramatically in 1991 under the pressure of large food supplies and recession-weakened consumer demand. Food prices in 1991, as measured by the Consumer Price Index (CPI), averaged 2.9 percent above those in 1990, half the 1990 price increase of 5.8 percent. Moreover, the 1991 increase was the lowest since that in 1985 (table 1).

Food prices in 1991 rose more slowly at supermarkets and other grocery stores than at eating places, reversing the trend during the prior 4 years. Food prices in grocery stores went up 2.6 percent, and prices for restaurant meals advanced by 3.4 percent. In both cases, prices increased more slowly than they had the year before. For restaurant meals, the 1991 price increase was the smallest since that in 1965.

There were two principle reasons for the slowdowns. Production of livestock increased, generating record meat supplies. At the same time, the recession cut into consumer buying power and, thus, food spending. Per capita disposable income, adjusted for inflation, fell about 1 percent in 1991. This drop forced food marketers to either limit price increases or watch already weak sales erode. The result of these changes was a 1-percent decline in grocery store sales, adjusted for inflation, in 1991. Meanwhile, the cost of doing business in 1991 for firms in the food industry rose a little more slowly than in recent years. Food industry charges for food processing and distributing services consequently increased more slowly in 1991 than they had in 1990.

*The author is an agricultural economist in the Commodity Economics Division, Economic Research Service, U.S. Department of Agriculture.

Table 1--Consumer Price Indexes for food and percentage changes from previous years

Year	Food		Food at home		Food away from home	
	Index	Change	Index	Change	Index	Change
	<u>1982-84=100</u>	<u>Percent</u>	<u>1982-84=100</u>	<u>Percent</u>	<u>1982-84=100</u>	<u>Percent</u>
1972	42.1	4.2	42.7	4.4	41.0	4.1
1973	48.2	14.5	49.7	16.4	44.2	7.8
1974	55.1	14.3	57.1	14.9	49.8	12.7
1975	59.8	8.5	61.8	8.2	54.5	9.4
1976	61.6	3.0	63.1	2.1	58.2	6.8
1977	65.5	6.3	66.8	5.9	62.6	7.6
1978	72.0	9.9	73.8	10.5	68.3	9.1
1979	79.9	11.0	81.8	10.8	75.9	11.1
1980	86.8	8.6	88.4	8.1	83.4	9.9
1981	93.6	7.8	94.8	7.2	90.9	9.0
1982	97.4	4.1	98.1	3.5	95.8	5.4
1983	99.4	2.1	99.1	1.0	100.0	4.4
1984	103.2	3.8	102.8	3.7	104.2	4.2
1985	105.6	2.3	104.3	1.5	108.3	3.9
1986	109.0	3.2	107.3	2.9	112.5	3.9
1987	113.5	4.1	111.9	4.3	117.0	4.0
1988	118.2	4.1	116.6	4.2	121.8	4.1
1989	125.1	5.8	124.2	6.5	127.4	4.6
1990	132.4	5.8	132.3	6.5	133.4	4.7
1991	136.3	2.9	135.8	2.6	137.9	3.4

Source: U.S. Department of Labor, Bureau of Labor Statistics.

Food shoppers were the beneficiaries of the slower rise in food prices. Grocery store prices of most foods in 1991 were only moderately higher than those in the year before, and some prices, including those for dairy products, poultry, and eggs, fell slightly (table 2). Starting in August, growing pork supplies caused monthly drops in retail pork prices.

Farmers saw prices of many of their products decline. Livestock, milk, and most grain and oilseed prices dropped in 1991. The farm value of foods sold in grocery stores, after rising 5.7 percent in 1990, fell 6.2 percent in 1991. Most of the decline reflected lower prices for milk and livestock.

The rise in grocery store food prices in 1991 came mainly from a higher farm-to-retail price spread. The farm-to-retail price spread, or the difference between what farmers receive for food (the farm value) and its retail price, is the charge for processing, distributing, and retailing farm-produced foods. The 1991 rise in the farm-to-retail spread was 6.7 percent, slightly smaller than in 1990.

Food prices in 1991 rose by less than the CPI for all nonfood items (fig. 1). Helped by the 2.9-percent rise in food prices, which make up 16 percent of the CPI, overall inflation averaged 4.2 percent in 1991, down from 5.4 percent in 1990. Among major items in the CPI, housing prices, the largest component, went up 4 percent, and apparel and upkeep prices rose 3.7 percent, but medical care costs climbed 8.7 percent in 1991.

Consumer Price Index

The Consumer Price Index for urban consumers (CPI-U), published by the U.S. Department of Labor's Bureau of Labor Statistics (BLS), is the most widely accepted measure of changes in retail food prices. Prices used to develop the food CPI-U are collected in about 2,300 foodstores located in 85 urban areas.

Table 2--Consumer Price Index changes for food eaten at home, by food group

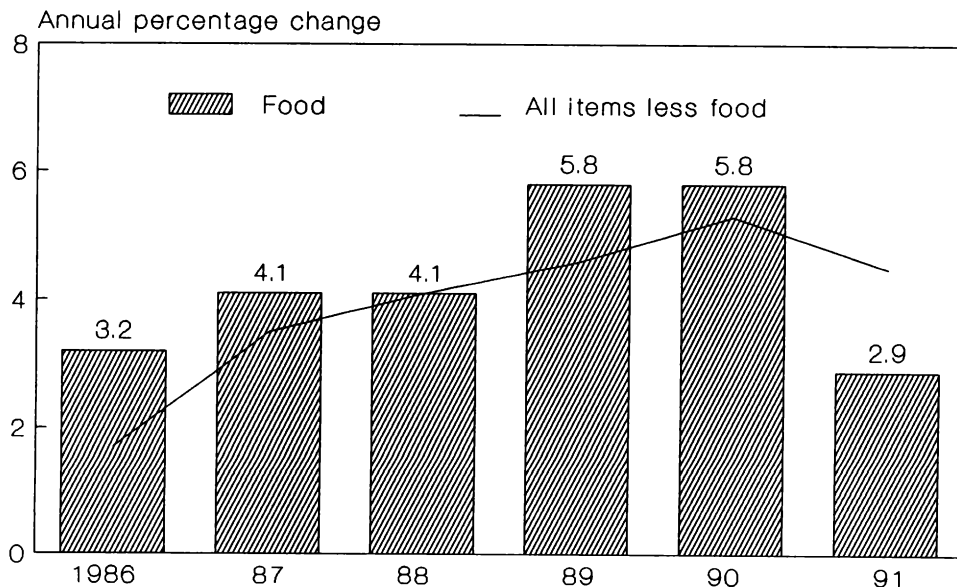
Food group	1986	1987	1988	1989	1990	1991
<u>Percentage change from year earlier</u>						
Cereal and cereal products	3.0	3.2	7.6	9.2	5.5	4.5
Bakery products	2.7	3.5	5.9	8.0	5.9	4.0
Beef and veal	.6	7.6	-3.0	6.4	8.0	2.8
Pork	8.2	8.2	-3.0	.6	14.7	3.3
Other meat	2.6	6.3	2.6	2.8	9.3	3.7
Poultry	7.5	-1.4	7.2	9.9	-.2	-.8
Eggs	6.8	-5.9	2.3	26.6	4.7	-2.3
Fish and seafood	9.2	10.6	5.8	4.5	2.2	1.1
Dairy products	.1	2.5	2.4	6.6	9.4	-1.1
Fresh fruit	2.1	11.2	8.3	6.6	12.1	13.5
Fresh vegetables	4.1	12.9	6.3	10.7	5.6	2.2
Processed fruit	-2.9	4.0	10.3	3.2	8.7	-3.7
Processed vegetables	-.2	2.8	4.8	10.7	2.7	.8
Fats and oils	-2.2	1.5	4.6	7.2	4.2	4.3
Sugar and sweets	3.0	1.8	2.7	4.7	4.4	3.7
Nonalcoholic beverages	5.8	-2.6	0	3.5	2.0	.5
Other prepared food	2.6	4.2	3.7	6.4	4.5	4.5

Source: U.S. Department of Labor, Bureau of Labor Statistics.

Figure 1

Consumer Price Indexes

The food price increase was smaller than the price increase for nonfood items in 1991.



After collecting the prices, the BLS summarizes them, weights them by their importance, and reports the prices as index numbers for about 70 food groups. The weights, reflecting the purchasing patterns of urban households, are periodically revised. The BLS made the latest revision in January 1987 for changes in purchasing patterns between 1972-73 and 1982-84.

The food component of the overall CPI-U has a weight of about 16 percent. Housing is the largest expenditure category, with 41 percent of the CPI-U weight, followed by transportation with 18 percent. The food category of the CPI-U has two major components: food purchased in foodstores for consumption at home, which has a weight of about 9.9 percent, and food consumed away from home, weighted at about 6.1 percent (table 3).

Knowing the importance of CPI-U components helps one understand how price changes for various food groups influence the overall change in the CPI-U for food. For instance, in the food-at-home CPI-U, fresh fruit is only about 7 percent of the index. However, last year, the CPI-U for fresh fruit went up 13.5 percent, accounting for about a 1-percent increase in the food-at-home CPI-U.

Retail Prices of Food Groups

Four food categories--meat, cereal and bakery products, fresh fruit, and prepared foods--accounted for most of the rise in grocery store prices in 1991. Lower prices for dairy products, poultry, and eggs helped slow the rate of price increases in 1991 (tables 2 and 4).

Meat

Beef and veal prices averaged 2.8 percent higher in 1991 than a year earlier, the smallest price increase in 3 years. Prices peaked in the second quarter at a record high, reflecting lower beef production. Prices declined slightly in the last half of the year as beef production increased. Total 1991 beef production was nearly 1 percent more than that in 1990, the first increase in 3 years. Beef and veal consumption averaged about 68 pounds (retail weight) per capita in 1991, slightly less than in 1990, as population growth and larger beef exports offset the rise in production.

Retail pork prices also rose much more slowly in 1991, as pork production picked up about 4 percent. Retail pork prices averaged 3.3 percent higher in 1991 than in 1990. Prices peaked in July and then declined monthly the rest of the year. With increased production, pork consumption rose to 50.4 pounds (retail weight) per capita in 1991, about 0.5 pound more than in 1990.

Poultry and eggs

Retail poultry prices declined slightly in 1991 for the second consecutive year. Prices reflected larger supplies of poultry and downward pressure on prices created by greater red meat supplies. Broiler chicken production increased about 6.5 percent in 1991, extending a long-term expansion, and turkey production was up about 2.5 percent. As a consequence, poultry consumption increased to 95 pounds (ready-to-cook weight) per capita in 1991, about 4 pounds more than in 1990.

Table egg production was only a fraction of a percent larger in 1991, but egg prices declined at the farm, wholesale, and retail levels. Retail egg prices averaged 2.3 percent lower in 1991 than in 1990. Per capita egg consumption declined slightly, continuing a long-term trend. Consumption totaled 232 eggs per capita in 1991, 2 eggs per capita less than in 1990, reflecting a 12-year decline in shell egg use. Use of processed egg products, nearly a fourth of total consumption, continued to grow. Processed egg consumption has grown about 40 percent per capita since 1980, due partly to greater manufacturing use in food products, such as pasta and baked goods.

Dairy products

Retail prices of milk and other dairy products averaged 1.1 percent lower in 1991. However, a 1990 increase in dairy prices that was the largest since 1980 preceded this small decline, sharply contrasting with the 1- or 2-percent annual increases during most of the 1980's. Price decreases in 1991 were limited to fresh milk and cream (3.2 percent). Prices for cheese and other processed products rose 1.1 percent. Cheese supplies tightened during the year due to

Table 3--Relative importance of food groups in Consumer Price Index for urban consumers (CPI-U), December 1991

Food group	Weight in CPI-U	Weight in food CPI-U	Weight in food- at-home CPI-U
		<u>Percent</u>	
All food	16.007	100.0	NA
Food at home	9.921	62.0	100.0
Cereal and bakery products	1.426	8.9	14.4
Cereal products	.461	2.9	4.7
Bakery products	.965	6.0	9.7
Meat	2.050	12.8	20.7
Beef and veal	1.050	6.5	10.6
Pork	.585	3.7	5.9
Other meats	.415	2.6	4.2
Poultry	.431	2.7	4.3
Fish and seafood	.371	2.3	3.7
Eggs	.179	1.1	1.8
Dairy products	1.229	7.7	12.4
Fresh milk and cream	.608	3.8	6.1
Processed dairy products	.621	3.9	6.3
Fresh fruit and vegetables	1.225	7.7	12.3
Fresh fruit	.683	4.3	6.9
Fresh vegetables	.542	3.4	5.4
Processed fruit and vegetables	.629	3.9	6.3
Processed fruit	.362	2.3	3.6
Processed vegetables	.267	1.6	2.7
Sugar and sweets	.344	2.2	3.5
Fats and oils	.260	1.6	2.7
Nonalcoholic beverages	.739	4.6	7.4
Other prepared food	1.038	6.5	10.5
Food away from home	6.086	38.0	NA

NA = Not applicable.

Source: U.S. Department of Labor, Bureau of Labor Statistics.

Table 4--Average retail food prices, selected items

Item	Unit	1987	1988	1989	1990	1991	Item	Unit	1987	1988	1989	1990	1991
<u>Dollars</u>						<u>Dollars</u>							
Flour, white	Pound	0.20	0.21	0.24	0.25	0.23	Apples, red delicious	Pound	0.73	0.69	0.72	0.88	0.88
Rice, white, uncooked	do.	.40	.48	.50	.50	.50	Bananas	do.	.36	.42	.45	.46	.48
Spaghetti and macaroni	do.	.73	.80	.86	.85	.87	Oranges, navel	do.	.54	.53	.52	.58	.78
Bread, white	do.	.55	.61	.67	.70	.71	Oranges, Valencia	do.	.58	.59	.60	.56	.92
Bread, French	do.	1.08	1.09	1.17	--	1.25	Cherries	do.	1.35	1.63	1.15	1.75	2.26
Cookies, chocolate chip	do.	2.00	2.12	2.38	2.61	2.70	Grapefruit	do.	.52	.52	.52	.66	.62
Crackers, soda	do.	1.00	1.07	--	--	--	Grapes, Thompson						
Ground beef	do.	1.31	1.36	1.44	1.59	1.60	seedless	do.	1.17	1.16	1.20	1.26	1.40
Chuck, ground	do.	1.63	1.76	1.83	1.97	1.97	Lemons	do.	.90	.93	1.00	1.07	1.23
Chuck roast, bone-in	do.	1.68	1.73	1.88	2.09	2.09	Peaches	do.	.67	.68	.84	.88	.96
Round roast, boneless	do.	2.53	2.63	2.76	2.93	3.02	Pears, Anjou	do.	.74	.63	.73	.76	.84
Rib roast	do.	3.54	3.89	4.17	4.49	4.70	Strawberries	12 oz.	.96	1.00	1.04	1.14	1.11
Round steak, boneless	do.	2.88	2.98	3.12	3.32	3.41	Potatoes, white	Pound	.28	.26	.34	.37	.33
Sirloin steak, bone-in	do.	3.13	3.29	3.58	3.67	3.74	Lettuce, iceberg	do.	.62	.63	.60	.58	.60
T-bone steak	do.	4.24	4.72	5.07	4.99	5.38	Tomatoes, field-grown	do.	.82	.83	.91	1.08	1.01
Bacon, sliced	do.	2.14	1.88	1.77	2.12	2.22	Beans, green	do.	.94	.96	1.02	--	--
Chops, center-cut	do.	2.82	2.77	2.85	3.26	3.26	Cabbage	do.	.30	.33	.36	.40	.40
Ham, rump	do.	1.54	1.60	--	--	--	Carrots	do.	.36	.38	.40	.39	.45
Ham, shoulder picnic	do.	1.11	1.12	1.10	1.28	1.30	Celery	do.	.46	.51	.53	.49	.52
Sausage	do.	1.99	1.97	2.00	2.35	2.40	Corn on the cob	do.	.42	.59	--	--	--
Ham, canned	do.	2.80	2.73	2.67	2.77	3.19	Cucumbers	do.	.57	.57	.66	.60	.65
Frankfurters	do.	1.99	2.02	2.06	2.29	2.35	Onions, yellow	do.	.42	.38	.36	.39	.43
Bologna	do.	2.19	2.24	2.28	2.51	2.59	Peppers, sweet	do.	.90	.79	.96	1.13	1.11
Chicken, fresh, whole	do.	.78	.85	.93	.90	.88	Orange juice,						
Chicken breast	do.	1.80	1.93	2.09	2.07	2.06	frozen concentrated	16 oz.	1.53	1.82	1.86	2.15	1.84
Chicken legs	do.	1.09	1.14	1.21	1.19	1.16	Potatoes, frozen,						
Turkey, frozen	do.	1.01	.96	.99	.99	1.00	french-fried	Pound	.69	.70	.75	.84	.85
Tuna, canned	do.	1.97	2.16	2.08	2.06	2.07	Tomatoes, canned	do.	.51	.53	--	--	--
Eggs, Grade A, large	Dozen	.78	.79	1.00	1.01	.99	Margarine, tub	do.	.97	1.04	1.17	--	1.29
Milk, fresh, whole	1/2 gal.	1.14	1.16	1.27	1.42	1.37	Margarine, stick	do.	.69	.73	.82	.84	.87
Milk, low-fat	1/2 gal.	1.08	1.11	--	--	1.31	Shortening	do.	.78	.85	.93	.92	.87
Butter	Pound	2.17	2.16	2.13	1.99	1.94	Peanut butter	do.	1.80	1.79	1.81	1.89	2.15
Ice cream	1/2 gal.	2.46	2.46	2.60	2.60	2.58	Potato chips	do.	2.75	2.62	2.86	2.96	2.96
Yogurt	1/2 pt.	.58	.59	--	--	.65	Sugar, white	do.	.35	.37	.40	.43	.43
Cheese, cheddar	Pound	3.06	3.17	3.20	--	3.55	Coffee, roasted	do.	2.78	2.77	3.07	2.97	2.81
Cheese, processed	do.	2.67	2.78	2.93	--	3.43	Cola, nondiet, cans	16 oz.	.44	.43	--	--	.44

-- = Not available.

Source: U.S. Department of Labor, Bureau of Labor Statistics.

the lack of milk shipments between butter/powder manufacturing plants and cheese plants, causing cheese prices to rise moderately in the third quarter. Milk production in 1991 was about even with the year before.

Fish and seafood

Fish and seafood prices increased 1.1 percent in 1991, the smallest increase in 8 years. Much larger supplies of canned salmon, larger imports of frozen blocks, and higher catfish production moderated prices. Total consumption of fish and seafood grew 30 percent during the mid-1980's, peaking at 16.1 pounds per capita in 1987. Fresh and frozen seafood accounted for most of the increase in consumption. However, seafood consumption has since settled at around 15.5 pounds.

Cereal and bakery products

Retail prices for cereal and bakery products averaged 4.1 percent higher in 1991, the smallest rise since 1988, when the drought induced sharp price increases for wheat and other food grains. Cereal prices led the category, increasing by 6 percent. White bread prices advanced only 2.1 percent. The 1991 farm value of commodities used in cereal and bakery products averaged about 6 percent lower than that in 1990. Rising retail prices reflected higher charges by bakers and cereal manufacturers to cover higher processing and marketing costs.

Annual cereal price increases have been larger than price increases for most other products in the food-at-home index in the past decade, reflecting higher manufacturing and selling costs for cereal and stronger consumer demand. Per capita consumption of cereals rose 24 percent from 1982 to 1990.

Fresh fruit and vegetables

Fresh fruit prices averaged 13.5 percent higher in 1991, but price increases varied widely among fruits. Prices of bananas, the fresh fruit consumed in largest quantity, rose 4.9 percent. Apple prices averaged 17 percent higher, reflecting a 5-percent smaller 1990 harvest. However, orange prices soared 55 percent because the December 1990 freeze in California reduced the crop by 62 percent from the previous year, resulting in short fresh market supplies in 1991. California lemon and grapefruit production also fell because of the freeze, and lemon prices rose sharply. Grapefruit prices, however, declined in 1991 because Florida production was much larger following a freeze the year before.

Prices of fresh vegetables averaged only 2.2 percent higher in 1991. Most of the increase was in the second quarter, resulting from unusual weather patterns that caused sporadic supplies of lettuce, tomatoes, peppers, and cucumbers. Retail prices for fresh potatoes averaged 11.1 percent lower in 1991, a downturn that reflected an 8-percent increase in the 1990 fall potato crop followed by a record-large crop in 1991. Domestic per capita use of all vegetables in 1991 probably remained near the 1990 total of 392 pounds per person (farm-weight basis). Greater use of potatoes and dry beans likely offset the reduced use of fresh vegetables.

Processed fruit and vegetables

Processed fruit and vegetable prices declined 1.9 percent in 1991. Prices for processed vegetables rose slightly, but processed fruit prices fell 3.7 percent. Lower fruit prices were attributed mainly to a 43-percent increase in production of frozen concentrated orange juice following the freeze-damaged crop the previous year. The freeze in December 1989 increased frozen concentrated orange juice prices by 16 percent in 1990.

