

# 1. U.S. Agriculture—Linking Consumers and Producers

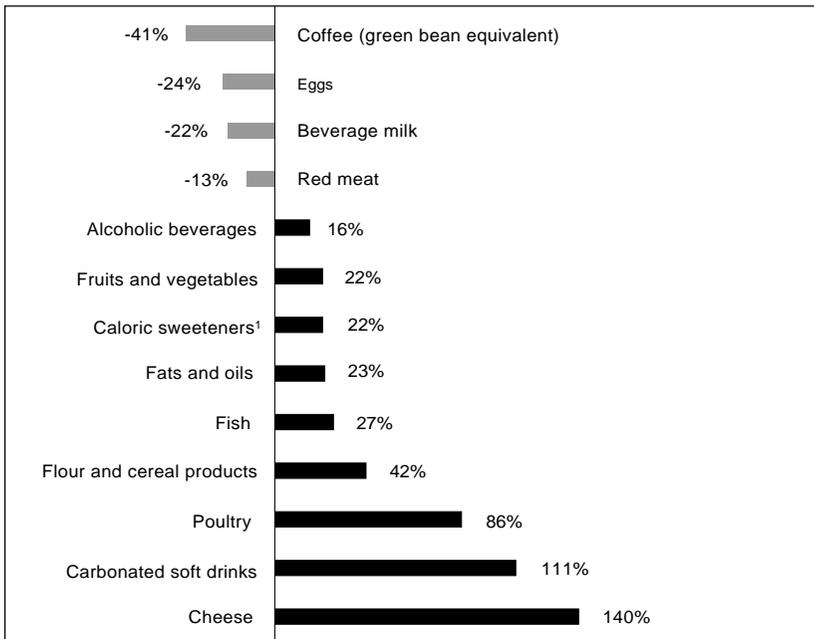
## ■ What Do Americans Eat?

The American diet has changed considerably over the last 25 years. Red meat consumption, for example, fell 13 percent between 1970 and 1995, while poultry consumption rose 86 percent and fish and shellfish 27 percent. Egg use declined by nearly a fourth, while cheese consumption more than doubled to 27 pounds per person in 1995. Consumption of coffee and milk has given way to icy cold carbonated soft drinks; bottled water; beer; canned iced tea; and fruit juices, drinks, cocktails, and ades.

Change has been driven by various factors: prices, consumer income, more food assistance for the poor, convenience, new products, more imports, more eating away from home, more snacking, expanded advertising programs, smaller households, more two-earner households, increased ethnic diversity, an aging population, an expanded scientific base relating diet and health, new *Dietary Guidelines for*

Figure 1-1.

Changes in U.S. per capita consumption, 1970-1995



<sup>1</sup>Includes caloric sweeteners used in soft drinks.

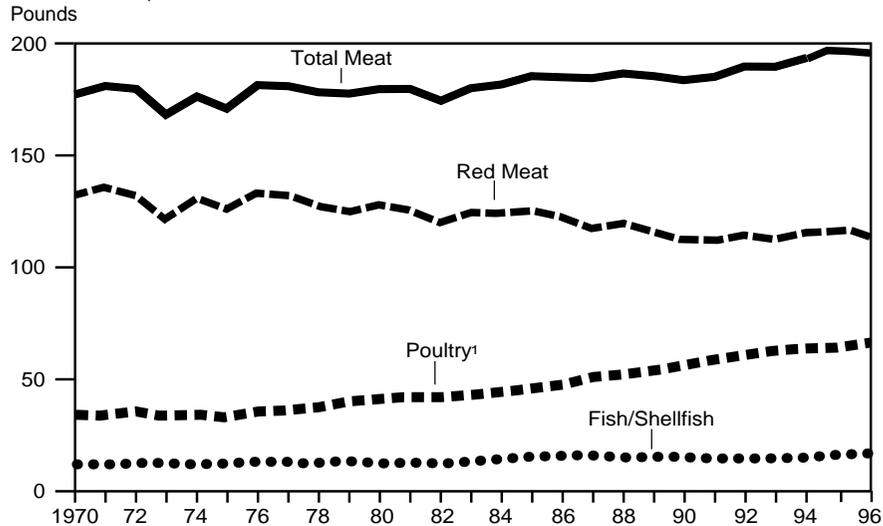
Americans designed to help people make food choices that promote health and prevent disease, improved nutrition labeling, and a burgeoning interest in nutrition.

USDA's Economic Research Service's (ERS) food supply (disappearance) data are based on the amount of food available for consumption in the United States. Estimates of food for domestic human consumption usually are calculated by subtracting measurable uses such as exports, industrial consumption, farm inputs, and end-of-year inventories from total supply (the sum of production, beginning inventories, and imports). Accordingly, the data are indirect measures of actual consumption. They may overstate what is actually eaten because they represent food supplies available in the market and do not account for waste. Food supply nutrient estimates are derived from the disappearance data by researchers in USDA's Center for Nutrition Policy and Promotion (CNPP).

