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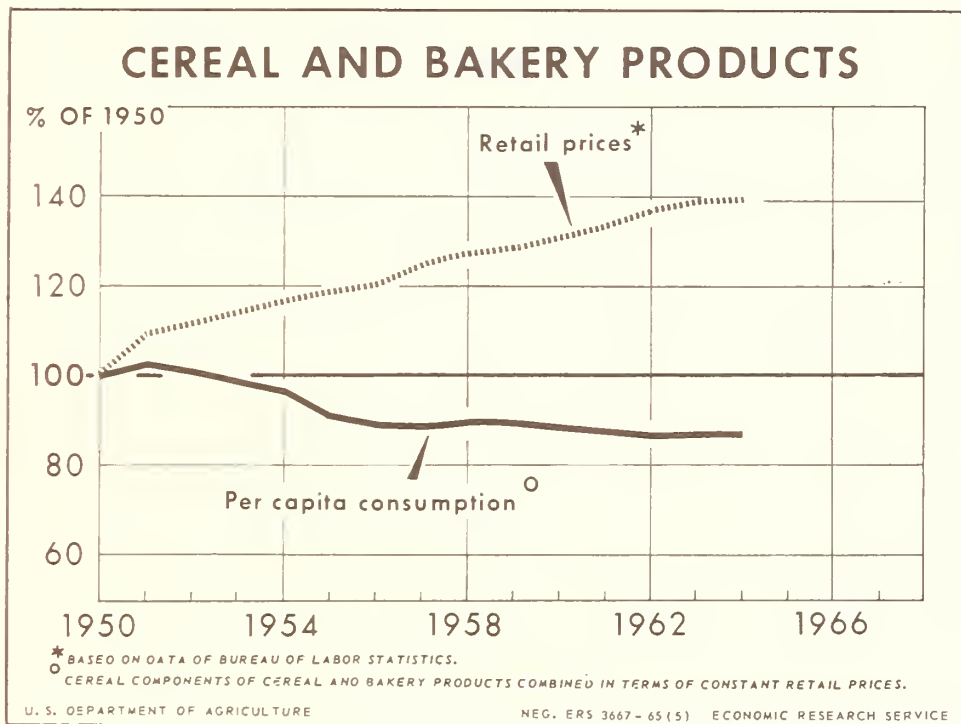
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CONSUMPTION AND PRICES OF CEREAL AND BAKERY PRODUCTS



Retail prices of cereal and bakery products rose 39 percent between 1950 and 1964 compared with an increase of only 20 percent for the entire food-at-home price index. Prices of bakery products and breakfast cereals contributed more to the price increase than did products such as wheat flour. Per

capita consumption of the cereal components of all cereal and bakery products declined 13 percent since 1950. No annual data are available on consumption of bread and other consumer products that include many ingredients other than cereal products.

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CONSUMPTION AND PRICES OF CEREAL AND BAKERY PRODUCTS 1/Consumption Trends

Historical declines in consumption per capita have taken place for most cereal products and for many of their substitutes. Between 1950 and 1964, per capita consumption of wheat flour (other than semolina) in all end uses declined 15 percent (table 8). It was accompanied by declines of 55 percent for sweet-potatoes, 50 percent for dry peas, 32 percent for cornmeal and hominy, 13 percent for dry beans, and 7 percent for potatoes, other than those canned and frozen. 2/ Meanwhile, per capita consumption of breakfast cereals has remained about steady. Consumption of semolina flour--used along with farina flour in such products as spaghetti and macaroni--declined during the early 1950's but has increased in recent years to about recover the previous decline. Rice has proved the exception to the above trends. Per capita consumption in 1964 was a third greater than in 1950.

Part of the increase in rice consumption was due to unusual factors:

- (1) Consumption since 1960 is reported on a 50-State basis. The addition of Hawaii added about a third of a pound per capita to the U. S. average in 1960-64.
- (2) USDA-donation programs have distributed increasing amounts of rice since 1955, averaging about 10 percent of total consumption since 1957. Per capita consumption in the 48 States, excluding USDA donations, increased 14 percent between 1950 and 1964.