Nonalcoholic beverages

Nonalcoholic beverage prices rose a scant 0.5 percent in 1991, which considerably moderated the overall increase in grocery store food prices. Coffee prices were 1.9 percent lower, the second consecutive annual decline. Carbonated drink prices rose only 0.8 percent. Annual price increases averaged slightly above 1 percent over the past decade, due to price competition for market share among soft-drink companies and to industry productivity gains that averaged about 6 percent per year.

Food Consumption

A preliminary estimate indicates that there was a slight decline in total food consumption in 1991, as measured by USDA's per capita food consumption index. This index, calculated from pounds of food and retail prices in a 3-year base period, has been relatively stable since 1986. Although total consumption was probably lower in 1991, pork and poultry consumption increased, but beef and dairy products consumption decreased (table 5). The index includes most foods, but does not represent total food use because data are not available for some fruit, vegetables, and other products. Food consumption data are derived from information on supply and use of farm products and, therefore, are not direct measures of consumption. Rather, they measure disappearance of food from commercial channels.

Beef and veal consumption declined 1 pound to 64 pounds per person on a boneless-weight basis in 1991. But pork consumption rose about 1 pound to 47 pounds per person. Per capita poultry consumption continued its long upward trend, increasing 2 pounds to 57 pounds, boneless weight. The use of dairy products declined to about 565 pounds on a milk-equivalent basis, partly because of reduced government donations in 1991. Per capita consumption of fresh fruit declined in 1991, but there has been an upward trend over the last 10 years. In 1991, consumption of flour and cereals and sugar and sweeteners increased further, but the use of fats and oils likely declined slightly, reflecting health concerns about the level of fat in the diet.

Consumers have been altering their consumption of major food groups, such as meat and poultry. Since 1980, red meat consumption dropped 14 pounds per person, boneless weight. Beef and veal consumption fell 9 pounds per person from 1980 to 1991, and per capita pork consumption fell 5 pounds. Egg consumption declined 5 pounds per capita, but poultry consumption jumped 17 pounds in the last decade. While this change in consumption patterns may result partly from health concerns, low prices and greater use of poultry in fast-food outlets remain major causes for these consumption trends.

Table 5--Annual food consumption ^{1/}

Food group	1980	1988	1989	1990	1991 ^{2/}
			<u>1982-84 = 100</u>		
Aggregate food consumption index	98.6	105.9	105.9	105.6	NA
			<u>Pounds per capita</u>		
Red meat, boneless and trimmed	126	120	116	112	112
Beef and veal	73	70	66	65	64
Pork	52	49	48	46	47
Poultry, boneless	40	52	54	55	57
Eggs	34	31	30	30	29
Fish and shellfish, boneless	12	15	16	15	15
Dairy products, milk-equivalent	543	583	565	571	565
Flour and cereal products	146	174	175	183	184
Fats and oils, including butter	57	63	61	63	--
Fresh fruit	87	96	96	89	--
Fresh vegetables ^{3/}	85	101	104	102	--
Potatoes, fresh and processed	73	76	78	76	--
Sugars and sweeteners, caloric	124	135	136	139	140

-- = Not available.

^{1/} Data are on a retail-weight basis, except as noted. ^{2/} Preliminary. ^{3/} Data are for lettuce, tomatoes, onions, carrots, celery, corn, broccoli, asparagus, artichokes, cabbage, cucumbers, eggplant, garlic, green beans, green peppers, and cauliflower.

Source: U.S. Department of Agriculture, Economic Research Service, Food Consumption, Prices, and Expenditures, 1968-89, SB-828, May 1991.

Beef consumption began falling in the mid-1970's, and growth in poultry consumption began to accelerate. The change in meat consumption patterns was partly a response to changes in relative prices. From 1976 to 1980, when the sharpest decline in beef consumption occurred, the ratio of retail beef prices to retail broiler prices rose from about 2.4 in 1976 to a peak of 3.3 in 1980. Since then, beef prices have risen about the same amount as broiler prices, leaving the beef-to-broiler ratio at 3.3 in 1991. Beef prices also rose less than pork prices during the 1980's. As a result, the price ratio of beef to pork fell from 1.7 in 1980 to 1.4 in 1991. Although beef became less expensive compared with pork and remained even compared with broiler chicken, beef consumption fell 12 percent (slightly more than the decline in pork consumption from 1980 to 1991), while poultry consumption rose 42 percent. This decline in beef consumption suggests that consumers may have reduced beef purchases simply because retail beef prices remained higher than prices for other meats, particularly poultry. However, other factors, such as consumer tastes, nutritional awareness, product forms, and changing marketing channels also affected meat consumption. For example, the growth of poultry products in the menus of fast-food chains was probably an important reason for greater poultry consumption.

Dairy product consumption rose in the mid-1980's, reflecting declining real prices and expanding promotion. But consumption of dairy products declined in 1988-89, mainly because of reduced milk production and Government donations of dairy products. In 1991, dairy product consumption declined, but was about 4 percent above 1980 levels.

Among crop foods, per capita consumption of fresh fruit rose 17 pounds during the late 1980's, but fell sharply in 1990. The increase was due to expanded consumption of such noncitrus fresh fruit as grapes and bananas. Consumption of commercial fresh vegetables rose 17 pounds per person from 1980 to 1990, mainly reflecting rising consumption of fresh tomatoes, lettuce, onions, and broccoli.

Consumption of fats and oils has been steady in recent years, but remains higher than a decade ago. Caloric sugar and sweetener consumption rose from 124 pounds per person in 1980 to 139 pounds in 1991, mainly reflecting greater use of corn sweeteners in soft drinks.

Market Basket Prices

To better understand why grocery store food prices increased last year, we consider separately what happened to the prices that farmers received for food commodities and what happened to the charges for marketing services. USDA uses its market basket concept to separate these two components of food prices. The market basket contains the average quantities of food that mainly originate on U.S. farms and are purchased for consumption at home in a base period. The market basket does not include fish and seafood or nonalcoholic beverages. Changes in retail prices of the market basket are components of the CPI-U for food consumed at home.

USDA divides the retail cost for a market basket of food into the farm value and the farm-to-retail price spread (table 6). The farm value represents prices farmers receive for raw commodities equivalent to foods in the market basket. The farm-to-retail price spread represents the difference between the retail price and the farm value. The price spread includes the charges for assembling foods from farms, and for processing, distributing, and retailing foods. In each of the past 10 years, a rise in the farm-to-retail price spread contributed more to the rise in food prices than did changes in the farm value.

Farm Value

Farm value is a measure of the return, or payment, farmers received for the farm product equivalent to retail food sold to consumers. The market basket farm value serves as an index of prices farmers receive for products later used for food. Farm values for individual food items are expressed in dollar amounts for comparison with the item's retail price. Farm value is calculated by multiplying farm prices times the quantities of farm product equivalent to food sold at retail. An allowance is made in farm values if byproducts are obtained in processing. The farm value usually represents a larger quantity than the retail unit, because the foodstuffs that farmers produce lose weight through storage, processing, and distribution.

The farm product equivalent varies among foods. Only a slight amount of raw milk is lost, for example, as it is handled and processed for sale in cartons to consumers. Therefore, the farm value per retail half-gallon of milk is

Table 6--Indexes of retail price, farm value, and the farm-to-retail price spread, and farm value as a share of the retail price ^{1/}

Year	Retail price	Farm value	Farm-to-retail spread	Farm value share of retail price
	-----1982-84 = 100-----			<u>Percent</u>
1950	30	40	25	47
1951	33	46	26	49
1952	34	44	28	47
1953	32	41	28	45
1954	32	39	28	43
1955	31	36	29	41
1956	32	36	29	40
1957	33	37	30	40
1958	35	40	32	41
1959	34	37	32	39
1960	34	38	32	39
1961	34	37	33	39
1962	34	38	33	39
1963	34	36	33	38
1964	34	36	34	36
1965	35	40	33	38
1966	37	43	34	39
1967	37	40	35	39
1968	38	42	36	38
1969	40	46	37	39
1970	42	46	40	37
1971	43	46	41	37
1972	45	50	42	38
1973	52	68	45	44
1974	60	73	53	42
1975	64	76	58	40
1976	65	72	61	38
1977	66	72	63	37
1978	74	83	68	38
1979	82	92	77	38
1980	88	97	84	37
1981	95	100	92	36
1982	98	99	98	35
1983	99	97	100	34
1984	103	104	103	35
1985	104	96	108	32
1986	106	95	112	31
1987	112	97	120	30
1988	116	100	125	30
1989	125	107	134	30
1990	134	113	144	30
1991 ^{2/}	137	106	154	27

^{1/} For a market basket of food bought in foodstores in a base period, currently 1982-84. The retail price index is derived from data from the U.S. Department of Labor, Bureau of Labor Statistics. Farm value is based on prices farmers received for commodities. The spread between the retail price and farm value represents charges for processing and marketing.

^{2/} Preliminary.

little more than the price that milk producers receive per half-gallon. In contrast, nearly 2.4 pounds of live animal yield 1 pound of Choice beef on the meat counter. The payment the cattle producer receives for that larger quantity of live animal is the gross farm value in the price of 1 pound of retail beef.

The average farm value (what farmers receive) of USDA's market basket of foods was 6.2 percent lower in 1991, more than offsetting the rise in 1990 (table 7). With this large decline, the 1991 farm value of foods was only 6 percent higher than the value a decade earlier. There have since been few significant increases in farm value, except for a rise in 1989, induced by the previous year's drought, and the rise in 1990 (fig. 2).

Lower commodity prices decreased the farm value of 9 of the 10 food categories in 1991. Decreases were largest for processed fruit and vegetables (16 percent), dairy products (11.5 percent), fresh vegetables (11 percent), and fats and oils (9 percent). Farm value was sharply higher for only fresh fruit.

Red meat accounts for about 36 percent of the farm value of USDA's market basket. Farm value of red meat declined about 6 percent in 1991, mainly reflecting 5-percent lower steer cattle prices and 10-percent lower hog prices. For a pound of Choice grade beef selling for an average retail price of \$2.88, cattle producers received \$1.60 for the equivalent quantity of live animal (2.4 pounds) in 1991, down 8 cents from 1990. This decrease partly reflected a 1-percent increase in beef production. A 4-percent increase in pork supplies caused a larger decrease in the farm value of pork. For a pound of pork selling at retail for \$2.12 in 1991, hog producers received 78 cents for the equivalent quantity of live animal (1.7 pounds), 9 cents less than in 1990.

Sharply lower producer prices for milk used in fluid products depressed the farm value of dairy products by an average of 11 percent. A half-gallon of fluid milk retailing for \$1.37 returned the producer about 54 cents in 1991, 9 cents less than in 1990.

Poultry producers continued to increase broiler and turkey output in 1991, but at a slower rate than in recent years. Yet, with poultry production up about 5.5 percent for the year, farm value of poultry dropped about 5 percent. Larger supplies of red meat likely added pressure on poultry prices. Broiler chicken producers received 44 cents of the average retail price of 88 cents per pound of whole frying chicken in 1991, about 2 cents less than in 1990.

Farm value of eggs declined about 6.5 percent in 1991, reflecting a slight increase in output. Table egg output was cut sharply the prior 2 years, resulting in a substantial increase in farm value from 1988 to 1990. Farm value in 1991 averaged 59 cents for a dozen eggs with an average price of 99 cents at grocery stores.

The farm value of cereals and baked goods declined 6 percent in 1991, reflecting lower prices of wheat and rice. Farmers received 3.4 cents in 1991 for the wheat in a 1-pound loaf of white bread selling for 71 cents in supermarkets, 0.3 cent less than in 1990. The 1991 farm value of other bread ingredients, mainly shortening and sweeteners, was 0.6 cent, slightly lower than in 1990.

It is often said that farm prices have little effect on retail prices and that reductions in farm prices are not reflected in lower retail prices. Examples can be found where retail prices have held firm or risen in the face of a decline in farm prices, but this merely reflects the fact that marketing charges are largely independent of farm prices. Over the years there has been a persistent tendency for such charges to rise, regardless of whether farm prices were rising or falling. Thus, increases in marketing charges can, and often do, exceed the effect of a reduction in farm prices on retail prices.

Even if marketing charges remain constant when farm prices fell, retail prices will fall less than farm prices and the farmer's percentage of the retail dollar will decline. But, retail prices of farm products, such as eggs and meat, which require relatively little processing, are more responsive to changes in farm prices than are the prices of highly processed foods.

Farm Value Share of Food Dollar

Farm value averaged 27 percent of the retail price of all foods in the market basket in 1991, down from 30 percent in 1990 (table 6). The 1991 farm value share fell sharply due to the decrease in farm value and the moderate rise in retail prices. This contrast reflects the abundant food supplies that depressed farm prices while rising food processing

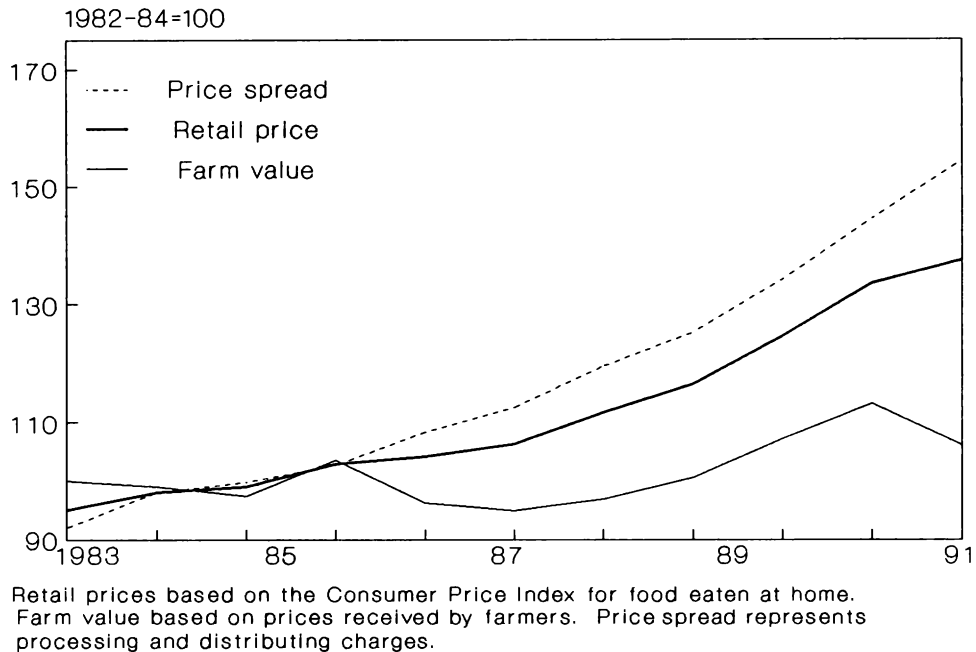
Table 7--Price changes for market basket of foods 1/

Item	1986	1987	1988	1989	1990	1991 2/
	<u>Annual percentage change</u>					
Market basket:						
Retail price	2.1	5.0	4.4	7.0	7.1	2.9
Farm value	-1.4	2.3	3.8	6.5	5.7	-6.2
Farm-to-retail spread	3.9	6.1	4.7	7.2	7.8	6.7
Meat products:						
Retail price	3.1	7.5	2.4	4.0	10.1	3.1
Farm value	3.3	7.3	-1.6	3.8	12.8	-5.8
Farm-to-retail spread	2.9	7.7	5.8	4.2	7.9	10.8
Dairy products:						
Retail price	.1	2.5	2.4	6.7	9.4	-1.1
Farm value	-2.8	.8	-2.9	9.3	2.6	-11.5
Farm-to-retail spread	2.5	3.7	6.1	4.9	14.2	5.4
Poultry:						
Retail price	7.5	-1.4	7.2	9.9	-2	-8
Farm value	8.7	-18.5	17.5	6.3	-8.1	-4.8
Farm-to-retail spread	6.3	18.4	-1.1	13.3	6.9	2.3
Eggs:						
Retail price	6.8	-5.9	2.3	26.6	4.7	-2.3
Farm value	7.8	-16.9	-.2	41.3	.4	-6.6
Farm-to-retail spread	5.6	11.2	5.0	10.6	10.9	2.9
Cereal and bakery products:						
Retail price	2.8	3.5	6.4	8.4	5.7	4.1
Farm value	-19.1	-7.0	30.6	9.8	-11.0	-5.8
Farm-to-retail spread	5.4	4.5	4.4	8.3	7.4	5.0
Fresh fruit:						
Retail price	1.7	12.6	7.2	6.4	12.8	14.6
Farm value	-6.3	9.7	2.3	-6.8	18.2	37.0
Farm-to-retail spread	5.0	13.8	8.9	10.9	11.3	7.8
Fresh vegetables:						
Retail price	4.1	12.9	6.3	10.7	5.6	2.2
Farm value	-3.3	24.4	-3.5	16.9	.9	-11.0
Farm-to-retail spread	7.3	8.3	10.7	8.3	7.6	7.2
Processed fruit and vegetables:						
Retail price	-1.6	3.5	7.9	6.3	6.1	-1.9
Farm value	-13.8	9.5	23.0	-3.1	8.8	-16.3
Farm-to-retail spread	2.6	1.8	3.2	9.8	5.3	3.2
Fats and oils:						
Retail price	-2.2	1.5	4.6	7.1	4.3	4.3
Farm value	-27.0	-2.8	38.5	-7.2	12.0	-8.8
Farm-to-retail spread	6.3	2.6	-3.0	11.8	2.2	8.1
Other prepared food:						
Retail price	2.6	4.2	3.7	6.4	4.5	4.5
Farm value	4.7	2.3	4.8	9.6	2.2	-10.5
Farm-to-retail spread	2.3	4.5	3.5	5.9	4.8	6.7

1/ Changes in retail prices are from the Consumer Price Index published by the U.S. Department of Labor, Bureau of Labor Statistics. The farm value is based on prices farmers received for commodities equivalent to food at retail. The spread between the retail price and farm value represents charges for processing and marketing. 2/ Preliminary.

Figure 2
Food price components

The farm value of food products dropped.



and distributing charges boosted retail prices. These opposing forces lowered the farm value share from 37 percent in 1980 to 30 percent in 1987. The farm share remained stable until the decline in 1991, reflecting the rise in farm prices during 1987-90.

Farm value share varies greatly among foods (table 8). In 1991, farm value share for a sample group of 41 foods varied from 60 percent for eggs to 4 percent for corn syrup. Generally, the more highly processed the product is, the smaller the farm share. For instance, wheat is the principal ingredient of both flour and bread, but additional manufacturing processes are required for bread. Foods derived from animal products tend to have a higher farm value share than do those derived from crops, because farm inputs are greater for animal products than for crops. For example, the 1991 farm share was 56 percent for Choice beef, 49 percent for chicken, but only 6 percent for bread. Meat production requires two production enterprises: one for feed and the other for livestock or poultry. Most other food entails only one production enterprise. Other factors influencing the farm value share among foods include costs of transporting from farm to consumer, product perishability, and the amount of space the product occupies in grocery stores. These factors partly explain why the farm value share for fresh fruit and vegetables is relatively low.

The farm value of most foods that come from grains and oilseeds represents a small share of the retail price. In 1991, farmers received about 7 percent of retail bakery and cereal prices and 20 percent of retail prices of fats and oils (table 9). Because the farm value of these foods is small, the rise in retail prices in 1991, as in most other years, resulted mostly in a widening of the farm-to-retail price spread. For example, the farm value of cereal and bakery products fell 6 percent. But this decrease did not cause a decline in the retail price because the farm-to-retail price spread widened.

Farm value shares were estimated for two additional products in 1991, oatmeal cereal and corn syrup. For regular or quick-cooking oatmeal, the average retail price for a 42-ounce package was \$2.58 in 1991. Farm value of oats used to make the product was estimated to be 14 cents. Thus, the farm share was about 5 percent. The farm value was figured from a farm product equivalent of 0.1419 bushel (4.54 pounds) of oats. This equivalent is based on a yield of 18.5 pounds of rolled oats from a bushel of oats, or a 57.9-percent yield from a 32-pound bushel. Thus, a bushel of oats yields about seven 42-ounce packages.