**Food Supply Providing More Grains, Vegetables, and Fruits and Less Saturated Fat and Cholesterol.** Consistent with dietary and health recommendations, Americans now consume, on average, two-fifths more grain products and one-fifth more fruits and vegetables than did their 1970 counterparts. They drink lower fat milk than they did then; annual per capita butterfat consumption from beverage milk now is half what it was in 1970. And, they eat leaner meats—less red meat (leaner red meat, too) and more chicken and fish. Meat, poultry, and fish now contribute 25 percent of the total fat and 26 percent of the total saturated fat in the U.S. food supply, compared with 35 percent and 37 percent in 1970. This is so, even though per capita total meat consumption now is roughly a tenth higher than in 1970. Declining use of eggs, red meat (especially liver and other variety meats), and whole milk is behind a 13-percent decline since 1970 in per capita levels of dietary

Figure 1-2.

Per capita consumption of meat, poultry, and fish, boneless, trimmed, equivalent



<sup>1</sup>Includes skin, neck meat, and giblets.

Figure 1-3.

Per capita consumption of plain fluid milk

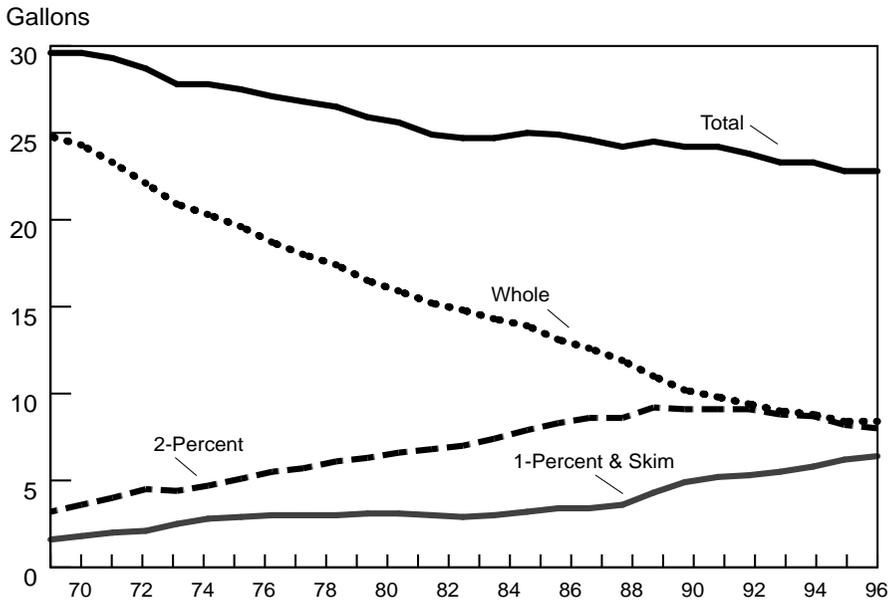
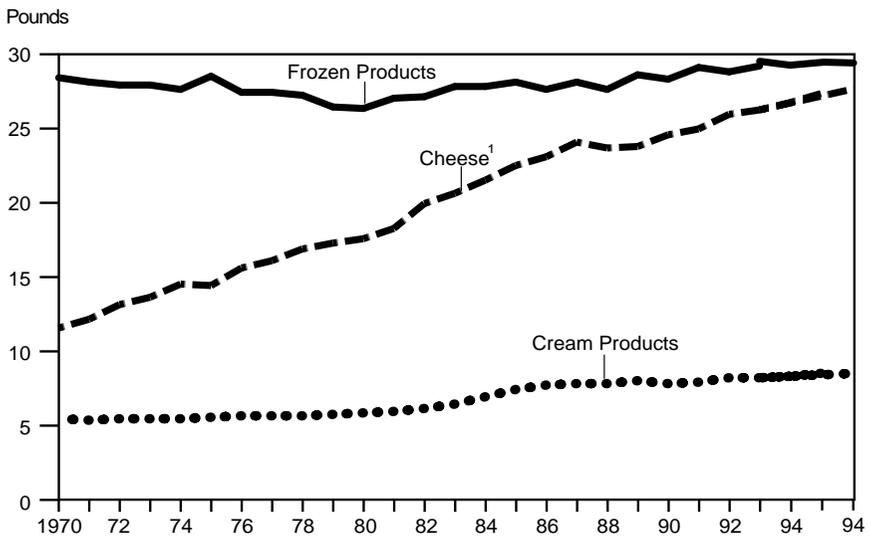


Figure 1-4.

Per capita consumption of selected dairy products



<sup>1</sup>Excludes full-skim American and cottage, pot, and baker's cheese.

cholesterol. Animal products now contribute less than half (48 percent in 1994) of the total fat in the food supply, compared with 61 percent in 1970.

Contrary to diet and health recommendations, however, Americans are consuming, on average, record-high amounts of added sugars and some high-fat dairy products and near record-high amounts of added fats and oils. The increase in added fats and oils probably results from the greatly expanded consumption of fried foods in foodservice outlets and high-fat snack foods, and the increased use of salad oils on salads consumed both at home and away.