Rice consumption varies sharply among U. S. regions and by income groups. Based on the 1955 Household Food Consumption Survey, the most recent information available, nearly 3 times as much rice was eaten by families with incomes under \$2,000 than by families with incomes between \$6,000 and \$8,000 (table 9). Per capita consumption of rice in the South was about 4 times greater than in North Central States, and more than double that in the Northeast or West. Similar variations in consumption by regions occurred within income groups. However, there was less disparity in the \$6,000-8,000 group than in lower income groups. These patterns may not be as strong today as 10 years ago when the reported survey was taken. Since then, improved consumer products have accounted for an increasing part of total consumption, according to the trade. Further, median family income increased 50 percent between 1954 (used in the 1955 Survey) and 1963, the latest year reported, so consumption patterns by 1954 income categories may not be relevant today. 3/

1/ Stephen J. Hiemstra, Food Consumption and Utilization Section, Economic Research Service.

2/ Total potato consumption increased 3 percent between 1950 and 1964 on a fresh-equivalent basis since increased use of processed products more than off-set declines for fresh use.

3/ Data collection currently is underway on a comparable household food consumption survey for 1965.

Table 8.--Civilian per capita consumption of selected cereals and related products, 1950-64

Year	Rice, milled	Wheat flour	Semolina flour <u>1/</u>	All breakfast cereals <u>2/</u>	Cornmeal and hominy	Potatoes <u>3/</u>	Sweet- potatoes <u>3/</u>	Dry beans	Dry peas
	<u>Lb.</u>	<u>Lb.</u>	<u>Lb.</u>	<u>Lb.</u>	<u>Lb.</u>	<u>Lb.</u>	<u>Lb.</u>	<u>Lb.</u>	<u>Lb.</u>
1950	5.1	129	6.2	7.9	14.4	105.7	12.1	8.6	0.8
1951	5.8	126	6.8	8.0	13.4	112.8	8.1	8.1	.7
1952	5.3	124	6.8	7.9	12.9	100.5	7.3	8.1	.5
1953	5.4	123	4.8	7.9	12.2	106.4	8.0	7.6	.6
1954	5.3	124	2.3	7.8	11.7	105.7	8.1	8.0	.6
1955	5.5	122	1.4	7.9	11.2	106.5	8.4	7.5	.5
1956	5.8	118	3.0	7.8	11.1	99.3	7.8	8.0	.7
1957	5.7	114	4.5	7.9	10.8	105.9	7.6	7.6	.6
1958	5.4	115	5.6	8.1	10.6	100.5	6.5	7.7	.4
1959	5.0	115	5.3	8.0	10.5	101.1	7.3	7.7	.7
1960	6.1	113	5.3	8.0	10.1	101.2	6.3	7.3	.3
1961	6.2	113	4.6	8.0	10.0	101.8	5.5	8.0	.2
1962	7.4	111	3.7	7.9	10.0	98.3	6.1	7.8	.5
1963	6.6	110	5.6	7.9	9.9	100.9	5.9	7.7	.3
1964	6.8	110	6.0	7.9	9.8	95.2	5.5	7.5	.4

1/ Used in products such as spaghetti and macaroni.2/ Wheat, corn, and oat cereals.3/ Excludes quantities canned and frozen. Data are on farm weight basis.

Another study showed that distribution of milled rice for direct food use in 1962 averaged 113 pounds per capita in Hawaii and 125 pounds in Puerto Rico. ^{4/} Within the 48 States, per capita distribution averaged 30 pounds in Louisiana, 27 pounds in South Carolina, and 10 pounds in California. These rates compare with 2 pounds or less per capita in the North Central, New England, and Mountain States. The U. S. average of milled rice for direct food use in 1962 was 6.1 pounds per person compared with total consumption of 7.4 pounds.

Data are not available on per capita consumption of bread on an annual basis. But, using data from the Census of Manufactures, consumption of bread and bread-type rolls from all commercial bakeries was estimated at 84.4 pounds per capita in 1958 and 87.1 pounds in 1954. ^{5/} The 1955 survey showed bread purchases to be lower in the South than in the other 3 regions (table 9). Conversely, flour and cornmeal consumption was greatest in the South, both in total and within income groups. Apparently, home baking is more common in the South than elsewhere. The survey showed that bread consumption increased and flour and cornmeal decreased markedly as income rose. These variations occurred in each region.