Table 8--Retail price, farm value, and farm value share for selected foods

Food	Retail price			Farm value			Farm value share of retail price		
	1991 1/	1990	1989	1991 1/	1990	1989	1991 1/	1990	1989
	-----Dollars-----						-----Percent-----		
Animal products:									
Eggs, Grade A large, 1 doz.	0.99	1.01	1.00	0.59	0.65	0.65	60	64	65
Beef, choice, 1 lb.	2.88	2.81	2.66	1.60	1.68	1.58	56	60	59
Chicken, broiler, 1 lb.	.88	.90	.93	.44	.46	.51	49	51	55
Milk, 1/2 gal.	1.37	1.42	1.27	.54	.64	.59	40	45	46
Pork, 1 lb.	2.12	2.13	1.83	.78	.87	.70	37	41	38
Cheese, natural cheddar, 1 lb.	3.55	3.50	3.20	1.09	1.19	1.20	31	34	38
Fruit and vegetables:									
Fresh--									
Lemons, 1 lb.	1.23	1.07	.92	.38	.27	.27	31	25	29
Apples, red delicious, 1 lb.	.88	.72	.69	.24	.16	.13	27	22	18
Potatoes, Northeast, 10 lbs.	2.66	3.38	3.06	.76	.76	.77	28	22	25
Oranges, California, 1 lb.	.89	.57	.56	.36	.13	.11	40	23	19
Grapefruit, 1 lb.	.62	.66	.52	.13	.16	.12	21	25	23
Lettuce, 1 lb.	.61	.60	.61	.09	.09	.10	14	16	17
Frozen--									
Orange juice conc., 12 fl. oz.	1.38	1.62	1.39	.53	.56	.56	38	34	40
Broccoli, cut, 1 lb.*	1.18	1.18	1.20	.26	.24	.25	22	21	21
Corn, 1 lb.*	1.00	1.04	1.07	.13	.13	.12	13	12	11
Peas, 1 lb.*	.99	1.01	1.06	.14	.13	.13	14	13	12
Green beans, cut, 1 lb.*	1.02	1.04	1.09	.11	.11	.11	11	11	10
Canned and bottled--									
Peas, 303 can (17 oz.)*	.48	.51	.57	.09	.09	.09	19	18	16
Corn, 303 can (17 oz.)*	.46	.47	.50	.09	.09	.08	19	19	16
Applesauce, 25-oz. jar*	.95	.91	.89	.18	.16	.16	19	18	18
Pears, 2-1/2 can*	1.19	1.19	1.16	.22	.23	.21	18	19	18
Peaches, cling, 2-1/2 can*	1.11	1.12	1.09	.18	.18	.17	16	16	16
Apple juice, 64-oz. bottle*	1.48	1.34	1.36	.34	.26	.27	23	19	20
Green beans, cut, 303 can*	.45	.45	.47	.06	.06	.06	14	13	13
Tomatoes, whole, 303 can*	.53	.53	.52	.05	.05	.05	10	10	10
Dried--									
Beans, 1 lb.*	.65	.73	.71	.18	.25	.29	28	35	41
Raisins, 15-oz. box*	1.41	1.39	1.32	.39	.48	.40	28	35	31
Crop products:									
Sugar, 1 lb.	.40	.40	.37	.15	.15	.15	37	38	39
Flour, wheat, 5 lbs.	1.17	1.25	1.22	.28	.30	.39	24	24	32
Shortening, 3 lbs.	2.61	2.75	2.79	.61	.69	.61	23	25	22
Margarine, 1 lb.	.87	.84	.82	.17	.19	.17	20	23	21
Rice, long grain, 1 lb.	.50	.50	.50	.10	.10	.10	20	19	19
Prepared foods:									
Peanut butter, 1 lb.	2.15	1.89	1.81	.51	.49	.46	24	26	26
Pork and beans, 303 can (16 oz.)*	.41	.42	.41	.06	.08	.09	14	19	21
Potato chips, regular, 1-lb. bag*	1.96	1.92	1.92	.31	.29	.27	16	15	14
Chicken dinner, fried, frozen, 11 oz.*	1.21	1.20	1.27	.15	.16	.17	12	13	13
Potatoes, french fried, frozen, 1 lb.	.85	.84	.75	.10	.11	.10	12	13	13
Bread, 1 lb.	.71	.70	.67	.04	.04	.06	6	6	8
Corn flakes, 18-oz. box*	1.67	1.64	1.58	.09	.09	.09	5	6	6
Oatmeal, regular, 42-oz box*	2.58	2.51	--	.14	.16	--	5	6	--
Corn syrup, 16-oz bottle*	1.38	1.32	--	.05	.06	--	4	4	--

-- = Not available.

1/ January-June average for items noted with asterisk; annual average for other foods and for 1989-90 data.

Table 9--Market basket of food products originating on U.S. farms by food group: Index of retail cost, farm value, farm-to-retail price spread, and farm value share of retail cost ^{1/}

Year	Meat products				Poultry				Eggs			
	Retail cost	Farm value	Farm-to-retail spread	Farm value share	Retail cost	Farm value	Farm-to-retail spread	Farm value share	Retail cost	Farm value	Farm-to-retail spread	Farm value share
	-----1982-84 = 100-----			Percent	-----1982-84 = 100-----			Percent	-----1982-84 = 100-----			Percent
1965	36	41	30	59	50	51	49	57	55	53	60	62
1966	38	44	34	58	52	53	53	53	63	65	50	66
1967	37	41	34	56	49	45	54	49	52	48	60	59
1968	38	42	33	54	51	48	54	51	56	54	61	61
1969	42	48	35	56	54	51	57	51	66	69	61	67
1970	43	47	40	53	53	46	61	46	66	64	69	63
1971	43	46	40	52	54	47	60	47	57	50	68	57
1972	48	55	42	56	54	48	60	49	56	50	68	57
1973	60	74	46	60	77	84	68	59	84	90	71	70
1974	61	67	55	54	73	76	69	56	84	89	76	68
1975	66	78	56	57	80	88	71	59	82	84	78	66
1976	66	70	63	51	77	79	75	55	91	97	81	68
1977	65	70	60	53	78	80	74	56	88	87	90	64
1978	77	85	69	54	85	93	76	58	82	83	81	65
1979	90	97	84	52	89	92	86	55	90	93	85	66
1980	93	97	89	51	94	96	92	54	89	88	89	64
1981	96	97	95	49	98	95	101	52	96	99	90	66
1982	101	104	98	52	96	91	101	51	93	91	97	63
1983	99	97	102	49	97	96	98	53	98	99	95	65
1984	100	99	100	50	107	113	101	56	109	110	107	65
1985	99	91	107	47	106	106	107	53	91	86	100	61
1986	102	94	110	47	114	115	113	54	97	92	106	61
1987	110	101	118	47	113	94	134	45	92	77	118	54
1988	112	100	125	45	121	110	133	49	94	77	124	53
1989	117	104	130	45	133	117	151	47	118	108	138	58
1990	128	117	140	46	132	108	161	44	124	108	153	56
1991	132	110	156	42	132	102	165	42	121	101	158	54

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See footnotes at end of table.

--Continued

Table 9--Market basket of food products originating on U.S. farms by food group: Index of retail cost, farm value, farm-to-retail price spread, and farm value share of retail cost ^{1/}--Continued

Year	Dairy products				Fats and oils				Fresh fruit			
	Retail cost	Farm value	Farm-to-retail spread	Farm value share	Retail cost	Farm value	Farm-to-retail spread	Farm value share	Retail cost	Farm value	Farm-to-retail spread	Farm value share
	-----1982-84 = 100-----			Percent	-----1982-84 = 100-----			Percent	-----1982-84 = 100-----			Percent
1965	36	33	40	44	35	41	34	31	29	35	27	31
1966	38	37	40	47	37	44	34	32	31	38	28	32
1967	40	38	42	47	37	38	37	28	31	37	28	31
1968	41	40	42	47	36	35	36	26	36	48	32	35
1969	42	42	43	48	36	35	36	26	34	40	32	31
1970	45	44	45	48	38	43	37	30	34	37	33	28
1971	46	44	47	47	42	49	39	32	37	42	35	30
1972	47	46	48	48	43	42	43	27	39	44	37	30
1973	51	52	50	50	47	66	40	38	44	56	40	33
1974	60	61	60	49	71	124	52	47	49	55	46	30
1975	62	63	61	50	77	97	69	34	50	58	47	30
1976	67	71	64	52	65	79	60	26	50	54	48	28
1977	69	72	68	50	71	95	62	26	58	65	55	29
1978	74	78	71	51	78	98	70	34	71	87	66	32
1979	83	88	78	52	84	106	75	34	80	89	77	29
1980	91	96	86	52	89	96	87	29	84	84	84	26
1981	97	102	93	51	99	100	98	27	88	87	89	26
1982	99	100	97	49	96	80	102	22	100	106	97	33
1983	100	100	100	48	97	96	98	27	94	80	100	27
1984	101	99	103	47	107	124	100	31	107	114	103	34
1985	103	95	110	44	109	104	111	26	118	111	122	30
1986	103	93	113	43	106	76	118	19	120	104	128	27
1987	106	93	118	42	108	74	120	18	136	114	146	26
1988	108	91	125	40	113	103	117	24	145	117	159	25
1989	116	99	131	41	121	96	131	21	155	109	176	22
1990	126	102	150	39	126	107	133	23	175	128	196	23
1991	125	90	158	34	132	98	144	20	200	176	211	28

See footnotes at end of table.

--Continued

Table 9--Market basket of food products originating on U.S. farms by food group: Index of retail cost, farm value, farm-to-retail price spread, and farm value share of retail cost 1/--Continued

Year	Fresh vegetables <u>4/</u>				Processed fruit and vegetables				Bakery and cereal products			
	Retail cost	Farm value	Farm-to-retail spread	Farm value share	Retail cost	Farm value	Farm-to-retail spread	Farm value share	Retail cost	Farm value	Farm-to-retail spread	Farm value share
	-----1982-84 = 100-----			Percent	-----1982-84 = 100-----			Percent	-----1982-84 = 100-----			Percent
1965	34	41	31	35	35	37	35	21	32	51	30	17
1966	33	38	31	34	36	36	36	20	33	56	31	18
1967	33	38	31	32	36	33	37	18	34	54	32	17
1968	35	40	33	33	38	38	38	20	35	52	33	16
1969	36	42	35	33	39	39	38	21	36	52	34	16
1970	39	43	38	32	39	37	40	19	38	56	36	16
1971	40	46	38	33	41	38	42	18	40	57	38	16
1972	43	47	41	32	42	40	42	19	40	60	37	17
1973	53	64	48	35	44	43	44	19	44	90	38	22
1974	58	67	54	34	54	60	53	22	57	130	48	25
1975	55	67	51	35	61	66	60	21	63	106	57	18
1976	58	67	55	33	62	63	62	20	62	86	59	15
1977	65	74	62	33	65	59	66	18	63	72	61	12
1978	70	75	69	30	71	88	67	25	68	83	66	13
1979	73	71	73	28	77	91	74	24	75	95	73	14
1980	79	73	81	27	83	97	79	23	84	111	81	14
1981	94	104	90	32	92	106	89	23	92	110	90	13
1982	94	95	94	34	97	100	97	24	97	96	97	12
1983	98	97	98	34	98	93	100	23	100	101	99	12
1984	108	108	108	34	104	107	103	24	104	103	104	12
1985	104	93	109	31	107	118	104	26	108	94	110	11
1986	108	90	117	28	105	102	106	23	111	76	116	8
1987	122	110	128	31	109	111	108	24	115	71	121	8
1988	129	106	141	28	118	137	112	28	122	93	126	9
1989	143	123	153	29	125	132	123	25	132	102	137	9
1990	151	124	165	28	133	144	129	26	140	91	147	8
1991	154	111	177	24	130	121	133	22	146	85	154	7

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1/ See table 6 for aggregate market basket and explanation of data. 2/ Includes butter. 3/ Excludes butter and includes peanut butter. 4/ Includes potatoes.

Oatmeal is generally milled from oats referred to as heavy oats with a test weight of 38 pounds per bushel. The average per-bushel weight of oats sold by farmers is probably less than 38 pounds. Processors may hence pay a premium above the average farm price for oats during some periods if heavy oats are in tight supply. However, since data on any such price differential were not available, we used the U.S. average price that farmers received for oats to derive farm value.

In addition to 18.5 pounds of rolled oats, a bushel of oats yields these approximate amounts of byproducts: 8 pounds of hulls, 3 pounds of oatmeal feed, and 2.5 pounds of light oats. These products were valued at plant breakeven-prices to compute the percentage (13.7) that all of these products, except rolled oats, contribute to total value. The gross farm value of the oats needed for the box of oatmeal was multiplied by this percentage to derive a byproduct allowance, which was subtracted from the gross farm value to obtain the farm value of the rolled oats in the box of cereal. Wholesale prices of byproducts are normally used for this computation, but prices for the all byproducts could not be found. The plant prices were obtained from a typical plant.

The average retail price of a 16-ounce bottle of corn syrup was \$1.38 in 1991. Corn syrup is made from corn starch, a product of the corn wet-milling process industry. According to industry sources, the approximate average yields obtained from a 56-pound bushel of corn are: 34 pounds of corn starch, 12 pounds of gluten feed, 3 pounds of gluten meal, 1.8 pounds of corn oil, with the remainder consisting of moisture. The starch will yield approximately 33 pounds of corn syrup. From this yield, about 1.7 pounds of corn were required for a 16-ounce bottle of corn syrup.

The products other than corn starch obtained in milling are used as byproducts. We calculated byproduct allowance by valuing all products from a bushel of corn at the wholesale level and computing the byproduct value's percentage of the total value. This ratio was about 22 percent in 1991, and was applied to the gross farm value of 1.7 pounds of corn to obtain the value of byproducts. The byproduct value is subtracted from the gross farm value to obtain the farm value of the corn starch in the bottle of corn syrup. In 1991, this farm value was approximately 5.5 cents. Thus, the farm share was about 4 percent.

Farm-to-Retail Price Spread

The farm-to-retail price spread is the difference between the farm value and the retail price. It represents payments for all assembling, processing, transporting, and retailing charges added to the value of farm products after they leave the farm. The farm-to-retail spread for the market basket of foods averaged 6.7 percent higher in 1991, a smaller increase than in 1990. The increase in the farm-to-retail price spread accounted for all of the 2.9-percent rise in the retail cost of the market basket.

The increase in the price spread reflected higher prices of inputs, such as labor and packaging, used in the food industry, and greater use of some inputs per unit of output. Declining farm values may not have been fully reflected at retail, providing food companies the opportunity to increase profit margins. Development of new products, such as microwavable foods, has increased the use of packaging materials, and more food preparation in supermarkets has added to labor costs.

The market basket farm-to-retail price spread attempts to measure charges for performing services connected with a fixed quantity of foods of a constant type and quality. However, the types of services incorporated into food sold in grocery stores have changed over time, a result of new product introductions and greater food preparation, such as fruit and vegetables sold at salad bars. These new and usually higher value foods are incorporated into the market basket retail price measurement calculations over time, thus changing the type and quality of foods in the market basket. These changes in foods marketed with added services may increase price spreads.

Price spreads increased for all 10 food groups in the market basket in 1991, reflecting higher costs of marketing inputs, variations in farm prices, and greater use of some inputs, such as labor in food retailing (table 7). The farm-to-retail spread for red meat increased about 11 percent, due mainly to increases for beef. The price spread for beef increased about 14 percent, a possible adjustment after several years of rising prices that made it difficult to increase margins without further cutting into consumer demand for beef.

Cereals and bakery products accounted for 20 percent of the farm-to-retail price spread of the market basket, and the spread for this food category widened 5 percent in 1991. That was the smallest increase since 1988, probably

reflecting small increases in processing and marketing costs, as well as the lower farm value of ingredients. For the cereal industry, profit margins generally continued to expand because of price increases, averaging 6 percent at retail, and lower ingredient costs. However, in 1991, cereal consumption remained almost level, likely in response to rising retail prices and subsiding consumer response to the nutritional claims that are credited with increasing cereal consumption during the past decade.

The price spread for poultry, which increased 7 percent in 1990, widened only 2 percent in 1991. The small rise in the spread resulted from the downward pressure of large supplies on retail poultry prices. Similarly, the price spread for eggs rose only 3 percent in 1991, resulting from a decline in retail egg prices.

The average price spread for dairy products increased 5 percent in 1991. With the exception of 1990, when it grew more than at any time since 1980, the spread for dairy products in 1991 has risen less than the spread for most foods for most years of the past decade. For the first quarter of 1991, the spread was about 10 percent higher than a year earlier. But steady retail prices and some increase in the farm value of milk caused the spread to narrow the second half of the year. In the fourth quarter, the spread was lower than a year earlier. In 1991, the farm-retail spread for a half gallon of whole milk retailing for \$1.37 was 83 cents, up 5 cents from 1990's price spread.

The farm-to-retail price spread increased about 7.5 percent for fresh fruit and vegetables. The farm-to-retail price spread for fruit and vegetables tends to vary with farm values. When farm values increase (as in 1991 for fresh fruit), the spread increases. Movement in the same direction suggests that retail pricing is based to a large extent on a constant percentage markup on costs rather than on a constant absolute markup.

Price Spreads for Selected Foods

Higher prices for meat and fresh fruit heavily contributed to the rise in the CPI for food in 1991. The rise in prices came mainly from a higher farm-to-retail price spread. Farm value declined for most commodities, reflecting weak demand and larger supplies of most commodities.

Choice Beef

Retail prices increased in 1991 for the fifth consecutive year (table 10). The 1991 weighted average price of Choice beef, the highest yearly average on record, was \$2.88 per pound, 7 cents higher than in 1990, and 62 cents higher than in 1986. But prices at retail decreased during 1991 from \$2.97 per pound in April to a low of \$2.77 in October. Prices of individual cuts ranged from an annual average of \$1.60 per pound for ground beef to more than \$6.00 per pound for the most expensive steaks.

Procedures used to calculate Choice beef prices and spreads were last revised during August of 1990. Major changes included replacing the carcass value at the wholesale level with a boxed beef value, and moving from a partially bone-in to a mostly boneless product at the retail level. When the changes were made in 1990, the historical data were also revised in accordance with the new procedures.

Farm value decreased about 8 cents in 1991, although the retail price rose. Thus, the farm value averaged 56 percent of the retail price of beef in 1991, 4 percent lower than in 1990. Farm value is computed using the USDA Agricultural Marketing Service's five-region direct market price series for live slaughter steers, 65- to 80-percent Choice. Prices per pound of slaughter steers are multiplied times 2.4 pounds, the quantity of live animal required to sell 1 pound of Choice beef at retail. We then estimate the value of byproducts, principally the hide obtained from the slaughtered animal. We subtract this byproduct value to obtain the farm value of the meat alone.

The farm-to-retail price spread for Choice beef last year increased 15.5 cents to an average of \$1.28 per pound. The spread varied from a high of \$1.40 in August to a low of \$1.20 in March. The price spread for beef had increased slowly until the 14-percent increase in 1991. Even with increases in the past 3 years, the price spread for Choice beef was 34 percent higher in 1991 than in 1981. This is an average of 3 percent per year, about 1 percentage point less than the rate of inflation.

Table 10--Choice beef and pork: Retail price, farm value, price spreads, and the farm value share of the retail price

Item	Retail price <u>1/</u>	Wholesale value <u>2/</u>	Net farm value <u>3/</u>	Price spreads			Farm value share <u>6/</u>
				Farm-to-retail	Wholesale-to-retail <u>4/</u>	Farm-to-wholesale <u>5/</u>	
				----- <u>Cents per retail pound</u> -----			<u>Percent</u>
Choice beef:							
1980	233.6	171.1	145.7	87.9	62.5	25.4	62
1981	234.7	164.4	139.1	95.6	70.3	25.3	59
1982	238.4	165.9	141.1	97.3	72.5	24.8	59
1983	234.1	160.1	136.8	97.3	74.0	23.3	58
1984	235.5	162.5	140.7	94.8	73.0	21.8	60
1985	228.6	148.8	127.4	101.2	79.8	21.4	56
1986	226.8	146.5	125.0	101.8	80.3	21.5	55
1987	238.4	160.0	138.7	99.7	78.4	21.3	58
1988	250.3	169.4	148.3	102.0	80.9	21.1	59
1989	265.7	176.8	157.6	108.1	88.9	19.2	59
1990	281.0	189.6	168.4	112.6	91.4	21.2	60
1991	288.3	182.5	160.2	128.1	105.8	22.3	56
Pork:							
1980	139.4	98.0	63.2	76.2	41.4	34.8	45
1981	152.4	106.7	70.3	82.1	45.7	36.4	46
1982	175.4	121.8	88.0	87.4	53.6	33.8	50
1983	169.8	108.9	76.5	93.3	60.9	32.4	45
1984	162.0	110.1	77.4	84.6	51.9	32.7	48
1985	162.0	101.1	71.4	90.6	60.9	29.7	44
1986	178.4	110.9	82.4	96.0	67.5	28.5	46
1987	188.4	113.0	82.7	105.7	75.4	30.3	44
1988	183.4	101.0	69.4	114.0	82.4	31.6	38
1989	182.9	99.2	70.4	112.5	83.7	28.8	38
1990	212.6	118.3	87.2	125.4	94.3	31.1	41
1991	211.9	108.9	78.4	133.5	103.0	30.5	37

1/ Composite of all cuts. 2/ For quantity equivalent to 1 retail pound: beef, 1.142 pounds of wholesale cuts; pork, 1.06 pounds of wholesale cuts. 3/ For quantity of live animal equivalent to 1 retail pound, minus byproduct allowance: beef, 2.4 pounds; pork, 1.7 pounds. 4/ Includes retailing, meat fabricating, wholesaling, and intracity transportation. 5/ Charges for livestock processing and transporting of meat to city where consumed. 6/ Percentage of retail price.

The farm-to-retail price spread pays for various marketing functions. The 1990 change in procedures combined the slaughtering and boxing functions with the packer. Carcass movement of beef is now very small, but some difference exists in the extent of fabrication before packers box beef. The estimated cost of slaughtering and boxing beef was 18.5 cents in 1991, up about 1 cent from that in 1990 and the past 5-year average (table 11).