**We Are a Nation of Meat Eaters—Now More Than Ever.** In 1996, total meat consumption (red meat, poultry, and fish) was 191 pounds (boneless, trimmed equivalent) per person, only 2 pounds below 1994's record high and 12 pounds above the 1980-84 annual average. Half-pound hamburgers and "value-priced" buckets of fried chicken draw slews of customers to foodservice outlets. Rotisserie chicken and Buffalo wings have become so popular that they have made inroads across the country, even in pizzerias. Americans love to barbecue meat on outdoor grills—boosting per capita consumption in warm months—and, increasingly, on indoor grills year round. A host of new lean-meat products cater to saturated-fat-wary consumers. Seasoned, ready-to-cook meats available in the fresh and frozen food cases and cooked meats in the self-serve and service delicatessens appeal to time-crunched consumers.

**Long-Term Decline in Egg Consumption Levels Off in the 1990's.** Between 1970 and 1989, annual consumption of eggs steadily declined from 309 eggs per person to 237. The average annual rate of decline during those 20 years was 3.6 eggs. During the 1990's total egg consumption has fluctuated between 234 and 238 eggs per person per year, but has shown an upward trend since 1991. Per capita consumption was 236 eggs in 1996 and has been projected to be 240 eggs in 1997. The record high for U.S. per capita egg consumption was 403 eggs in 1945.

Much of the decline in egg consumption since 1970 was due to changing lifestyles (for example, less time for breakfast preparation in the morning as large numbers of women joined the paid labor force) and the perceived ill effects of the cholesterol intake associated with egg consumption.

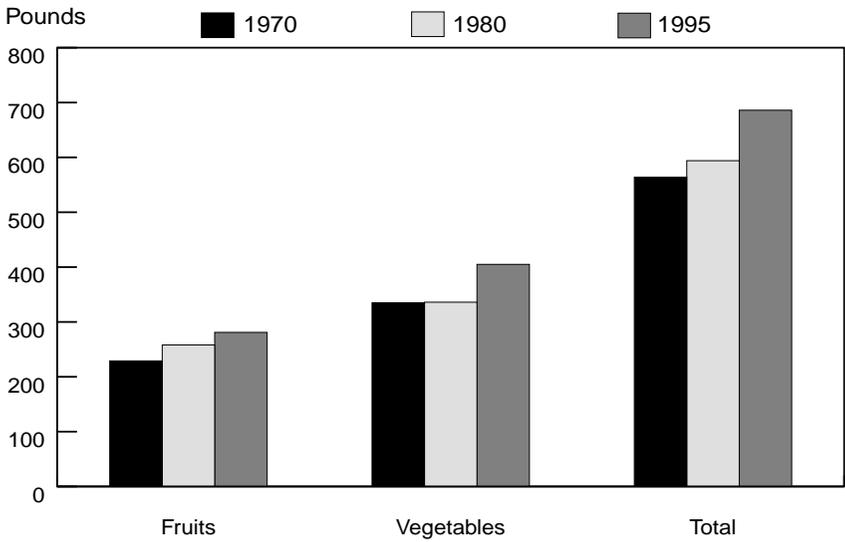
Declining retail egg prices between 1990 and 1994 may have spurred egg use in those years. The average retail price for a dozen large, Grade A eggs declined from \$1.01 in 1990 to \$0.86 in 1992 and 1994. Changing consumer attitudes toward eggs may also be responsible. New tests show eggs to contain less cholesterol than previously documented, leading the American Heart Association to increase its maximum recommended consumption from three eggs per week to four. Also, various research studies indicate that some Americans are relaxing their healthy eating habits and are indulging themselves in more traditional and flavorful foods.

**Americans Drink Less Milk, Eat More Cheese.** In 1996, Americans, on average, drank 22 percent less milk and ate nearly two and a half times as much cheese (excluding cottage types) as in 1970.

Annual per capita consumption of beverage milk declined from 31 gallons in 1970 to 24 gallons in 1996. Consumption of soft drinks may be displacing beverage milk in the diet. Big increases in eating away from home, especially at fast-food places, and in consumption of salty snack foods favored soft drink consumption.

Figure 1-5.

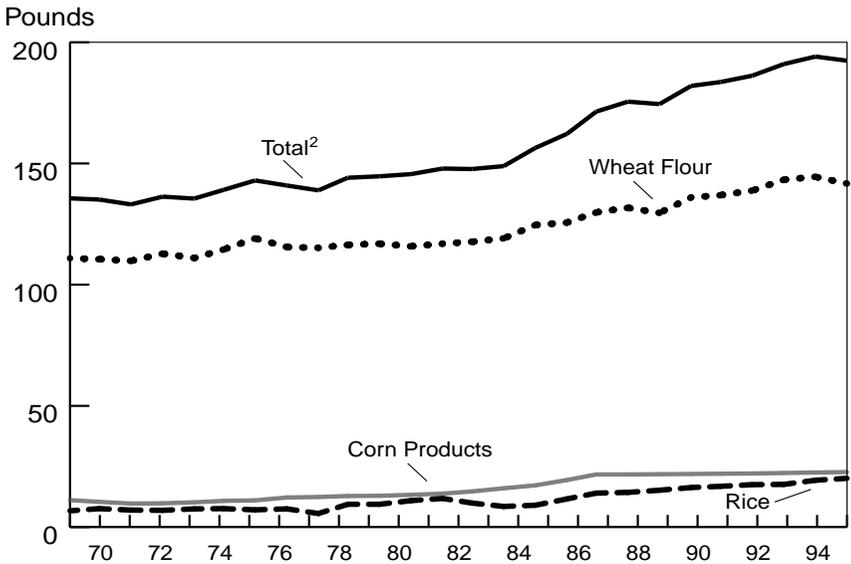
Per capita consumption of fruits and vegetables



<sup>1</sup>Farm-weight equivalent.