Interesting parallels can be observed between rice and bread consumption and some of the other foods listed in table 9. Consumption of cornmeal and hominy grits was even more predominately Southern-oriented than was rice. Consumption rates for sweetpotatoes, dry beans, and dry peas also were much higher in the South than in the other regions. Consumption of each of these foods--particularly cornmeal and hominy grits--declined with increases in income. Among these foods, sweetpotato consumption had the least association with income variations.

In contrast, consumption rates were lower in the South than in other regions for potatoes, breakfast cereals, and macaroni, spaghetti and noodles. Little variation was found by income groups for these foods. But, outside of the South, potato consumption declined as income rose. Data for the South showed potato consumption rising with income in 3 out of the 4 income groups observed.

^{4/} McGrath, E. J., Distribution Patterns of Rice in the United States, Economic Research Service, ERS-186, July 1964. Distribution patterns were derived from data on shipments to States and Territories furnished by rice millers and repackers. Consumption may not have taken place within the State to which it was shipped.

^{5/} The 1955 Household Food Consumption Survey estimated bread consumption in households of 2 or more persons at 1.41 pounds per capita during 1 week in the spring (table 9). Consumption of rolls averaged another 0.06 pound. At this rate, bread consumption would total 73.3 pounds and rolls another 3.2 pounds per year. This procedure, however, assumes the 1 week to be representative of the entire year's consumption.

Table 9.--Use per person of selected cereal, bakery, and related products in all households by selected income groups and by region, in a week, spring 1955

Income group and region	Rice	Wheat flour	Bread	Macaroni, spaghetti, noodles	Breakfast cereals	Cornmeal and hominy grits	Fresh		Sweet-potatoes	Dry beans	Dry peas
	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.
Households of 2 or more persons											
United States	0.09	0.98	1.41	0.12	0.24	0.28	1.76	0.06	0.11	0.01	0.01
Northeast	.06	.50	1.51	.19	.25	.01	1.85	.05	.04	.01	.01
North Central	.04	.84	1.62	.13	.29	.05	2.06	.04	.06	---	---
South	.16	1.55	1.08	.08	.19	.78	1.43	.09	.22	.03	.03
West	.07	.92	1.56	.12	.28	.04	1.60	.03	.13	.01	.01
Households with under \$2,000 income											
United States	.16	1.77	.96	.09	.22	.85	1.66	.06	.24	.03	.03
Northeast	.06	1.01	1.42	.23	.30	.01	2.34	.05	.10	.01	.01
North Central	.04	1.27	1.42	.08	.33	.12	2.19	.04	.13	---	---
South	.23	2.11	.70	.06	.16	1.28	1.37	.07	.30	.05	.05
West	.03	1.14	1.47	.13	.38	.08	2.37	---	.16	.01	.01
Households with \$2,000-2,999 income											
United States	.14	1.26	1.30	.13	.26	.36	1.79	.09	.18	.02	.02
Northeast	.06	.61	1.67	.26	.28	.02	2.15	.07	.05	---	---
North Central	.04	1.05	1.47	.12	.32	.04	2.21	.04	.07	---	---
South	.23	1.64	1.00	.09	.22	.71	1.43	.13	.26	.04	.04
West	.11	1.16	1.65	.12	.24	.08	1.78	.01	.26	.02	.02
Households with \$4,000-4,999 income											
United States	.06	.76	1.52	.14	.26	.13	1.80	.05	.08	.01	.01
Northeast	.05	.39	1.52	.21	.26	.01	1.78	.03	.04	.01	.01
North Central	.04	.84	1.62	.12	.28	.05	2.05	.03	.06	---	---
South	.11	1.28	1.32	.08	.23	.51	1.58	.10	.18	.01	.01
West	.08	.91	1.57	.12	.26	.02	1.54	.03	.09	---	---
Households with \$6,000-7,999 income											
United States	.06	.67	1.65	.12	.25	.08	1.77	.04	.06	.01	.01
Northeast	.06	.46	1.60	.16	.23	.01	1.75	.07	.03	.01	.01
North Central	.04	.61	1.76	.13	.28	.03	2.01	.03	.06	.01	.01
South	.08	.97	1.44	.08	.19	.32	1.34	.03	.12	.01	.01
West	.07	.74	1.76	.07	.30	.04	1.69	.03	.09	.01	.01

1955 Household Food Consumption Survey, Reports 1-5. Per person averages derived from household averages using average household size based on 21 meals at home equivalent to one person.