Transportation of beef from the packer to the retail marketing area cost 3.8 cents per retail pound in 1991. Warehousing and store delivery were estimated to cost 19 cents per pound at retail. This estimate is based on data in the *1982 Census of Wholesale Trade*, published by the U.S. Department of Commerce, which indicated that these costs represented 8.3 percent of gross sales by meat wholesalers.

Cutting and merchandising of Choice beef cost 87 cents per pound in 1991. The cost was 14 cents higher than in 1990 and accounted for most of the total increase in the farm-to-retail spread. This amount represents the difference between the total of all other spreads and the retail price. Data for 1986-91 indicate an upward trend in both warehousing and store delivery and in cutting and merchandising the beef. The increases reflect the effect of inflation on marketing costs. In contrast, slaughtering and boxing costs have not increased as much, partly because of changes in byproduct values and the shift to boxed beef.

Table 11--Choice beef and pork: Farm value, marketing costs by function, and retail price

Item	1986	1987	1988	1989	1990	1991
	<u>Cents per retail pound</u>					
Beef:						
Farm value	125.0	138.7	148.3	157.6	168.4	160.2
Slaughtering and boxing carcass	17.7	17.5	17.4	15.5	17.4	18.5
Intercity transportation	3.8	3.8	3.7	3.7	3.8	3.8
Warehousing and store delivery	14.9	15.7	16.5	17.5	18.5	19.0
Cutting and merchandising	65.4	62.7	64.4	71.4	72.9	86.8
Retail price	226.8	238.4	250.3	265.7	281.0	288.3
Pork:						
Farm value	82.4	82.7	69.4	70.4	87.2	78.4
Slaughtering and processing	25.0	26.8	28.2	25.4	27.6	27.0
Intercity transportation	3.5	3.5	3.4	3.4	3.5	3.5
Warehousing and store delivery	11.7	12.4	12.1	12.0	14.0	13.9
Cutting and merchandising	55.8	63.0	70.3	71.7	80.3	89.1
Retail price	178.4	188.4	183.4	182.9	212.6	211.9

Pork

Retail pork prices in 1991 averaged \$2.12 per pound, 1 cent below a record high in 1990. Prices in both these years were about 30 cents above prices in 1989 (table 10). Per capita pork supplies were up slightly in 1991, but were 1.5 pounds smaller than supplies in 1989. The farm value in 1991 decreased 9 cents from that in 1990, averaging 78 cents per retail pound equivalent. The farm value share decreased from 41 percent to 37 percent.

Farm value is computed from the average price of barrows and gilts at six midwestern markets. This average price is then multiplied times 1.7 pounds, the quantity of live animals needed to sell 1 pound of pork at retail. A value of lard and other byproducts is then subtracted to obtain the net farm value.

The record-high net farm value for pork was in 1982 at 88 cents per pound. That year, however, the retail price was 36 cents lower and the farm-to-retail price spread was 46 cents lower than those in 1991, with the farm value share at 50 percent rather than the 1991 37-percent level. Consumption of pork on a per capita retail-weight basis was only about 1 pound lower in 1982 than in 1991.

The farm-to-retail price spread for pork increased to \$1.34 per pound in 1991. Among components of the farm-to-retail spread for pork, the slaughtering and processing functions cost 27 cents in 1991, about the same as in recent years (table 11). This spread represents charges for cutting the carcass into primals and for processing hams, bacon, and other products. We estimated this spread by deducting the farm value and intercity transportation costs from a composite wholesale price of pork.

The transportation price spread for pork between the packer and retail marketing area was 3.5 cents per pound in 1991. The warehousing and store delivery spread was estimated at about 14 cents per retail pound in 1991, about the same as in 1990 but a 2-cent increase from that in the previous 4 years.

The cutting and merchandising price spread of 89 cents made up the largest component of the farm-to-retail price spread for pork. This figure was about 9 cents higher than in 1990, and increased 33 cents from that in 1986. The cutting and merchandising component is derived as a residual between the total of all other functions and the retail price. Cost inflation and the time lag between changes in farm, wholesale, and retail prices may partly explain the increase in this spread.

Broilers

Broiler prices declined at both the farm and retail levels in 1991, mainly reflecting 6-percent greater production. Retail prices fell 1.8 cents per pound for whole, ready-to-cook chicken, but farm value dropped 2.7 cents in 1991. Thus, the marketing spread rose 0.9 cent in 1991. The spread was stable from 1981 to 1986, averaging 33.5 cents per pound (table 12). Since 1986, the marketing spread has trended up, due partly to an apparent increase in the retailing margin. Broiler processing costs have also increased, because little gain has occurred in labor productivity since 1985 to offset rising labor and other input costs.

Much of the demand for broilers is for further processed products. Broiler producers are cutting chicken into parts, and most producers are further processing chicken into fillets, nuggets, and other value-added products according to buyers' specifications. The processor generally realizes a more favorable gross margin and increased volume from this further processing. Most of these products are served through fast-food and institutional outlets, but considerable volumes of chicken parts are sold through retail stores for home consumption. These further processed products are not included in farm-to-retail price spread computations, but they represent a source of market strength that supported prices in 1991 while consumption sharply rose.

Eggs

Following the largest price increase in years in 1989, larger egg supplies stabilized egg prices the past 2 years. For 1991, egg prices averaged 99 cents per dozen of grade A large, 2 cents lower than the 1990 price (table 12). But the farm value of eggs declined nearly 6 cents per dozen. Thus, the price spread between the farm value and the retail price widened to 40 cents per dozen. The price spread for eggs has trended up since 1985, mainly reflecting apparent increases in the retailer margin, which was 20 cents per dozen in 1991.

Fluid Milk

In 1991, the retail milk price took its first drop since 1986, and the largest drop in more than four decades. The average retail price for a half gallon of whole milk was \$1.37, 4 percent (5.5 cents) below a year earlier, after a 12-percent rise in 1990 (table 13).

The farm-to-retail price spread increased 5 percent to 83 cents in 1991. This increase was considerably lower than the 16-percent rise in 1990. The increase resulted from a 9.6-cent plunge in the farm value, while the retail price dropped only 5.5 cents.

The average retailing margin in 1990 (the latest data available) grew 37 percent to 33.9 cents, its fourth consecutive increase. The growth in the retail margin was due to a drop in the price paid to processors for milk that was not fully reflected in the retail price. The retailing margin constituted 24 percent of the retail price, a 4-percentage-point increase over the 1989 margin. In 1974, the retailing margin constituted only 12 percent of the retail price.

The farm value of a half gallon of whole milk in 1991 was 54 cents, down about 10 cents (15 percent) from milk's 1990 farm value. The farm value represented 39 percent of the consumer's milk dollar in 1991, sliding 6 percentage points from the previous year. Procurement and assembly charges were 5.7 cents in 1991 and have remained relatively stable over the past 3 years.

The same firm typically performs the processing and wholesaling of milk. The combined processing and wholesaling margin was 39.3 cents in 1990, 4 percent higher than in 1989. The rise in the margin was due to a 10-percent increase in wholesaling, while processing increased only a tenth of a cent. Processing costs have remained nearly stable since 1986, after rising 16 percent from 1982 through 1986. The processing and wholesaling margin constituted 28 percent of the retail price in 1990.

Table 12--Broilers and eggs: Farm value, marketing costs by function, and retail price

Item	Farm value ^{1/}	Marketing costs					Retail price
		Assembly and procurement	Processing	Intercity transportation	Wholesaling	Retailing	
<u>Cents</u>							
Broilers, ready-to-cook, whole (pound):							
1975	37.0	1.4	7.5	1.4	3.9	12.0	63.2
1976	32.6	1.1	7.8	1.3	3.7	13.2	59.7
1977	33.0	1.1	8.0	1.4	3.7	12.9	60.1
1978	36.8	1.2	8.7	1.4	3.8	14.6	66.5
1979	36.8	1.3	9.6	1.6	4.2	14.5	68.0
1980	39.4	1.4	9.8	1.7	4.3	14.3	70.9
1981	39.4	1.6	10.3	1.7	4.3	15.9	73.2
1982	37.8	1.6	10.4	1.7	4.3	15.6	71.4
1983	41.2	1.6	10.5	1.7	4.3	13.2	72.5
1984	46.7	1.6	10.8	1.7	4.4	15.8	81.0
1985	42.4	1.6	9.3	1.7	4.4	16.9	76.3
1986	49.0	1.6	9.1	1.7	4.4	17.7	83.5
1987	40.2	1.6	9.1	1.7	4.4	21.5	78.5
1988	48.1	1.6	9.1	1.7	4.4	20.5	85.4
1989	50.8	1.7	9.9	1.8	4.6	23.9	92.7
1990	46.3	1.7	10.4	1.9	4.8	24.8	89.9
1991	43.6	1.8	10.6	2.0	4.9	25.2	88.1
Eggs, Grade A, large (dozen):							
1975	50.8	1.2	9.3	1.5	3.7	10.5	77.0
1976	58.0	.9	9.6	1.4	3.5	11.5	84.9
1977	53.8	.9	10.3	1.5	3.5	12.3	82.3
1978	49.7	.9	10.5	1.6	3.4	12.4	78.5
1979	53.7	1.1	11.7	1.8	3.9	13.7	85.9
1980	51.0	1.2	12.4	1.9	4.1	13.7	84.3
1981	56.9	1.2	12.2	1.9	4.1	13.6	89.9
1982	54.5	1.2	12.2	1.9	4.1	12.8	86.7
1983	59.5	1.0	11.6	1.7	3.5	12.1	89.4
1984	66.0	1.0	12.1	1.5	3.7	16.2	100.5
1985	51.4	1.0	11.0	1.5	3.7	11.8	80.4
1986	55.4	1.0	11.0	1.5	3.7	14.4	87.0
1987	46.0	1.0	11.0	1.5	3.7	15.1	78.3
1988	46.0	1.0	11.2	1.5	3.7	15.6	79.0
1989	64.4	1.0	11.4	1.6	3.7	17.7	99.8
1990	64.7	1.1	11.4	1.7	3.9	18.6	101.4
1991	59.1	1.2	12.4	1.8	4.2	20.2	98.9

^{1/} Farm values are derived from U.S. average broiler and market egg prices that the National Agricultural Statistics Service publishes monthly for farmers. Broiler prices are multiplied times 1.41 to convert to retail equivalent. The egg price is multiplied times 1.03 to allow for marketing loss.

Table 13--Fluid whole milk: Farm value, marketing costs by function, and retail price per half gallon

Year	Farm value <u>1/</u>	Marketing costs				Retail price <u>5/</u>
		Assembly and procurement <u>2/</u>	Processing <u>3/</u>	Wholesaling <u>3/</u>	Retailing <u>4/</u>	
<u>Cents</u>						
1974	40.9	2.7	10.7	13.6	8.9	76.8
1975	41.2	2.8	11.4	13.6	7.9	76.9
1976	46.2	2.8	10.6	12.1	9.3	81.0
1977	45.1	2.9	13.2	12.6	8.3	82.1
1978	47.0	3.1	14.6	14.3	7.1	86.1
1979	52.2	3.8	15.1	16.6	8.3	96.0
1980	55.8	4.5	15.6	18.9	10.2	104.9
1981	59.5	4.7	16.0	19.1	12.4	111.7
1982	59.2	4.5	16.5	19.3	13.0	112.4
1983	59.5	4.3	16.6	17.8	14.6	112.8
1984	58.2	4.4	17.3	17.3	15.5	112.7
1985	56.1	4.8	18.6	17.8	16.1	113.4
1986	54.8	4.7	19.1	18.2	14.6	111.4
1987	56.1	4.9	19.1	18.0	15.6	113.7
1988	54.2	5.6	19.3	18.2	19.1	116.4
1989	58.9	5.5	19.2	18.4	24.8	126.9
1990	63.6	5.6	19.1	20.2	33.9	142.4
1991	54.0	5.7 <u>6/</u>	--	--	--	136.9

-- = Not available.

1/ Prices farmers received are normally quoted for 3.5-percent butterfat at plant of first receipt. This price has been adjusted for transportation from farm to first plant to get the farm price, then adjusted to get the value of milk containing 3.3-percent butterfat, the usual butterfat content at retail. There are approximately 23.3 half gallons of milk per 100 pounds. 2/ Nonfarm costs of supplying milk to processors, including laboratory and onfarm field service to assure quality, pickup at farms, transportation, receiving and reloading as necessary, and management of raw milk reserves. 3/ Data for processing and wholesaling represent costs for 30 fluid-milk processor-distributor firms that represent moderate-sized, single-plant operations throughout the country. Very small plants and plants that retail food chains operated are not included. 4/ May include some wholesaling formerly performed by processors. 5/ Average of Bureau of Labor Statistics monthly prices. 6/ Preliminary.

Fluid milk processors earned 94 cents per hundredweight (cwt) of raw milk processed before taxes in 1990, up 43 cents from 1989 (table 14). Net returns had not been nearly that high since 1985. Fluid milk processors had the largest margins during the second and fourth quarters, when farm prices were low while selling prices edged slightly downward.

Processors reduced their operating costs 18 cents per cwt (2.1 percent) during 1990. Container costs declined 7 percent (15 cents) to \$1.93 in 1990 after peaking in 1989 at \$2.08. Operating costs of processor-distributors increased 50 cents per cwt from 1983 to 1990. The increase was mainly due to higher container, rent, depreciation and repair, and insurance costs.

Fruit and Vegetables

The price spread for fresh fruit and vegetables increased about 7.5 percent in 1991, slightly more than the average of all foods. Marketing costs for selected fruit and vegetables, such as fresh potatoes, lettuce, and oranges, help explain increases in price spreads (table 15).

Retailing accounts for the largest share of the marketing expense for fresh produce items. Retailing expenses for oranges averaged 55 percent of the farm-to-retail spread during 1989-91. The retailing share averaged 67 percent for

Table 14--Net sales, costs, and margins for 30 fluid-milk processor-distributors

Item	1983	1984	1985	1986	1987	1988	1989	1990
	<u>Dollars per cwt of volume processed</u>							
Net sales receipts ^{1/}	25.53	25.19	25.29	24.91	24.76	24.56	25.85	26.87
Raw materials and other product costs:								
Milk and cream	13.66	13.38	12.90	12.38	12.25	11.81	12.78	13.56
Finished	2.03	1.96	1.95	2.03	2.17	2.20	2.29	2.38
Other ^{2/}	1.40	1.43	1.52	1.37	1.39	1.44	1.58	1.47
Total	17.09	16.76	16.38	15.78	15.81	15.45	16.64	17.41
Gross margin	8.44	8.43	8.92	9.13	8.95	9.11	9.21	9.46
Operating costs:								
Salaries, wages, and commissions ^{3/}	3.65	3.52	3.50	3.67	3.60	3.63	3.61	3.57
Containers	1.71	1.74	1.80	1.81	1.82	1.95	2.08	1.93
Operating supplies	.60	.59	.56	.50	.48	.50	.52	.56
Rent, depreciation, and repairs	.99	.96	1.03	1.12	1.11	1.13	1.11	1.12
Taxes	.12	.12	.13	.13	.12	.14	.15	.13
Insurance	.08	.08	.10	.16	.17	.17	.17	.16
Services	.58	.62	.56	.62	.61	.61	.66	.62
Advertising	.14	.13	.14	.15	.15	.14	.14	.15
General	.15	.18	.23	.22	.23	.21	.26	.28
Total	8.02	7.93	8.06	8.38	8.29	8.48	8.70	8.52
Net margin ^{4/}	.41	.50	.85	.74	.66	.62	.51	.94

^{1/} Gross sales receipts less discounts, allowances, and damaged product returns. ^{2/} Ingredients other than milk, cream, and skim milk used to make cottage cheese, ice cream, orangeade, and other products. ^{3/} Includes costs of fringe benefits, such as State and Federal unemployment, Federal old-age benefits, workers' compensation, and pensions. ^{4/} Net returns to owners before income tax.

lettuce and 71 percent for potatoes. Produce margins generally exceed the average margin of the typical supermarket, and produce is the most profitable and fastest growing department of the typical store. While gross margins alone do not reflect actual profitability, the percentage of storewide gross profit dollars that fresh produce contributed has been much greater than the contribution to store sales would suggest. Produce accounts for 8.7 percent of total sales of the typical supermarket, but produce yields about 20 percent of net profit dollars, according to a survey by the Produce Marketing Association.

Over the past 3 years, packing costs made up the second-largest share of the farm-to-retail price spread for fresh produce items, averaging 14 percent for lettuce and oranges and 15 percent for potatoes. Intercity transportation costs were the third-largest share, accounting for 11 percent of the price spread for lettuce and 8 percent for potatoes. For oranges, wholesaling was the third-largest share at 17 percent.

In 1991, the farm-to-retail spread for California oranges increased substantially as a result of a weather-induced decrease in orange production that caused a dramatic price increase at all market levels. Most of the rise in the farm-to-retail spread for California oranges was in wholesaling charges. Retail prices for Northeast round white potatoes fell sharply following a dramatic increase the previous 2 years. This price drop squeezed the farm-to-retail price spread, particularly the retailing margin. Prices and marketing costs for lettuce were nearly stable in 1991.

Table 15--Selected fruit and vegetables: Farm value, marketing costs by function, and retail price

Item	Farm value <u>1/</u>	Marketing costs			Retailing	Retail price <u>3/</u>
		Packing or processing	Intercity transportation <u>2/</u>	Wholesaling		
<u>Cents</u>						
Potatoes, Northeast, round white (10-lb. bag):						
1982	47.7 <u>4/</u>	19.8	10.5	8.1	95.1	181.3 <u>5/</u>
1983	55.7 <u>4/</u>	15.5	8.3	6.4	74.4	160.2 <u>5/</u>
1984	67.8 <u>4/</u>	18.2	9.7	7.5	87.6	190.9 <u>5/</u>
1985	37.0 <u>4/</u>	18.2	9.7	7.5	87.8	160.3 <u>5/</u>
1986	50.0 <u>4/</u>	15.7	8.4	6.4	75.3	155.8 <u>5/</u>
1987	61.9 <u>4/</u>	26.3	14.0	10.8	126.5	239.5 <u>5/</u>
1988	49.5 <u>4/</u>	26.5	14.1	10.9	127.4	228.4 <u>5/</u>
1989	76.8 <u>4/</u>	33.9	18.1	14.0	163.1	305.9 <u>5/</u>
1990	76.0 <u>4/</u>	38.8	20.7	16.1	186.8	338.4 <u>5/</u>
1991	75.5 <u>4/</u>	28.3	15.1	11.7	135.9	266.5 <u>5/</u>
Oranges, California (pound):						
1982	17.1	4.0 <u>6/</u>	5.2	5.5	15.8	47.6
1983	5.3	8.6 <u>6/</u>	5.2	5.9	13.7	38.7
1984	17.2	5.8 <u>6/</u>	5.4	4.9	16.6	49.9
1985	12.4	9.4 <u>6/</u>	5.4	6.8	19.4	53.4
1986	8.2	9.9 <u>6/</u>	5.7	6.0	17.8	47.6
1987	10.0	9.9 <u>6/</u>	6.2	9.0	19.9	55.0
1988	11.8	8.0 <u>6/</u>	5.4	8.2	23.0	56.4
1989	11.3	8.3 <u>6/</u>	5.4	9.0	22.1	56.1
1990 <u>9/</u>	11.3	8.4 <u>6/</u>	5.8	4.3	26.8	56.6
1991 <u>10/</u>	36.1	4.7 <u>6/</u>	6.0	13.2	29.2	89.2
Iceberg lettuce, California (pound):						
1982	8.5 <u>7/</u>	6.4 <u>8/</u>	5.7	5.2	30.4	56.2
1983	6.8 <u>7/</u>	6.4 <u>8/</u>	5.7	5.3	31.2	55.5
1984	5.1 <u>7/</u>	6.4 <u>8/</u>	5.7	4.4	28.8	50.4
1985	8.2 <u>7/</u>	6.4 <u>8/</u>	5.6	5.1	27.3	52.6
1986	6.8 <u>7/</u>	6.8 <u>8/</u>	6.0	6.1	28.2	53.9
1987	11.1 <u>7/</u>	6.8 <u>8/</u>	6.4	4.6	30.6	59.5
1988	10.1 <u>7/</u>	7.4 <u>8/</u>	5.6	4.3	32.9	60.3
1989	10.0 <u>7/</u>	7.3 <u>8/</u>	6.1	2.1	35.1	60.6
1990	9.3 <u>7/</u>	7.3 <u>8/</u>	5.6	4.5	32.9	59.6
1991	8.7 <u>7/</u>	7.3 <u>8/</u>	5.8	4.7	34.6	61.1

--Continued

Table 15--Selected fruit and vegetables: Farm value, marketing costs by function, and retail price--Continued

Item	Farm value ^{1/}	Marketing costs				Retail price ^{3/}
		Packing or processing	Intercity transportation ^{2/}	Wholesaling	Retailing	
<u>Cents</u>						
Orange juice, frozen concentrated (12-oz. can):						
1982	46.3	18.7	3.4	13.6	24.1	106.1
1983	44.0	20.1	3.5	13.3	23.5	104.4
1984	49.0	32.7	3.5	13.2	23.2	121.6
1985	61.9	18.5	3.5	17.2	30.5	131.6
1986	39.6	23.2	3.8	17.6	31.4	115.6
1987	42.5	32.2	3.9	13.0	23.2	114.8
1988	51.9	38.1	3.9	15.4	27.4	136.7
1989	56.0	29.0	4.0	18.1	32.3	139.4
1990 ^{9/}	55.4	45.7	4.1	20.5	36.4	162.1
1991 ^{10/}	53.1	25.7	4.2	19.8	35.1	137.9
Tomatoes, California (303 can):						
1982	4.9	37.2	5.0	1.5	6.4	55.0
1983	5.1	30.5	5.1	2.3	9.6	52.6
1984	4.9	29.6	5.2	2.4	10.4	52.5
1985	4.9	29.3	5.3	2.3	9.7	51.5
1986	4.8	27.7	5.3	2.6	11.0	51.4
1987	4.6	30.0	5.4	2.0	8.7	50.7
1988	4.4	31.1	5.4	2.4	10.3	53.6
1989	4.6	31.7	5.6	2.8	12.8	57.5
1990	5.0	32.3	5.7	3.2	13.7	59.9
1991 ^{10/}	5.0	32.9	5.7	3.0	13.0	59.6

^{1/} Payment for the quantity of farm product equivalent to the retail unit minus imputed value of byproducts, computed from average grower prices. ^{2/} Costs are for truck shipment. ^{3/} U.S. average retail prices except as noted. Prices of fresh produce weighted by quantities marketed. ^{4/} Prices include some packing costs, since many growers may grade, wash, and bag potatoes. ^{5/} Selected eastern markets. ^{6/} Includes picking costs. ^{7/} Value in the field. ^{8/} Contract price for cutting, packing, hauling, cooling, and selling. ^{9/} Revised. ^{10/} Preliminary.