Figure 1-6.

Per capita consumption of grain products<sup>1</sup>



<sup>1</sup>Excludes quantities used in alcoholic beverages, fuel, and corn sweeteners.

<sup>2</sup>Includes oats, rye, and barley products.

The beverage milk trend is toward lower fat milk. While whole milk represented 81 percent of all beverage milk in 1970, its share dropped to 36 percent in 1996.

While Americans are switching to lower fat milk, they are also using more fluid cream products (half-and-half, light cream, heavy cream, eggnog, sour cream, and dips). Per capita consumption of fluid cream products jumped from an annual average of 10 half pints in 1970-74 to 16 half pints in 1996.

On balance, however, per capita consumption of milk-fat from all fluid milk and cream products declined 36 percent between 1970 and 1996, from 9.1 pounds per person to 5.8 pounds.

Average consumption of cheese—excluding full-skim American and cottage, pot, and baker’s cheeses—increased 140 percent between 1970 and 1996, from 11 pounds per person to 27 pounds. The growth is concentrated in the ingredient and away-from-home markets. Rapidly expanding pizza sales and lifestyles that emphasize convenience foods are probably major forces behind the higher consumption. Advertising and new products—such as frozen broccoli and cheese combos and resealable bags of shredded cheeses—also had an effect.

**Fruits and Vegetables—The Array of Choices Widens.** As Americans increasingly embrace national health authorities’ recommendation of consuming five fruits and vegetables a day, their array of choices continues to widen. Fresh-cut fruits and vegetables, prepackaged salads, locally grown items, and exotic produce—as well as hundreds of new varieties and processed products—have been introduced or expanded in the last decade.

Per capita use of fruits and vegetables rose in the early 1980’s in response to higher consumer incomes, increased ethnic diversity, and burgeoning interest in healthful diets. By 1995, per capita consumption was 15 percent higher than in 1980 and 22 percent higher than in 1970. This trend is likely to continue expanding into the next decade as consumers heed nutritionists’ message on healthful eating.

Supermarket produce departments carry over 400 produce items today, up from 250 in the late 1980’s and 150 in the mid-1970’s. Also, the number of ethnic, gourmet, and natural foodstores—which highlight fresh produce—continues to rise.

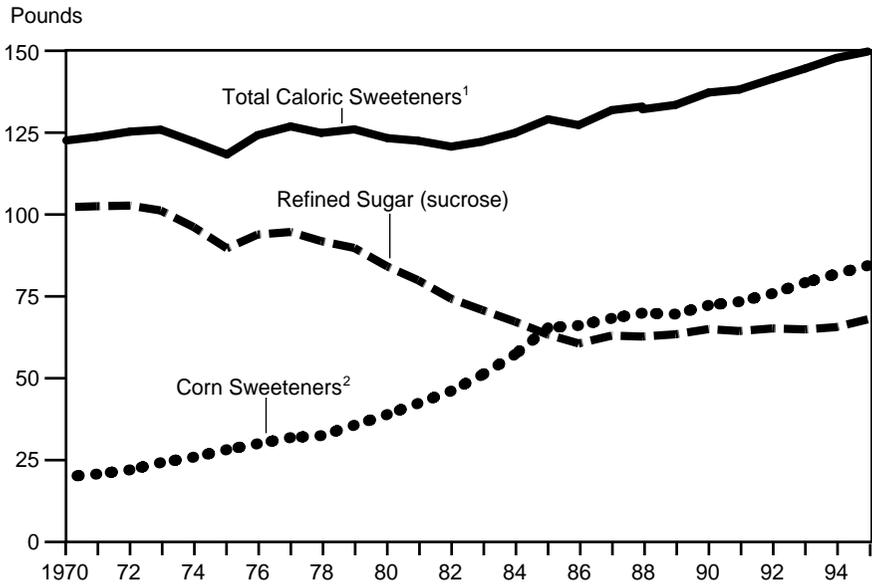
Consumers continue to have more access to fresh, local produce as well. The number of farmers’ markets has grown substantially throughout the United States over the last several decades, and increased from 1,755 in 1993 to 2,116 by the end of 1995, according to USDA surveys.

**Average Grain Consumption Up From 1970’s But Far Below Early 1900’s Highs.** Per capita consumption of flour and cereal products reached 192 pounds in 1995 from an annual average of 147 pounds in 1980-84 and 135 pounds in 1970-74. The increase is far below the 300 pounds consumed per person in 1909 (the earliest year for which data are available). The expansion in supplies reflects ample grain stocks; strong consumer demand for variety breads and other bakery items; big increases in grain-based snack foods, breakfast cereals, and ethnic foods; and increasing sales of fast-food products made with buns, doughs, and tortillas. Grain products have overtaken caloric sweeteners to become the leading source of carbohydrates in the food supply.

Wheat is the major grain product eaten in the United States, with wheat flour and other wheat products representing 74 percent of U.S. grain consumption in 1995.