Income-Quantity Relationships

Per capita consumption of all grain products, flour equivalent, and the value of products by income groups for all U. S. households with 2 or more persons was reported as follows in the 1955 survey:

<u>1954 income</u>	<u>Quantity Lb.</u>	<u>Value Dol.</u>
Under \$1,000	4.38	0.63
\$1,000-1,999	3.54	.69
\$2,000-2,999	3.15	.73
\$3,000-3,999	2.84	.81
\$4,000-4,999	2.58	.83
\$5,000-5,999	2.59	.85
\$6,000-7,999	2.46	.87
\$8,000-9,999	2.29	.84
\$10,000 and over	2.21	.89
All households	2.84	.80

These data show a distinct inverse relationship between income group and quantity consumed per capita but a positive correlation between value of grain products consumed and income. Obviously, as income rises higher-valued products are consumed.

A statistical study of the above data separated consumption of flour and other cereal products and bakery products among 3 household income groups: Under \$3,400; \$3,400-4,999; and \$5,000 and over. ^{6/} This study found rather strong associations between income and consumption at the low-income level but little relationship in the high-income group. Within the low-income households (non-farm), a 1-percent increase in income per person was associated with a decrease in consumption of 0.36 pounds of flour and other cereal products but an increase in consumption of 0.24 pounds of bread and other bakery products.

Price-Quantity Relationships

Between 1950 and 1964, the average retail price of cereal and bakery products rose 39 percent while the per capita consumption of flour used in all consumer products declined by 15 percent (table 10 and cover chart). Among major food groups, this price increase was second only to the rise for fruits and vegetables which rose 46 percent during the same period. They compare with only a 20-percent increase for the entire food-at-home index. All of the cereal and bakery products for which data are available participated in this price rise. The largest increase was for corn flakes--up 80 percent during the 14-year period (table 10). The increase in price for cornmeal was another stand-out--up 62 percent between 1950 and 1963. The price of white bread increased 45 percent, not much more than the entire cereal and bakery products group. The price increases for rice, up 29 percent, and for wheat flour, up 15 percent, were the least in the group.

^{6/} Rockwell, G. R., Income and Household Size: Their Effects on Food Consumption, Marketing Research Report No. 340.

Table 10.--Retail prices per pound of selected cereal, bakery,
and related products, 1950-64 1/

Year	Rice, long grain	Wheat flour	White bread	Macaroni	Corn flakes	Rolled oats	Cornmeal	Potatoes	Sweet- potatoes	Dry beans
	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents
1950	16.8	9.8	14.3	---	21.2	16.2	8.9	4.6	10.2	15.3
1951	17.8	10.4	15.7	---	26.3	17.7	9.6	5.1	11.8	16.7
1952	18.0	10.5	16.0	---	---	18.1	10.4	7.6	17.5	16.1
1953	20.0	10.5	16.4	---	28.9	18.3	12.6	5.4	16.6	17.0
1954	19.5	10.7	17.2	---	29.2	18.5	12.6	5.3	13.6	17.6
1955	2/19.8	10.8	17.7	---	29.3	19.1	12.6	5.6	13.8	18.3
1956	2/19.3	10.7	17.9	---	29.3	19.3	12.6	6.8	12.8	16.3
1957	2/19.5	10.9	18.8	---	30.9	21.9	12.7	5.7	14.7	16.1
1958	2/20.5	11.0	19.3	---	33.8	20.3	12.9	6.3	15.8	18.0
1959	21.0	10.9	19.7	---	34.1	20.4	13.0	6.3	13.8	17.2
1960	20.5	11.1	20.3	23.0	34.4	22.0	13.1	7.2	13.7	16.7
1961	20.7	11.2	20.9	23.4	35.2	22.4	13.2	6.3	14.8	17.0
1962	21.4	11.4	21.2	24.8	36.4	23.6	14.0	6.3	15.8	17.4
1963	21.6	11.4	21.6	25.0	37.7	24.1	14.4	6.5	13.9	17.8
1964	21.7	11.3	20.7	---	38.1	---	---	7.6	---	16.7

1/ Bureau of Labor Statistics data; adjusted, when necessary, to 1-pound unit.