The price spread for processed fruit and vegetables rose only about 3 percent in 1991. The spread for canned tomatoes was stable, and processing charges made up 60 percent of this farm-to-retail price spread. A principal component of the processing spread is packaging: the metal can, the label, and the shipping case. Processing charges went up little during 1990. Retail canned tomato prices declined slightly, mainly reflecting a decrease in the retailing spread.

The retail price of a 12-ounce can of frozen concentrated orange juice fell sharply in 1991, decreasing 24 cents to \$1.38. The price decrease resulted from a 43-percent increase in production following the freeze-reduced output the previous year. The sharp drop in price reduced the processor margin about 20 cents per 12-ounce can. Over 1989-91, charges for retailing made up 38 percent of the farm-to-retail price spread. Processing equaled 37 percent of the price spread. Packaging represents a major cost of processing, but automated operations minimize the labor cost of concentrated orange juice processing. Wholesaling charges were about 21 percent, and transportation costs were about 4 percent of the price spread.

Bread

The average retail price of white pan bread in 1991 was 71 cents per pound, 1.6 cents higher than in 1990 (table 16). This price is the average of monthly prices reported by the U.S. Bureau of Labor Statistics. The farm value of wheat, at 3.4 cents, was 0.3 cent lower in 1991 than in 1990. The farm value represents the payment to farmers for the quantity of wheat (approximately 0.86 pound) required to produce the flour for a 1-pound loaf of bread. The payment is computed from the average farm price for all wheat. A deduction is made for the value of millfeed, a byproduct of milling the wheat. The value of the millfeed ranges from 15 percent to 20 percent of the value of the wheat, depending on the flour-milling extraction rate, the price of flour, and the price of millfeed.

Other farm-derived ingredients, including lard, soybean oil, high-fructose corn syrup, and soy-whey blend, contributed 0.6 cent to a total farm value of 4 cents. The farm value share of all ingredients remained at 6 percent of the retail price in 1991. Thus, the farm-to-retail spread--consisting of wheatmilling, breadbaking, and distribution costs--was nearly all of the retail bread price.

Table 16--White bread: Retail price, farm value of ingredients, farm-to-retail price spread, and farm value share of retail price per 1-pound loaf

Year	Retail price	Farm value of ingredients			Farm-to-retail spread	Farm value share	
		Wheat ^{1/}	Other farm ingredients ^{2/}	All ingredients		Wheat	All ingredients
		-----Cents-----				-----Percent-----	
1970	27.7	2.6	0.8	3.4	24.3	9	12
1971	28.5	2.6	.9	3.5	25.0	9	12
1972	28.2	2.9	.9	3.8	24.4	10	13
1973	31.5	4.1	1.4	5.5	26.0	13	17
1974	39.3	5.4	2.5	7.9	31.4	14	20
1975	41.0	4.5	2.3	6.8	34.2	11	17
1976	40.2	3.8	1.7	5.5	34.7	9	14
1977	40.5	2.7	.7	3.4	37.1	7	8
1978	41.7	3.3	.7	4.0	37.7	8	10
1979	46.7	4.1	.8	4.9	41.8	9	10
1980	50.9	4.5	.8	5.3	45.6	9	10
1981	52.5	4.7	.8	5.5	47.0	9	10
1982	53.2	4.4	.6	5.0	48.2	8	9
1983	54.2	4.5	.7	5.2	49.0	8	9
1984	54.1	4.3	.8	5.1	49.0	8	9
1985	55.3	4.1	.7	4.8	50.5	7	9
1986	56.5	3.5	.5	4.1	52.5	6	7
1987	54.7	3.3	.5	3.8	50.9	6	7
1988	61.3	4.1	.7	4.8	56.5	7	8
1989	66.6	4.8	.7	5.5	61.1	7	8
1990	69.5	3.7	.7	4.4	65.1	5	6
1991	71.1	3.4	.6	4.0	67.1	5	6

^{1/} Payment to farmers for the quantity of wheat (approximately 0.86 pound) required to produce the flour for a 1-pound loaf of white bread, minus the value of millfeed byproducts. Based on average farm prices for hard winter and spring wheat in 11 States producing these wheats through 1982; all wheat prices used beginning in 1983. ^{2/} Value for lard, shortening, granulated sugar, and nonfat dry milk through 1976. Value for 1977 forward is for lard, soybean oil, high-fructose corn syrup, corn syrup, and soy-whey blend.

Sugar

Because of the stability that the price-support program for sugar provided, retail sugar prices, together with the farm value and price spreads, were relatively stable in the 1980's. In crop year 1990/91, the domestic raw sugar price fell about 1.4 cents per pound (6 percent), but the wholesale refined sugar price fell about 0.4 cent per pound (1 percent). The decrease resulted in slightly lower farm values.

The 1990/91 farm value of a pound of sugar was 14.6 cents, about 2 percent lower than that of a year earlier (table 17). The farm value is based on the season average prices growers received in the United States for sugarcane and sugar beets, which are based on raw and refined sugar prices. The farm value accounted for 36 percent of the retail price of sugar, down about 2 percentage points from the previous year.

The farm-to-retail price spread was about 25.5 cents in 1990/91, up about 1 cent from the previous year. This increase was not due to the processing and refining component of the spread, which was nearly unchanged at about 18 cents. This component is the difference between the farm value and an average effective wholesale price for sugar packed in 5-pound bags. The processing and refining component covers all the functions of transporting sugarcane and sugar beets to processing plants, processing sugarcane and refining raw cane sugar, processing sugar beets, and selling sugar to wholesalers.

The wholesaling and retailing spread, the difference between the average retail price and average wholesale price for sugar, was estimated at 7.6 cents per pound in 1990/91, up about 1 cent from the previous year. While retail sugar prices rose, wholesale prices declined slightly, causing an increase in the spread. The wholesaling and retailing spread includes intercity transportation and wholesaling and retailing charges.

Food Industry Costs, Profits, and Productivity

Many factors influence how much the food industry charges for its services. Food industry input costs, profits, and productivity largely determine how much the price of food increases after it leaves the farm.

Prices of Marketing Inputs

Increases in farm-to-retail price spreads mainly reflect rising costs that food industry firms face. These costs include wages and salaries of workers and prices of many supplies and services that marketing firms bought from other parts of the economy. ERS maintains a food marketing cost index (FMCI) for monitoring and analyzing changes in variable operating costs incurred in processing, wholesaling, and retailing foods. The FMCI consists of hourly earnings of workers and price indexes of various marketing inputs, weighted by the share of each input in total

Table 17--Sugar: Farm value, price spreads, and retail price

Item	Crop year beginning October					
	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91
	<u>Cents per pound</u>					
Farm value ^{1/}	13.3	13.6	14.0	14.6	14.9	14.6
Processing and refining spread ^{2/}	14.6	14.4	14.1	16.9	18.0	17.9
Wholesaling and retailing spread ^{3/}	6.1	5.6	6.0	5.9	6.8	7.6
Retail price ^{4/}	34.0	33.6	34.1	37.4	39.6	40.1

^{1/} Based on season average prices U.S. sugar producers received for sugarcane and sugar beets. ^{2/} Difference between the farm value and an average of effective wholesale prices. ^{3/} Difference between the retail price and the wholesale price.

^{4/} Average of Bureau of Labor Statistics' monthly retail prices for sugar sold in 33- to 80-ounce packages.

operating costs. The FMCI is not a substitute for more conventional measures of marketing costs. However, the behavior of the index at least partially indicates changes in operating costs of the food marketing sector. The index does not account for changes in productivity and profits.

The largest component of the index (45 percent) is labor costs. Food containers and packaging materials (15 percent), transportation rates (11 percent), and energy costs (8 percent) complete the list of leading cost components of the index. Other cost components include advertising, maintenance and repair services, insurance, short-term interest, rent, and miscellaneous supplies and services.

In 1991, the FMCI rose 2.6 percent, a slightly smaller increase than in 1990. A 3.5-percent rise in the labor component and higher prices for business services contributed most to the increase. Prices of food containers and packaging materials rose by only 1 percent. Interest rates on short-term credit fell 26 percent, moderating the rise in the overall index (table 18). Because businesses attempt to recover increases in variable costs, the rise in the FMCI partially explains the observed increase in the farm-to-retail price spread and food prices at retail. The smaller rise in the FMCI than in the farm-to-retail spread in 1991 indicates that other factors are affecting marketing charges. These factors could include: greater use of some inputs, such as labor, per unit of output; rising fixed costs, such as asset depreciation and interest on long-term debt; higher profits; and lower productivity.

Profits

Two financial ratios are useful in evaluating the profitability of the food industry: profit margin and return on stockholder equity. The profit margin is net income as a percentage of sales. It measures the portion of the sales dollar left after paying all expenses, including the cost of food products. The profit margin helps explain the importance of profits compared with costs that, together, make up the consumer food dollar. Return on stockholder equity, which reflects the earning power of the owner's investment, shows food industry profitability compared with that of other industries.

The after-tax profit margin of food and tobacco manufacturers averaged 4.9 percent of sales in 1991, up from 4 percent in 1990, based on data that the U.S. Bureau of the Census compiled. Returns on stockholders' equity increased to 17.8 percent in 1991 (table 19). Moreover, returns on equity for the food and tobacco industry were higher than the 11.1-percent average for all manufacturers of nondurable products. The margin increase for food manufacturers last year is attributed partly to declining raw material costs and modest increases in manufacturing and marketing costs, particularly food packaging and energy costs.

Profit margins of retail food chains averaged 1.1 percent of sales in 1991, unchanged from a year earlier. The 1990 industry average profit margin was the highest since the mid-1980's. Profit margins in 1991 were squeezed in the fourth quarter by consumer reluctance to spend in the uncertain economy and by increased price competition among supermarkets as sales lagged. To maintain margins, the industry attempted to control costs by becoming more efficient through the use of technology for inventory management and merchandising, labor savings at checkouts, energy conservation, and the routing of delivery trucks to stores. Retailers promoted lower priced store brands of foods that generally have a higher profit margin to take advantage of weak consumer buying. Despite these efforts, after-tax profit margins for many leading food chains declined in 1991. Kroger, the largest food chain, slightly improved its profit margin, but the rate remained much lower than that during the late 1980's (table 20).

Labor Productivity

Labor productivity rose 0.3 percent during 1991 in the Nation's total business sector, excluding farming, which followed 2 years of falling productivity. Food industry productivity estimates for 1991 were not available at press time, but productivity of food stores and eating places has trended down during the past decade. In 1991, output of grocery stores declined, as measured by food sales adjusted for inflation, and real sales in eating and drinking places were flat, likely precluding any rise in productivity.

Labor productivity in food manufacturing industries has improved moderately over the years. Output per unit of labor in seven food manufacturing industries for which data are available increased 1-4 percent per year over the 1980-89 period (table 21). These increases, in most instances, resulted from increased output and a small decline in

Table 18--Price indexes of food marketing costs 1/

Year	Labor--hourly earnings and benefits				Packaging and containers							
	Total	Process- ing	Whole- saling	Retail- ing	Total	Paper boxes and con- tainers	Metal cans	Paper bags and sacks	Plastic packag- ing	Glass con- tainers	Metal foil	Transpor- tation services
<u>1967 = 100</u>												
1968	106.5	105.9	106.7	107.0	96.3	95.9	104.4	101.0	78.4	107.5	100.2	102.0
1969	113.7	112.7	113.5	114.8	99.5	99.4	107.1	103.6	79.9	114.7	105.5	105.0
1970	122.5	121.2	125.1	122.6	103.6	101.1	113.1	108.0	86.0	120.3	106.3	114.3
1971	131.9	130.9	131.9	133.0	106.6	102.4	123.8	109.7	81.8	131.6	106.4	128.5
1972	143.3	134.0	143.7	146.4	110.4	105.5	131.8	113.6	82.9	135.1	106.1	132.5
1973	154.2	151.3	153.7	157.3	117.3	115.1	138.5	121.6	86.4	138.9	106.0	135.2
1974	168.7	164.3	167.4	173.7	149.7	152.2	170.3	144.9	129.6	155.5	113.0	156.3
1975	187.4	184.1	182.3	192.9	174.4	170.3	200.2	161.6	170.8	181.8	116.6	176.9
1976	203.8	200.1	197.6	210.3	184.8	176.2	212.1	170.0	188.1	195.4	127.1	194.4
1977	222.4	217.6	217.8	229.4	192.8	176.5	231.4	176.7	193.6	214.4	140.0	205.1
1978	244.4	237.7	239.3	254.0	204.7	179.6	263.8	186.5	192.1	244.4	159.3	220.5
1979	265.8	257.9	260.4	276.1	228.4	202.1	293.0	209.7	216.9	261.1	175.6	251.3
1980	292.6	283.3	283.5	306.4	261.5	234.6	325.7	236.5	238.5	292.7	184.1	296.8
1981	321.3	309.2	309.5	338.6	280.9	258.2	345.8	258.9	262.5	328.6	203.3	345.9
1982	342.7	330.0	335.1	359.3	275.1	254.9	363.6	264.4	200.0	355.7	213.2	371.1
1983	356.8	341.9	358.1	371.1	280.7	251.0	374.3	265.4	226.2	352.4	214.0	374.5
1984	365.5	350.2	371.1	378.3	303.5	264.0	397.3	290.9	273.1	360.8	226.9	391.7
1985	363.0	357.9	373.5	363.5	312.1	271.6	416.9	294.7	274.4	380.0	213.8	393.9
1986	359.4	363.4	376.3	347.9	317.4	269.1	430.1	307.9	274.8	398.0	209.3	391.7
1987	361.2	370.2	384.2	341.7	329.8	288.0	433.0	331.3	280.2	402.0	222.1	385.0
1988	370.5	381.4	398.6	347.2	350.7	308.1	442.3	372.2	305.7	398.9	266.9	403.5
1989	382.2	392.1	415.2	357.8	364.6	323.7	443.2	409.2	313.2	409.9	274.4	404.9
1990	395.7	405.8	428.7	371.2	367.6	323.9	455.0	413.0	307.1	427.3	258.4	411.3
1991	409.7	420.4	443.7	383.9	371.2	320.3	470.5	320.3	410.9	446.0	251.6	422.6

See footnote at end of table.

--Continued

Table 18--Price indexes of food marketing costs 1/--Continued

Year	Adver- tising	Fuel and power			Communi- cations, water, and sewage	Rent	Mainte- nance and repair	Busi- ness servi- ces	Sup- plies	Property- taxes and in- surance	Inter- est, short- term	Total market- ing cost index	
		Total	Elec- tric	Petro- leum									Nat- ural gas
<u>1967 = 100</u>													
1968	102.5	99.7	100.9	101.9	92.7	100.8	104.4	105.8	105.0	102.1	109.2	115.5	103.5
1969	107.5	100.5	101.8	102.4	93.2	102.8	109.4	113.7	109.9	102.8	118.3	153.2	109.2
1970	109.6	106.1	105.8	106.5	103.6	105.1	115.4	122.3	115.6	106.5	130.4	150.9	116.1
1971	108.7	112.3	113.6	110.3	108.0	111.3	121.7	131.5	123.5	108.7	141.9	100.0	123.0
1972	113.2	118.4	121.5	113.3	114.1	117.8	126.3	137.9	128.2	119.9	153.3	92.6	130.5
1973	118.2	133.1	129.3	139.7	126.7	120.8	131.1	146.7	133.3	113.4	158.4	159.5	139.4
1974	124.2	198.9	163.1	272.2	162.2	126.3	145.9	164.3	146.8	145.1	162.9	192.6	159.8
1975	136.9	236.1	193.4	309.4	216.7	131.8	167.0	182.2	159.6	169.9	180.1	123.7	178.8
1976	152.8	264.5	207.7	336.9	286.8	138.4	174.9	196.1	171.3	181.3	194.5	104.7	193.6
1977	166.3	310.6	232.9	384.1	388.0	142.6	185.0	209.2	182.5	188.9	219.0	109.8	209.2
1978	181.3	331.7	250.6	398.1	428.7	147.5	199.2	226.9	195.2	197.8	237.3	156.4	227.0
1979	197.4	418.2	270.3	574.6	544.8	148.7	216.4	249.7	211.0	224.3	246.9	213.5	252.2
1980	214.5	563.2	321.6	850.6	724.8	153.9	235.0	277.1	230.6	259.3	270.2	240.3	286.0
1981	234.9	669.2	367.9	1,056.2	826.3	168.7	255.0	304.0	254.2	283.8	294.0	288.8	317.5
1982	260.1	705.1	406.1	1,012.1	990.3	186.7	264.3	325.1	277.1	289.1	309.9	232.6	334.0
1983	280.2	705.1	417.9	895.9	1,155.6	199.6	260.6	338.2	291.9	286.5	327.5	174.0	343.0
1984	300.5	712.5	440.0	880.4	1,162.6	215.5	261.3	350.3	306.1	288.3	343.7	198.4	356.2
1985	320.2	700.0	453.5	821.5	1,158.2	224.9	262.9	360.3	321.9	287.9	362.0	157.2	358.6
1986	339.7	590.2	457.9	499.8	1,096.9	236.1	267.0	368.5	334.1	282.7	382.3	125.1	354.9
1987	361.1	596.7	450.5	561.4	1,049.0	238.4	262.3	382.6	346.1	286.8	399.6	132.9	360.4
1988	384.0	578.2	453.3	502.0	1,042.1	241.3	265.3	395.9	371.4	305.6	419.9	150.3	372.4
1989	409.1	619.4	468.9	592.1	1,070.9	247.3	269.9	410.7	388.4	321.4	439.7	172.1	386.0
1990	433.0	671.4	477.7	744.8	1,071.0	253.1	280.0	426.7	399.5	321.1	462.2	155.4	398.7
1991	460.1	655.7	508.3	649.8	1,065.0	261.7	281.3	442.7	423.3	319.3	480.5	114.5	409.1

1/ Indexes measure changes in employee wages and benefits and in prices of supplies and services used in processing, wholesaling, and retailing U.S. farm food purchased for consumption at home.