Figure 1-7.

Per capita consumption of caloric sweeteners



<sup>1</sup>Includes small quantities of honey, and molasses and other refiner's syrups. <sup>2</sup>Dry basis

However, wheat's share of total grain consumption declined 6 percentage points since 1985 as rice, corn products, and oat products gained momentum.

**Americans Eating Record-High Amounts of Sugars.** Total per capita consumption of caloric sweeteners (dry-weight basis)—comprised mainly of sucrose (table sugar made from cane and beets) and corn sweeteners (notably high-fructose corn syrup, or HFCS)—increased 28 pounds, or 22 percent, during 1970-95. In 1995, each American consumed, on average, 150 pounds of caloric sweeteners, compared with 122 pounds per person in 1970.

A striking change in the availability of specific sugars has occurred in the past two and half decades. Sucrose's share in total caloric sweetener consumption dropped from 83 percent in 1970 to 44 percent in 1995. In contrast, corn sweeteners' share increased from 16 percent in 1970 to 55 percent in 1995. All other caloric sweeteners, including honey, maple syrup, and molasses, maintained a 1-percent share.

**Food Supply Providing More Calories and Higher Levels of Most Vitamins and Minerals.** Evidence from various sources suggests that Americans are consuming, on average, more food, more snacks, bigger portions, and more calories than they did in 1970. The level of food energy (calories) in the food supply increased from 3,300 calories per person in 1970 to 3,800 calories in 1994. This 15-percent increase reflects higher levels of all three energy-yielding nutrients: carbohydrate, fat, and protein. The proportion of calories from carbohydrate increased from 47 to 51 percent, while the share from fat decreased from 42 to 38 percent. Protein has consistently accounted for about 11 percent of calories.

Table 1-1.

## Major foods: U.S. per capita consumption

<i>Food</i>	<i>1970</i>	<i>1980</i>	<i>1995</i>
		<i>Pounds</i>	
Beef <sup>1</sup>	79.6	72.1	64.0
Pork <sup>1</sup>	48.0	52.1	49.1
Veal <sup>1</sup>	2.0	1.3	.8
Lamb and mutton <sup>1</sup>	2.1	1.0	.9
Chicken <sup>1</sup>	27.4	32.7	48.8
Turkey <sup>1</sup>	6.4	8.1	14.1
Fish and shellfish	11.7	12.4	14.9
Eggs (number)	308.9	271.1	234.6
Cheese <sup>2</sup>	11.4	17.5	27.3
Ice cream	17.8	17.5	15.7
Fluid cream products	5.2	5.6	8.4
All dairy products <sup>3</sup>	563.8	543.2	585.8
Fats and oils	52.6	57.2	64.1
Peanuts and tree nuts <sup>4</sup>	7.2	6.6	7.8
Fruits and vegetables <sup>5</sup>	564.4	594.4	685.9
Fruits	229.0	257.9	280.9
Vegetables	335.4	336.5	405.0
Caloric sweeteners <sup>6</sup>	122.3	123.0	150
Refined sugar (sucrose)	101.8	83.6	65.5
Corn sweeteners	19.1	38.2	83.2
Flour and cereal products <sup>7</sup>	135.6	144.7	192.4
Wheat flour	110.9	116.9	141.7
Rice	6.7	9.4	20.1
Corn products	11.1	12.9	22.7
Other <sup>8</sup>	6.0	4.9	7.2
Cocoa <sup>9</sup>	3.1	2.7	3.6
		<i>Gallons</i>	
Beverage milks	31.3	27.6	24.3
Whole	25.5	17.0	8.8
Lowfat and skim	5.8	10.5	15.6
Coffee	33.4	26.7	20.5
Tea	6.8	7.3	8.0
Soft drinks	24.3	35.1	51.2
Fruit juices	5.7	7.2	8.7
Bottled water	NA	2.4	11.6
Beer	18.5	24.3	22.0
Wine	1.3	2.1	1.8
Distilled spirits	1.8	2.0	1.2

NA = Not available.

<sup>1</sup>Boneless, trimmed equivalent. <sup>2</sup>Excludes full-skim American, cottage, pot, and baker's cheese. <sup>3</sup>Milk equivalent, milkfat basis. <sup>4</sup>Shelled basis. <sup>5</sup>Farmgate weight. <sup>6</sup>Dry basis. Includes honey and edible syrups. <sup>7</sup>Consumption of items at the processing level (excludes quantities used in alcoholic beverages and corn sweeteners).

<sup>8</sup>Oats and barley. <sup>9</sup>Chocolate liquor equivalent; what remains after cocoa beans have been roasted and hulled.

The per capita level of total fat in the food supply increased 3 percent from 1970 to 1994, reflecting increased use of salad and cooking oils and shortening. Between 1970 and 1994, animal sources' share of total fat declined from 61 to 48 percent, while vegetable sources' share jumped from 39 to 52 percent.

In 1970, the meat, poultry, and fish group contributed the most saturated fat to the U.S. food supply—37 percent, followed by the fats and oils group at 33 percent. By 1994, the fats and oils group's contribution to total saturated fat had jumped up 8 percentage points, to 41 percent, and the meat, poultry, and fish group's contribution had dropped 11 percentage points, to 26 percent.