2/ Estimated by Economic Research Service, USDA, from prices of short-grain rice.

3/ New series, based on revised sample beginning January 1964. On basis of the January-June overlap of the "new" and "old" price series, rice prices were unaffected by the change, but others were lowered as follows: Dry beans 5 percent, white bread and potatoes 4 percent, wheat flour 3 percent and corn-flakes 1 percent.

There appears to be little relationship between changes in retail prices and the quantities of cereals consumed, according to most statistical studies. One reason is that the quantities of cereals consumed refer only to the cereal components of the final products whereas retail prices are for the consumer products that may include eggs, shortening, sugar, and other ingredients as well as the value of processing. Increased processing of these products suggests that cereals comprise a decreasing proportion of total consumption of cereal and bakery products. Since marketing activities accounted for 80 percent of the consumer's dollar spent for cereal and bakery products in 1964, trends in wage rates and prices of other marketing services appear to affect retail prices more than does consumption of cereal products (fig. 3). ^{7/}

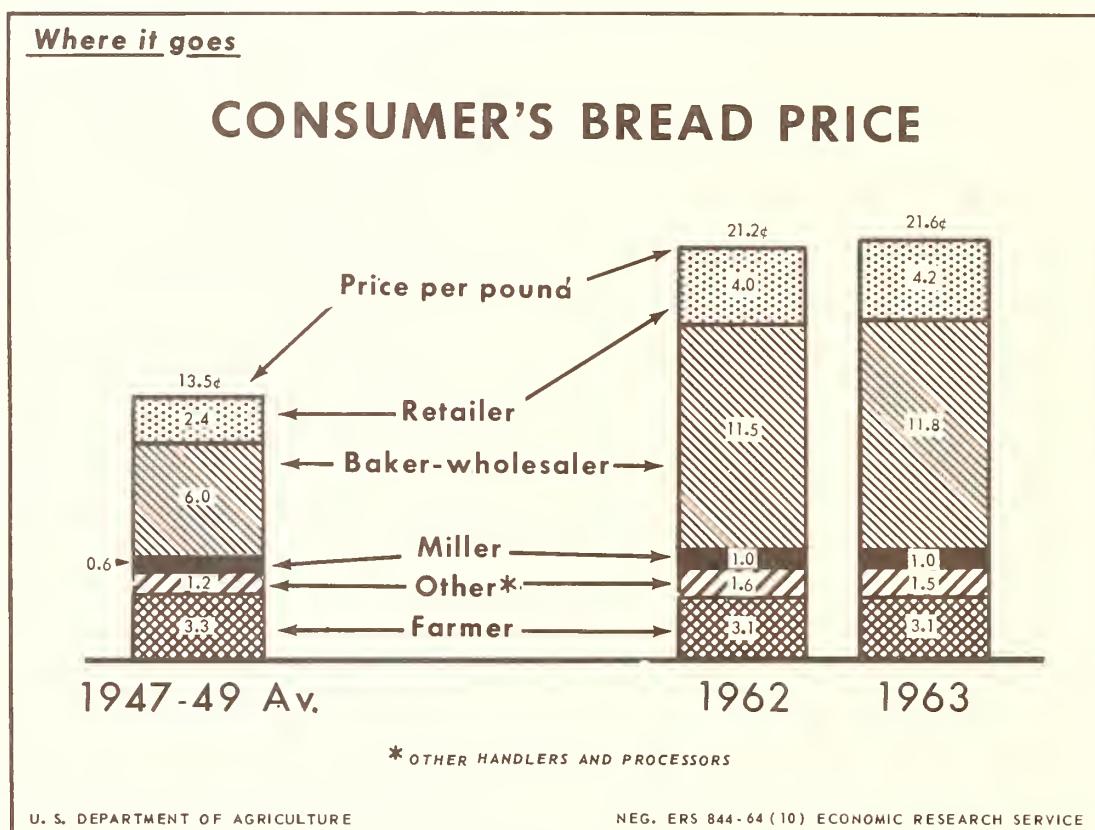


Figure 3

^{7/} Farm-Retail Spreads for Food Products, 1947-64, ERS-226, April 1965, p. 23.