Table 19--Profit margins of food manufacturers and retail food chains, industry averages

Year and quarter	Food manufacturers 1/			Retail food chains 2/		
	After-tax profits as a percentage of--					
	Sales	Stockholder equity	Assets	Sales	Stockholder equity	Assets
	<u>Percent</u>					
1980	3.4	14.7	7.1	0.9	13.7	4.5
1981	3.1	13.6	6.5	1.0	13.9	4.7
1982	3.1	13.0	6.3	.9	12.7	4.4
1983	3.3	13.3	6.0	1.1	13.6	4.9
1984	3.3	13.3	6.0	1.4	17.3	6.0
1985	4.1	15.3	6.6	1.3	14.5	5.3
1986	4.2	16.2	6.3	1.1	11.9	4.4
1987	4.6	17.5	6.8	.9	12.8	3.6
1988	5.5	20.9	8.1	.9	13.6	3.2
1989	4.2	17.1	5.5	.8	20.7	2.9
1990	4.0	16.1	5.2	1.1	22.8	3.8
1991	4.9	17.8	6.2	1.1	18.8	3.8
1987:						
I	3.7	13.6	5.1	.7	9.0	2.6
II	4.5	17.4	6.7	1.0	13.2	3.9
III	4.4	17.0	6.7	.7	9.7	2.6
IV	5.7	21.6	8.5	1.4	19.0	5.1
1988:						
I	5.2	19.1	7.5	.7	8.6	2.5
II	6.5	25.0	9.9	1.5	20.7	5.2
III	5.6	21.9	8.6	.8	11.5	2.9
IV	4.7	17.9	6.7	.6	14.3	2.0
1989:						
I	4.1	15.6	5.2	.8	19.1	2.6
II	4.0	16.5	5.4	.9	23.4	3.3
III	3.4	13.9	4.4	.8	18.9	2.7
IV	5.3	22.2	7.0	.9	21.5	3.1
1990:						
I	3.7	14.7	4.7	1.0	20.7	3.2
II	5.2	21.2	6.9	1.2	25.4	4.2
III	5.1	19.6	6.6	.9	17.9	3.0
IV	2.2	9.0	2.9	1.3	27.1	4.7
1991						
I	5.2	18.8	6.3	1.1	20.0	3.6
II	5.1	19.0	6.5	1.4	24.0	4.7
III	5.2	19.2	6.7	1.0	16.3	3.5
IV	4.0	14.1	5.1	1.0	15.5	3.4

1/ Data represent aggregate estimates for corporations, based on a sample of company reports. Beginning in 1985, data are not comparable with earlier years because the tobacco industry was combined with food manufacturers. 2/ Data are based on reports from all food retailing corporations having at least \$1 billion in annual sales, at least 70 percent of which are derived from supermarket operations. Beginning in 1990, data reflect a larger sample of firms.

Source: U.S. Department of Commerce.

Table 20--After-tax profits of selected supermarket food chains per dollar of sales, fiscal year or four calendar quarters

Firm	1986	1987	1988	1989	1990	1991
	<u>Percent of sales</u>					
Ahold NV	--	1.12	0.95	1.10	1.38	1.33
Albertson's	1.86	2.14	2.40	2.65	3.12	3.10
American Stores	1.03	1.08	.53	.54	.77	.65
Great Atlantic & Pacific Tea Co.	.88	1.09	1.27	1.32	1.33	.61
Bruno's	--	--	2.15	2.35	2.58	2.39
Foodarama Supermarkets	--	.77	.71	-.20	.16	-.08
Food Lion	2.57	2.90	2.95	2.96	3.09	3.19
Giant Food	1.84	2.78	3.28	3.34	3.55	2.50
Hannaford Bros. Co.	2.09	2.33	2.29	2.46	2.50	2.16
Ingles Markets	--	1.37	1.81	1.76	.89	.57
Kroger	.81	1.04	1.20	-.18	.36	.47
Marsh Supermarkets	.87	.92	.91	1.09	1.27	.94
Penn Traffic Co.	--	.10	-.77	-1.08	-.87	-.16
Safeway	-.07	-.43	-.12	.02	.59	.74
Vons Companies	--	--	-.61	-.48	.93	1.21
Winn-Dixie	1.26	1.30	1.41	1.67	1.60	1.74

-- = Not available.

Source: The American Institute of Food Distribution Inc., Food Institute Reports, Fair Lawn, New Jersey.

hours worked. Labor productivity among food manufacturers has increased most in grain milling and fluid-milk processing. Productivity has grown erratically for most industries, partly because of fluctuating output and business conditions.

Output per unit of labor among supermarkets has declined each year since 1985. In 1990, output per employee hour fell 0.6 percent, the smallest decline in 4 years. However, some store operations have become more efficient because of computer-assisted checkout and data processing systems and new store formats, such as warehouse stores with a limited assortment of products. Warehouse stores provide reduced services and, thus, cut labor requirements, or they foster higher sales per unit of labor. On the other hand, supermarkets have expanded service-oriented operations, such as delicatessens, salad bars, and instore bakeries, in response to consumer demand for saving time in food buying and preparation. Providing the products and shopping convenience that consumers want has added to industry employment and has made productivity gains more difficult. In addition to tailoring products to consumer demand, many supermarkets are trying to make shopping easier and faster by opening more registers at busy times and by extending store hours.

Labor use in food retailing increased 12 percent between 1985 and 1990, based on the latest available U.S. Department of Labor data, but output rose only 2.6 percent, resulting in lowered productivity. As a result of lower productivity, unit labor costs have likely gone up faster than average hourly earnings of workers.

Productivity among eating places has changed little in the past 4 years. Labor productivity in eating places in 1990 was 4 percent higher than in 1985. Productivity rose since 1985 because hours worked rose 10 percent, but output rose 15 percent.

Food Spending: How It Was Distributed

Food spending for domestically produced food in 1991 represents the retail market value of food purchased by or for civilian consumers. Both the quantities of food bought and the prices paid affected spending levels. The expenditures reported in this section include spending at grocery stores, eating places, and institutions. These

Table 21--Indexes of output per employee hour in selected food manufacturing industries, retail food stores, and eating and drinking places

Year	Food manufacturing							Retail food stores	Eating and drinking places
	Red meat products	Poultry dressing and processing	Fluid milk	Preserved fruit and vegetables	Grain mill products	Bakery products	Sugar		
	<u>1982 = 100</u>								
1970	68.9	62.3	54.4	73.9	65.9	84.8	95.0	112.1	103.9
1971	70.7	68.0	58.7	77.0	68.9	86.7	93.9	112.7	101.1
1972	75.7	70.1	62.9	78.4	70.6	91.1	100.0	111.8	105.2
1973	73.7	61.7	65.3	86.3	67.5	90.6	106.6	107.2	106.7
1974	75.3	69.4	67.2	85.0	71.4	90.5	103.1	102.7	102.0
1975	75.2	69.9	70.5	86.8	72.1	90.4	104.0	103.4	104.0
1976	83.2	78.5	73.5	92.8	75.3	90.8	106.0	105.5	104.5
1977	89.1	79.6	73.9	92.8	82.6	96.8	110.7	104.7	103.2
1978	88.0	80.7	79.7	96.6	82.8	94.7	108.8	100.5	102.7
1979	90.5	84.5	85.4	91.8	83.5	92.0	114.1	103.0	102.7
1980	95.3	84.2	91.5	93.5	87.0	90.7	110.8	105.1	102.9
1981	96.1	92.6	94.6	91.9	91.6	93.1	109.3	101.7	100.4
1982	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1983	103.8	104.8	105.3	102.7	103.3	104.0	107.6	99.7	99.0
1984	105.5	104.0	109.4	104.3	109.3	104.2	107.6	99.8	95.4
1985	108.4	106.2	112.9	105.5	115.9	106.3	112.2	99.9	92.8
1986	106.9	101.7	117.8	110.0	116.7	112.5	115.9	99.4	95.6
1987	108.7	108.2	122.5	111.6	123.5	111.4	130.7	97.3	96.3
1988	111.4	104.9	127.2	112.1	123.6	103.4	129.4	95.5	98.3
1989	102.7	111.6	130.6	113.2	123.2	103.0	134.1	92.2	96.3
1990 ^{1/}	--	--	131.7	--	--	106.7	133.2	91.6	96.5
Average annual change:	<u>Percent</u>								
1970-80	3.3	3.0	5.3	2.4	2.8	0.7	1.5	-0.7	-0.1
1980-89	.8	3.2	4.0	2.2	3.9	1.4	2.1	-1.5	-.7

-- = Not available.

^{1/} Preliminary. Some historical data were revised.

Source: U.S. Department of Labor, Bureau of Labor Statistics.

estimates are smaller than the amount consumers spent for all food because expenditures for imported food and fishery products are excluded. In this section, food expenditures are broken into two components:

- The farm value is a measure of the payments farmers received for the raw commodities equivalent to food purchased by consumers at foodstores and eating places.
- The marketing bill is the difference in dollars between the farm value and consumer expenditures for food produced on U.S. farms.

To evaluate changes in last year's marketing bill, we: (1) divided the total marketing bill into the costs of several principal marketing functions, such as processing and retailing, and (2) broke down the bill into costs of principal inputs, such as labor and packaging.

Most of these estimates are based on secondary data, and are not direct measures of consumer food expenditures or actual marketing costs. The limited accuracy of the data reported in this section makes them general indicators, and not precise measures, of levels and yearly changes.

Food Expenditures

Consumers spent \$462 billion for food originating on U.S. farms in 1991 (fig. 3 and table 22). About 61 percent of consumers' food expenditures was spent at retail grocery stores on food for use at home. The remaining 39 percent represented the retail value of food served in public eating places, hospitals, schools, and other institutions. Market shares in 1991 were the same as in 1990.

Consumer expenditures for domestic farm foods in 1991 rose about 2.7 percent, the smallest increase of the last decade, largely because of the recession. The quantity of food purchases likely decreased, based on sales data reported by the U.S. Census Bureau. Sales at eating places rose 4 percent in 1991, but when adjusted for the rise in prices, 1991 sales were only 0.6 percent higher than those in 1990. Grocery store sales rose 2.2 percent in 1991, but after adjustment for price increases, sales dropped 0.4 percent. Foodstore sales consist of both food and nonfood items. After adjusting for nonfood sales, spending for domestic farm foods at grocery stores increased an estimated 1.9 percent in current dollars, but declined about 1 percent in real dollars. These figures indicate reduced food purchases.

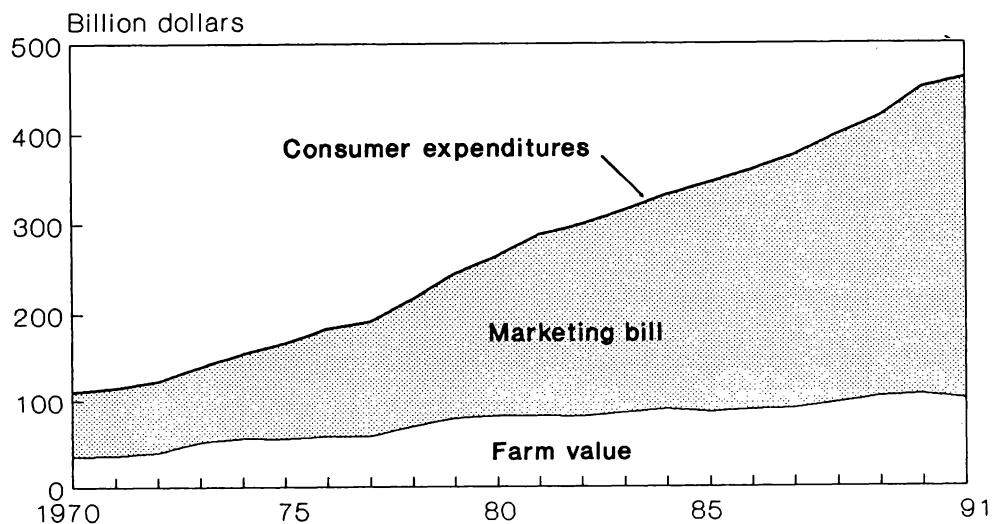
Meat products represent the largest share of total consumer food expenditures. Expenditures for meat in 1991 were 28 percent of total food expenditures, compared with 23 percent for fruit and vegetables, the next largest expenditure group (table 23). Because food consumption changes slowly, the proportion of expenditures that meat products and other food groups accounted for has changed little from year to year.

Farm Value

The farm value of food commodities originating on U.S. farms decreased about \$5 billion in 1991 to \$101 billion (table 22). This was the first decrease since 1985. Much of the farm value decline was due to lower farm prices for such commodities as beef, pork, poultry, sugar, milk, and fats and oils. The largest share of the money farmers received for domestic food sales was for meat products. In 1991, the farm value of meat was about 34 percent of the total value of farm food. The next largest share, 18 percent, was for dairy products. Livestock and dairy producers garnered more than half of the total farm value, but they bought substantial amounts of grain from crop farmers.

Figure 3
Distribution of food expenditures

The marketing bill was 78 percent of 1991 food expenditures.



Data for foods of U.S. farm origin purchased by or for consumers for consumption both at home and away from home.

Table 22--Marketing bill and farm value components of consumer expenditures for domestically produced farm foods

Year	Consumer expenditures			Marketing bill	Farm value	Farm value share of expenditures
	Total	At home ^{1/}	Away from home ^{2/}			
-----Billion dollars-----						Percent
1950	44.0	--	--	26.0	18.0	41
1951	49.2	--	--	28.7	20.5	42
1952	50.9	--	--	30.5	20.4	40
1953	51.0	--	--	31.5	19.5	38
1954	51.1	--	--	32.3	18.8	37
1955	53.1	--	--	34.4	18.7	35
1956	55.5	--	--	36.3	19.2	35
1957	58.3	--	--	37.9	20.4	35
1958	61.0	--	--	39.6	21.4	35
1959	63.6	--	--	42.4	21.2	33
1960	66.9	--	--	44.6	22.3	33
1961	68.7	--	--	45.7	23.0	33
1962	71.3	--	--	47.6	23.7	33
1963	74.0	56.0	18.0	49.9	24.1	33
1964	77.5	58.5	19.0	52.6	24.9	32
1965	81.1	60.2	20.9	54.0	27.1	33
1966	86.9	64.0	22.9	57.1	29.8	34
1967	91.6	66.8	24.8	62.4	29.2	32
1968	96.8	69.5	27.3	65.9	30.9	32
1969	102.6	73.1	29.5	68.3	34.3	33
1970	110.6	78.2	32.4	75.1	35.5	32
1971	114.6	80.6	34.0	78.5	36.1	32
1972	122.2	85.4	36.8	82.4	39.8	33
1973	138.8	98.5	40.3	87.1	51.7	37
1974	154.6	109.5	45.1	98.2	56.4	36
1975	167.0	116.2	50.8	111.4	55.6	33
1976	183.3	127.2	56.1	125.0	58.3	32
1977	190.9	130.8	60.1	132.7	58.2	30
1978	216.9	149.2	67.7	147.4	69.5	32
1979	245.2	169.4	75.8	166.0	79.2	32
1980	264.4	180.1	84.3	182.7	81.7	31
1981	287.7	194.0	93.7	206.0	81.7	28
1982	298.9	196.7	102.2	217.5	81.4	27
1983	315.0	204.6	110.4	229.7	85.3	27
1984	332.0	213.1	118.9	242.2	89.8	27
1985	345.4	220.8	124.6	259.0	86.4	25
1986	359.6	226.0	133.6	270.8	88.8	25
1987	375.5	230.2	145.3	285.1	90.4	24
1988	398.8	242.1	156.7	301.9	96.8	24
1989	419.4	255.5	163.9	315.6	103.8	25
1990	449.8	276.2	173.6	343.6	106.2	24
1991 ^{3/}	461.8	281.4	180.4	360.6	101.2	22

-- = Not available.

^{1/} Includes food purchased primarily at retail foodstores. ^{2/} Includes food purchased at restaurants, fast-food outlets, and other public eating places, and food served in institutions, such as hospitals, schools, and rest homes. ^{3/} Preliminary. Some historical data have been revised.

Table 23--Consumer expenditures and farm value for major food groups

Item and year	Meat	Fruit and vegetables ^{1/}	Dairy products	Bakery products	Poultry	Grain mill products ^{2/}	Eggs	Other foods ^{3/}	Total
<u>Billion dollars</u>									
Consumer expenditures:									
1975	48.0	35.6	23.3	18.2	8.6	5.9	4.1	23.3	167.0
1976	55.2	38.8	26.4	18.8	9.1	6.1	4.8	24.1	183.3
1977	59.0	40.8	27.8	18.1	9.6	6.3	4.4	24.9	190.9
1978	69.5	46.3	30.1	21.1	10.9	6.4	4.3	28.3	216.9
1979	80.2	52.5	33.5	23.8	12.6	7.8	4.8	30.1	245.3
1980	83.3	55.5	37.8	26.8	13.3	8.4	5.0	34.3	264.4
1981	86.6	62.8	41.4	29.0	14.7	8.9	5.2	39.1	287.7
1982	91.9	66.7	42.0	30.6	15.1	9.0	5.2	38.4	298.9
1983	97.9	70.0	45.0	31.0	16.3	9.6	5.4	39.8	315.0
1984	101.7	74.7	47.4	33.0	18.4	10.3	5.8	40.7	332.0
1985	103.2	78.5	49.4	34.6	19.9	10.9	6.1	42.8	345.4
1986	106.3	81.6	51.4	36.6	21.2	11.7	6.4	44.4	359.6
1987	110.0	84.7	54.0	37.8	22.8	12.1	6.6	47.5	375.5
1988	117.6	89.3	55.8	41.5	24.7	13.2	6.6	50.1	398.8
1989	121.5	96.0	58.1	43.1	27.4	14.6	6.5	52.2	419.4
1990	128.4	103.7	62.5	47.2	29.9	16.1	6.7	55.3	449.8
1991	130.0	108.5	64.2	48.1	31.2	16.7	6.5	56.6	461.8
Farm value:									
1975	20.6	8.4	10.0	3.0	4.1	1.1	2.2	6.2	55.6
1976	21.6	8.8	11.3	2.6	4.0	1.0	2.6	6.4	58.3
1977	22.0	8.6	11.5	2.3	4.2	.9	2.3	6.4	58.2
1978	28.0	10.0	12.7	2.8	5.1	1.0	2.2	7.7	69.5
1979	31.5	10.9	14.6	3.4	5.5	1.4	2.6	9.3	79.2
1980	30.8	11.7	16.0	3.5	5.9	1.6	2.5	9.8	81.7
1981	31.1	11.8	17.0	3.4	6.1	1.5	2.7	8.1	81.7
1982	31.5	11.5	16.7	3.4	6.0	1.4	2.5	8.4	81.4
1983	31.4	12.9	18.0	3.5	6.6	1.4	2.7	8.8	85.3
1984	32.4	13.5	18.1	3.7	8.0	1.4	3.0	9.7	89.8
1985	30.5	13.3	17.7	3.4	7.9	1.3	2.3	10.0	86.4
1986	30.9	14.6	17.8	2.9	9.0	1.1	2.5	10.0	88.8
1987	32.7	14.3	18.2	2.8	8.1	1.0	2.2	11.1	90.4
1988	33.5	16.2	17.9	3.6	9.9	1.3	2.2	12.2	96.8
1989	34.0	17.8	19.6	4.3	11.4	1.6	2.8	12.3	103.8
1990	36.9	16.5	20.5	3.7	11.1	1.4	2.8	13.3	106.2
1991	35.1	15.8	19.6	3.5	10.5	1.3	2.7	12.7	101.2

^{1/} Also includes soup, baby foods, condiments, dressings, spreads, and relishes. ^{2/} Includes flour, flour mixes, cereal, rice, and pasta. ^{3/} Includes fats and oils, sugar, tree nuts, peanuts, and miscellaneous foods.

The farm value of food commodities represented 22 percent of consumer expenditures for farm foods in 1991, down from 24 percent in 1990. The farm value is a much smaller part of expenditures for food eaten away from home than for food bought at stores, because the cost of preparing and serving food is a major part of the cost of food eaten away from home. The 1991 farm value accounted for about 14 percent of expenditures for food consumed away from home, compared with about 27 percent of expenditures for farm food in foodstores.

Marketing Bill

The marketing bill, the difference between what consumers spent for food and the farm value of the food, amounted to \$361 billion in 1991, \$17 billion more than in 1990. Of last year's increase in the marketing bill, consumers paid about \$12 billion in higher expenditures, and producers received \$5 billion less for food commodities.

The 4.9-percent increase in the 1991 marketing bill was due to higher prices of most inputs and greater use of some inputs, particularly labor. Prices increased in 1991 for most principal categories of inputs that the food industry bought. Higher labor costs accounted for about 58 percent of last year's increase in the marketing bill. Much of the remaining increase in the marketing bill occurred in energy, profits, and other costs, including items such as advertising and promotion, taxes and insurance, and professional services.

Marketing costs continued to be the most persistent source of rising food expenditures. Consumer expenditures for farm foods have increased \$174.1 billion since 1981. About \$154.6 billion of this increase consists of marketing charges. Farm value has increased only \$19.5 billion since 1981.

What the Marketing Bill Bought

Last year's marketing bill increase can be analyzed by looking first at four broad functions that the food industry performs--processing, wholesaling, transporting, and retailing--and then at the specific cost items that add up to the marketing bill.

Costs of the functions performed are different for food bought in foodstores than for meals and snacks purchased for consumption away from home (table 24). About 27 cents of each dollar spent in foodstores paid for the farm value in 1991. Thus, 73 cents paid the marketing bill for food eaten at home.

Of each dollar spent for food in foodstores, 32 cents paid for processing. Between processor and retailer, another 10 cents was spent for wholesaling and 6 cents for intercity transportation. Finally, retailing charges added the last 25 cents (fig. 4). These shares have not changed much over the years.

For each dollar spent for food away from home, 14 cents covered the farm value. Processing costs accounted for 15 cents, transportation charges for 3 cents, and wholesaling for 6 cents. The remaining 62 cents covered the cost of food service or the preparation and serving of food eaten away from home.

The food processing and marketing industry is an important part of the American economy. The \$361 billion the industry received from consumers in 1991 paid the wages and salaries of millions of employees and paid for all of the other costs of doing business.