CNPP calculates the amounts per capita per day of food energy and 24 nutrients and food components in the U.S. food supply. Vitamin B<sub>12</sub> is the only micronutrient (includes vitamins and minerals) whose level in the U.S. food supply declined between 1970 and 1994; the 19-percent decline in vitamin B<sub>12</sub> reflects lower consumption of organ meats (for example, liver) and egg yolks. All other vitamins (A, C, E, B<sub>6</sub>, thiamin, riboflavin, niacin, and folate) and all minerals (calcium, phosphorus, magnesium, iron, zinc, copper, and potassium) show gains in per capita supply from 1970 to 1994. For example, a 16-percent increase in vitamin C consumption reflects higher fruit consumption spurred by improvements in variety and year-round availability of many fresh fruits. Increases in thiamin, riboflavin, niacin, and iron reflect hikes in enrichment levels of flour called for by revisions in Federal standards in the 1970's as well as increased grain consumption in more recent years.

## ■ Cost of Food Services and Distribution

The estimated bill for marketing domestic farm foods—which does not include imported foods—was \$421 billion in 1996. This amount covered all charges for transporting, processing, and distributing foods that originated on U.S. farms. It represented 77 percent of the \$544 billion consumers spent for these foods. The remaining 23 percent, or \$123 billion, represents the gross return paid to farmers.

The cost of marketing farm foods has increased considerably over the years, mainly because of rising costs of labor, transportation, food packaging materials, and other inputs used in marketing, and also because of the growing volume of food and the increase in services provided with the food.

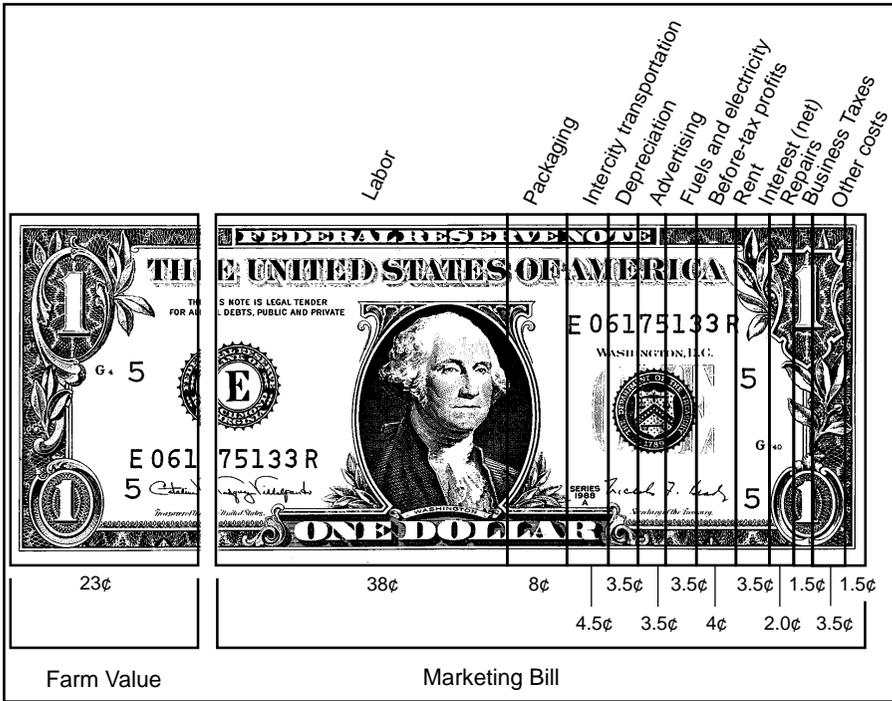
In 1986, the cost of marketing farm foods amounted to \$271 billion. Over the following decade, the cost of marketing rose about 55 percent. In 1996, the marketing bill rose 1 percent.

These rising costs have been the principal factor affecting the rise in consumer food expenditures. From 1986 to 1996, consumer expenditures for farm foods rose \$184 billion. About 80 percent of this increase resulted from an increase in the marketing bill.

The cost of labor is the biggest part of the total food marketing bill, accounting for nearly half of all marketing costs. Labor used by assemblers, manufacturers, wholesalers, retailers, and eating places cost more than \$200 billion in 1996. This was 5 percent higher than in 1995 and 67 percent more than in 1986. The total number of food marketing workers in 1996 was about 13.5 million, about 21 percent

Figure 1-8.

What a dollar spent on food paid for in 1996



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.

more than a decade earlier. Over two-thirds of the growth in food industry employment occurred in public eating places.

A wide variety of costs comprise the balance of the marketing bill. These costs include packaging, transportation, energy, advertising, business taxes, net interest, depreciation, rent, and repairs. Their relative proportions are illustrated in the accompanying dollar chart.

## ■ Food Expenditures and Prices

Total food expenditures, which include imports, fishery products, and food originating on farms, were \$691.2 billion in 1996, an increase of 3.3 percent over these expenditures in 1995. The average was \$2,605 per capita, 2.3 percent above the 1995 average.

Away-from-home meals and snacks captured 46 percent of the U.S. food dollar in 1996, up from 38 percent in 1976 and 43 percent in 1986.