Labor Costs

Labor costs overshadow all other cost components of the marketing bill. Rising labor costs have accounted for almost half the total increase in the marketing bill over the last decade. Higher labor costs are largely responsible for the 4.9-percent increase in the marketing bill from 1990 to 1991. Direct labor costs amounted to about \$163 billion in 1991, or 35 percent of food expenditures (fig. 5 and table 25). Labor costs consist of wages and salaries, employee benefit costs, such as group health insurance, estimated earnings of proprietors and family workers, and tips for food service. Direct labor costs do not include the costs of labor engaged in for-hire transporting of foods or in manufacturing and distributing supplies that food industry firms used.

Labor costs in the food industry rose about 5.8 percent in 1991, slightly less than in 1990. The increase reflected higher wages and benefit costs. Hourly earnings of workers increased 2.8 percent in food manufacturing and 3.2 percent in food wholesaling. Hourly earnings of foodstore workers rose 3.3 percent. The 1991 rise for foodstore employees was the largest since 1983. The minimum wage increased 12 percent to \$4.25 an hour on April 1, 1991. The biggest effect of this increase likely is on eating and drinking places, which pay the lowest average hourly wages in the food industry (table 26).

Wage supplements increased because of rising health insurance premiums and pensions. Health insurance benefit costs, which have skyrocketed in recent years, increased because of the rising cost of medical care. In 1990, health benefits became the number one issue on the bargaining table, and remained so in 1991. These benefits can take up anywhere from 10 to 30 percent of the cash available in union contracts. Money that could be directed toward wage increases is instead being directed toward health packages. The CPI for medical services increased 8.9 percent, and has risen an average of 7.9 percent per year over the last decade.

Table 24--Marketing function components of consumer expenditures

Expenditures and components	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991 ^{1/}
	<u>Billion dollars</u>										
Expenditures at foodstores	194.0	196.7	204.6	213.1	220.8	226.0	230.2	242.1	255.5	276.2	281.4
Farm value	65.4	64.1	66.5	69.5	66.6	67.6	67.5	72.5	77.9	80.2	76.3
Marketing bill	128.6	132.6	138.1	143.6	154.2	158.4	162.7	169.6	177.6	196.0	205.1
Processing	60.1	60.9	62.2	64.1	69.5	70.2	72.1	75.6	79.2	87.4	91.5
Intercity transportation	11.6	11.9	12.3	12.8	13.3	13.4	14.0	13.8	14.3	15.0	15.2
Wholesaling	17.7	20.0	20.5	21.5	22.3	22.5	23.2	24.3	25.3	28.5	28.3
Retailing	39.2	39.8	43.1	45.2	49.1	52.3	53.4	55.9	58.8	65.1	70.1
Expenditures for eating away from home	93.7	102.2	110.4	118.9	124.6	133.6	145.3	156.7	163.9	173.6	180.4
Farm value	16.3	17.3	18.8	20.3	19.8	21.2	22.9	24.3	25.9	26.0	24.9
Marketing bill	77.4	84.9	91.6	98.6	104.8	112.4	122.4	132.4	138.0	147.6	155.5
Processing	13.6	14.7	15.6	16.7	18.9	20.8	21.8	24.1	24.6	26.0	27.1
Intercity transportation	2.7	3.0	3.1	3.2	3.3	3.4	3.6	3.9	4.3	4.6	4.6
Wholesaling	5.3	5.9	6.6	7.1	7.5	8.0	8.6	9.5	9.9	10.5	11.6
Foodservice	55.8	61.3	66.3	71.6	75.1	80.2	88.4	94.9	99.2	106.5	112.2

^{1/} Preliminary. Data for 1990 have been revised.

Figure 4
Marketing functions of the food dollar in 1991

Processing costs remain the largest marketing function for food eaten at home.

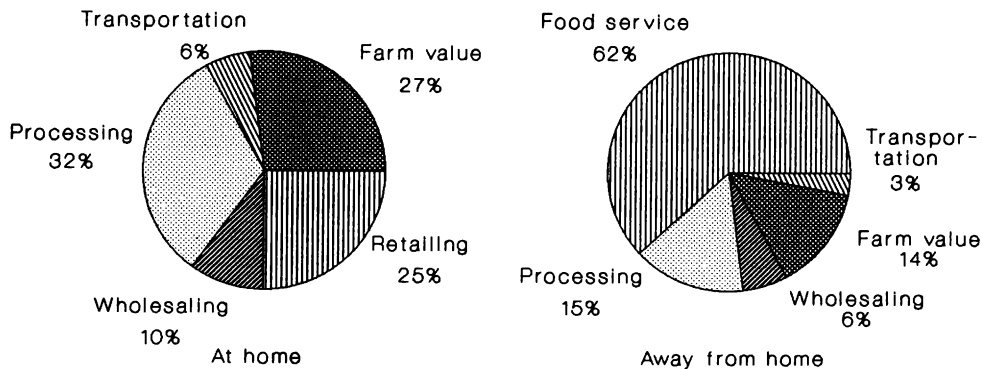
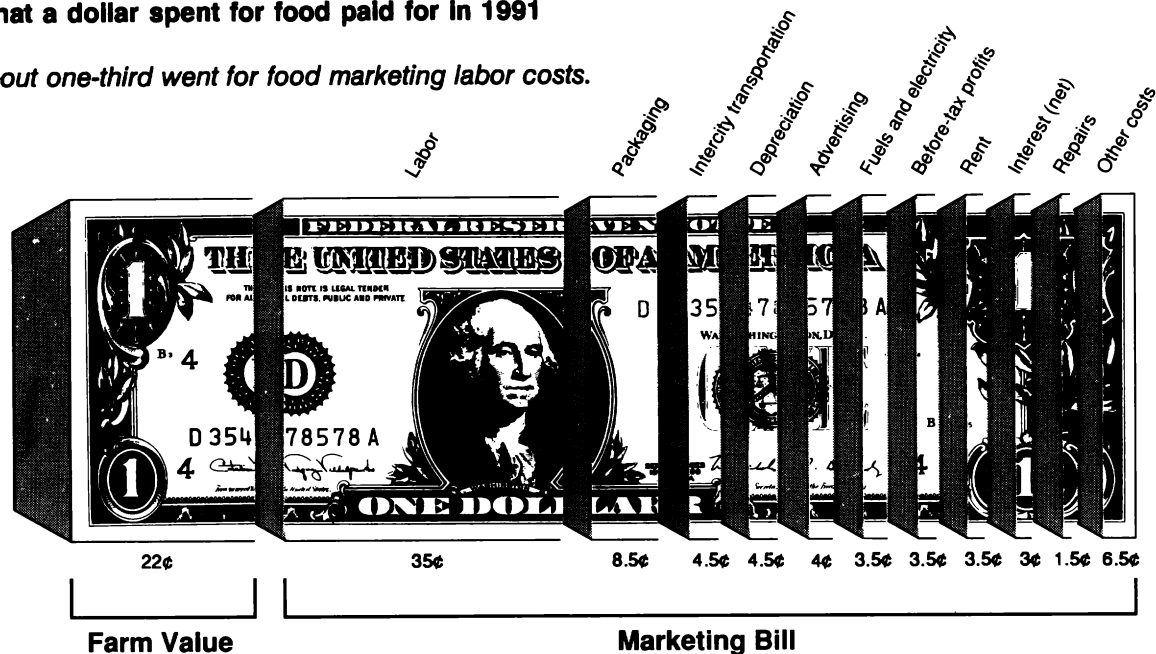


Figure 5

What a dollar spent for food paid for in 1991

About one-third went for food marketing labor costs.



Includes food eaten at home and away from home. Other costs include property taxes and insurance, accounting and professional services, promotion, bad debts, and many miscellaneous items.

The Employment Cost Index (ECI), a quarterly series published by the Bureau of Labor Statistics, can also be used to track labor cost changes. The ECI has several advantages over average hourly earnings. Changes in wages and salaries are based on wage rates, rather than on average earnings. This procedure eliminates the effects of shifts in the occupational employment mix. Changes in the proportion of full-time and part-time workers in food retailing probably have caused average earnings both to increase at a slower rate than the ECI series and to understate the change in the price of labor. The ECI includes employers' cost of employee benefits and lump-sum payments to workers.

The ECI for foodstores rose 5 percent from December 1990 to December 1991 (table 27). This rise in worker compensation costs was larger than the December 1989-December 1990 gain (4.6 percent). The 1991 compensation cost increase reflected a wage and salary gain of 4.3 percent, up from the 4-percent increase for the 12 months ending in December of 1990. Compensation costs rose more than wages and salaries in 1991, because benefit cost increases were much greater than gains in wage rates. Although not reported separately, the increase in benefit costs was probably about 7.1 percent in 1991, or 1.7 times the rise in the wage rate of foodstore workers.

Food retailers employed approximately the same number of people in 1991 as in 1990, reflecting lower real foodstore sales stemming from the recession. Many food retailing employees are part-time workers. Part-time employees lower labor costs in several ways. They are often paid less and receive fewer benefits than full-time employees. Part-timers also cut labor costs by reducing overtime work by full-time employees. Greater use of part-time workers has likely held down the rise in hourly earnings in food retailing. Employment rose 0.1 percent in eating places and 0.4 percent in the food manufacturing industry. The total number of persons employed in the food industry fell slightly in 1991, when 12.3 million workers were employed in processing and distributing food. More than half, or about 6.6 million people, were employed in away-from-home eating places in 1991. Foodstores employed 3.2 million people, food processors employed 1.7 million people, and food wholesalers employed about 0.8 million people.

Most major food industry collective bargaining agreements--those that cover at least 1,000 employees--provided wage increases in 1991. Because the agreements are usually in effect for 3 to 4 years, the terms of the settlements serve as important indicators of future changes in labor costs. A sampling of negotiated contracts can be used to illustrate the broad range in wage increases and other terms among groups of workers in the various regions of the country.

In the largest food retailing contract, 26,500 grocery, meat department, and warehouse workers employed at 50 supermarkets and 3 warehouses in Michigan agreed to a 4-year contract providing for wage increases of \$1.35 to \$1.45 per hour over the term of the agreement. Wage rates for journeymen meatcutters increased 10.8 percent to \$14.90 per hour. Wage differentials were also established based on seniority and region. Other terms called for a health insurance plan, effective in April 1991, which allows employees to pay lower weekly premiums in exchange for higher deductibles for the same level of coverage. A \$1-\$3 increase in the monthly pension rate per year of credited service was also mandated. Finally, a 401(k) savings plan was established, with a maximum employee investment of 10 percent of the employee's gross annual savings.

Table 25--Components of the marketing bill for domestically produced farm food

Year	Labor ^{1/}	Packaging materials	Intercity rail and truck transportation	Fuels and electricity	Corporate profits before taxes	Other ^{2/}	Total marketing bill ^{3/}
<u>Billion dollars</u>							
1967	25.9	7.3	4.3	--	3.4	21.5	62.4
1968	28.0	7.6	4.5	--	3.6	22.2	65.9
1969	30.4	7.9	4.6	--	3.6	21.8	68.3
1970	32.2	8.2	5.2	2.2	3.6	23.7	75.1
1971	34.5	8.5	6.0	2.4	3.9	23.2	78.5
1972	36.6	8.9	6.1	2.5	4.0	24.3	82.4
1973	39.7	9.4	6.4	2.8	5.4	23.4	87.1
1974	44.3	11.8	7.5	3.7	6.1	24.8	98.2
1975	48.3	13.3	8.4	4.6	7.1	29.7	111.4
1976	53.8	14.5	9.1	5.0	7.7	34.9	125.0
1977	58.3	15.1	9.7	6.0	8.0	35.6	132.7
1978	66.2	16.6	10.5	7.1	9.9	37.1	147.4
1979	75.2	18.6	11.8	8.2	10.0	42.3	166.1
1980	81.5	21.0	13.0	9.0	9.9	48.3	182.7
1981	91.0	22.6	14.3	10.0	9.7	58.4	206.0
1982	96.6	23.7	14.7	11.0	9.3	62.2	217.5
1983	102.4	24.7	15.4	11.7	9.6	65.9	229.7
1984	109.3	26.2	15.9	12.5	9.6	68.7	242.2
1985	115.6	26.9	16.5	13.1	10.4	76.5	259.0
1986	122.9	27.7	16.8	13.2	10.3	79.9	270.8
1987	130.0	29.9	17.2	13.6	11.1	83.3	285.1
1988	137.9	32.6	17.8	14.1	11.6	87.9	301.9
1989	145.1	35.2	18.6	14.8	12.2	89.7	315.6
1990	154.0	36.5	19.8	15.2	14.2	103.9	343.6
1991	163.0	38.1	20.4	16.3	15.1	107.7	360.6

-- = Not available.

^{1/} Includes employee wages or salaries and their health and welfare benefits. Also includes estimated earnings of proprietors, partners, and family workers not receiving stated remuneration. ^{2/} Includes depreciation, rent, advertising and promotion, interest, taxes, licenses, insurance, professional services, local for-hire transportation, food service in schools, colleges, hospitals, and other institutions, and miscellaneous items. Data for 1967-69 also include fuels and electricity. ^{3/} The marketing bill is the difference between the farm value and consumer expenditures for these foods at both foodstores and away-from-home eating places. Thus, it covers processing, wholesaling, transportation, and retailing costs and profits. Some historical data were revised.

A New England food chain negotiated a contract with 8,000 workers employed in supermarkets in Massachusetts and Rhode Island. A separate agreement providing for the same terms was signed with an additional 1,400 workers in western Massachusetts. This 3-year agreement provided for a \$30-per-week general wage increase in the first year, followed by wage increases of \$25 per week and \$30 per week in the second and third years. Other terms provided for employer payment of \$380 per month to the health and welfare fund, a 7.3-percent increase. This contribution

Table 26--Average hourly earnings of production and nonsupervisory employees of food industries

Year	Manufacturing, food and kindred products	Wholesale trade, groceries, and related products	Foodstores	Eating and drinking places
<u>Dollars per hour</u>				
1977	5.37	5.43	4.77	2.93
1978	5.80	5.92	5.23	3.22
1979	6.27	6.39	5.67	3.45
1980	6.85	6.96	6.24	3.69
1981	7.44	7.57	6.85	3.95
1982	7.92	8.25	7.22	4.09
1983	8.19	8.70	7.51	4.27
1984	8.39	9.03	7.64	4.26
1985	8.57	9.22	7.35	4.33
1986	8.75	9.30	7.06	4.35
1987	8.93	9.53	6.95	4.42
1988	9.10	9.79	7.00	4.57
1989	9.38	10.16	7.15	4.75
1990	9.61	10.45	7.36	4.97
1991	9.88	10.78	7.60	5.18

Source: U.S. Department of Labor, Employment and Earnings, March 1992.

Table 27--Changes in the Employment Cost Index for workers in food retailing

Period	Employment Cost Index for--				
	Total compensation costs	Wages and salaries	Total compensation costs	Wages and salaries	
		<u>Percentage change for 3-months ended</u>		<u>Percentage change for 12-months ended</u>	
1989:					
March	1.6	1.0	3.6	2.8	
June	.2	0	3.3	2.2	
September	.8	.4	3.8	2.2	
December	.9	1.3	3.6	2.7	
1990:					
March	1.5	1.1	3.4	2.8	
June	1.4	1.5	4.6	4.3	
September	1.1	.8	4.9	4.7	
December	.7	.7	4.6	4.0	
1991:					
March	1.0	1.0	3.4	4.0	
June	1.7	1.7	4.5	4.2	
September	.9	.6	4.4	4.1	
December	1.3	.9	5.0	4.3	

Source: U.S. Department of Labor, Bureau of Labor Statistics.

will increase to \$408 per month in the second year of the contract, and to \$438 in the final year. The weekly disability benefit was increased from \$200 to \$300. The monthly pension rate for each year of credited service also rose, from \$25 to \$35. Finally, the amount of life insurance available to each employee was raised from \$10,000 to \$15,000.

A Pennsylvania food chain negotiated two separate, but similar, agreements with 5,500 grocery, meat, and delicatessen department workers employed in 31 grocery stores, ending a 6-week work stoppage. The major issues in the dispute focused on the status of full-time workers, store shutdowns, and health care. Senior employees on the first tier would receive increases of 25 cents per hour, retroactive to June 1991. Additional raises of 25 cents per hour are to take effect during the second and third years of the contract. In addition, these workers were to receive a \$1,000 ratification bonus. Employees on the lower tier will receive wage increases of 50 cents per hour during each year of the contract. Recently hired employees will receive yearly wage increases of 40 cents per hour. Other terms provide for extension of full-time benefits to part-time employees working at least 1,750 hours per year in 1991, and at least 2,000 hours in 1992. The company pledged to continue investing in its corporate-owned stores. The contract also calls for increased pension, optical, and dental benefits, enhanced job security, and increased vacation time for employees with a minimum of 23 years of service.

The largest food manufacturing contract was signed between three employer associations representing several major canning companies and 33,000 California workers. One of these associations agreed to general wage increases ranging from 35 cents per hour for entry level employees to 68 cents per hour for top-graded classifications. These wage gains were to be further augmented by increases ranging from 23 cents to 48 cents per hour in the second year, and from 27 cents to 49 cents in the third year. Workers in two of the top-rated job classifications received a skill differential. The hourly wage rate ranged from \$8.57 to \$15.16 at the expiration of the previous contract. Other terms included an increase in maximum lifetime medical insurance benefits. A discount drug plan was established, which requires employee copayments. However, an improved dental plan was made available to employees. The new contract waived a required 3-day waiting period before sick leave benefits would be payable to hospitalized employees. Employer contributions to the pension fund will increase by 10 cents per hour in the first year, and 5 cents per hour in the second year. The contributions stipulated in the old contract ranged from 98 cents to \$1.04 per hour for regular employees.

The other two agreements were similar to the first contract described above. The second agreement provided for similar improvements in major medical, dental, and pension benefits. Wages were to be increased 5.1 percent in the first year, 3.2 percent in the second year, and 3 percent in the final year of the contract. The third agreement called for improvements in major medical, dental, and pension benefits and general wage increases of 4.5 percent in the first year, and 3 percent in the last 2 years.

A beef processor negotiated a 4-year collective bargaining agreement with 2,800 production and maintenance workers at its Nebraska meatpacking plant. This was the first contract in 20 years that was negotiated without a work stoppage involving these parties. The contract provided for an immediate increase of 40 cents per hour in the base wage rate. This was to be followed by increases of 10 cents per hour in each of the three subsequent years of the contract. At the expiration of the previous contract, the hourly base wage rates were as follows: \$8.05 per hour for processing workers and \$8.35 per hour for slaughter line employees hired before December 14, 1986; and \$7.77 and \$7.65 per hour for lower tier employees hired after this date. The retirement savings plan was extended through the term of the contract, while previously optional participation in the dental and medical plans became mandatory. Weekly contributions for both individual and family coverage increased by 34 percent, from \$4.43 to \$5.93. The employee prescription drug copayment was increased. Finally, the safety and health program established in 1988 was to remain in effect during the term of the new contract.

A cracker manufacturer signed a 3-year agreement with 3,400 workers in 6 plants across the United States. The contract called for a 50-cents-per-hour increase (a 3.6-percent increase), retroactive to November 1, 1991. Moreover, the following schedule of wage increases was established: 25 cents per hour on November 1, 1992, and May 1, 1993; 40 cents per hour on November 1, 1993; and 10 cents per hour on May 1, 1994. Maintenance workers were to receive an additional 10 cents per hour in November 1991. Other terms included a \$150 increase over the term of the contract (to \$950) in the maximum monthly pension benefit for employees with 25 years of service. The contract mandated an additional 2 percent per year in monthly pension benefits for all years of service in excess of 25.

However, the employee must qualify under the "golden 80" rule, in which the sum of the employee's age and years of service must be at least eighty.

A food processor negotiated a contract with approximately 2,000 workers at its plant in Ohio. The contract provides for wage increases of 35 cents per hour in the first year, a 3.2-percent increase. Wages are slated to increase another 3 percent during the second year of the contract. This type of contract, in which the largest increase comes in the first year, is known as a frontloaded contract, and has become quite prevalent in recent years. Other terms include the establishment of a new employee assistance program, including alcohol and drug treatment programs, creation of a joint committee to study ways to cut health care costs, increased life insurance coverage, increased weekly sickness and accident benefits, an enhanced pension formula, a new mail-order prescription program, and increased vision care benefits for each employee and their families.

Front-loaded contracts were more prevalent than back-loaded contracts in 1991 food industry bargaining agreements, and provided higher wage adjustments. Front-loaded contracts provide the largest wage adjustment in the first year of the contract. These settlements compound the amount of the percentage increases in wages in the latter years of the contract. By contrast, back-loaded contracts provide lower wage increases in the first year of a contract, compared with subsequent years. Back-loaded contracts dampen wages by basing increases in the latter years of a contract on a lower initial wage.

The Bureau of Labor Statistics reports that 36 major contracts (BLS defines major contracts as those that cover at least 1,000 workers) covering 139,100 workers were negotiated in the foodstore industry (SIC 54) in 1991. Average wage adjustments were 3.7 percent in the first year and 3.4 percent over the life of the contract. Of the total number of SIC 54 contracts, 31 contracts covering 122,100 employees were frontloaded. These employees received average wage increases of 4.2 percent in the first year, and 3.5 percent over the contract term. The remaining 5 contracts--covering 17,000 workers--were backloaded, and called for an average increase of 2.5 percent in the first year, and 2.3 percent over the life of the contract. Lump sum provisions, a popular method of containing labor costs in the mid- and late 1980's, were incorporated into only 6 contracts covering 26,400 workers. None of the contracts contained cost-of-living adjustment (COLA) provisions.

Food processing firms (SIC 20) entered into 17 contract settlements covering 63,300 employees. Front-loaded contracts also predominated in this industry, with average wage increases of 4.1 percent in the first year and 3.2 percent over the contract term. COLA provisions were not included in any of these contracts. Lump sum data were not available for this industry.

Overall, labor settlements in food retailing and manufacturing last year provided pay raises and benefits to most workers that will probably boost labor costs. A great deal of emphasis has been placed on containing health care costs, which are the largest source of labor cost increases. The prevalence of front-loaded contracts in 1991 bargaining agreements indicates that the rate of increase in labor costs will likely accelerate over the next few years. The phasing out of two-tiered wage structures developed during the mid-1980's is also creating upward pressure on labor costs, as the wages of junior employees are brought into line with their more senior colleagues.

Packaging Costs

Packaging is the second-largest component of the marketing bill, accounting for 8.5 percent of the food dollar. Costs of these materials rose 4.4 percent last year, only slightly more than 1990's 3.7-percent increase. The 1991 increase was the second-smallest of the past decade, after 1990. Two factors explain this continued small increase. First, anemic retail sales stemming from the weak economy dampened sales of convenience foods requiring more packaging. Second, the index of prices paid for food containers and packaging materials increased only 0.9 percent in 1991. An analysis of economic developments affecting the major packaging materials shows why packaging costs have risen little during the last couple of years.

Paperboard boxes and containers are the largest packaging cost. The food industry spent approximately \$15 billion, or about 40 percent of total packaging expenses, on paper and paperboard products in 1991. Fiber (cardboard) boxes, the primary container used to ship nearly all processed foods, represented about 33 percent of total packaging expenses. Sanitary food containers, including those for such products as fluid milk, margarine and butter, ice cream,

and frozen food, were also almost 33 percent of total packaging expenses. The third-largest paperboard item was folding boxes used for such dry foods as cereal and perishable bakery products.

Prices of paperboard shipping boxes and other paper products declined 1.1 percent in 1991. This decline is largely attributable to a decline in the price of the major paper box input, kraft linerboard. Box manufacturers have been unable or unwilling to pass on linerboard price increases to end-users such as food processors. Moreover, excessive inventories--stemming largely from sluggish sales by end-users--have resulted in widespread discounting of linerboard products. Declining prices of these materials were largely responsible for holding down paperboard prices, and thus, aggregate packaging costs.

Metal containers are next in importance, making up about 20 percent of total food packaging costs. Prices of metal cans rose 3.4 percent in 1991. Cans have become less important for food packaging because of the increased popularity of glass and plastic bottles, the year-round availability of fresh fruit and vegetables, and the increased use of microwavable dishes for frozen foods. The price of glass containers, which are largely used to enhance product image, rose 4.4 percent in 1991.

Costs of plastic containers and wrapping materials account for nearly 20 percent of food packaging costs. Plastic is an important source of trays for meat and produce, bottles for milk and fruit juices, jars and tubs for cottage cheese and other dairy products, and flexible wrapping materials, such as polyethylene film for protective covering of baked goods, meat, and produce. Plastic is an oil derivative, and became costlier to produce due to higher crude oil prices stemming from the Persian Gulf War. The resulting 1.2-percent rise in the price of plastic containers, along with the increased prices of metal cans and glass, mitigated the drop in the cost of paper products and contributed to higher packaging costs.

The rising cost of packaging products is partly the result of changing cooking technology and demographic forces, such as population changes and shifts in workforce composition. Fast-paced, two-income lifestyles have reduced the amount of time available for preparing food at home and have increased the demand for quick, easy-to-prepare meals. The growing pool of older adults also tends to use more convenience foods. The desire for convenience implies increased use of sanitary food containers that are lightweight and microwaveable. This demand for convenient, microwaveable foods--coupled with the price increases noted above--was strong enough to overcome last year's weak economy. As a result, the amount that the food industry spent for food packaging rose in 1991.

Transportation Rates and Costs

The transportation cost index, representing railroad freight rates, advanced by nearly 3 percent in 1991, a slightly greater increase than in 1990. Most foods shipped by railroad are canned and bottled products. Some meat and fresh fruit and vegetables are shipped in truck trailers on flat cars (TOFC), but information on these charges is not available. TOFC shipments of fresh fruit and vegetables declined 16 percent during 1991, and accounted for a decreasing share (3 percent) of all produce shipped. A slightly larger quantity of produce is shipped in rail cars, but both rail and TOFC lost market share in 1991.

More than 90 percent of fresh produce is transported by truck. Competition among different groups of truckers, including individuals who own and operate trucks, trucking companies, and companies that own trucks to distribute their own products but haul produce on return trips, have held down truck rates (table 28).

Operating costs of trucks hauling produce, as reported by USDA's Agricultural Marketing Service, fell 5 cents per truck mile in 1991. Truckers experienced the largest cost decrease in fuel (3.8 cents), and wages also declined. Fuel and labor costs accounted for about half of total operating costs. Most other expense items fell slightly or remained constant. Only overhead expenses and license fees rose last year. Although costs were lower, truck rates for shipping fresh produce remained level in most corridors. Rates on grapefruit, the only commodity showing a significant increase, rose 6 percent to \$1.38 per box in 1991. Yet, this rate remains below the \$1.44 per box posted for 1989.

Increased competition among truckers and lower operating costs are reflected in the small increase in the aggregate cost of intercity transportation. Intercity truck and rail transportation for farm foods amounted to \$20.4 billion in 1991, or about 4.5 percent of retail food expenditures. Larger food marketings were mostly responsible for this small increase.

Energy Costs

Last year's energy bill for food marketing costs came to about \$16.3 billion, making up about 3.5 percent of retail food expenditures. Energy costs rose 7.2 percent last year, a high rate of increase compared with other cost components. The energy bill included only the costs of electricity, natural gas, and other fuels used in food processing, wholesaling, retailing, and foodservice establishments. Transportation fuel costs, except for those incurred for food wholesaling, were excluded.

Higher 1991 energy costs resulted largely from the expanded size of the food industry. During 1973-82, fuel and electricity costs in the food industry rose more than 1.5 times the annual rate of other costs, reflecting the dramatic rise in energy prices. However, the overall rise in energy costs was somewhat smaller than the rise in other costs from 1986 to 1991.

A 6.4-percent rise in the price of electricity used by food marketing firms also played a major role in raising 1991 energy costs. However, natural gas prices dropped 0.6 percent as a result of mild weather, which restricted inventory drawdowns. Natural gas supplies were 2 percent higher in 1991 than in 1990. The Persian Gulf crisis had only a limited effect on the costs of processing and retailing food, because higher oil prices did not significantly affect natural gas and electricity costs.

Public eating places and other foodservice facilities incur nearly 40 percent of the fuel and electricity costs of food marketing. Their energy expenses have risen because of the large growth of the away-from-home food market. Also, away-from-home foodservice has the highest energy costs per dollar of sales, averaging about 3.1 percent. About 85 percent of this cost comes from the use of electric power. Energy costs of food retailers are the second largest at

Table 28--Annual average trucking costs and rates for fresh fruit and vegetables, by selected items and routes

Year	Truck cost for fleet operators ^{1/}	Truck rates by commodity, origin, and destination ^{2/}		
		Lettuce ^{3/} , California to New York City	Citrus and vegetables, southern California to New York City	Apples, Washington State to New York City
	<u>Dollars per mile</u>	<u>Dollars per box</u>		
1980	0.96	3.36	2.77	3.09
1981	1.08	3.45	2.77	3.25
1982	1.11	3.62	2.91	3.20
1983	1.13	3.62	2.98	3.41
1984	1.15	3.65	3.18	3.19
1985	1.17	3.62	3.06	3.20
1986	1.14	3.75	3.16	3.21
1987	1.16	3.83	3.23	3.28
1988	1.18	3.69	3.14	3.30
1989	1.23	3.76	3.20	3.31
1990	1.31	3.74	3.23	3.36
1991	1.26	3.77	3.22	3.36
		<u>Percent</u>		
Change, 1980-91	31.2	12.2	16.2	8.7

^{1/} Truck costs developed by Office of Transportation, USDA. ^{2/} Truck rates are the average rates reported by Agricultural Marketing Service, Market News Service, USDA, for the first week of the month. Rates per truck were converted for 1980 to 1983 at: Lettuce, 800 boxes/load; citrus fruit and vegetables, 1,000 boxes/load; and apples 900 boxes/load. Beginning in 1984, rates were converted at 850 boxes/load of lettuce from Salinas, CA; 860 boxes/load for lettuce from Imperial Valley, CA; and 1,000 boxes/load for apples. ^{3/} January to April: Imperial Valley, CA to New York City; May to December: Salinas, CA to New York City.

about 27 percent of energy bill, and consist mainly of electricity. The food processing sector is responsible for another 20 percent of the total energy bill. Electric power accounts for 55 percent of food manufacturing energy costs, with natural gas making up the remaining 45 percent.

Other Costs Added Up

The major costs just discussed total about 66 percent of the 1991 food marketing bill. The rest of the bill included a variety of other costs (30 percent of the total) and profits (about 4 percent). Although most such costs were small individually, they added to \$108 billion. These costs included depreciation, rent, advertising and promotion, repairs, bad debts, contributions, property taxes and insurance, interest, and the nonfood costs involved in providing foodservice in schools, hospitals, and other institutions. Some of these miscellaneous costs are estimated using data from trade publications, the Internal Revenue Service, and the Bureau of the Census.

The largest of these costs are rent and depreciation on plants and equipment (about 8 percent of total consumer expenditures), media--television, radio, and newspaper--advertising expenditures (about 4 percent), net interest (about 3 percent), and repairs (1.5 percent).

Sufficient data are not available for estimating many individual smaller costs, such as taxes and insurance, for-hire local truck transportation, professional services, and foodservice in schools and institutions. Together, these costs account for about 6.5 percent of the food dollar.

Corporate Profits

Food industry firms earned approximately \$15.1 billion in pretax profits from marketing U.S. farm foods, a 6.3-percent increase over 1990 pretax profits. Higher food industry sales and larger aggregate profit margins in food manufacturing and retailing mainly caused the jump in industry profits. The profit estimate was developed by a two-step procedure. First, profit ratios per dollar of sales were derived from IRS corporate income tax returns. This estimate was then multiplied by the annual sales of food retailers, wholesalers, manufacturers, and public eating places. Last year's food industry profits were about 3.5 percent of food spending.

Several factors can explain the profits increase. First, although retail food sales rose little due to the recession, the industry maintained its aggregate profit margins. The industry has recovered somewhat from the high debt and interest payments that squeezed margins during the late 1980's. Retailers continue to achieve greater efficiencies through the use of technology for inventory management and merchandising. Labor savings by use of both scanner systems at checkouts and labor scheduling systems control labor costs, which is the largest operating expense for retailers. Retailers have also been building bigger stores to give greater space to the highest margin products, including perishables, service departments, and nonfoods. Aggregate profit margins were larger for manufacturers due to modest product price increases, lower commodity costs, and modest increases in production and marketing costs. Moreover, streamlined food processing operations increased worker productivity, allowing manufacturers to hold down labor costs.

Food Spending in Relation to Income

Food spending has increased considerably over the years, but the increase has not matched the gain in disposable income. As a result, the percentage of income spent for food has declined (table 29). In 1929, the first year data of this type were recorded, 23.7 percent of disposable income was spent for food. This percentage has since tapered off fractionally almost every year. By 1970, the percentage had dropped to 13.9 percent. During the 1970's, the percentage held fairly constant because of high food-price inflation. By 1980, food spending was still 13.5 percent of disposable income, but has since declined steadily to a low of 11.6 percent in 1991.

The decline in the percentage of income spent for food is the direct result of the inelastic nature of the aggregate demand for food. Ernest Engel noted this phenomenon in the 19th century. Engel observed that as income rises, the proportion of income spent for food declines. This decline occurs because expenditures for food require a large share of income when income is low. A decline in this percentage reflects a highly developed economy in which there is

Table 29--Food expenditures by families and individuals as a share of disposable personal income

Year	Disposable personal income	Expenditures for food			Proportion of income spent for food		
		At home <u>1/</u>	Away from home <u>2/</u>	Total <u>3/</u>	At home	Away from home	Total <u>3/</u>
		----- Billion dollars -----			----- Percent -----		
1929	82.3	16.9	2.6	19.5	20.6	3.2	23.7
1939	70.1	13.0	2.3	15.2	18.5	3.3	21.7
1949	188.7	33.8	7.8	41.5	17.9	4.1	22.0
1959	346.5	49.3	12.1	61.4	14.2	3.5	17.7
1961	376.2	51.1	13.1	64.2	13.6	3.5	17.1
1962	398.7	52.0	13.9	65.9	13.0	3.5	16.5
1963	418.4	52.4	14.5	66.9	12.5	3.5	16.0
1964	454.7	54.5	15.7	70.2	12.0	3.4	15.4
1965	491.0	57.4	16.9	74.3	11.7	3.5	15.1
1966	530.7	59.9	18.6	78.5	11.3	3.5	14.8
1967	568.6	60.3	19.8	80.0	10.6	3.5	14.1
1968	617.8	63.5	21.7	85.2	10.3	3.5	13.8
1969	663.8	68.0	23.4	91.3	10.2	3.5	13.8
1970	722.0	74.2	26.4	100.6	10.3	3.7	13.9
1971	784.9	78.1	28.1	106.2	9.9	3.6	13.5
1972	848.5	84.4	31.3	115.8	10.0	3.7	13.6
1973	958.1	93.1	34.9	128.0	9.7	3.6	13.4
1974	1,046.5	105.4	38.5	143.9	10.1	3.7	13.8
1975	1,150.9	115.1	45.9	161.0	10.0	4.0	14.0
1976	1,264.0	122.9	52.6	175.5	9.7	4.2	13.9
1977	1,391.3	131.6	58.6	190.2	9.5	4.2	13.7
1978	1,567.8	145.0	66.8	211.7	9.2	4.3	13.5
1979	1,753.0	161.8	76.9	238.7	9.2	4.4	13.6
1980	1,952.9	178.5	85.4	263.9	9.1	4.4	13.5
1981	2,174.5	190.4	95.9	286.2	8.8	4.4	13.2
1982	2,319.6	197.8	104.6	302.3	8.5	4.5	13.0
1983	2,493.7	207.8	114.3	322.1	8.3	4.6	12.9
1984	2,759.5	219.1	122.6	341.7	7.9	4.4	12.4
1985	2,943.0	228.4	129.5	357.9	7.8	4.4	12.2
1986	3,131.5	236.4	137.6	373.9	7.5	4.4	11.9
1987	3,289.5	244.9	147.4	392.3	7.4	4.5	11.9
1988	3,548.2	256.7	158.1	414.8	7.2	4.5	11.7
1989	3,788.6	274.9	165.9	440.7	7.3	4.4	11.6
1990	4,058.8	297.3	177.3	474.6	7.3	4.4	11.7
1991	4,217.9	304.6	182.9	487.5	7.2	4.3	11.6

1/ Food purchased from grocery stores and other retail outlets, including purchases with food stamps and food produced and consumed on farms, because the value of these foods is included in personal income. Excludes Government-donated foods. 2/ Purchases of meals and snacks by families and individuals and food furnished to employees, because it is included in personal income. Excludes food paid for by government and business, such as food donated to schools, meals in prisons and other institutions, and expense-account meals. 3/ May not add due to rounding.

money to spend for personal services and other discretionary items. Some of these additional services ordinarily are purchased along with food. This reasoning largely explains the slight increase in the percentage of income spent for food away from home.

The percentage of income spent for food varies widely among households of different sizes and income. For instance, data from the 1990 Consumer Expenditure Survey that the U.S. Department of Labor conducted showed that the percentage of after-tax income spent for food was 14.9 percent for households with incomes of \$30,000-\$39,999, but was 32.6 percent for households with incomes of \$5,000-\$9,999.

ERS developed the estimates of food expenditures in table 29, which differ from the U.S. Department of Commerce estimates of personal consumption expenditures (PCE). The trend in food expenditures is similar, but the ERS series shows a lower level of spending for food than does the PCE series, particularly for food purchased at grocery stores and other retail outlets for consumption at home. The ERS estimate of at-home expenditures is lower partly because it excludes pet food, ice, and prepared feeds, which are included in PCE estimates. ERS estimates also deduct more from grocery store sales for nonfoods, such as drugs and household supplies, in estimating food purchases for at-home consumption.

Food Marketing Review, 1991

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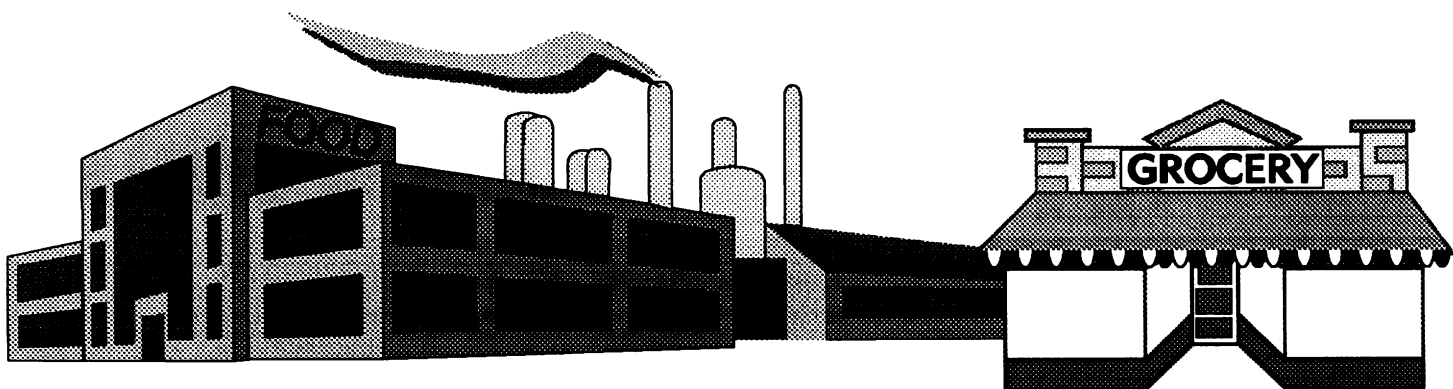
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Food Marketing Review, 1991 provides an in-depth view of the U.S. food marketing system. It examines developments in all firms servicing the U.S. food supply—manufacturing, wholesaling, and retailing.

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This annual publication reports recent developments in food prices, farm-to-retail price spreads, food spending, profits, and marketing costs in the food industry. This report also discusses price-spread changes for leading food items, such as Choice beef, milk, and bread. Topics include why consumers had to pay moderately higher prices for most foods at the supermarket in 1991 and why some food were better buys. Why the the 1991 farm value (what farmers receive) of USDA's market basket of foods was lower than in 1990. And why marketing charges (labor, packaging, transportation, and energy) made up more than three-fourths of last year's retail expenditures for food that originated on U.S. farms.

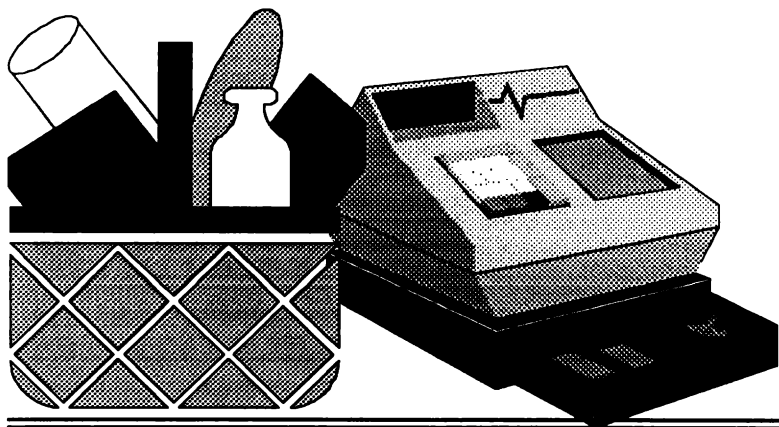
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This report is a comprehensive and convenient source for historical data on per capita consumption of major food commodities in the United States, including the basic data on supplies and disposition from which the consumption estimates are derived. It also includes information about population, income, prices, and expenditures related to food consumption. This statistical bulletin makes good use of fact-filled tables and illustrative charts.

Food Consumption Electronic Database. July 1992. Order # 89015B (one 3.5" disk) [Lotus 1-2-3 (.WK1)]. \$25.00.

These disks provide per capita food consumption by commodity and commodity group, 1966-90; supply and use by commodity and commodity group, 1966-90, and food expenditures, 1869-1990.

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