The percentage of disposable personal income (income after taxes) that U.S. consumers spend on food continues to decline. From 1995 to 1996, disposable personal income increased 5.0 percent, a faster pace than the rise in food expenditures.

U.S. consumers in 1996 spent 10.9 percent of their disposable personal income on food, compared to 11.6 percent in 1990, 13.4 percent in 1980, and 13.8 percent in 1970.

In the United States, total retail food prices (including meals served in restaurants) rose 40.8 percent over the last 10 years (1986-96). Prices of food eaten away from home increased 35.6 percent, while retail foodstore prices increased 43.8 percent.

Prices of goods and services, excluding food, in the Consumer Price Index climbed 43.4 percent over the same 10 years. Transportation was up 39.8 percent; housing 37.8 percent; medical care 87.0 percent; and apparel and upkeep 24.4 percent.

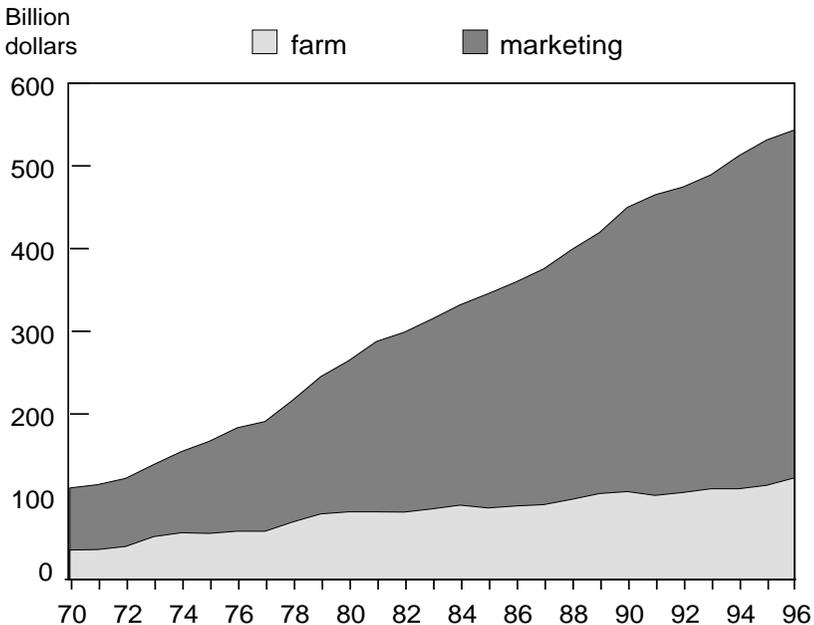
## ■ Farm-Retail Price Spread

**F**ood prices include payments for both the raw farm product and marketing services. In 1996, the farm value, or payment for the raw product, averaged 25 percent of the retail cost of a market basket of U.S. farm foods sold in foodstores. The other 75 percent, the farm-retail price spread, consisted of all processing, transportation, wholesaling, and retailing charges incurred after farm products leave the farm.

Figure 1-9.

### Distribution of food expenditures

*The marketing bill is 77 percent of 1996 food expenditures*



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

Figure 1-10.

Sources of food energy in the U.S. food supply

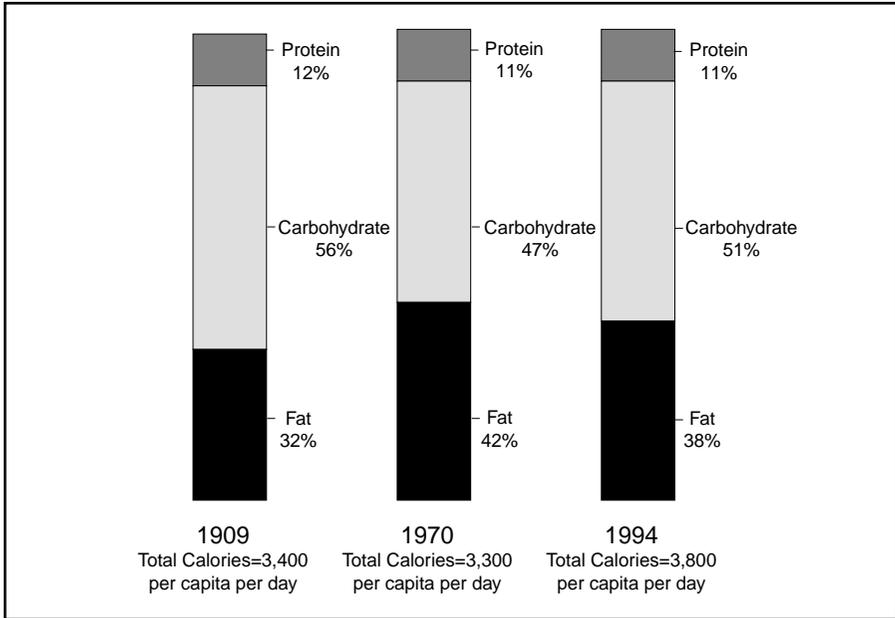


Figure 1-11.

Sources of total fat in the U.S. food supply

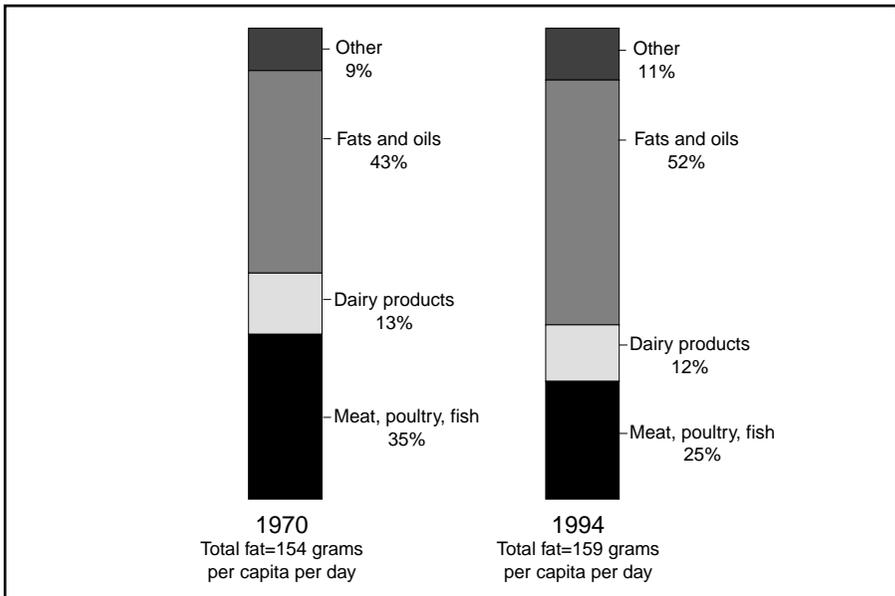
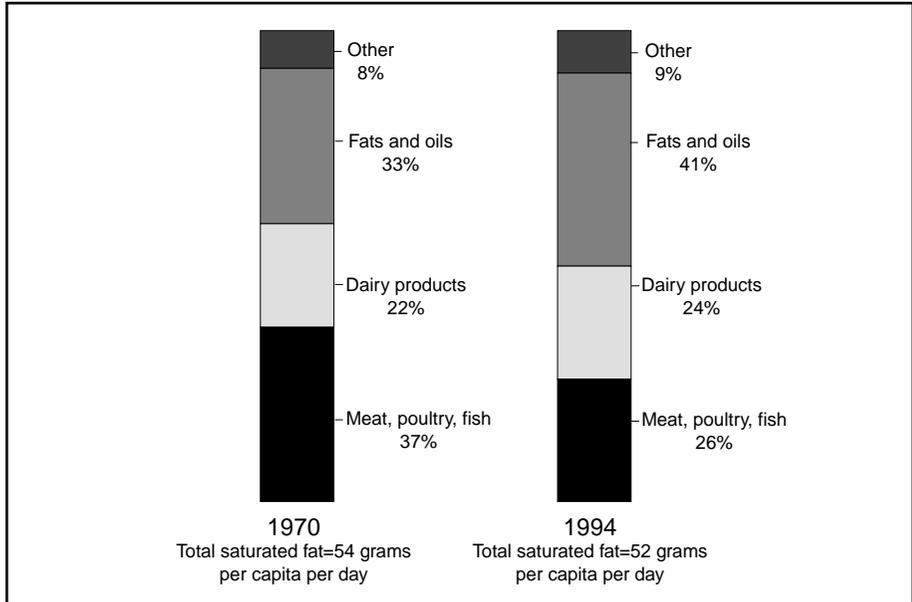


Figure 1-12.

Sources of saturated fat in the U.S. food supply



Farm-retail spreads have increased every year for the past 30 years, largely reflecting rising costs of labor, packaging, and other processing and marketing inputs. In 1996, farm-retail spreads rose an average of 3.3 percent and farmers received 2.2 percent less for the food they produced. The farm value as a percentage of retail prices was slightly higher in 1996 than in 1995. Meanwhile, retail food prices rose 4.4 percent. Widening farm-retail spreads continued to push up food costs in 1996.

The percentage of the retail price accounted for by the farm value varies widely among foods. Generally, it is larger for animal products than for crop-based foods, and smaller for foods that require considerable processing and packaging. The percentage generally decreases as the degree of processing increases. For example, the farm value of meat was 36 percent in 1996, while cereal and bakery products had a farm value averaging only 7 percent. The farm inputs needed to feed, house, and maintain the health of livestock are greater than the inputs required to grow crops. The additional manufacturing processes required for cereal and bakery products also result in a lower farm value than for meats. Most other foods also entail fewer inputs at the farm level. Other factors that influence the farm value percentage include transportation costs, product perishability, and retailing costs. Higher levels of these marketing factors tend to lower the farm value percentage.

Table 1-2.

Farm value as a percentage of retail price for domestically produced foods, 1986 and 1996

<i>Items</i>	<i>1986</i>	<i>1996</i>
	<i>Percent</i>	
Livestock products:		
Meats	47	36
Dairy	43	36
Poultry	54	44
Eggs	61	52
Crop products:		
Cereal and bakery	8	7
Fresh fruits	27	20
Fresh vegetables	28	20
Processed fruits and vegetables	23	19
Fats and oils	19	22